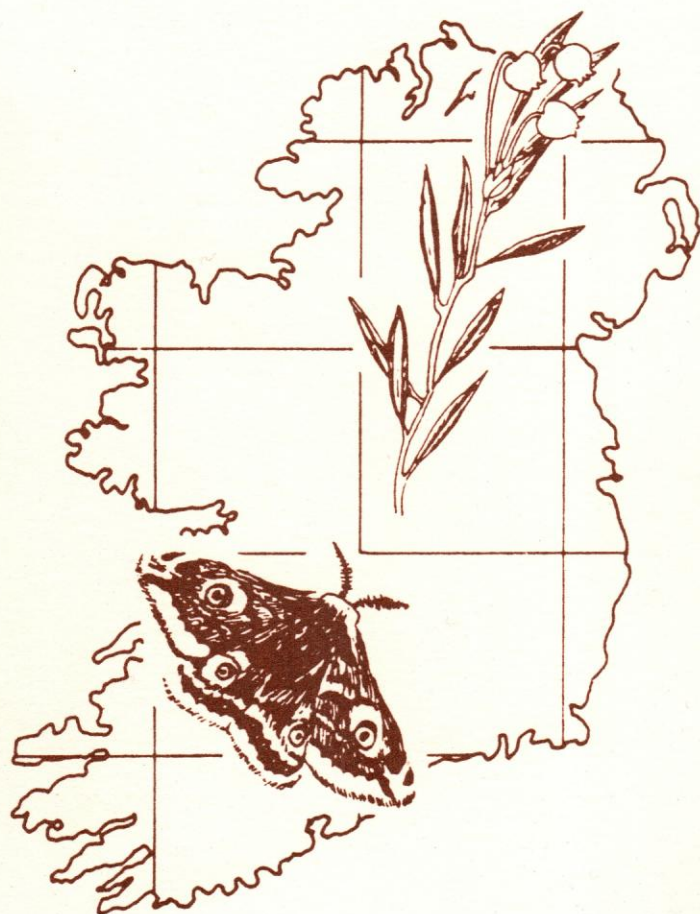


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THIS BULLETIN IS DEDICATED TO THE MEMORY OF R. C. FARIS AND A. W. STELFOX IN RECOGNITION OF THEIR IMPORTANT RESEARCH ON THE IRISH SAWFLIES.

BULLETIN OF THE IRISH BIOGEOGRAPHICAL SOCIETY

Number 20

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EDITORIAL

Bulletin No. 20 is the largest one which has ever been published by the Society and it is a good indication of the growing interest in Irish Biogeography. Already manuscripts have been submitted for next year's *Bulletin* when the publication will celebrate its twenty-first birthday.

This issue is dedicated to the memory of R. C. Faris and A. W. Stelfox in recognition of the valuable research work they carried out on the Irish sawflies. For example, their unpublished manuscript was of great assistance during the preparation of the review of Irish sawflies which is published in this *Bulletin*.

On behalf of the Irish Biogeographical Society, I wish to thank our authors, the referees and all those who helped with this year's *Bulletin*. A special word of thanks is due to our sponsors. Without their support, it would be very difficult for the *Bulletin* to survive in its present form. As in previous years, the Society is indebted to Mr J. M. C. Holmes who provided his usual invaluable assistance with the production of the *Bulletin*.

J. P. O'Connor

Editor

26 September 1997

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A REVIEW OF THE IRISH SAWFLIES (HYMENOPTERA: SYMPHYTA) INCLUDING A CHECKLIST OF SPECIES

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Abstract

A total of two hundred and seventy two species of Irish sawflies is listed; nineteen of these are new to Ireland. Detailed information is provided on nomenclature, flight-periods and distribution. The special characteristics of the Irish fauna are discussed.

Introduction

As with so many groups of insects, Haliday (1855) was the first to work on the Irish sawflies. Subsequently, Carpenter (1894a, b) and Johnson (1920, 1922a,b, 1931) made valuable contributions. Stelfox (1928, 1929, 1935, 1942) was very productive and with Faris, compiled a ms list of the Irish species. This extensive work, now preserved in the National Museum of Ireland, provides detailed information on the fauna and has been extremely useful while preparing the present list (cited in the text as Stelfox and Faris, ms). Faris had a great talent for rearing sawflies and many of his Irish records were cited by Benson (1951, 1952, 1958a) (O'Connor, 1989). Other workers have published on the Irish fauna e.g. Graham (1948), Kirk (1975), Liston (1988), Liston and Speight (1981), Moller (1974), Morley (1911), O'Connor and Liston (1994), O'Connor and O'Connor (1983), Speight (1979, 1983a, b), Speight and de Courcy Williams (1981), Speight and Moller (1979) and Wright (1986).

The present work includes detailed data on the Irish Symphyta, including nomenclature, flight periods and distribution. Full information has been given for the rarer species (known from six counties or less) including where voucher specimens are located. Localities are provided for

species recorded from seven to twelve counties. Counties are only listed for the commoner sawflies (13 or more counties). Grid references for the localities are presented in Table 1. Unfortunately, the authors were unable to find the whereabouts of a small number of sites and these are given in *italics* without grid references. The Irish counties are shown in figure 1. European distribution data will be found in Liston (1995).

The following abbreviations are used in the text:- AAL - A. A. Lisney; ADL - A. D. Liston; AMG - A. M. Gwynn; AWS - A. W. Stelfox; BMNH - The Natural History Museum, London; BPB - B. P. Beirne; ECPC - E. C. Pelham-Clinton; EFB - E. F. Bullock; EOM - E. O'Mahony; HAGM - Herbert Art Gallery and Museum, Coventry; JMOC - J. P. and M. A. O'Connor; JNH - J. N. Halbert; JPOC - J. P. O'Connor; MCDS - M. C. D. Speight; NMI - National Museum of Ireland, Dublin; RAP - R. A. Phillips; RCF - R. C. Faris; RN - Robert Nash; RSM - Royal Scottish Museum, Edinburgh; UM - The Ulster Museum, Belfast; USNM - The Smithsonian Institution, Washington; WFJ - W. F. Johnson.

The food plant data are from Liston (1995).

TABLE 1. List of collecting sites.

ANTRIM: Ballycastle (D1140); Ballypatrick (D3143); Belfast (J3268); Breen (D3143); Carncastle, near Larne (D3507); Carey River (D1-4-); Carnageer (D3241); Carnlough (D3241); Cave Hill (J3279); Cleggan, near Ballymena (D3240); Clooncoe (N1091); Glenarm (D3340); Glenariff (D3242); Glendun (D2132); Glenshesk (D0144); Killead (J1579); Lough Neagh (J1087); Massereene (J1485); Murlough Bay (D1941, D3244); Portmore (J1169); Portrush (D2844); near Randalstown (J0890); Rathlin (D1549); Rea's Wood (J8514); River Lagan, above Belfast (J3-7-); Selshan (J0868); Shane's Castle (J1087); Sherrywhirry (D2800); Slievenorra (D3142); Waterfoot (D3242); White Park Bay (D0144).

ARMAGH: Acton Glebe (J0-4-); Armagh (H8745); Drumbanagher (J0536); Jerrettspass (J0633); Oxford Island, Lough Neagh (J0461); Poyntzpass (J0639).

CARLOW: Bahana Wood (S7239); Borris (S7250); Carlow (S7176); Cloughristick (S7069); Kilcarr Bridge (S8962); Muine Bheag (Bagenalstown) (S7061); St Mullins (S7238).

CAVAN: Annagh Lake, Ballyconnell (H2918); Annagh Lake, Butlersbridge (H3912); Annagh Lake, Drumcarban (N3798); Arnaghan, Lough Gowna (N2891); Arva Road (H3501); Ballyheady (Bellaheady) (H2515); Ballyhugh (H3015); Bellanagh (Ballinagh) (H3900);

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Bellananagh, lake (H4000); Belturbet (H3717); Bingfield (H3701); Brackley Lake, Bawnboy (N3982); Butlersbridge (H4013); Castle Hamilton (H3207); Castle Sanderson (H4219); Cauhoo (H3900); Cavan Town (H4104); *Cloggy*; Cloverhill (H4013); *Cordonagh*; Cornafean (N3499); Drumaleur, Belturbet (H3813); Drumcarban, Crossdoney (N3798); *Drumcay Hill*; Drumora (H3502); Dunaweel (H2606); Eighter, Lough Ramor (N5786); Farnham (H3906); Farrinseer (H3401); Finea (N4081); Fleming's Folly, Bellananagh or Cauhoo (N3999); *Gartanoul*; Gartinadress (H3302); Garty Lough (N2797); *Glangevlin*; Killagowan or Killygowan (H3707); Killykeen, Lough Oughter (H3405); Kilnahard, Lough Sheelin (N4385); Lavey (H5002); Loughaconnick, Bellananagh (H4000); Lough Mentis, Crossdoney (H3500); Lough Oughter (H3-0-); Lough Ramor (N5986); Lough Sheelin (N4385); Nahillah Park (H4013); Portlongfield, Crossdoney or Killeshandra (H3500); Raheelan, Belturbet (H3619); Sandpit, Arva Road (H3501); Scrabby Bridge, Lough Gowna (N3290); Shannow Wood, Bellananagh (N4194); *Slieva-na-Killa*; Slieve Glah (H4601); Sloan's Fort, Cornafean (N3499); *Tunnel Hill, Ramore*; Virginia (N5988, N5888, N5987); Virginia Woods (N5987).

CLARE: Ailladie (M0802); Ballyeighter (R3494); Ballyvaughan (M2207); Burren (M0801, M2701, R2596); near Castletown (R2797); near Curran (R2892, R2898); Dromore (R3487); Ennis (R3377); Ennistymon (R1288); Glenville, Lahinch (R0985); Kilrush (Q9955); Lisdoonvarna Spa (R1397); Lough Bunny, The Burren (R3696); near Shandangan Lough (R2991); north Burren (M1508), gorge of River Caher; Slieve Elva (M1302).

CORK: Aghada (W8665); Ballyoughtera (W0929); Blarney (W6176); Castle Freke (W3234); Cork (W6772); Gardiner's Hill (W6973); Glandore (W2235); Glenanair (R6214); Glengarriff (V9256); Glengarriff Forest (V9157); Mallow (W5598); Ringaskiddy (W7863); Rostellan (W8766); Ummera (W4744).

DERRY: Ballykelly (C6222); Draperstown (H7894); Magilligan (C6-3-); Toome (Lough Neagh shore) (H9790).

DONEGAL: Ards House (C0834); Ards Forest (C0534); Bundoran (G8158, G8259); Clonmany (C3746); Columbkille (G5-8-); Coolmore (G8666); Coxtown (G9272); Dunfanaghy (C0237); Drumchory Sand Hills (G8972); Finner (G8461); Glenveagh (C0018); Milford, Letterkenney (C1926); Portnoo (G6999); St Ernans (G9075).

DOWN: Bangor (J5-8-; J4981); Bryansford (J3432); Cairn Wood (J4577); Donaghadee

(J5879); Donard Lodge (J3629); Drinnahilly (J3630); Dromore (R3487); Dundrum (J4036); Dundrum, Murlough (J4034); *Glenmachan*; Greencastle (J2511); Holywood (J4079); Jerrettspass (J0732); Moneyreagh (J3967); Mourne Park (J2616); Murlough Nature Reserve, near Dundrum (J4034); Newcastle (J3730); Newcastle Dunes (J4134); Newry (J0926); Rostrevor (J1818); Six Road Ends (J5476); Slieve Donard (J3527); Stormont (J3974); Tipperary Wood, Newcastle (J3730); Tollymore Park (J3532); Tullybrannigan (J3531); Warrenpoint (J1418).

DUBLIN: Bailey (O2936); Ballinascorney House (O0722); Bohernabreena (O0-2-); Bride's Glen, Glendu (O1320); Bull Island (O2438, O2528, O2538); Cappagh House (O0532); Carrickmines (O2224); Clondalkin (O0731, O0631, O0630); Clontarf (O1936); Dartry (O1630); Dublin City (O1-3-); Dundrum (O1627); Glenageary (O2326); Glenasmole (O1019); Glencullen (O1920); Gollierstown (O0132); Grand Canal, Lucan (O0232); Harold's Cross (O1432); Howth (O2-3-); Howth Woods (O2738); Kelly's Glen (O1522); Kilbarrack (O2439); Loughlinstown (O2423); Lucan (O0335); Lucan Demense (O0236); Luttrellstown (O0337); Lynch Park (O0324); Monkstown (O2327); North Bull (O2-3-); Phoenix Park (O0935); Piperstown (O1022); Portmarnock (O2441); Portrane (O2549); Poulaphuca (S9-1-); Prospect, Templeogue (O1228); Rathdrum (O1628); River Dodder (O0-2-); River Dodder, Rathgar (O1529); Seapoint (O2229); Shankill (O2421); Slade Brook, Glenasmole (O1019); Slade of Saggart (O0324, O0325, O0326); Slievenabawnoge (O0822); St Anne's, Clontarf (O2137); Sutton (O2539); Templeogue (O1228); The Dingle (O2122); The Island, Malahide (O2-4-); Tibbradden Mountain (O1422); Upper Dodder (O0-2-); Upper Glenasmole (O1019); Walkinstown (O1031).

FERMANAGH: Castle Archdale (H1758); Kesh Forest (H1965); Tempo (H3548).

GALWAY: Ardrahan (M4511); Ashford Castle (M1454); Aughrane Castle (M7703); near Aughrim (M7631); Ballinasloe (M8530); Bracklagh Bridge (M2-2-); Clifden (L6351); Clonbrock (M7439); near Drinaun House (M7850); Galway (M2-2-); near Galway (M2-2-); Garryland Wood (M4103); lake near Killeenavarra (M4113); Kylemore (L7558); Lough Corrib (M2-3-); Mount Bellew (M6546); Oranmore (M3824).

KERRY: Ardagh, Killarney (V9887); Ballast Pit, Killarney (V9691); Beenkeragh and Carauntuohill Mountains (V8085); Blackstones (V7186); Brandon Mountain (Q4711); Caher,

The Reeks (V7984); Cahirnane, Killarney (V9689); Cromaglan (Cromaglaun) (V9281); Deer Park, Killarney (V9792); Derrycunihy (V9081); Flesk, Killarney (V9689); Gearhan, Cahercorree (Q7308); Glanmore Lake (V7755); Glencar (V7286); Kenmare (V9171); Killarney (V9-9-); Killarney, lake-side (V9-8-); *Kilmarly*; Lough Gill (Q6114) (Johnson, 1920); Lough Nalacken, Mount Brandon (Q4710); Morley's Bridge (W0475); Muckcross, Killarney (V9787); near Ross, Killarney (V9488); Parknasilla (V7164); River Blackwater, two miles from the sea between Kenmare and Parknasilla (V7971); Ross Castle, Killarney (V9588); south of Headley Bridge (R0719); The Reeks (V8-8-); Tomies Wood, Killarney (V9088); Uragh Woods (V8362); Valentia Island (V3-7-); Woodlawn, Killarney (V9789).

KILDARE: Ardri, Athy (S6893); Athy District (S6893); north of Athy (S6-9-); Castletown (N9734); Grand Canal (N9326); Kilcullen (N8409); Kilkea Park (S7488); Landenstown (N8524); Leixlip (O0035); Louisa Bridge (N9936); Newbridge Fen (N7616, N7715); north of Sallins (N8823); Poulaphouca (N9408); Prosperous (N8327); Robertstown (N7925); Royal Canal (N9936); Royal Canal, Leixlip (O0035); Rye Water, Leixlip (N9936); Sallins (N8922); Skerries Bog (S7299); Tankardsgarden near Newbridge (N8118).

KILKENNY: Bennetsbridge (S5642); Brandondale (S7043); Clodeagh (Clodiagh) (S6836); near Hugginstown (S5230); Hugginstown Fen (S5548); Kilkenny (S5056).

LAOIS: Abbeyleix (S4384); Ballybrophy (S2683); near Coolbanagher (N5203); Creggan Lough (N0652); Emo Court (N5307); Emo Park (N5507); Grantstown Lake Wood (S3380); Portlaoise (Maryborough) (S4798); Rathdowney (S2778); Tankardstown (Bridge) (S7088); The Derries (N5705; N5764, N5805); Woodbrook (N5109, N5209).

LEITRIM: Carrick on Shannon (G9400); Clooncoe (N1091); Drumgilra Lough (N0195); Drumsillagh (H2504); Glencar (G7543); Keeldragh, Lough Cloone (N1496); Kilbrackan (H2604); Rinn Lough (N1091); Shriff Wood, Lough Gill (G7934); Tullaghan (G7758).

LONGFORD: Castle Forbes (N0980); Scry Bridge, Lough Forbes (N0982); *Sixtowns*; Woodville, Lough Gourná (Gowna) (N2889).

LOUTH: Carlingford (J1811); Navan (N8767); *Newtownlow*; Termonfeckin (O1480).

MAYO: Achill (F6-0-); Achill Sound (L7399); Annagh, The Mullet (F6434); Ashford Castle (M1554); Belclare (L9782); Carrownacon (M1876); Claremorris (M3474); Glenamoy (F8836); Glendarary, Achill Sound (L7299); Keel, Achill Sound (F6304); Louisburg (L8080);

Mulranney (L7399); Old Head (L8382); Sraheens Lough, Achill Sound (F7100); The Mullet (L6-2-); Westport (L9984); Westport Demense (L9984).

MEATH: Batterjohn Big (N8953); Cross Keys (N9152); Kells (N7376); Lough Bane (N5571); Navan (N8767); Trim (N7956).

MONAGHAN: Capragh (H8605); Lough Fea (H8201).

OFFALY: All Saints Bog (N0010); Charleville Wood (N3122); Clara Bog (N2429); *near Clonshannon Ho.*; Fin Lough (N0329); Tullamore (N3425).

ROSCOMMON: Corrigeenroe, Lough Key (G8108); Lough Gara (M7196); Lough Key (G8-0-); Lough Ree (N0055); Mote Park (M8961, M8960); Oakport Lake (G8704); Rockingham (G8403).

SLIGO: Bunduff Lake, Mullaghmore (G7155); Castlegal (G7240); Glencar (G7-4-); Lough Gill (GG7-3-); Trawalua (G6-5-).

TIPPERARY: Aherlow (R9332); Ballinacourty (R8529); Ballydavid Wood (R9727); Clonmel (S2022); Glencushnabinnia, north of Galtymore (R8826); Lough Borheen (R8924); Mount Butler (S1789); Nenagh (R8679); Portumna, River Shannon (M8703); *near Roscrea* (S1389); Templemore (S1071).

TYRONE: Baronscourt (H3582); Knockmany Forest (H5455); Lissan (H7784); Moy (H8356); Pomeroy (H7172); Seskinore Forest (H4864).

WATERFORD: Ballin Lough (S4403); Coumshingaun (S3210); Dunhill (S5104); Dunmore East (S6800); Glenmore, Dungarvan (W9998); Lismore (X0498); Maghina Wood, Dungarvan (X2-9-); *near Passage East* (S6811); Rockfield, Dungarvan (X1596); Stradbally (X3798).

WESTMEATH: Athlone Forest (N0839); Ballinlough (N2782); Ballyhealy (N6260); Ballynafid Lake (N4060); Belvidere House (N4247); Crooked Wood (N4661); Hare Island, Lough Ree (N0446); Kilnahard, Lough Sheelin (N4386); Lough Ennell (N3946); Lough Owel (N3761); *near Kiltobber* (N3932).

WEXFORD: Baginbug (S7903); Ballyhighland Forest (S8840); Ballyteige (S9305); Cahore (T2247); Camolin (T0653); Clone (T0047); Curracloe (T1127, T1-2-); Duncannon (S7308); *east of Ballyanne* (S7531); *south of Cushenstown* (S7824); Enniscorthy (S9739); Kilgorman (T2165); Kilmore Quay (S9603); *near Camlin Hill, Nelson's Bridge, Duncannon* (S8313); Killoughrim Forest (S8941); Mount Garret (S7230); *Nelson's Bridge, Duncannon* (S8313); New

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Ross (S7124); Oaklands Wood (S7125); Raven Point (T1124); Rosslare (T1-1-); Stoneyford (T1009); Wexford (T0-2-); north Wexford Harbour area (T0723).

WICKLOW: Arklow District (T2-7-); Athdown (O0715); Aughrim (T1379); Avoca (T1981; T2079); Ballyhenry (O2800); Ballylug (T1693); Ballylusk (T2495); Blessington (N9814); Brickfields, Arklow (T2-7-); Avondale (T1986); Blessington (N9814); Brittas Bay (T3082); Buckroney (T2980, T3080); near Calary Lower (O2311); Carriggowerbeg (O2207); Carriglinneen (T1191); Clara (T1792); Clara Bridge near Rathdrum (T1887); Coan (S9892); *Croghleagh*; Deputy's Pass (T2390); Devil's Glen (T2499); Donard (S9397); Drumgoff (T1090); Enniskerry (O2417); Garryduff (T2093); near Glamore (T2598); Glen west of Deputy's Pass (T2289); Glendalough (T1196); Glencree (O1417); Glencullen (O2-1-); Glending (N9615); Glenmacnass (O1-0-); Glenmalur (T0-9-); Glen of the Downs (O2611); Glen of Imaal (S9693); Golden Hill (O0116); Greystones (O2912); Holywood Glen (T2291); Kilcullen (O2-1-); Killegar (O2119); Kilmurry (S8885); King's River (N9-0-); Kippure Ho. (O0814); *Knockranny*; Knocksink (O2117); Laragh (T1496); Liffey Head (O1313); Lugnaquilla Mountain (T0392); Magherabeg (T3188); Manor Kilbride (O0217); Metal Bridge (S9393); Meeting of the Waters (T1883); Monaglogh (T1975); Newtown Mount Kennedy (O2606); Powerscourt (O2116); Powerscourt Deerpark (O2012); Raheen (O1601); Rathdrum (T1888); Rocky Valley (O2314); Slade of Saggart (O0325); The Murrough (O0314); Tinode (O0119); Tonelegee (T2982); Upper Liffey (O1413); Vale of Clara (T1792); Woodenbridge (T1877).

Taxonomy and nomenclature

In the last few years, it has become clear that the taxonomy and nomenclature of the Symphyta are not nearly so completely resolved as had for some time been thought. Two main problems make the determination of taxa and a correct application of names difficult. Revising authors have often failed to check original literature sources and existing type material. As a result, the International Rules on Zoological Nomenclature have not been correctly applied. Secondly, traditional morphological taxonomy, particularly when based only on adults, is not on its own adequate to resolve species limits in the many complexes of sister- and sibling species which have recently been detected. In the Irish fauna, particularly affected are *Arge*, *Pontania*, *Euura* and some groups of *Amauronematus*, but there are numerous other genera where similar situations are suspected.

Nomenclature here is based principally on Liston (1995, 1996) with necessary modifications from Taeger and Blank (1996). The rather conservative systematic layout was originally modelled on that used by Viitasaari and Vikberg (1985) in their list of Finnish Symphyta. As they did, it seems reasonable to reflect probable phylogenetic relationships by also considering the available information on larval morphology and biology (main reference: Lorenz and Kraus, 1957). The placement and status of certain genera and tribes have however been altered according to diverse recent research, partly summarised by Abé and Smith (1991).

Subgeneric classification of *Dolerus* was developed first by Goulet (1986), with Zhelochovtsev (1988) publishing a similar system independently with his own names, in unawareness of Goulet's paper. The subgenera of *Tenthredo*, *Pristiphora* and *Pachynematus* are derived mainly from Zhelochovtsev (1988). Zinovjev (1993) worked on the phylogeny of the genus *Pontania*, and the subgeneric divisions which he proposed are followed here. The adult morphological characterisation of the subgenera is in this case neatly supported by differences in oviposition method and gall type. Several of the recently named subgenera in the Nematinae are already regarded by some authors as full genera. Whilst there seem good reasons for according some of the subgenera of, for example, *Tenthredo* and *Pontania* with formal taxonomic status, the groupings in *Pristiphora*, based solely on the macrostructure of the genitalia, are probably rather synthetic. The subgenera cannot at present be characterised using larval morphology or biology. In the end, it may have to be accepted that this very large genus, with a high degree of morphological uniformity between species, is better classified in the sort of informal species groups adopted by Benson (1958a). Nevertheless, the subgeneric names are used here following the general trend amongst European authors towards their acceptance.

Taxonomic comments on particular species are given in the checklist.

Checklist of the Irish sawflies

SYMPHYTA

XYELOIDEA

XYELIDAE

***Xyela julii* (Brébisson, 1818)**

LAOIS: 20 April 1936, Emo Park, off ♂ *Salix*, AWS (BMNH); WICKLOW: 3 May 1987, Powerscourt Deerpark, ♀ swept from *Juncus* in marshy area beside conifer plantation near the waterfall, JPOC (NMI).

Recorded by Stelfox (1929), Benson (1950, 1951), Quinlan and Gauld (1981) and Wright (1986). Stelfox and Faris (ms) state that many ♀♀ were collected at Emo Park around a small *Betula*. These authors also mention records from Glenasmole (3 May 1939), Co. Dublin, Athdown, west of Arklow (30 April 1926), Clara (23 April 1933) and Enniskerry (13 April 1933), all in Co. Wicklow. The species feeds on *Pinus cembra*, *P. nigra* and *P. sylvestris*.

PAMPHILIOIDEA

PAMPHILIIDAE

****Pamphilius balteatus* (Fallén, 1808)**

WICKLOW: 1 May 1935, Golden Hill, AWS (USNM).

New to Ireland. Stelfox and Faris (ms) report that a ♂ was beaten out of *Larix* at the summit. The species feeds on *Rosa*.

***Pamphilius hortorum* (Klug, 1808)**

=*bicinctus* Benson, 1948

ANTRIM: Glenarm; CARLOW: Borris; CAVAN: Virginia (N5988); CORK: Glengarriff; DOWN: Newcastle; Rostrevor; Tollymore Park; DUBLIN: Slade of Saggart (O0325); LAOIS: Grantstown Lake Wood (Speight, 1979); LONGFORD: Woodville (Liston and Speight, 1981); MEATH: Cross Keys; TIPPERARY: Ballinacourty; WESTMEATH: Ballyhealy; Belvidere House; WICKLOW: Deputy's Pass; Devil's Glen; Glen of the Downs.

Liston and Speight (1981) discuss the two subspecies (*P. h. bicinctus* Benson and *P. h. hortorum* (Klug)) which occur in Ireland. Also recorded by Stelfox (1929). Adults occurred from 16 May to 29 June. The species feeds on *Rubus idaeus* agg.

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***Pamphilius pallipes* (Zetterstedt, 1838)**

CAVAN: 7 June 1934, Annagh Lake, RCF (RSM); 2 May 1940, Farnham, RCF (RSM); 29 May 1941, Nahillah Park, on *Betula*, RCF (RSM); DOWN: 9 June 1927, Newcastle, WJF (NMI).

The species was recorded from Ireland by Benson (1951) and Quinlan and Gauld (1981). It feeds on *Betula*.

****Pamphilius vafer* (Linnaeus, 1767)**

ROSCOMMON: Mote Park, R. E. Dillon (NMI).

New to Ireland. The species feeds on *Alnus glutinosa* and *A. incana*.

***Pamphilius varius* (Lepeletier, 1823)**

WICKLOW: 7 July 1929, Athdown, AWS (NMI).

Recorded from Ireland by Benson (1951) and Quinlan and Gauld (1981). According to Stelfox and Faris (ms), the Athdown specimen (♀) was taken at c.305m altitude. Another ♀ was swept off *Betula* in a shelter belt at Ballinascorney House (274m altitude), Co. Dublin on 14 July 1948 by AWS. The species feeds on *Alnus incana* and *Betula*.

***Pamphilius sylvaticus* (Linnaeus, 1758)**

KILDARE: no further data (NMI); TYRONE: 27 May 1987, Pomeroy, ADL (RSM); WICKLOW: 22 June 1932, Glencullen, AWS (NMI); 6 May 1942, Glencree, BPB (NMI); 24 May 1978, Knocksink, deciduous woods by stream, MCDS.

First recorded by Benson (1951). Quinlan and Gauld (1981) state that the species occurs probably throughout Britain and Ireland. Stelfox and Faris (ms) also give records from Tollymore Park (21 May 1961), Co. Down and Deputy's Pass (14 June 1933), Co. Wicklow. *P. sylvaticus* feeds on *Crataegus*, *Prunus* and *Sorbus*.

***Pamphilius inanitus* (Villers, 1789)**

WICKLOW: 12 June 1927, Rathdrum, AWS (USNM).

Recorded by Stelfox (1929), Benson (1951) and Quinlan and Gauld (1981). According to Stelfox and Faris (ms) only a single ♀ was taken. The species feeds on *Rosa*.

***Pamphilius gyllenhali* (Dahlbom, 1835)**

LAOIS: 28 June 1979, ♀, near Coolbanagher, cut over valley bog invaded by *Betula*/*Salix* scrub, de Courcy Williams (Speight and de Courcy Williams, 1981); WICKLOW: 22 June

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1930, Athdown, AWS (USNM).

Speight (1983a, b) repeats Laois. The species feeds on *Salix aurita*, *S. caprea*, *S. cinerea* and *S. myrsinifolia*.

SIRICOIDEA

SIRICIDAE

***Urocerus gigas* (Linnaeus, 1758)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DERRY; DONEGAL; DOWN; DUBLIN; FERMANAGH; KERRY; KILKENNY; LAOIS; LONGFORD; LOUTH; MAYO; MEATH; ROSCOMMON; SLIGO; TIPPERARY; TYRONE; WATERFORD; WEXFORD; WICKLOW.

There are numerous published records concerning this common and widespread species (e.g. Leech, 1891; Brenan, 1893a, b; Praeger, 1893; Johnson, 1888; MacSwaine, 1889; Elcock, 1898; Bonaparte Wyse, 1901; Fleming, 1901; Battersby, 1903; Anon., 1905; Patterson, 1905; Hartley, 1909; Johnson, 1920; Stelfox, 1929; Worms, 1966; Kirk, ms, 1975; Wright, 1986). Stelfox and Faris (ms) note that ♂♂ were reported on several occasions as flying around the cairns on the summits of the Dublin and Wicklow Mountains, including Lugnaquilla, 926m altitude. The last were reported by a picnic party as "Hornets" from which they fled in haste! Adults occurred from 30 June to 19 September. The species feeds on Coniferae (*Abies*, *Larix*, *Picea* and *Pinus*). In Ireland, it has been reared from eight species of conifer. Some very heavy attacks rendered fallen timber and cut logs useless for constructional and pulping purposes with up to 100 galleries and exit holes per metre length of timber (Kirk, 1975).

***Urocerus augur augur* (Klug, 1803)**

KERRY: August 1969, Kenmare, from *Abies alba*; August 1968 and 1969, Parknasilla, from *Abies procera*.

First reported by Kirk (ms, 1975) who provides a detailed account of the Irish Siricidae. The above populations probably originated from infested timber imported from continental Europe, for *U. a. augur* is a central European and montane siricid which has never become established in Britain (Kirk, 1975). The species feeds on *A. alba* and *A. procera*. *Picea abies* and *Pinus sylvestris* have also been reported as hosts.

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***Sirex cyaneus* Fabricius, 1781**

ANTRIM: October 1971, Belfast, in a new house (UM; Kirk, 1975); DERRY: July to September 1970, Ballykelly, from *Abies procera* (Kirk, 1975); DUBLIN: c.10 July 1981, Walkinstown, on the premises of a commercial firm (NMI).

According to Kirk (1975), *S. cyaneus* is probably established in Ballykelly and he predicts that the species will spread in *Abies* forests in Ireland. The species also uses *Larix*, *Picea*, *Pinus* and *Pseudotsuga*.

***Sirex noctilio* Fabricius, 1793**

DUBLIN: 6 September 1982, Clondalkin O0731, in a factory, R. Ruane (NMI; O'Connor and Nash, 1983).

Stelfox (1929) cites records of *Paururus juvenus* L. in the Haliday ms from Down and Tyrone but Stelfox (1942) subsequently states that these should be referred to *noctilio*. Quinlan and Gauld (1981) state that they had difficulty in separating *S. juvenus*, *S. noctilio* and *S. cyaneus* and that their key is tentative. Although Kirk (1975) states that *S. juvenus* is an occasionally introduced but unestablished species in Ireland, its status on the Irish list is uncertain. *S. noctilio* is associated with *Abies*, *Larix*, *Picea*, *Pinus* and *Pseudotsuga*.

***Xeris spectrum* (Linnaeus, 1758)**

DUBLIN: February 1948, Dublin City, ♀ emerged in a warehouse from a piece of timber contained in the centre of a bale of cloth said to be imported from England (NMI).

This record is cited by Kirk (1975). The species feeds on *Abies*, *Chamaecyparis*, *Larix*, *Picea*, *Pinus* and *Pseudotsuga*.

CEPHOIDEA

CEPHIDAE

Cephini

***Calameuta pallipes* (Klug, 1803)**

MEATH: 31 May 1989, Batterjohn Big, common in a sand quarry partially flooded at times, JPOC (NMI); OFFALY: 26 June 1986, Fin Lough, lakeside fen, MCDS; WATERFORD: 18 June 1990, Ballin Lough, JMOC (NMI); WEXFORD: 12 June 1982, Curracloe (T1127), swept from vegetation growing on the sand-dunes near a marsh, JMOC (NMI) (O'Connor and O'Connor, 1983); WICKLOW: 12 July 1983, near Calary Lower, marsh, JPOC (NMI); 6 July

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1983, Carrigowerbeg, on flowers of *Ranunculus* in scraw, cut-over valley bog, now regenerating at 229m, MCDS.

The hostplant is unknown but the species may feed on grasses.

TENTHREDINOIDEA

ARGIDAE

STERICTIPHORINAE

Sterictiphora geminata (Gmelin in Linnaeus, 1790)

ARMAGH: 31 May 1913, 28 May 1914, 24 May 1920, Poyntzpass, WFJ, (NMI) (Johnson, 1920); CLARE: 21 May 1985, Lough Bunny, limestone pavement in the Burren, JMOC (NMI); DOWN: 12 and 18 June 1926, Dundrum, WFJ (NMI); DUBLIN: 19 May 1943, Portmarnock, AWS (NMI, BMNH, RSM); 23 May 1926, Portrane, AWS (NMI).

Also recorded by Benson (1951) and Quinlan and Gauld (1981). At Portrane, ♂♂♀♀ were flying around *Rosa pimpinellifolia*, in a lane in the sand dunes (Stelfox and Faris, ms). These authors also give a record from Kilcarrig Bridge (21 May 1934), Co. Carlow. The species feeds on *Rosa* and *Sorbus aucuparia*.

ARGINAE

Arge ciliaris (Linnaeus, 1767)

ANTRIM: near Randalstown; ARMAGH: Armagh; CAVAN: Annagh Lake; Brackley Lake; Cauhoo; Farnham; Lough Mentis; CLARE: Dromore; near Curran R2898; DUBLIN: Glenasmole; Lucan; KILKENNY: near Hugginstown; LAOIS: The Derries N5705 (Speight, 1983a, b); LEITRIM: (Stelfox and Faris, ms); MEATH: Trim; OFFALY: All Saints Bog.

Stelfox and Faris (ms) report that in Cavan and Leitrim, the species was abundant on the flowers of *Crataegus* near its foodplant (*Filipendula ulmaria*) in late May. Also recorded from Ireland by Benson (1951). Adults occurred from 12 May to 4 August.

The genus *Arge* contains a number of biological species ("sibling species"). Most of these groups remain unrevised in Europe.

Arge fuscipes (Fallén, 1808)

= *clavicornis* auctt. misident.

CAVAN: 26 May 1947, Farnham, RCF (RSM); CLARE: 1 June 1984, Ailladie, on limestone pavement in the Burren, JMOC (NMI); 23 May 1971, Ballyvaughan, ECPC (RSM); DUBLIN:

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29 May 1938, Glenasmole, AWS (NMI); WICKLOW: 9 June 1919, Powerscourt (NMI), same locality, 30 May 1933, AWS (NMI).

Reported by Stelfox (1929), Benson (1950, 1951) and Wright (1986). Stelfox and Faris (ms) remark that in *fuscipes fuscipes*, Irish specimens have dark costa and subcosta and the ♂ hind tibia varies from all black to all white save for a narrow basal black band. Quinlan and Gauld (1981) observe that the darker form occurs in England and the paler form in North and Central Scotland and in Ireland. Smith (1989) considers *A. clavicornis* to be a purely Nearctic form. *A. fuscipes* feeds on *Betula*.

***Arge ustulata* (Linnaeus, 1758)**

ARMAGH; CAVAN; CLARE; CORK; DOWN; DUBLIN; GALWAY; KERRY; KILDARE; LAOIS; ROSCOMMON; TIPPERARY; WATERFORD; WESTMEATH; WICKLOW; WEXFORD.

Reported by Morley (1908), Johnson (1920), Benson (1951), Quinlan and Gauld (1981), Speight (1983b) and Wright (1986). Adults occurred from 10 May to 18 August. Specimens emerged from larvae sleeved on *Betula*. The species also feeds on *Craetagus* and *Salix*.

***Arge gracilicornis* (Klug, 1814)**

CLARE: Burren M2701; CORK: Castle Freke; DUBLIN: Slade of Saggart O0324; GALWAY: Aughrane Castle; Clifden; Garryland Wood; Kylemore; Mount Bellew; near Drinaun House; LAOIS: The Derries N5705 (Speight, 1983a, b); LEITRIM: Glencar; OFFALY: near Clonshannon House; TIPPERARY: Mount Butler, on *Angelica*; WATERFORD: north of Lismore; near Passage East; WESTMEATH: near Kiltober; WICKLOW: Knocksink.

First recorded by Stelfox (1929) (as *cyanella*) from Offaly and Waterford. Also reported by Benson (1951) and Quinlan and Gauld (1981). The species has been collected from 23 May to 18 August. It feeds on *Rubus idaeus* agg and *R. fruticosus* agg.

***Arge metallica* (Klug, 1834)**

CORK: 27 May 1935, Glengarriff, J. E. Flynn (NMI) also 21 June 1935 (BMNH). The NMI specimen was captured on a leaf of *Ilex aquifolium* "near a pond and marshy ground with alders and sallows growing here and there through it" (Stelfox, 1935); WICKLOW: 22 May 1927, Clara Bridge near Rathdrum, ♀ captured in a clearing in the *Quercus* woods about a mile below the bridge (Stelfox, 1928, 1929). Stelfox and Faris (ms) state that this ♀ was collected in

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a swamp with *Osmunda regalis* beside a sand-flat.

Also reported by Benson *et al.* (1940), Benson (1950, 1951) and Quinlan and Gauld (1981).

The last authors state that the larvae occur on *Betula*.

***Arge cyanocrocea* (Förster, 1771)**

CARLOW: 2 June 1960, Burren, coll. and det. H. W. Daltry (Wright, 1986); ROSCOMMON:

30 June 1960, Lough Ree, coll. and det. H. W. Daltry (Wright, 1986).

Also recorded by Benson (1951) and Quinlan and Gauld (1981). The authors have not seen any Irish specimens. The species feeds on *Rubus*.

CIMBICIDAE

ABIINAE

***Zaraea fasciata* (Linnaeus, 1758)**

CAVAN: Cavan Town; Farrinseer; DONEGAL: Milford, larvae feeding on the leaves of

Symphoricarpos albus (Osborne, 1882, 1883; Bridgman, 1884); DUBLIN: Glenageary;

KERRY: Killarney; KILDARE: Tankardsgarden, reared from larvae on *S. albus*;

WATERFORD: Maghina Wood; Stradbally (Morley, 1908); WICKLOW: Clara; Rathdrum.

Also reported by Stelfox (1929), Benson (1951) and Quinlan and Gauld (1981). Adults have been reared from larvae from 4 March to 5 June. They have been collected from 12 June to September. In addition to *Symphoricarpos*, the species feeds on *Leycesteria* and several species of *Lonicera*.

****Zaraea lonicerae* (Linnaeus, 1758)**

WICKLOW: 25 June 1929, Laragh, AMG (USNM).

New to Ireland. The species feeds on *Lonicera* and *Symphoricarpos*.

***Abia candens* Konow, 1887**

ANTRIM; CAVAN; CLARE; CORK; DUBLIN; GALWAY; KERRY; KILDARE; MAYO;

SLIGO; WATERFORD; WEXFORD; WICKLOW.

Stelfox (1929) recorded the species as *nitens* (L.) from Clare and subsequently corrected the error (Stelfox, 1942). Also reported by Morice (1902), Morley (1908, 1911), Benson (1951) and Quinlan and Gauld (1981). Adults occurred from 5 June to 17 July. The species feeds on *Knautia arvensis*.

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***Abia sericea* (Linnaeus, 1758)**

ARMAGH; CAVAN; CLARE; DERRY; DONEGAL; DOWN; GALWAY; KERRY; KILDARE; LAOIS; LEITRIM; LONGFORD; MAYO; MONAGHAN; OFFALY; ROSCOMMON; SLIGO; TIPPERARY; TYRONE; WESTMEATH; WEXFORD; WICKLOW.

Also reported by Morice (1902), Morley (1911), Johnson (1920), Benson (1951), Quinlan and Gauld (1981) and Speight (1983a, b). Adults occurred from 30 May to 4 September. The species has been reared from larvae on *Succisa pratensis* (Stelfox and Faris, ms). It also feeds on *Fragaria* and *Knautia*.

CIMBICINAE

Cimbicini

***Cimbex connatus* (Schrank, 1776)**

GALWAY: 3 July 1943, Ashford Castle, ♀ floating in Lough Corrib, RCF (RSM); KERRY: 11 June 1894, Valentia, Miss Delap (NMI) (Carpenter, 1894a).

Benson (1940b) states that *C. connatus* on *Alnus* is only known now to occur in Ireland. Also reported by Benson (1951) and Quinlan and Gauld (1981). Stelfox and Faris (ms) give a record from Glengarriff (10 June 1935), Co. Cork. The species feeds on *Alnus glutinosa* and *A. incana*.

***Cimbex femoratus* (Linnaeus, 1758)**

ARMAGH: Armagh (Johnson, 1920); Drumbanagher (Johnson, 1920); CAVAN: Ballyhealy, larva collected 15 September 1947 on *Betula*, emerged 21 June 1949; DONEGAL: Glenveagh; DUBLIN: Dublin City (Carpenter, 1894b); FERMANAGH: Tempo (Johnson, 1920); KERRY: Derrycunihy; Muckcross, Killarney; near Ross, Killarney; OFFALY: Tullamore; TYRONE: Lissan; WESTMEATH: Ballyhealy.

Also reported by Benson (1951) and Quinlan and Gauld (1981). Adults occurred from 13 March to 10 August. The species feeds on *Betula*.

Trichiosomatini

[*Trichiosoma latreillei* Leach, 1817

Reported by Morice (1902) from Parknasilla, Co. Kerry, Morley (1911) from Mulranny, Co. Mayo, and by Johnson (1920) from Poyntzpass, Co. Armagh, but we have been unable to trace any specimens. The species feeds on *Betula* and *Salix*.]

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***Trichiosoma lucorum* (Linnaeus, 1758)**

ANTRIM; ARMAGH; CAVAN; DONEGAL; DOWN; DUBLIN; KERRY; KILDARE;
LIMERICK; LOUTH; MAYO; MEATH; WICKLOW.

Reported by Morice (1902), Morley (1911), Johnson (1920, 1922b), Benson (1951), Quinlan and Gauld (1981) and Wright (1986). Adults occurred from 16 April to 8 August.

An unresolved complex of probable biological species, each perhaps more host-plant and biotope specific than the literature references under "*lucorum*" suggest. At least three segregates appear to occur in Great Britain, associated with *Salix phylicifolia*, *Betula pendula* and *B. pubescens* (personal observation ADL). Taxonomists will have to take into account over fourteen species in mainly northern Europe, and several more eastwards to Japan.

***Trichiosoma sorbi* Hartig, 1840**

TIPPERARY: 29 May 1944, at Glencushnabinnia, north of Galtymore, at *Sorbus aucuparia* at 274m altitude, AWS (BMNH); TYRONE: no further data (NMI).

Reported by Benson (1951) and Quinlan and Gauld (1981). Stelfox and Faris (ms) give a record from "Tipperary Wood", Newcastle (3 July 1961), Co. Down. The species feeds on *S. aucuparia*.

***Trichiosoma tibiale* Stephens, 1835**

CAVAN: 18 June 1939, Dunaweel, larva on *Crataegus monogyna*, emerged 26 April 1940, RCF (RSM).

Recorded by Johnson (1920) and Benson (1951). All the Johnson material in NMI belongs to *T. lucorum* including that mentioned by Morley (1911). This species may be one of several European cimbicids whose populations have reached very low levels. In Germany, Blab *et al.* (1984) class *tibiale* as "grade 2" or "strongly endangered". *T. tibiale* cocoons should occur on *Crataegus* twigs, according to older literature, but we have never seen one in many winter searches.

***Trichiosoma vitellinae* (Linnaeus, 1761)**

ANTRIM: Lough Neagh, Buckle (NMI); DOWN: 27 June 1931, Rostrevor, WFJ (NMI).

Recorded by Benson (1951). The host may be *Betula* but there are old records from *Salix*.

DIPRIONIDAE

MONOCTENINAE

***Monoctenus juniperi* (Linnaeus, 1758)**

GALWAY: 21 May 1971, Ardrahan, ECPC (RSM) (Liston and Speight, 1981).

The species feeds on *Juniperus communis* and *J. nana*.

DIPRIONINAE

***Neodiprion sertifer* (Geoffroy in Fourcroy, 1785)**

MAYO: 28 September 1965, Glenamoy, on *Pinus*, conifer plantation on blanket bog, MCD (Speight and Moller, 1979); WESTMEATH: emerged 10 June and 24 September 1981, Athlone Forest, larvae collected on *Pinus sylvestris*, D. Ward (NMI); WICKLOW: Avondale, Forbes (NMI).

Stelfox (1929) recorded the species from Wicklow, also reported by Benson (1950, 1951) and Quinlan and Gauld (1981). The species feeds on *Pinus*.

***Diprion pini* (Linnaeus, 1758)**

CAVAN: Crossdoney; Farrinseer; DOWN: Rostrevor; Tollymore Park; DUBLIN: Glenasmole; Howth; FERMANAGH: Tempo (Johnson, 1920); GALWAY: Oranmore; KILDARE: Tankardsgarden; WICKLOW: Hollywood Glen; Powerscourt; Rocky Valley.

Also reported by Benson (1951). Adults have been bred from larvae on *Pinus radiata* (Stelfox and Faris, ms). Adults have occurred from April to 16 June. *D. pini* feeds on several species of *Pinus*.

TENTHREDINIDAE

SELANDRIINAE

Heptamelini

***Heptamelus ochroleucus* (Stephens, 1835)**

ANTRIM: Breen; Glenarm; CAVAN: Sloan's Fort; CORK: Blarney (Haliday, 1855); DOWN: Hollywood (Haliday, 1855); Tollymore Park; KERRY: Blackstones (Haliday, 1855); Parknasilla; LEITRIM: Shriff Wood; OFFALY: Clara Bog; WATERFORD: near Passage East; WICKLOW: Kippure House.

Also reported by Benson (1952). Adults occurred from 12 June to 3 August. The species feeds on *Athyrium filix-femina*, *Blechnum* and *Polypodium vulgare*.

Strongylogastrini

***Strombocerina delicatula* (Fallén, 1808)**

ANTRIM; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; GALWAY; KERRY; KILKENNY; LAOIS; LEITRIM; LONGFORD; MAYO; MONAGHAN; OFFALY; SLIGO; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1952), Moller (1974) and Speight (1983b). Adults occurred from 2 May to 6 September. The species feeds on *Athyrium filix-femina*, *Onoclea struthiopteridis*, *Polypodium vulgare* and *Pteridium aquilinum*.

***Strongylogaster lineata* (Christ, 1791)**

ANTRIM; CARLOW; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; KERRY; KILKENNY; LAOIS; LEITRIM; LONGFORD; LOUTH; MAYO; OFFALY; ROSCOMMON; TIPPERARY; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1922a), Benson (1952), Moller (1974) and Wright (1986). Adults occurred from 24 May to 20 August. The species feeds on *Pteridium aquilinum*.

***Strongylogaster macula* (Klug, 1817)**

ANTRIM: Carnageer; CAVAN: Flemings Folly, Bellanagh; Cahoon; Virginia; DONEGAL: Portnoo; DOWN: Rostrevor; DUBLIN: Glenasmole; Harold's Cross; GALWAY: Galway; LAOIS: The Derries N5805; LOUTH: Carlingford; WICKLOW: Arklow district; Glen of the Downs; Powerscourt Deerpark.

Reported by Johnson (1920, 1922a) and Benson (1952). Adults occurred from 30 April to 11 June. The species feeds on *Athyrium filix-femina* and *Pteridium aquilinum*.

***Strongylogaster mixta* (Klug, 1817)**

ANTRIM: 17 April 1988 and 21 May 1988, Glenarm, ADL (NMI); DOWN: 27 May 1973, Cairn Wood, A. Irwin (UM; Moller, 1974); DUBLIN: 25 May 1937, Glenasmole, AWS (USNM); WICKLOW: 26 April 1930, Devil's Glen, AWS (USNM); 31 March 1981, Glen of the Downs, *Quercus* woods along stream, MCDS; 16 May 1929, Powerscourt, AWS (USNM).

Also reported by Benson (1950, 1952). The species feeds on *Aspidium*, *Athyrium filix-femina* and *Pteridium aquilinum*.

Aneugmenini

****Aneugmenus coronatus* (Klug, 1818)**

DUBLIN: 16 June 1929, Upper Glenasmole, AWS (NMI); KERRY: June 1938, Flesk, Killarney, EFB (NMI).

New to Ireland. The species feeds on *Athyrium filix-femina*, *Dryopteris filix-mas* and *Pteridium*.

[*Aneugmenus furstenbergensis* (Konow, 1885)

No specimens traced but the species was recorded by Stelfox (1929) from Wicklow and by Benson (1952). The following records are given by Stelfox and Faris (ms):- DUBLIN: 12 June 1932, Slade Brook ♀; WICKLOW: 2 June 1926, Brittas Bay, ♀; 30 May 1933, Powerscourt Deerpark, ♀; 7 June 1925, Rocky Valley, ♀♀. The species feeds on *Pteridium aquilinum*.]

***Aneugmenus padi* (Linnaeus, 1758)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DONEGAL; DOWN;
DUBLIN; KERRY; KILDARE; LAOIS; LIMERICK; LOUTH; MAYO; OFFALY;
WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1922a), Benson (1952), Moller (1974), Speight (1983b) and Wright (1986). Adults occurred from 31 May to 21 July. The species feeds on *Asplenium* and *Pteridium aquilinum*.

***Aneugmenus temporalis* (Thomson, 1871)**

KERRY: Glencar; south of Headley Bridge; Muckross, Killarney; LAOIS: Portlaoise;
WESTMEATH: Ballyhealy; WEXFORD: Cahore; Kilgorman; WICKLOW: Magherabeg.

Offaly is also given by Stelfox (1929) and Laois by Speight (1983b). Also reported by Benson (1952). Adults occurred from 10 June to 21 July. The species feeds on *Pteridium aquilinum*.

***Nesoselandria morio* (Fabricius, 1781)**

ANTRIM; ARMAGH; CAVAN; CLARE; CORK; DONEGAL; DOWN; GALWAY; KERRY;
KILDARE; LAOIS; LEITRIM; LIMERICK; MAYO; OFFALY; SLIGO; WATERFORD;
WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1952) and Wright (1986). Adults occurred from 7 May to 19 August. The species feeds on mosses.

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***Birka cinereipes* (Klug, 1816)**

ANTRIM: Portmore; ARMAGH: Jerrettspass; Poyntzpass; CARLOW: Borris; CAVAN: Cornafean; Farnham; Lough Mentis; KILDARE: Castletown; LEITRIM: Clooncoe; ROSCOMMON: Rockingham; WICKLOW: Aughrim; Donard.

Reported by Johnson (1920) and Benson (1952). Adults occurred from 2 May to 8 August. The species feeds on *Myosotis*.

Selandriini

***Brachythops flavens* (Klug, 1816)**

= *wuestneii* misident.

ANTRIM; CAVAN; CLARE; CORK; DOWN; DUBLIN; GALWAY; KILDARE; MAYO; MEATH; MONAGHAN; OFFALY; ROSCOMMON; SLIGO; WATERFORD; WESTMEATH; WEXFORD; WICKLOW.

Reported by Stelfox (1929), Benson (1936, 1952) and Wright (1986). Benson (1936) refers to Curtis' remarks concerning Haliday's discovery of the species at Holywood, Co. Down. Adults occurred from 4 May to 27 August. The species feeds on *Carex*.

[*Brachythops wuestneii* (Konow, 1885)]

Recorded by Benson (1952) but the authors have not seen any Irish material. Stelfox and Faris (ms) state "NK Cromaglaun (151-1905) f.d. Morice, in Nat. Mus. and see *Ann. Scot. Nat. Hist.* 1898: 80". This specimen labelled *wuestneii* in NMI belongs to *flavens*. The species feeds on *Carex lasiocarpa*]

***Selandria serva* (Fabricius, 1793)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; FERMANAGH; GALWAY; KERRY; KILDARE; KILKENNY; LOUTH; MAYO; ROSCOMMON; SLIGO; TIPPERARY; WATERFORD; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1952), Moller (1974) and Wright (1986). The species has been found up to 457m in The Reeks, Co. Kerry (Stelfox and Faris, ms). Adults occurred from 10 May to 30 August. The species feeds on Cyperaceae and Gramineae.

DOLERINAE

Dolerus (Oncodolerus) eversmanni Kirby, 1882

CAVAN: 31 May 1934 and 26 May 1935, Arva Road, new quarry sandpit, RCF (RSM); 16 June 1940, Gartanoul, RCF (RSM); 1 May 1943, Killykeen, RCF (RSM); DOWN: 5 June 1930, Rostrevor, WFJ (NMI); 1 June 1934, same locality, H. Craig (NMI; RSM); 2 June 1934, same locality, Miss Johnson (HAGM) (Wright, 1986); KERRY: May 1926 and June 1927, Killarney, EFB (NMI); WICKLOW: 9 June 1924 and 7 June 1925, Powerscourt, AWS (NMI).

Also reported by Stelfox (1929) and Benson (1952). *Dolerus* can be divided into seemingly natural sub-genera as proposed by Goulet (1986) and Zhelochovtsev (1988), but the nomenclature of these await clarification. The species feeds on *Equisetum palustre*.

Dolerus (Dicrodolerus) vestigialis (Klug, 1818)

ANTRIM; ARMAGH; CARLOW; CAVAN; DOWN; DUBLIN; KERRY; KILDARE; LAOIS; LEITRIM; MEATH; TIPPERARY; WATERFORD; WESTMEATH; WICKLOW.

Reported by Stelfox (1929), Benson (1952), Moller (1974) and Wright (1986). Benson (1940b) remarks that dark legged forms are now known to occur in other parts of Scotland and Ireland. The adults occurred from 6 May to 2 July. The species feeds on *Equisetum palustre* and *E. sylvaticum*.

Dolerus (Dolerus) aericeps Thomson, 1871

ANTRIM: Shane's Castle; CLARE: Dromore; CORK: Rostellan; DUBLIN: Slade of Saggart O0324; GALWAY: near Aughrim; KILDARE: Louisa Bridge; Newbridge Fen N7616; LAOIS: near Coolbanagher (Speight, 1983b); OFFALY: Clara Bog; Fin Lough; WESTMEATH: Hare Island.

Also reported by Benson (1952) from East Cork. Adults occurred from 26 June to 22 August. The species feeds on *Equisetum palustre*.

Dolerus (Dolerus) bimaculatus (Geoffroy, 1785)

CAVAN: Farrinseer; Killykeen; DUBLIN: Bohernabreena; Glenasmole; Slievenabawnoge; KILDARE: Newbridge Fen N7715; Rye Water; KILKENNY: Hugginstown Fen; LAOIS: The Derries N5764; Woodbrook N5209 (Speight, 1983a, b); OFFALY: Charleville; WESTMEATH: Lough Ennell; WICKLOW: Glen of Imaal; Powerscourt; Powerscourt

Deerpark.

Also reported by Stelfox (1929); Benson (1952) and Wright (1986). Adults occurred from 2 May to 5 July. The species was found at 305m altitude in a marsh on the west side of Slievenabawnoge, Co. Dublin (Stelfox and Faris, ms). The species feeds on *Equisetum* spp.

***Dolerus (Dolerus) cothurnatus* Lapeletier, 1823**

ANTRIM; ARMAGH; CAVAN; CLARE; DOWN; DUBLIN; GALWAY; KERRY; KILDARE; LEITRIM; LIMERICK; LOUTH; MAYO; MONAGHAN; OFFALY; ROSCOMMON; SLIGO; TIPPERARY; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1952), Moller (1974) and Wright (1986). Adults occurred from 25 April to 3 August. The species feeds on *Equisetum fluviatile* and *E. palustre*.

***Dolerus (Dolerus) germanicus* (Fabricius, 1775)**

ANTRIM: no date, Lough Neagh, (probably at Shane's Castle), Buckle (NMI); 2 June 1928, Selshan, AWS (USNM); DUBLIN: 14 May 1935 and 10 May 1936, Glenasmole, AWS (HAGM; Wright, 1986).

Benson (1952) points out that the Antrim specimens have red sides to the mesonotum like Welsh and southern English ones and therefore differ from the all black Scottish and north of England specimens. The species feeds on *Equisetum arvense* and *E. palustre*.

***Dolerus (Equidolerus) pratensis* (Linnaeus, 1758)**

= *dubius* (Klug, 1818)

ANTRIM: Carnageer; no locality given but probably Ballycastle (Stelfox, 1929); ARMAGH: Jerrettspass; CAVAN: Cloggy; Cornafean; Farrinseer; DERRY: Draperstown; DUBLIN: Bohernabreena; Glenasmole; FERMANAGH: Tempo; KERRY: Muckcross, Killarney; KILDARE: Grand Canal; KILKENNY: Hugginstown Fen; LAOIS: Ballybrophy; OFFALY: Charleville.

Also recorded by Johnson (1920) (as *D. dubius*), Benson (1952) and Wright (1986). Adults occurred from 25 April to 3 June. Abroad, the species feeds on *Equisetum heliocharis*.

***Dolerus (Equidolerus) gessneri* André, 1880**

ANTRIM: 1 July 1972, Belfast, wet meadow, RN (UM; Moller, 1974); 15 June 1988, Murlough Bay D3244, ADL (NMI); CAVAN: 2 May 1943, Killykeen, RCF (RSM); DUBLIN:

3 June 1934, Glenasmole, AWS (HAGM; Wright, 1986); LAOIS: 11 June 1983, The Derries N5805, JMOC (NMI); WICKLOW: 2 June 1935, Athdown, 274m altitude, AWS (HAGM; NMI); 15 June 1941, Blessington, AWS (NMI; RSM); 16 May-20 June (1925-1929), Powerscourt, AWS (NMI, BMNH); also 15 June 1934, AWS (HAGM); 11 June 1934, same locality, G. C. Scott (NMI).

Reported by Stelfox (1929), Benson (1940a, 1950, 1952, 1966), Moller (1974) and Wright (1986). The species feeds on *Equisetum palustre* and *E. sylvaticum*.

***Dolerus (Achaetoprion) ferrugatus* Lepeletier, 1823**

ARMAGH: Armagh (NMI); CAVAN: 21 May 1933, Arva Road, sandpit, RCF (NMI; RSM); also 14 May and 4 June 1933, 8 June 1934, RCF (BMNH; HAGM; RSM); 29 May 1944, Killykeen, RCF (RSM); DUBLIN: 3 June 1934, Glenasmole, AWS (NMI); KERRY: June 1934, Ballast Pit, Killarney, EFB (NMI); TIPPERARY: 9 June 1944, Ballinacourty, AWS (NMI); WICKLOW: 15 June 1924 and 30 May 1933, Powerscourt Deerpark, AWS (NMI).

Reported by Johnson (1920) (var *miricolor* Konow) from Portnoo, Co. Donegal, but according to Stelfox and Faris (ms), this is actually *aeneus*. These authors also mention records from counties Antrim, Dublin, Kildare and at 274m at Athdown on River Liffey, Co. Wicklow. Also recorded by Benson (1952) and Wright (1986). The species feeds on *Juncus effusus*.

***Dolerus (Achaetoprion) madidus* (Klug, 1818)**

CAVAN: 10 May 1941, Brackley Lake, RCF (RSM); 24 April 1935 and 29 April 1936, Cloggy, RCF (NMI; RSM); also 2 May 1937, RCF (BMNH) and 25 April 1941, RCF (RSM); 2 May 1942, Drumcarban, RCF (BMNH); 4 May 1940, Glangevlin, 305m altitude, RCF (RSM; Stelfox and Faris, ms); 21 April 1941, Lough Mentis, RCF (RSM); 11 May 1935, Sloan's Fort, Cornafean, RCF (RSM); LEITRIM: 24 May 1985, Rinn Lough, swept beneath *Alnus/Salix*, lakeside woods, MCDS; WICKLOW: 23 April 1927, Avoca T1981, mines, AWS (NMI); 11 April 1926, Ballyhenry, AWS (NMI); 13 April 1933, Enniskerry, AWS (NMI); 20 April 1927, Glenmalur, AWS (NMI).

Reported by Stelfox (1929) and Benson (1952). Stelfox and Faris (ms) also give records from counties Carlow, Down and Wexford. The species feeds on *Juncus* spp.

***Dolerus (Poodolerus) haematodes* (Schränk, 1781)**

CAVAN: 4 May 1946, Farrinseer, RCF (NMI; RSM) and another nine localities; DUBLIN: 31

May 1928 and 21 May 1929, Bohernabreena, AWS (NMI); 3 June 1934, Glenasmole, AWS (HAGM; Wright, 1986); 22 May 1938, Piperstown (Gap), AMG (NMI); KERRY: June 1928, Killarney, EFB (NMI); KILDARE: 23 May 1982, Grand Canal, JMOC (NMI); TIPPERARY: 4 May 1926 and 26 May 1927, Templemore, RAP (NMI); WICKLOW: 4 May 1929, Arklow District, AWS (NMI); 3 June 1928, Glen of Imaal, AWS (NMI); 2 May 1929, Monaglogh, AWS (NMI); May 1928, Powerscourt, EFB (NMI).

Johnson's (1920) record from Co. Armagh was erroneous (Stelfox and Faris, ms). Also reported by Stelfox (1929) and Benson (1952). Adults occurred from 28 April to 3 June. The species feeds on *Carex*, *Juncus*, *Scirpus* and various Gramineae.

[*Dolerus (Poodolerus) sanguinicollis* (Klug, 1814)

Johnson (1920) recorded this species (as *fumosus* Zaddach) from Armagh and Poyntzpass, Co. Armagh and Portnoo, Co. Donegal but we were unable to trace any material. The species feeds on Gramineae.]

***Dolerus (Poodolerus) liogaster* Thomson, 1871**

ANTRIM: Cave Hill; Glenariff; Murlough Bay D1941; ARMAGH: Poyntzpass; CAVAN: Drumcarban; Lough Mentis; CLARE: Dromore; CORK: no further details; DOWN: Drinnahilly; Jerrettspass; Rostrevor; Tollymore Park; DUBLIN: Glenasmole; Howth; The Dingle; KERRY: near Kenmare; KILDARE: Newbridge Fen N7616; Sallins; LAOIS: Grantstown Lake Wood; WICKLOW: Deputy's Pass; Enniskerry; Garryduff; Glen west of Deputy's Pass; Golden Hill; same locality at 274m altitude, beaten from *Larix* plantation at top of hill (Stelfox and Faris, ms).

Reported by Johnson (1920), Benson (1952) and Wright (1986). In addition, Wright (1986) mentions a Lough Gill which may be in Co. Kerry. Adults occurred from 5 April to 16 June. The species feeds on *Dactylis*, *Festuca* and *Poa*.

[*Dolerus (Poodolerus) megapterus* Cameron, 1881

Johnson (1920) recorded this species from Poyntzpass, Co. Armagh but his determination was erroneous according to R. C. L. Perkins (*in litt.*) to Stelfox (Stelfox and Faris, ms). The species feeds on *Carex* spp.]

***Dolerus (Poodolerus) puncticollis* Thomson, 1871**

DOWN: 12 May 1961, Tollymore Park, AWS (USNM).

Johnson (1920) records the species from Poyntzpass, Co. Armagh but Stelfox and Faris (ms) were unable to locate any Johnson specimens. The hostplant is unknown.

***Dolerus (Poodolerus) niger* (Linnaeus, 1767)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DOWN; DUBLIN; KERRY; KILDARE; KILKENNY; MAYO; MEATH; OFFALY; TIPPERARY; WESTMEATH; WEXFORD; WICKLOW.

Reported by Johnson (1920), Benson (1952), Speight and Moller (1979) and Wright (1986). The species is very common in Wicklow. It has been taken at Lough Nalacken, Mount Brandon, Co. Kerry, at 366m. Adults occurred from 22 April to 14 July. The species feeds on *Avena*, *Hordeum* and *Triticum*.

***Dolerus (Poodolerus) nigratus* (Müller, 1776)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DOWN; DUBLIN; FERMANAGH; KERRY; KILDARE; KILKENNY; LEITRIM; LOUTH; MAYO; MEATH; MONAGHAN; TIPPERARY; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1952), Moller (1974) and Wright (1986). Adults occurred from 30 March to 12 June. The species feeds on Gramineae (*Holcus* and *Poa*).

***Dolerus (Poodolerus) picipes* (Klug, 1818)**

ANTRIM; ARMAGH; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; FERMANAGH; GALWAY; KERRY; KILDARE; KILKENNY; LAOIS; LOUTH; MAYO; MEATH; OFFALY; ROSCOMMON; TIPPERARY; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1922a, b), Benson (1952), Moller (1974), Speight (1983b) and Wright (1986). Adults occurred from 20 April to July. The species feeds on *Agrostis* and *Festuca*.

***Dolerus (Poodolerus) possilensis* Cameron, 1882**

DUBLIN: 13 May 1922 and 1 May 1928, Bohernabreena, AWS (USNM); 14 May 1941 and 6 May 1943, Glenasmole, AWS (NMI); also 22 May 1942, same locality, AWS (RSM; Liston and Speight, 1981); WICKLOW: 30 April and 7 May 1933, Raheen O1601, AWS (NMI).

Recorded by Stelfox (1929). The hostplant is unknown.

***Dolerus (Poodolerus) nitens* Zaddach, 1859**

CAVAN: 31 March-14 April (1941-1946), Lough Mentis, RCF (RSM); DOWN: 24 April 1971, Murlough Nature Reserve, C. Reid (UM; Moller, 1974); LONGFORD: 16 April 1941, Scry Bridge, RCF (RSM, BMNH); WICKLOW: 1 April 1928, Ballyhenry, AWS (NMI).

The hostplant is unknown.

***Dolerus (Poodolerus) planatus* Hartig, 1837**

=*asper* Zaddach, 1859

ARMAGH: Armagh; Poyntzpass; CARLOW: Muine Bheag; CAVAN: Cloggy; Drumcarban; DUBLIN: Bohernabreena; KERRY: Cahirnane, Killarney; Killarney; KILDARE: Kilcullen; LONGFORD: Lough Forbes; MONAGHAN: Capragh; Castleblaney; ROSCOMMON: Lough Gara; WEXFORD: Nelson's Bridge; WICKLOW: Golden Hill; Monaglogh; The Murrough.

Reported by Johnson (1922b), Stelfox (1929), Benson (1952) and Wright (1986). The adults occurred from 11 April to 25 May. The synonymy of *D. asper* Zaddach with the above species is according to Blank and Taeger (1992). The species feeds on *Carex* and Gramineae.

***Dolerus (Poodolerus) varispinus* Hartig, 1837**

=*brevitarsis* auctt misident.

ARMAGH: Poyntzpass, as *oblongus* (Johnson, 1922b); WICKLOW: 9 May 1934, Golden Hill, AWS (HAGM).

Recorded from Carlow, Dublin and Wicklow by Stelfox (1929) and from Laois by Speight (1983b) (as *D. brevitarsis*). Also reported by Benson (1952). Nomenclature according to Blank and Taeger (1992). The hostplant is unknown.

***Dolerus (Poodolerus) aeneus* Hartig, 1837**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; FERMANAGH; KERRY; KILDARE; LAOIS; LEITRIM; LOUTH; MAYO; MONAGHAN; OFFALY; ROSCOMMON; TIPPERARY; WATERFORD; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1922a), Benson (1952), Moller (1974) and Wright (1986). Stelfox and Faris (ms) state that this is the commonest *Dolerus* in Ireland. A ♂ was taken at 457m altitude on Tonelagee, Co. Wicklow, on the very early date of 30 March 1929. Other high altitude records are Caher, The Reeks (Co. Kerry) at 518m, Tonelagee at

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792m and Coumshingaun (Co. Waterford) at 457m. Adults occurred from 13 April to 25 August. The species feeds on *Poa* and *Triticum*.

ALLANTINAE

Eriocampini

***Eriocampa ovata* (Linnaeus, 1761)**

ANTRIM; CARLOW; CAVAN; CLARE; CORK; FERMANAGH; KERRY; KILDARE; KILKENNY; LAOIS; TIPPERARY; WEXFORD; WICKLOW.

Reported by Stelfox (1929), Benson (1952) and Moller (1974). Adults were reared from larvae on *Alnus* from Ballyhenry, Co. Wicklow (Stelfox and Faris, ms). Adults occurred from 1 June to 29 August. In addition to *Alnus glutinosa* and *A. incana*, the species occasionally feeds on *Rhamnus*.

Athaliini

***Athalia circularis* (Klug, 1815)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; FERMANAGH; KERRY; LAOIS; LEITRIM; LOUTH; MAYO; SLIGO; TIPPERARY; WATERFORD; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1922a, 1931), Benson (1931, 1952) and Moller (1974). Adults have been reared from larvae on *Epilobium montanum* (Stelfox and Faris, ms). Adults occurred from 6 May to 19 September. The species also feeds on *Ajuga*, *Capsella*, *Glechoma*, *Lycopus*, *Plantago* and *Veronica beccabunga*.

***Athalia cordata* Lepeletier, 1823**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DERRY; DONEGAL; DOWN; DUBLIN; GALWAY; KERRY; KILDARE; LAOIS; LEITRIM; LONGFORD; MAYO; ROSCOMMON; SLIGO; WATERFORD; WESTMEATH; WEXFORD; WICKLOW.

Reported by Benson (1931, 1952), Moller (1974) and Wright (1986). The species has been found up to 914m in The Reeks, Co. Kerry (Stelfox and Faris, ms). Adults occurred from 28 May to 11 October. *A. cordata* feeds on *Ajuga reptans*, *Anterrhinum* and *Plantago*.

***Athalia liberta* (Klug, 1815)**

ANTRIM: 19 June 1988, Cleggan, ADL (NMI); 22 June 1988, Glenarm, ADL (NMI); CAVAN: 2 June to 21 June (1934-1943), various localities (Bellananagh, Cauhoo, Cornafean,

Farrinseer, Gartinadress, Kilnahard, Lough Sheelin, RCF (RSM; Stelfox and Faris, ms); DUBLIN: 1 September 1975, Dundrum, in Malaise trap, garden, MCDS; 14 May 1944, Harold's Cross, AWS (NMI); LEITRIM: 9 June 1944, Carrick on Shannon, RCF (RSM).

Reported by Benson (1931) from Cork. Also recorded by Benson (1952). According to Stelfox and Faris (ms), the Farrinseer adults were reared from larvae on *Arabidopsis thaliana*. The species also feeds on *Alliaria petiolata*, *Cardamine hirsuta* and *Sisymbrium officinale*.

***Athalia lugens* (Klug, 1815)**

ANTRIM; CARLOW; CAVAN; CLARE; CORK; DOWN; DUBLIN; FERMANAGH; GALWAY; KERRY; LEITRIM; LONGFORD; LOUTH; OFFALY; SLIGO; TIPPERARY; WATERFORD; WEXFORD; WICKLOW.

Reported by Morley (1911), Benson (1931, 1952) and Moller (1974). Adults occurred from 22 June to 27 August. The hostplant is unknown.

***Athalia scutellariae* Cameron, 1880**

CAVAN: 16 June 1935 and 27 June 1939, Butlersbridge, Annagh Lake, RCF (RSM); 19 June 1948, Farnham, RCF (BMNH); 12 July 1937, 18 August 1940 and 21 June 1943, Farrinseer, RCF (RSM); 30 May 1940, 29 June 1941, Lough Mentis, RCF (BMNH; NMI; RSM); 24 June 1933 and 9 June 1934, Sloan's Fort, Cornafean, RCF (RSM); GALWAY: 6 July 1943, Ashford Castle, RCF (RSM); MONAGHAN: 1 July 1943, Lough Fea, AWS (BMNH; NMI); WEXFORD: 5 July 1902, Wexford, J. J. F. X. King (BMNH).

Benson (1931) reported a Wexford specimen collected by King on 5 August 1903 but the above specimen is the only one in BMNH. Also recorded by Benson (1952). According to Stelfox and Faris (ms) on the 29 June 1941 at Lough Mentis, the lake was completely surrounded by a broad band of *Cicuta virosa* in full flower, each plant with about three flowerheads open and each flowerhead with about five *A. scutellariae*, yet these were far outnumbered by those crawling on the carpet of *Scutellaria galericulata* in the nearby wood. The species feeds on *Scutellaria* spp.

[*Athalia glabricollis* Thomson, 1870

Reported by Johnson (1920) from Coolmore, Co. Donegal, in September and by Benson (1952) as occurring throughout Britain and Ireland. According to Stelfox and Faris (ms) Johnson's specimens cannot now be found but a ♀ labelled "Rostrevor 8 July 1927) over

glabricollis in the Johnson Collection belongs to *lineolata* Lepeletier (now *circularis* (Klug)). Benson's statement may be based on the published Johnson record. There are no Irish specimens in BMNH but there is material with green labels from Dorset. Perhaps this could be responsible for Benson's remarks. The species feeds on *Diplotaxis tenuifolia*, *Erysimum cheiranthoides*, *Raphanus raphanistrum*, *Sinapis* spp. and *Sisymbrium officinale*.]

Empriini

***Harpiphorus lepidus* (Klug, 1818)**

Graham (1948) reported a ♀ of *H. lepidus* on 25 May from under a *Quercus* leaf at the Devil's Glen, Co. Wicklow. Also reported by Benson (1952) from Killarney, Co. Kerry and the Wicklow Mountains. The authors have not seen any Irish material. The species feeds on *Quercus*.

***Monostegia abdominalis* (Fabricius, 1798)**

CAVAN: 16 May to 29 June (1940-1941), various localities (Annagh Lake, Ballyconnell, Farnham, Killykee, Lough Mentis, Portlongfield), RCF (RSM; Stelfox and Faris, ms); CLARE: 29 May 1976, Dromore, swept lake-side fen, MCDS; KERRY: June 1926, Killarney, EFB (NMI).

Reported by Stelfox (1929), Benson (1952) and Liston and Speight (1981). The species feeds on *Anagallis*, *Glaux maritima* and *Lysimachia*.

***Monsoma pulveratum* (Retzius in Degeer, 1783)**

ANTRIM: Massereene (Moller, 1974); CAVAN: Annagh Lake, Butlersbridge; Drumcarban; Killykeen; Lough Mentis; DERRY: Toome (Lough Neagh shore) (Moller, 1974); DUBLIN: Glenasmole; KERRY: Killarney; LEITRIM: Drumsillagh, adults reared from larvae on *Alnus*; LOUTH: Carlingford (Johnson, 1922a); MAYO: Westport Demense (Morley, 1911); WESTMEATH: Ballynafid Lake.

Also reported by Benson (1952). Adults occurred from 24 April to 16 June. According to Stelfox and Faris (ms), a ♀ emerged on 14 May 1948 from larvae on *Salix fragilis* "decepiens" at Drumcarban, Co. Cavan, on 5 July 1947. She was sleeved on the same variety of *Salix* and produced larvae which were not successfully reared. In addition to *Salix*, the species feeds on *Alnus*.

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***Empria alector* Benson, 1938**

CAVAN: Annagh Lake, Butlersbridge; Farnham; Killygowan; Lough Mentis; Scrabby Bridge; CORK: Glengarriff Forest; DUBLIN: Glenasmole; KILDARE: north of Sallins (Benson, 1938); KILKENNY: Kilkenny (Benson, 1938); LAOIS: Grantstown Lake Wood; Tankardstown (Benson, 1938); LEITRIM: Clooncoe; LONGFORD: Scry Bridge; MEATH: Lough Bane; ROSCOMMON: Rockingham; TIPPERARY: Nenagh (Benson, 1938); WESTMEATH: Newtownlow (Benson, 1938); WICKLOW: near Glamore; Raheen (Benson 1938).

Also recorded by Benson (1952) and Speight (1983b). Adults occurred from 13 April to 7 June. The species feeds on *Filipendula ulmaria*.

***Empria alpina* Benson, 1938**

CLARE: 24 May 1971, Ballyvaughan, ECPC (RSM; Liston and Speight, 1981).

The species feeds on *Salix herbacea* and *S. reticulata*.

***Empria baltica* Conde, 1937**

ANTRIM: Glenariff; Glenarm; White Park Bay; CAVAN: Annagh Lake; Bellanagh Lake; Farrinseer; Gartanoul; Lough Mentis; Virginia N5888; CLARE: Dromore; Lisdoonvarna Spa; Slieve Elva; DOWN: Tullybrannigan; DUBLIN: Glenasmole; KILDARE: Kilcullen; Landenstown; Newbridge Fen N7715; LAOIS: Tankardstown (Bridge); LEITRIM: Clooncoe; LONGFORD: Scry Bridge; MEATH: Trim; ROSCOMMON: Lough Key; Rockingham; WATERFORD: Dunhill; WICKLOW: Ballyhenry; Blessington; Buckroneys T2980; Glen of Imaal; Glencullen.

Benson (1938) mentions counties Antrim, Cavan, Laois, Meath and Wicklow. Also reported by Benson (1952). Adults occurred from 20 April to 22 June. The species feeds on *Filipendula ulmaria*.

***Empria excisa* (Thomson, 1871)**

ARMAGH: Poyntzpass; CAVAN: Fleming's Folly, Cahoo, Bellanagh; DONEGAL: Portnoo; DOWN: Newcastle; DUBLIN: Glenasmole; Slade Brook; St Anne's, Clontarf; KILDARE: Prosperous; LONGFORD: Scry Bridge; ROSCOMMON: Lough Gara; WICKLOW: Glen of Imaal; Glencree; Kippure House.

Reported by Johnson (1920) and Benson (1938, 1952). Adults occurred from 28 April to 15 June. No hostplant is given in Liston (1995).

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***Empria immersa* (Klug, 1818)**

ANTRIM: Glendun; CAVAN: Gartinadress; DONEGAL: Dunfanaghy (Wright, 1986);
DUBLIN: Bohernabreena; Slade Brook; LAOIS: The Derries N5705 (Speight, 1983b); MAYO:
Old Head; WICKLOW: Clara; Glenmacnass.

Benson (1938) recorded larva on *Salix alba* etc. in Wicklow. Also reported by Stelfox (1929) and Benson (1952). Adults occurred from 4 May to 17 June. The species feeds on *Salix*.

***Empria klugii* (Stephens, 1835)**

CAVAN: 18 May to 18 June (1940-1942), various localities (Cauhoo, Cloverhill, Drumcarban, Gartinadress, Lough Mentis, Nahillah Park), RCF (NMI; RSM); CLARE: 6 June 1976, Burren M2701, Spooner (NMI); 21 June 1975, near Castletown, on flowers of *Ranunculus*, *Corylus* scrub on limestone pavement, MCDS; 30 May 1978, near Curran R2892, thin *Corylus* scrub on limestone pavement, MCDS; KERRY: Muckcross, Killarney, JNH (NMI); OFFALY: 10 May 1984, Charleville, *Quercus* woods, MCDS; WESTMEATH: 29 May 1932, Ballyhealy, AWS (Stelfox and Faris, ms); WICKLOW: 17 June 1932, Glenmacnass, AWS (NMI); 30 May 1940, Glenmalur, AWS (NMI); 7 June 1932, Kippure House, AWS (NMI); 24 May 1978, Knocksink, deciduous woods by stream, MCDS.

Reported by Stelfox (1929) and Benson (1938, 1952). The species feeds on *Geum rivale*.

***Empria liturata* (Gmelin in Linnaeus, 1790)**

CARLOW: Borris (Stelfox and Faris, ms); no further details (Benson, 1938); CAVAN: 30 May 1943, Cauhoo, RCF (RSM); 2 May 1940, Farnham, RCF (RSM); 26 May 1946, Farrinseer, RCF (NMI); 11 May 1941, Gartinadress, RCF (RSM); 4 May 1941, 23 May 1943 and 26 April 1948, Lough Mentis, RCF (RSM); 9 May 1941, Scrabby Bridge, RCF (BMNH); DOWN: 9 May 1966, Bangor J5-8-, A. Irwin (UM; Moller, 1974); DUBLIN: 9 June 1925 and 25 May 1937, Glenasmole, AWS (NMI); 6 June 1926, Kilbarrack, EOM (NMI); LONGFORD: 25 April 1948, Scry Bridge, RCF (BMNH; NMI; RSM).

Benson (1938) also gives Meath and Wicklow. In addition, the species has been reported by Stelfox (1929) and Benson (1952). The species feeds on *Fragaria vesca* and *Geum*.

***Empria longicornis* (Thomson, 1871)**

ARMAGH: Poyntzpass; CARLOW: no further details (Benson, 1938); CLARE: Ennis; Ennistymon; DONEGAL: Portnoo; DUBLIN: Bohernabreena; LAOIS: Portlaoise;

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LONGFORD: Scry Bridge; MONAGHAN: Capragh; WICKLOW: Monaglogh.

Reported by Johnson (1920) and Benson (1938, 1952). Adults occurred from 19 May to 12 June. The species feeds on *Rubus idaeus* agg.

***Empria pumila* (Konow, 1896)**

ANTRIM; CAVAN; CLARE; DUBLIN; FERMANAGH; KILDARE; LEITRIM;
LONGFORD; LOUTH; MEATH; ROSCOMMON; SLIGO; TIPPERARY; WATERFORD;
WESTMEATH; WEXFORD; WICKLOW.

Reported by Stelfox (1929) and Benson (1938, 1952). Adults occurred from 20 April to 13 June. The hostplant is unknown.

***Empria tridens* (Konow, 1885)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; DOWN; DUBLIN; KERRY;
KILDARE; LEITRIM; LONGFORD; MEATH; TIPPERARY; WICKLOW.

Reported by Johnson (1920), Benson (1938, 1952) and Moller (1974). Adults occurred from 7 April to 28 May. The species feeds on *Geum* and *Rubus*.

***Ametastegia albipes* (Thomson, 1871)**

CAVAN: 23 May to 28 May (1940 - 1943), Lough Mentis, RCF (RSM); 16 May 1940 and 15 May 1943, Farnham, RCF (RSM); 20 and 29 May 1943, Killykeen, RCF (RSM); KERRY: June 1923, Killarney, EFB (NMI); WEXFORD: 4 June 1987, Killoughrim Forest, swept from *Quercus*, JPOC (NMI).

Reported by Stelfox (1929) and Benson (1950, 1952). The species feeds on *Populus tremula* and *Rumex*.

***Ametastegia equiseti* (Fallén, 1808)**

ANTRIM; ARMAGH; CARLOW; CAVAN; DOWN; DUBLIN; KERRY; KILDARE;
LEITRIM; LONGFORD; LOUTH; MAYO; MEATH; ROSCOMMON; SLIGO; TIPPERARY;
WATERFORD; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1952) and Wright (1986). Adults occurred from 12 May to 4 September. The species feeds on *Chenopodium*, *Plantago*, *Polygonum* and *Rumex*.

***Ametastegia glabrata* (Fallén, 1808)**

ANTRIM; ARMAGH; CAVAN; CLARE; DONEGAL; DOWN; DUBLIN; GALWAY;

KERRY; KILDARE; LIMERICK; LOUTH; MAYO; MEATH; ROSCOMMON; SLIGO; TIPPERARY; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1931) and Benson (1952). Adults occurred from 25 May to 2 September. The species feeds on *Chenopodiaceae*, *Lythrum*, *Plantago*, *Polygonaceae*, *Salix* and *Solanum*.

***Ametastegia carpini* (Hartig, 1837)**

ANTRIM: Glenarm; ARMAGH: Poyntzpass; CARLOW: Bahana Wood; Cloughristick Wood; CAVAN: Cauhoo; Kilmahard, Lough Sheelin; CLARE: Burren M0801, R2596; DOWN: Dundrum; DUBLIN: Glenasmole; Harold's Cross; St Anne's, Clontarf; LEITRIM: Shriff Wood; LOUTH: Carlingford; MAYO: Achill Sound; Old Head; WEXFORD: Wexford; WICKLOW: Athdown; Devil's Glen; Glencullen.

Reported by Morley (1911), Johnson (1920) and Benson (1952). Adults occurred from 19 May to 25 August. The species feeds on *Geranium* spp.

***Ametastegia pallipes* (Spinola, 1808)**

ANTRIM: Glenarm; Rathlin; ARMAGH: Poyntzpass; CAVAN: Brackley Lake; Drumcay Hill; Farrinseer; Lough Mentis; CORK: Ballyoughera; Gardiner's Hill; Glengarriff; DOWN: Newcastle; Rostrevor; DUBLIN: Dundrum; Glenasmole; The Island, Malahide; Slade of Saggart; GALWAY: lake near Killeenavarra; KILDARE: Leixlip; LAOIS: Abbeyleix; WATERFORD: Stradbally; WEXFORD: Cahore; Curracloe T1-2-; WICKLOW: Avoca T2079, larva on *Salix caprea*; Clara; Devil's Glen; Golden Hill.

Reported by Johnson (1920), Stelfox (1929), Benson (1952) and Speight (1983b). Adults occurred from 9 April to 11 September. The species feeds on *Viola* spp.

***Ametastegia perla* (Klug, 1818)**

SLIGO: 26 July 1933, Trawalua, AWS (USNM).

Reported by Benson (1952). The species feeds on *Geranium*, *Polygonum*, *Populus*, *Quercus*, *Rubus* and *Salix*.

***Ametastegia tener* (Fallén, 1808)**

ANTRIM: 2 June 1939, Glenshesk, AWS (NMI); CAVAN: 29 May and 1 June 1942, Cauhoo, RCF (RSM); 15 May 1943, Farnham, RCF (RSM); 3 May 1942, Loughaconnick, RCF (RSM); DUBLIN: 25 May 1937 and 24 June 1942, Glenasmole, AWS (NMI); KERRY: 4 August

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1930, Killarney, lake side, EFB (NMI); MAYO: June 1910, Achill Sound, WFJ (NMI).

Reported by Morley (1911) and Benson (1952). The species feeds on *Cirsium*, *Filipendula* and *Rumex*.

Allantini

[*Taxonus agrorum* (Fallén, 1808)]

No specimens have been seen by the authors. Recorded by Stelfox (1929) from North Tipperary and Wicklow.

Reported by Benson (1952) as rare in Ireland. According to Stelfox and Faris (ms) the only known Irish specimens were:- ♀, 26 May 1927, Templemore, Co. Tipperary and ♀, 3 June 1927, Powerscourt Deerpark, Co. Wicklow. They note that the Irish specimens were captured within eight days of each other showing that a species may appear over a wide area in one season and not be seen again for many years even in a frequently collected area like the Powerscourt deerpark. The species feeds on *Rubus caesius* and *R. idaeus*.]

***Allantus calceatus* (Klug, 1818)**

ARMAGH; CARLOW; CAVAN; CORK; DUBLIN; KERRY; KILDARE; LAOIS; LEITRIM; LONGFORD; MAYO; MEATH; MONAGHAN; OFFALY; WATERFORD; WESTMEATH; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1952) and Speight (1983b). The species has been taken at 518m altitude on Caher, The Reeks, Co. Kerry (Stelfox and Faris, ms). Adults occurred from 18 May to 18 August. The species feeds on *Alchemilla*, *Filipendula*, *Fragaria*, *Rosa*, *Rubus* and *Sanguisorba*.

***Allantus cinctus* (Linnaeus, 1758)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; KILDARE; LEITRIM; OFFALY; WATERFORD; WEXFORD; WICKLOW.

Reported by Johnson (1920) and Benson (1945, 1952). Adults occurred from 16 May to 31 August. The species feeds on *Fragaria*, *Rosa* and *Rubus*.

****Allantus cingulatus* (Scopoli, 1763)**

LAOIS: 11 June 1983, The Derries N5805, JMOC (NMI).

New to Ireland. The species feeds on *Betula*, *Corylus* and *Rosa*.

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****Allantus rufocinctus* (Retzius, 1783)**

ANTRIM: 17 June 1988, Glenarm, ADL (NMI).

New to Ireland. The species feeds on *Rosa* and *Rubus*.

[*Allantus togatus* Panzer, 1801

DUBLIN: 22 July 1936, Slade of Saggart, ♀ swept under *Quercus* by the old road, AWS (Stelfox and Faris, ms).

The authors were unable to locate this specimen. The species feeds on *Quercus* and *Salix*. Rarely, the host plant is *Betula*.]

***Apethymus filiformis* (Klug, 1818)**

= *abdominalis* (Lepeletier, 1823)

ARMAGH: 1 October 1912, Poyntzpass, WFJ (NMI); DOWN: 27 September 1928, and 2 October 1930, Rostrevor, WFJ (NMI); WESTMEATH: 7 October 1951, Crooked Wood, RCF (RSM); WICKLOW: 3 October 1986, Glen of the Downs, JMOC (NMI) also 22 September 1982, MCDS; 27 September 1929 and 21 September 1930, Powerscourt, AWS (NMI).

Reported by Benson (1952). The species feeds on *Quercus*.

***Apethymus serotinus* (Müller, 1776)**

= *braccatus* (Gmelin, 1790)

KERRY: 3 September 1937, Deer Park, Killarney, JNH (NMI); WICKLOW: 4 September 1938, Clara, AWS (NMI); 9 September 1931, Glen of the Downs, AWS (USNM).

Morley (1910) recorded a pair taken by Beaumont in September at Courten, Ireland. Johnson (1920) mentions that the var *tarsatus* Konow was taken at Poyntzpass, Co. Armagh, but the specimens have not been located. Also reported by Benson (1952). The species feeds on *Quercus*.

BLENNOCAMPINAE

Heterarthrini

***Heterarthrus aceris* (Kaltenbach, 1856)**

DUBLIN: 21 August 1983, Luttrellstown, mines in leaves of *Acer pseudoplatanus*, ADL, JMOC (NMI); KILDARE: 21 August 1983, Louisa Bridge, larva in leaf mine in *A.*

pseudoplatanus, ADL; TYRONE: 27 May 1987, Pomeroy, ♀ found ovipositing in tip of *A. pseudoplatanus* leaf-lobe (RSM; Liston, 1988).

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***Heterarthrus microcephalus* (Klug, 1818)**

KERRY: 10 July 1935, River Blackwater, ♂ on *Alnus*, AWS (USNM); LAOIS: 4 August 1978, The Derries N5705, trackside with *Alnus/Salix*, conifer plantation on part-drained valley bog, MCDS (Speight, 1983b).

Also reported by Benson (1952). The species feeds on *Salix caprea*.

***Heterarthrus nemoratus* (Fallén, 1808)**

CAVAN: 29 May 1941, Nahillah Park, Butlersbridge, swept off *Betula*, RCF (RSM; Liston and Speight, 1981).

Stelfox and Faris (ms) give a record from Newcastle (23 May 1957), Co. Down. The species feeds on *Betula*.

***Heterarthrus vagans* (Fallén, 1808)**

ANTRIM: Glenarm; Shane's Castle; CAVAN: Butlersbridge; CORK: Glengariff; DUBLIN: Bull Island O2558 (Speight and Healy, 1977); Harold's Cross; KERRY: Cahirbane, Killarney; SLIGO: Trawalua; TIPPERARY: Ballinacourty; WATERFORD: Rockfield; WEXFORD: Curracloe T1127; WICKLOW: Powerscourt.

Also reported by Stelfox (1929) and Benson (1952). Adults occurred from 25 May to 10 August. The species feeds on *Alnus*.

Fenusini

***Scolioneura betuleti* (Klug, 1816)**

GALWAY: Clonbrock, JNH (NMI); MAYO: 23 May 1942, Old Head, AWS (NMI); WICKLOW: 25 July 1943 and 22 August 1948, Athdown, AWS (NMI); 2 September 1931, Crogheleagh, AWS (RSM); 19 August 1954, Glending, H. W. Daltry (HAGM; Wright, 1986).

Also reported by Benson (1952). Several workers suspect that this may be a species-pair, differentiated phenologically, but other evidence is lacking. *S. betulae* (Zaddach) is an available name for the species which appears as an adult in two generations per year (Viramo, 1969; Altenhofer, pers. comm.). *S. betuleti* appears only in a single generation, with the mine inhabited in late summer and autumn. Not enough evidence is available to decide if only one or both of these taxa are present in Ireland. The species feeds on *Alnus viridis* and *Betula*.

****Fenusella hortulana* (Klug, 1818)**

DUBLIN: 16 May 1955, Dartry, AWS (NMI).

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New to Ireland. The species feeds on *Populus nigra*.

***Fenusella nana* (Klug, 1816)**

CAVAN: 15 May 1943, Farnham, RCF (RSM); 1 June 1941, Farrinseer, RCF (RSM); 18 May 1940, Nahillah Park, RCF (RSM); MAYO: 23 May 1942, Old Head, AWS (NMI).

Reported by Benson (1952). The species feeds on *Betula pubescens* and *B. verrucosa*.

***Profenus pygmaea* (Klug, 1816)**

CARLOW: 9 June 1935, Bahana Wood, AWS (USNM); DUBLIN: 11 June 1978, Dundrum, malaise trap in suburban garden, MCDS; KERRY: 19 June 1929, Muckcross, Killarney, EFB (NMI); KILDARE: 4 July 1937, Kilkea Park, AWS (NMI); WICKLOW: 25 July 1926, Devil's Glen, AWS (NMI); 30 May 1933, Powerscourt Deerpark, AWS (USNM).

Reported by Stelfox (1929) and Benson (1952). The species feeds on *Quercus*.

***Fenusa dohrnii* (Tischbein, 1846)**

CAVAN: 7 June 1941, Annaghan, RCF (RSM); 28 June 1941, Castle Hamilton, RCF (RSM); 11 June 1936, Cloggy, RCF (RSM); 6 and 27 June 1942, Killykeen, RCF (RSM); 16 June 1941, Portlongfield, RCF (RSM); DUBLIN: 25 May 1943, North Bull, AWS (NMI); KILDARE: 25 July 1948, Landenstown, AWS (NMI); ROSCOMMON: 13 May 1940, Oakport Lake, RCF (RSM); SLIGO: 25 June 1936, Trawalua, AWS (NMI); TIPPERARY: 6 June 1944, Ballinacourty, AWS (NMI).

Stelfox and Faris (ms) mention Annaghan, Lough Gowna, Lough Oughter and Killykeen, all in Co. Cavan. Stelfox (1929) gives records from Wexford and Wicklow. Also reported by Benson (1952). The species feeds on *Alnus*.

***Fenusa pumila* Leach, 1817**

= *pusilla* (Lepelletier, 1823)

CORK: Cork (NMI); GALWAY: Clonbrock, JNH (NMI); KILDARE: 28 May 1934, Kilcullen, JNH (NMI); LONGFORD: 3 August 1947, Woodville, on *Betula*, RCF (RSM); WESTMEATH: 29 May 1932, Ballyhealy, AWS (NMI); WICKLOW: 7 July 1929, Athdown, AWS (NMI); Vale of Clara, JNH (NMI).

Reported by Benson (1952). The species feeds on *Betula* spp. but preferring *B. pubescens*.

***Fenella nigrita* Westwood, 1839**

DUBLIN: July to August 1941-1943, Glenasmole; 3 August 1947, Gollierstown; 21 July 1943,

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St Anne's, Clontarf; 3 August 1947, Sutton, AWS (RSM; all Liston and Speight, 1981); KILDARE: 5 August 1951, Royal Canal, AWS (NMI), also 20 July 1944 (RSM; Liston and Speight, 1981); MAYO: 30 May 1942, Old Head, AWS (RSM); WESTMEATH: no further details (Benson, 1952) but Stelfox and Faris (ms) mention 3 July 1933, Newtownlow, AWS and EOM; WEXFORD: 18 June 1942, Enniscorthy, JNH (NMI).

The species feeds on *Agrimonia eupatoria* and *Potentilla reptans*. There may be two species confused under this name (Liston and Speight, 1981).

****Metallus pumilus* (Klug, 1816)**

DUBLIN: 16 May 1933, Harold's Cross O1432, AWS (USNM).

New to Ireland. The species feeds on *Rubus fruticosus* agg., *R. saxatilis* and *R. idaeus* agg.

Caloiroini

***Caliroa annulipes* (Klug, 1816)**

CAVAN: 1 June 1939, Annagh Lake, Butlersbridge, RCF (RSM); 11 June 1933, Cornafean, RCF (RSM); 15 June 1947, Farrinseer, RCF (RSM); 6 June 1942, Killykeen, RCF (RSM); DOWN: 27 July and 30 July 1928, Warrenpoint, WFJ (NMI); MAYO: June 1910, Sraheens Lough, Achill Sound, WFJ (NMI); June 1910, Glendaray, Achill Sound, WFJ (NMI); WEXFORD: 16 June 1982, Killoughrim Forest, JMOC (NMI); WICKLOW: 28 July 1940, Imaal, AWS (RSM); 23 July 1927, Meeting of the Waters, AWS (NMI).

Reported by Morley (1911) and Benson (1950, 1952). The species feeds on *Betula*, *Crataegus*, *Fagus*, *Prunus*, *Quercus*, *Salix*, *Tilia* and *Vaccinium*.

***Caliroa cerasi* (Linnaeus, 1758)**

CORK: 29 July 1992, Ringaskiddy, larvae abundant on *Crataegus* and *Prunus* trees, Jacintha Reynolds (NMI); KERRY: August 1926, Valentia Island, larva taken from *Prunus*, adult emerged 1 September 1926, also 1930, larvae taken from *Prunus*, *Pyrus* and *Crataegus*, adults emerged 22/23 June to 10 July 1930, Miss Delap (NMI); TIPPERARY: July 1928, Clonmel, JNH (NMI).

Reported by Stelfox (1929) and Benson (1950, 1952). The species usually feeds on *Malus*, *Prunus* and *Pyrus* but *Amelanchier*, *Amygdalus*, *Cotoneaster*, *Crataegus*, *Cydonia*, *Mespilus*, *Pyracantha*, *Rosa*, *Rubus* and *Sorbus*. *Quercus* and *Salix* are rare hostplants.

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***Caliroa varipes* (Klug, 1816)**

DONEGAL: 10 June 1959, Drumchory Sand Hills, H. W. Daltry (HAGM; Wright, 1986).

The species feeds on *Betula*, *Quercus* and *Salix*.

***Endelomyia aethiops* (Fabricius, 1781)**

ANTRIM: 15 June 1988, Cleggan, ADL (NMI); ARMAGH: 17 May 1912 and 30 May 1919, Poyntzpass, WFJ (NMI); CAVAN: 24 May 1942, 14 and 17 May 1943, Cauhoo, RCF (RSM); 27 May 1934, Farrinseer, RCF (RSM); DONEGAL: 17 and 19 June 1918, Portnoo, WFJ (NMI); FERMANAGH: 29 May 1918, Tempo, WFJ (NMI); KERRY: July 1930, Killarney, lake side, EFB (NMI).

Reported by Johnson (1920) and Benson (1952). The species feeds on *Rosa*.

Phymatocerini

***Eutomostethus ephippium* (Panzer, 1798)**

=*dubius* (Gmelin, 1790): preocc.

ANTRIM: Belfast; ARMAGH: Poyntzpass; CAVAN: Arnaghan; Cornafean; Dunawel; Farnham; Farrinseer; CORK: Glandore; Glenanair; DUBLIN: Lynch Park; KERRY: several localities, Killarney; MAYO: Claremorris; Westport; TIPPERARY: Aherlow; Templemore; WEXFORD: Curracloe T1-2; Killoughrim Forest; Mount Garrett; WICKLOW: Blessington; Devil's Glen; Powerscourt; Woodenbridge.

Reported by Morley (1911), Johnson (1920), Benson (1952), Moller (1974) and Liston and Speight (1981). Adults occurred from 16 May to 7 August. The species feeds on *Poa* and Gramineae.

***Eutomostethus luteiventris* (Klug, 1816)**

ANTRIM; ARMAGH; CAVAN; CORK; DOWN; DUBLIN; FERMANAGH; GALWAY; KERRY: KILDARE; LAOIS; LEITRIM; LIMERICK; LONGFORD; MAYO; MEATH; MONAGHAN; SLIGO; TIPPERARY; WATERFORD; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1952), Moller (1974) and Speight (1983a, b). Adults occurred from 19 May to 15 July. The species feeds on *Juncus effusus*.

***Monophadnus pallescens* (Gmelin in Linnaeus, 1790)**

ARMAGH: Poyntzpass; CAVAN: Arva Road; Brackley Lake; Drumora; Farrinseer; Lough

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Ramor; CORK: Glengarriff Forest; DONEGAL: Portnoo; DOWN: Rostrevor; DUBLIN: Clondalkin O0-3-; Clontarf; Kilbarrack; Lucan; KILDARE: Royal Canal; Rye Water, Leixlip; LAOIS: Portlaoise; LEITRIM: Kilbrackan; MAYO: Belclare; The Mullet; Westport; ROSCOMMON: Rockingham; WICKLOW: Glen of the Downs; Kilmurry; Powerscourt Deerpark.

Reported By Morley (1911), Johnson (1920) and Benson (1952). The species has been found at 274m altitude at Athdown, Co. Wicklow (Stelfox and Faris, ms). Adults occurred from 7 May to 8 August. The species feeds on *Ranunculus*.

[*Stethomostus funereus* (Klug, 1816)]

Johnson (1920) recorded this species (as *Tomostethus funereus* Klug) from Poyntzpass, Co. Armagh and Portnoo, Co. Donegal. According to Stelfox and Faris (ms), two ♀♀ from Poyntzpass belonged respectively to *E. luteiventris* and *Monophadnus pallescens*.

The Donegal material was not located. The host plant is unknown.]

Blennocampini

***Periclista albida* (Klug, 1816)**

CAVAN: 16 May 1942, Shannow Wood, ♀ RCF (RSM).

Reported by Benson (1952). The species feeds on *Quercus*.

****Pareophora pruni* (Linnaeus, 1758)**

TYRONE: 27 May to 2 June 1985, Moy, Malaise trap, M. Boston (NMI).

New to Ireland. The species feeds on *Prunus spinosa*.

***Blennocampa phyllocolpa* Viitasaari and Vikberg, 1985**

= *pusilla* (Klug, 1816): preoccupied by O. F. Müller, 1776

ANTRIM: 17-18 June 1988, Glenarm, ADL (NMI); CAVAN: 21 June 1941, Annagh Lake, Ballyconnell, RCF (RSM); 24 May 1943, Farrinseer, RCF (RSM); 14 May 1943, Loughacconnick, RCF (RSM); 23 May 1943, Lough Mentis, RCF (RSM); 16 May 1942, Shannow Wood, RCF (RSM); CLARE: 29 May 1984, Ballyeighter, JMOC (NMI); DOWN: 13 June 1923, Rostrevor, WFJ (NMI); WEXFORD: 27 May 1987, Killoughrim Forest, JPOC (NMI).

Reported by Benson (1952). The species feeds on *Rosa*.

***Monophadnoides rubi* (Harris, 1845)**

=*geniculatus* (Hartig, 1837): preocc.

CAVAN: 30 May 1934, 27 May 1935, 28 May 1936 and 22 May 1939, Farrinseer, RCF (NMI; RSM); 30 May 1940, Lough Mentis, RCF (RSM); KILDARE: 28 May 1934, Kilcullen, JNH (NMI); LEITRIM: 18 May 1942, Kilbrackan, RCF (RSM); ROSCOMMON: 12 May 1940, Lough Gara, RCF (RSM); TIPPERARY: June 1921, Portumna, JNH (NMI).

Reported by Stelfox (1929) and Benson (1952). The species feeds on *Filipendula*, *Geum urbanum* and *Rubus*.

***Claremontia confusa* (Konow, 1886)**

=*puncticeps* (Konow, 1886)

CAVAN: 9 May 1942, Drumcarban, RCF (RSM); 15 April 1942, Tunnel Hill, Ramore, RCF (RSM; both Liston and Speight, 1981); CLARE: 28 May 1984, Lough Bunny, limestone pavement in the Burren, JMOC (NMI); LAOIS: 22 May 1976, Grantstown Lake Wood, *Schoenus* fen/fen woods, MCDS; OFFALY: 10 May 1984, Charleville Wood, *Quercus* woods, MCDS; ROSCOMMON: 12 May 1940, Lough Gara, RCF (RSM; Liston and Speight, 1981); WICKLOW: 4 June 1978, Buckroneys Fen T2980, fen carr, MCDS; 2 May 1940, Glen west of Deputy's Pass, AWS (NMI); 2 May 1934, Golden Hill, AWS (NMI); also 26 April 1933 (RSM; Liston and Speight, 1981).

Also recorded by Speight (1983b) from Laois. The species feeds on *Fragaria*, *Potentilla reptans* and *Sanguisorba*.

***Claremontia tenuicornis* (Klug, 1816)**

ANTRIM; CARLOW; CAVAN; CLARE; DUBLIN; FERMANAGH; KERRY; KILDARE; KILKENNY; LAOIS; LEITRIM; LONGFORD; LOUTH; MAYO; MEATH; ROSCOMMON; TIPPERARY; WEXFORD; WICKLOW.

Reported by Stelfox (1929), Benson (1952), Moller (1974) and Speight (1983b). Adults occurred from 11 April to August (no date given). In revising the species of *Monophadnoides* formerly included in *Claremontia*, Koch (1988) raised the name *uncta* (Klug) from synonymy and gave morphological characters to separate the adult from *tenuicornis*. Examination of Irish specimens revealed that some of these may indeed be *uncta* as characterised by Koch, but the differences are small and seem to be variable. Biological data from rearing are needed for the

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clarification of this problem. *M. tenuicornis* feeds on *Filipendula ulmaria*. *M. uncta* is possibly associated with *Alchemilla*.

Waldheimiini

***Halidamia affinis* (Fallén, 1807)**

CARLOW: 10 June 1935, near Borris, AWS (NMI); CAVAN: 8 May and 8 June 1942, Cauhoo, RCF (RSM); 2 June 1941, Kilnahard, Lough Sheelin, RCF (RSM); 21 May 1944, Loughaconnick, RCF (NMI); 30 May 1940, Lough Mentis, RCF (RSM); DOWN: 27 May 1973, Moneyreagh, A. Irwin (UM; Moller, 1974); WEXFORD: 29 May 1987, Oaklands Wood, JPOC (NMI).

Also reported by Benson (1952). The species feeds on *Galium aparine* and *G. mollugo*.

TENTHREDINAE

Perinurini

***Perineura rubi* (Panzer, 1805)**

ANTRIM: 14-21 May 1985, Rea's Wood, malaise trap, M. Boston and RN (NMI); CAVAN: 4 May 1941 and 23 May 1943, Lough Mentis, RCF (RSM); 30 May 1982, Virginia Woods, JMOC (NMI); DOWN: 31 May 1926, Rostrevor, WFJ (NMI).

Reported by Benson (1952). The larva, almost certainly on *Rubus*, still awaits discovery. The species is local and sporadic throughout most of north-west Europe in *Rubus idaeus* agg. stands mostly on the edges of damp woodland, or in clearfell sites, but is more abundant, if equally local, on *Rubus saxatilis* in openings under carr and riparian woodland (*Salix*, *Alnus*) in Central Europe (pers. obs.). Of other Irish sawflies on *Rubus*, this could also be said of *Taxonus agrorum*, which however is not so strongly associated with wet sites (cf *Pristiphora atlantica*).

Tenthredinini

***Aglaostigma aucupariae* (Klug, 1817)**

ANTRIM; ARMAGH; CAVAN; CORK; DOWN; DUBLIN; KERRY; KILDARE; LAOIS; LEITRIM; LONGFORD; LOUTH; MEATH; SLIGO; WESTMEATH; WICKLOW.

Reported by Johnson (1920, 1922a), Benson (1952) and Speight (1983b). Adults occurred from 14 April to August. The species feeds on *Galium boreale* and *G. mollugo*.

***Aglaostigma fulvipes* (Scopoli, 1763)**

DUBLIN: Co. Dublin (NMI); LAOIS: 12 June 1927, Portlaoise, RAP (Stelfox, 1929; Stelfox

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and Faris, ms).

Also reported by Benson (1952). The species feeds on *Galium mollugo* and *G. verum*

***Tenthredopsis coquebertii* (Klug, 1817)**

ARMAGH; CLARE; DONEGAL; DOWN; DUBLIN; FERMANAGH; KERRY; LIMERICK; LOUTH; MAYO; ROSCOMMON; WATERFORD; WEXFORD; WICKLOW.

Reported by Morice (1902), Morley (1908, 1911), Johnson (1920, 1922a) and Moller (1974). Adults occurred from 28 May to 10 July. The species feeds on *Glyceria*, *Nardus* and *Poa*.

***Tenthredopsis nassata* (Linnaeus, 1767)**

=*tiliae* (Panzer, 1805)

ANTRIM; ARMAGH; CAVAN; CLARE; CORK; DERRY; DONEGAL; DOWN; DUBLIN; GALWAY; KERRY; KILDARE; KILKENNY; LAOIS; LEITRIM; LONGFORD; LOUTH; MAYO; OFFALY; ROSCOMMON; SLIGO; WATERFORD; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1922a, b), Benson (1952), Moller (1974) and Speight and Healy (1977). Adults occurred from 17 May to 30 July. Johnson (1920) recorded *T. litterata* Geoffroy from Poyntzpass, Co. Armagh and Portnoo, Co. Donegal. The authors consider that these records are probably misidentifications and should be included with the above species. *T. nassata* feeds on *Agropyron*, *Carex* species and *Deschampsia*. *Anthriscus sylvestris* and *Artemisia* are occasional foodplants.

***Rhogogaster viridis* (Linnaeus, 1758)**

ANTRIM; ARMAGH; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; KERRY; KILDARE; MAYO; MEATH; ROSCOMMON; TIPPERARY; WATERFORD; WICKLOW.

Reported By Morley (1911), Johnson (1920), Benson (1943a, 1950, 1952), Moller (1974) and Wright (1986). Adults occurred from 16 May to 13 July. The species feeds on *Alnus*, *Epilobium angustifolium*, *Circaea*, *Filipendula*, *Populus*, *Quercus*, *Salix* and *Stellaria*.

***Tenthredo (Tenthredo) brevicornis* (Konow, 1886)**

=*nitidior* (Konow, 1888)

=*acerrima* Benson, 1952

ANTRIM; ARMAGH; CAVAN; CLARE; CORK; DERRY; DONEGAL; DOWN; DUBLIN; GALWAY; KERRY; KILDARE; LAOIS; LEITRIM; LIMERICK; LOUTH; ROSCOMMON;

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SLIGO; TIPPERARY; WATERFORD, WESTMEATH; WEXFORD and WICKLOW.

Reported by Benson (1952), Moller (1974) and Wright (1986). Adults occurred from 13 May to 20 August. The species feeds on *Lotus corniculatus*.

Tenthredo brevicornis occurs in at least two ecotypic colour forms: a very extensively black female adult with the pale colour markedly greenish in life (first abdominal tergum almost completely black, with only apical margin narrowly pale medially, and all femora extensively black) and a pale form where the yellow colour is intense and clear, not at all greenish (first abdominal tergum with very broad unbroken yellow band apically, and rear femora only slightly smudged fuscous on apex dorsally). In revising the subgenus *Tenthredo*, Taeger (1985) recognised the species as simply highly variable: the status of the forms requires more study. Only the dark form occurs in Ireland and the north and west of Britain. The pale form is doubtfully present as a rarity in south England, but typical of warm, dry sites in lowland areas of continental Europe. It is once again replaced by the dark form in subalpine Switzerland (personal observation).

***Tenthredo (Tenthredo) arcuata* Förster, 1771**

ANTRIM; ARMAGH; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN;
GALWAY; KERRY; LIMERICK; LOUTH; MAYO; MEATH; SLIGO; TIPPERARY;
WICKLOW.

Reported by Morice (1902), Morley (1908, 1911), Johnson (1920, 1922a, 1931), Benson (1940c, 1952) and Moller (1974). Adults occurred from 9 May to 18 September. The species feeds on *Trifolium repens*.

***Tenthredo (Tenthredo) notha* Klug, 1817**

=*schaefferi*: misident.

=*perkinsi* (Morice, 1919)

ANTRIM; ARMAGH; CAVAN; CORK; DONEGAL; DOWN; DUBLIN; GALWAY;
KERRY; KILDARE; LOUTH; MAYO; MEATH; ROSCOMMON; TIPPERARY;
WESTMEATH; WEXFORD; WICKLOW.

Reported by Johnson (1920, 1922a, b, 1931), Benson (1952) and Moller (1974). Adults occurred from 18 May to 5 September. The species feeds on *Trifolium repens* and *Vicia cracca*.

***Tenthredo (Tenthredella) balteata* Klug, 1817**

ANTRIM: Glenarm; Glenariff; Murlough Bay D3244; CAVAN: Arnaghan; Killykeen;
CLARE: Lahinch; DONEGAL: Ards House; DOWN: Rostrevor; DUBLIN: Slade of Saggart
O0324; Upper Glenasmole; KERRY: Uragh Woods; KILDARE: Kilkea Park; MAYO: Achill
Sound (Morley, 1911); Belclare (Morley, 1911); WICKLOW: Athdown; near Clara;
Glendalough; Knockranny; Powerscourt (Wright, 1986).

Also recorded by Benson (1952). Adults occurred from 15 May to 7 August. According to
Stelfox and Faris (ms), the species is common in the mountains up to 518m altitude. The
species feeds on *Hypericum*, *Pteridium aquilinum* and *Sorbus aucuparia*.

***Tenthredo (Tenthredella) ferruginea* Schrank, 1776**

ANTRIM: Glenarm; Lough Neagh; CARLOW: St Mullins; CLARE: Ballyvaughan; Glenville,
Lahinch; DOWN: Mourne Park (Moller, 1974); Newcastle (Wright, 1986); Rostrevor;
DUBLIN: Rathdrum; KERRY: Muckcross, Killarney; KILDARE: Athy; LEITRIM: Clooncoe
Lake; Drumsillagh; MAYO: Achill Sound (Morley, 1911); Mulranny (Morley, 1911); Sraheens
Lough, Achill Sound; WATERFORD: near Passage East; WESTMEATH: Hare Island;
WICKLOW: Clara; Lugnaquilla Mountain; Newtown Mount Kennedy; Powerscourt (Wright,
1986).

Also reported by Benson (1952). Adults occurred from 24 May to September. The species
feeds on *Alnus*, *Aspidium*, *Atropa*, *Filipendula*, *Prunus*, *Pteridium*, *Rubus*, *Salix* and *Sorbus*.

***Tenthredo (Tenthredella) livida* Linnaeus, 1758**

ANTRIM; ARMAGH; CARLOW; CLARE; CORK; DONEGAL; DOWN; DUBLIN;
GALWAY; KERRY; KILDARE; KILKENNY; LEITRIM; LOUTH; MAYO; MEATH;
OFFALY; ROSCOMMON; SLIGO; TIPPERARY; WATERFORD; WESTMEATH;
WEXFORD; WICKLOW.

Reported by Morley (1908, 1911), Johnson (1920, 1922a, b), Benson (1952), Moller (1974)
and Wright (1986). Adults occurred from 14 May to 22 August. The species feeds on *Arctium*,
Athyrium, *Carpinus*, *Corylus*, *Epilobium*, *Fraxinus*, *Lamium*, *Lonicera*, *Melissa*, *Plantago*,
Pteridium, *Rosa*, *Salix*, *Sorbus*, *Symphoricarpos* and *Viburnum opalus*.

***Tenthredo (Tenthredella) colon* Klug, 1817**

ANTRIM: Cleggan; Murlough Bay; CARLOW: Cloughristick; DONEGAL: Ards House;

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DUBLIN: Loughlinstown; Lucan Demense (Wright, 1986); Slade of Saggart O0324; KERRY: Killarney; KILDARE: Leixlip; TIPPERARY: Templemore; WEXFORD: Oaklands Wood; WICKLOW: Glen of Imaal; Newtown Mount Kennedy.

Also reported by Stelfox (1929) and Benson (1952). Adults occurred from 31 May to 20 August. The species feeds on *Epilobium angustifolium*, *Circaea*, *Epilobium*, *Fuchsia*, *Pteridium* and *Salix*.

***Tenthredo (Tenthredella) moniliata* Klug, 1817**

?=*lachlaniana* Cameron, 1878

ARMAGH; CAVAN; DONEGAL; DOWN; DUBLIN; GALWAY; KERRY; KILDARE; KILKENNY; LAOIS; LEITRIM; LONGFORD; LOUTH; MAYO; MEATH; OFFALY; ROSCOMMON; TIPPERARY; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1922a), Benson (1952) and Wright (1986). Adults occurred from 25 May to 31 August. The species has been found at an altitude of 274m in a marsh by the River Liffey in Co. Wicklow (Stelfox and Faris, ms). In the British Isles, *T. moniliata* is associated only with *Menyanthes trifoliata* in fens and peat bogs (Benson, 1952; Liston, 1982; Liston personal observation). A number of other named "colour forms" exist, the status of which remain to be clarified.

***Tenthredo (Tenthredella) atra* Linnaeus, 1758**

=*scotica* Cameron, 1882

=*dispar* Klug, 1817

ANTRIM; ARMAGH; CARLOW; CAVAN; CLARE; CORK; DONEGAL; DUBLIN; GALWAY; KERRY; KILDARE; KILKENNY; LAOIS; LOUTH; MAYO; MEATH; ROSCOMMON; SLIGO; TIPPERARY; WESTMEATH; WICKLOW.

Reported by Morice (1902), Morley (1911), Johnson (1920), Benson (1952), Moller (1974) and Wright (1986). The species occurred on Tonelagee Mountain, Co. Wicklow, at 488m altitude (Stelfox and Faris, ms). Adults occurred from 4 May to 20 August. *T. atra* feeds on *Brassica*, *Lamium*, *Mentha*, *Plantago*, *Ranunculus*, *Scabiosa*, *Solanum* and *Vicia*.

***Tenthredo (Temuledo) celtica* Benson, 1953**

?=*temula* Scopoli, 1763

CARLOW: Carlow; CAVAN: Eighter; Killykeen; Kilnabard; CLARE: Balleigher; north

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Burren M1508, gorge of River Caher; DUBLIN: Glenasmole; KILDARE: Athy District; Leixlip; LAOIS: Grantstown Lake Wood; MAYO: Ashford Castle; MEATH: Batterjohn Big; Trim; ROSCOMMON: Lough Ree; TIPPERARY: Nenagh; WESTMEATH: Kilnashard, Lough Sheelin; Lough Ennell; Lough Owel; WICKLOW: Glencullen; Killegar; Powerscourt; Rocky Valley.

Also reported by Stelfox (1929), Benson (1952, 1953b, 1966), Speight (1983b) and Wright (1986). Adults occurred from 15 May to 20 June. The hostplant is unknown.

***Tenthredo (Eurogaster) mesomela* Linnaeus, 1758**

ANTRIM; ARMAGH; CARLOW; CLARE; CORK; DONEGAL; DOWN; DUBLIN; GLAWAY; KERRY; KILDARE; LAOIS; LEITRIM; LOUTH; MAYO; MEATH; OFFALY; ROSCOMMON; TIPPERARY; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920), Benson (1943a, 1952), Moller (1974) and Speight (1983b). Adults occurred from 15 May to 18 July. The species feeds on *Arctium lappa*, *Epilobium*, *Heracleum*, *Polygonum persicaria*, *Ranunculus*, *Rumex*, *Salix*, *Tussilago* and *Veronica*.

***Tenthredo (Eurogaster) mioceras* (Enslin, 1912)**

ANTRIM: 13 July 1947, Belfast (Whitewell), RCF (RSM); CAVAN: 7 June 1934, 12 and 13 June 1949, Annagh Lake, RCF (RSM); 26 June 1949, Farnham, RCF (RSM); 13 July 1941, Farrinseer, RCF (RSM); 29 May 1944, Killykeen, RCF (RSM); 23 May 1943, Lough Mentis, RCF (RSM); 27 July 1933 and 9 June 1934, Sloans Fort, RCF (RSM).

In addition to Cavan, Benson (1952) also records the species from Co. Wicklow. Also reported by Benson (1943a). The species lives on *Atropa*, *Dryopteris*, *Heracleum*, *Ranunculus* and *Senecio fuchsii*.

***Tenthredo (Eurogaster) obsoleta* Klug, 1817**

CAVAN: 9 June 1933 and 25 June 1933, Gartinadress, RCF (RSM; Benson, 1943a); DONEGAL: 20 June 1898, St Ernans, WFJ (NMI); MAYO: 18 June 1936, The Mullet, AWS (RSM; Liston and Speight, 1981).

Also reported by Benson (1952). The species lives on *Plantago*.

[*Tenthredo (Olivacedo) olivacea* Klug, 1817

Throughout Ireland and Britain (Benson 1943a). Stelfox and Faris (ms) and Benson (1952)

states that the species does not occur in Ireland and we have not located any Irish specimens. The species feeds on *Myosotis*, *Plantago*, *Ranunculus* and *Veronica*.]

***Pachyprotasis antennata* (Klug, 1817)**

CARLOW: Borris (Wright, 1986); CAVAN: Arva Road, Bellanagh; Castle Hamilton; Cahoon; Drumcarban; Farnham; Farrinseer; Gartanoul; Lough Oughter; CLARE: Dromore; Glenville, Lahinch; DERRY: Magilligan (Moller, 1974); DOWN: Rostrevor; GALWAY: Clonbrock; KERRY: Muckross, Killarney; KILKENNY: Bennetsbridge; LAOIS: The Derries N5805; MAYO: Belclare (Morley, 1911); Mulranny (Morley, 1911); OFFALY: Charleville; WICKLOW: Arklow District; Athdown; Clara; Coan; Glenmacnass; Powerscourt (Wright, 1986); Powerscourt Deerpark; Rathdrum.

Also reported by Benson (1952). Adults occurred from 2 June to 20 August. The species feeds on *Alnus incana*, *A. glutinosa*, *Atropa bella-donna*, *Circaea lutetiana*, *Filipendula*, *Fraxinus*, *Mentha aquatica*, *Rubus idaeus*, *Salix caprea* and *Senecio fuchsii*.

***Pachyprotasis rapae* (Linnaeus, 1767)**

ANTRIM; ARMAGH; CARLOW; CAVAN; CORK; DONEGAL; DOWN; DUBLIN; GALWAY; KERRY; KILKENNY; LAOIS; LEITRIM; LOUTH; MAYO; ROSCOMMON; SLIGO; TIPPERARY; WATERFORD; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1922a), Benson (1952), Moller (1974) and Wright (1986). Adults occurred from 21 May to 8 August. The species feeds on *Angelica sylvestris*, *Anterrhinum*, *Aspidium*, *Atropa*, *Betonica*, *Corylus*, *Fraxinus*, *Galeopsis*, *Hypericum*, *Mentha*, *Origanum*, *Pedicularis palustris*, *Plantago*, *Quercus*, *Sarothamnus*, *Scrophularia*, *Senecio fuchsii*, *Solanum tuberosum*, *Solidago*, *Stachys*, *Tussilago*, *Verbascum* and *Veronica*.

***Macrophya* (*Macrophya*) *duodecimpunctata* (Linnaeus, 1758)**

KERRY: June 1927, Killarney, EFB (NMI).

Reported by Speight and de Courcy Williams (1981). The species feeds on *Carex* and other Cyperaceae and on hard-leaved Gramineae.

***Macrophya* (*Pseudomacrophya*) *punctumalbum* (Linnaeus, 1758)**

= *parvula*: sensu Enslin, 1912-1918 and Liston, 1987

CARLOW: 8 June 1935, Borris, near the River Barrow among seedlings of *Fraxinus*, AWS (NMI); LAOIS: 21 May 1933, Tankardstown, on the River Barrow and on *Fraxinus* on the

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west side of the road, G. M. Stelfox (USNM); ROSCOMMON: 20 June 1976, Lough Ree, on lake-side vegetation, edge of deciduous woods, MCDS; WICKLOW: 15 May 1938, Devil's Glen, AMG (USNM).

Reported by Benson (1952) who states "Co. Dublin only, probably introduced". Lorenz and Kraus (1957) considered that treatment of *Pseudomacrophya* as a genus would be justified because of the distinctive larval morphology. The only other known species is *M. (P.) hispana* Konow which occurs in two subspecies, ssp. *africana* Forsius in North Africa associated with *Fraxinus angustifolia* (Lacourt, 1985). In Europe, *M. punctumalbum* is known to feed on leaves of *Fraxinus excelsior* and *Ligustrum*, both as adult and larva. This habit, apparently confined to adult sawflies of this subgenus, is known in both taxa (Lacourt, 1985; Liston personal observation).

NEMATINAE

Cladiini

Cladius difformis (Panzer, 1799)

CORK: Gardiner's Hill; DONEGAL: Columbkille (Moller, 1974); DOWN: Bryansford; Donaghadee; DUBLIN: Cappagh House; Clondalkin O0631; Kilbarrack; Shankill; KILDARE: Royal Canal; LAOIS: Abbeyleix; The Derries N5705; WEXFORD: Duncannon; WICKLOW: Carriggowerbeg.

Also reported by Benson (1958a) and Speight (1983b). Adults occurred from 4 May to 9 September. The species feeds on *Filipendula*, *Fragaria* and *Rosa*.

Cladius pectinicornis (Geoffroy, 1785)

ANTRIM: Portrush; CAVAN: Cornafean; Drumcarban; Lavey; CLARE: Burren M0801; near Shandangan Lough; Slieve Elva; DONEGAL; Bundoran; Portnoo; DOWN: Rostrevor; DUBLIN: Dublin; Dundrum; Glenasmole; Harold's Cross; KILDARE: Louisa Bridge; LAOIS: Woodbrook N5109; MAYO: Achill; ROSCOMMON: Corrigeenroe; SLIGO: Glencar; WEXFORD: Ballyteigue; Cahore; Kilgorman; WICKLOW: Magherabeg.

Reported by Morley (1911), Johnson (1920) and Benson (1958a). Adults occurred from 12 May to 14 August. According to Stelfox and Faris (ms), the species was found at 427m on bog on Cloghoge, Co. Wicklow. The species feeds on *Filipendula*, *Fragaria*, *Lamium*, *galeobdolon*, *Sanguisorba sanguisorba* and *Rosa*.

***Priophorus morio* (Lepeletier, 1823)**

=*brullei* Dahlbom, 1835

=*tristis* (Zaddach, 1859)

=*tener* (Zaddach, 1859)

ANTRIM: Carnlough; Killead; CAVAN: Cauhoo; Lough Mentis; Portlongfield; Virginia Woods; CORK: Rostellan; DONEGAL: Finner; DOWN: Dundrum; Tullybrannigan; DUBLIN: Clontarf; Harold's Cross; Kilbarrack; KILDARE: Newbridge Fen N7616; Royal Canal; MEATH: Navan; WEXFORD: Ballyhighland Forest; WICKLOW: Glen of the Downs; Tinode.

Reported by Stelfox (1929), Benson (1958a) and Wright (1986). According to Johnson (1920), this species (as *P. tristis* Zaddach) was taken at Belfast by H. L. Orr in June but no specimens have been located. Adults occurred from 11 April to August. The species feeds on *Rubus* spp.

***Priophorus pallipes* (Lepeletier, 1823)**

ANTRIM: Glenarm; Rathlin; ARMAGH: Poyntzpass (Johnson, 1920); CAVAN: Cauhoo; Farrinseer, reared from *Betula*; Lough Mentis; CORK: Gardiner's Hill; Glengarriff; DOWN: Dromore; Six Road Ends (Moller, 1974); DUBLIN: Dundrum; Glenasmole; Harold's Cross; Phoenix Park; Portmarnock; Poulaphoca; Slade of Saggart; St Anne's, Clontarf; KERRY: Killarney; LAOIS: Abbeyleix; Rathdowney; LONGFORD: Sixtowns; LOUTH: Termonfeckin; MEATH: Cross Keys; TIPPERARY: Clonmel; near Roscrea; WEXFORD: Cahore; Curracloe; Stoneyford; WICKLOW: Avoca; Clara; Glen of the Downs; Glending (Wright, 1986); Golden Hill; Tinode.

Also reported by Benson (1958a). Adults occurred from 17 April to 19 August. They have been reared from larvae on *Betula* (Stelfox and Faris, ms). The species also feeds on *Aronia arbutifolia*, *Corylus*, *Cotoneaster*, *Crataegus*, *Fragaria*, *Laurus nobilis*, *Prunus*, *Rosa*, *Rubus* and *Sorbus*.

***Priophorus rufipes* Lepeletier, 1823**

DOWN: 7 August 1957, Newcastle Dunes, AWS (NMI); DUBLIN: 3 June 1933 and 9 September 1934, Harold's Cross, AWS (NMI); KERRY: August 1927, Flesk, Killarney, EFB (NMI); KILDARE: 17 July 1943, Royal Canal, AWS (NMI); MAYO: July 1911, Westport, JNH (NMI); WICKLOW: August 1928, Devil's Glen, EFB (NMI).

Reported by Benson (1958a) from Dublin and Wicklow (as *ulmi* (L.)). The species feeds on

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Ulmus.

***Trichiocampus ulmi* (Linnaeus, 1758)**

= *laevifrons* Benson, 1936

DUBLIN: 23 May 1936, St Anne's, Clontarf, EOM (NMI); WICKLOW: 15 May 1975, Knocksink, deciduous woods, MCDS.

Reported from Co. Dublin by Benson (1958a) (as *laevifrons* Benson) and from Westport, Co. Mayo by Morley (1911). The species feeds on *Ulmus*.

***Trichiocampus grandis* (Lepelletier, 1823)**

= *viminalis* (Fallén, 1808): *preocc.*

DUBLIN: 1936, emerged 1937, Bride's Glen, larva on *Populus*, AAL (NMI); KERRY: 28 June 1928, Valentia Island, Canon Foster (NMI); KILDARE: 23 August 1947, Rye Water, Leixlip, larva on *Populus tremula*, emerged 25 July 1948, AWS (RSM).

Reported by Morley (1911) and Benson (1958a). A ♀ emerged on 25 July 1948 from larvae collected on 23 August 1947 on *Populus* at Rye Water, Co. Kildare (Stelfox and Faris, ms). The species also feeds on *Salix*.

***Trichiocampus pilicornis* (Curtis, 1831)**

ANTRIM: Glendun; Killead; ARMAGH: Poyntzpass; CAVAN: Annagh Lake; Bellanagh Lake; Butlersbridge; Cauhoo; Cornafean; Farrinseer; Loughaconick; Sloan's Fort; DOWN: Rostrevor; DUBLIN: Clondalkin O0631; Clontarf; Glenasmole; Harold's Cross; Kilbarrack; Phoenix Park; St Anne's, Clontarf; Prospect, Templeogue; KILDARE: Landenstown; Rye Water, Leixlip; WEXFORD: CAhore; WICKLOW: Deputy's Pass; Devil's Glen; Powerscourt Deerpark.

Reported by Johnson (1920, 1922b) and Benson (1958a). Adults occurred from 17 April to 18 August. The species lives on *Crataegus*.

Pseudodineurini

***Pseudodineura fuscula* (Klug, 1816)**

TYRONE: 27 May 1987, Pomeroy, swept from *Ranunculus repens*, ADL (RSM; Liston, 1988).

The species feeds on *Ranunculus*.

Hoplocampini

***Hoplocampa alpina* (Zetterstedt, 1838)**

WESTMEATH: 29 May 1932 and 26 May 1940, Ballyhealy, AWS (NMI; RSM).

Reported by Benson (1958a). The species feeds on *Sorbus aucuparia*.

***Hoplocampa chrysorrhoea* (Klug, 1816)**

CAVAN: 4 May 1941, Lough Mentis, RCF (RSM); 6 May 1941, Arva Road, Annagh Lake, RCF (RSM); 3 May 1948, Cauhoo, RCF (RSM); CLARE: 22 April 1984, Lough Bunny, JMOC (NMI); DUBLIN: 2 May 1909, Howth Woods, JNH (NMI); KILDARE: 30 April 1934, Ardri, Athy, AWS (NMI); WEXFORD: 15 May 1932, east of Ballyanne, AWS (NMI); 20 May 1934, near Camlin Hill, AWS (NMI).

Reported by Miles (1936) and Benson (1958a). These authors also mention Kerry. The species feeds on *Prunus* particularly on *P. avium* and *P. spinosa*, and less on the domestic spp.

***Hoplocampa crataegi* (Klug, 1816)**

ARMAGH: Poyntzpass, WFJ (NMI); CARLOW: 16 May 1935, St Mullins, AWS (NMI); CAVAN: 24-25 May 1942, Cauhoo, RCF (RSM); 3 June 1941, Farrinseer, RCF (RSM); 16 June 1941, Portlongfield, RCF (RSM); DUBLIN: 7 June 1981, Clondalkin O0630, JPOC (NMI); May 1928, Dundrum, EFB (NMI); 23 May 1955, Harold's Cross, AWS (NMI); 23 May 1926, Portrane, AWS (NMI); 6 June 1934, Slade of Saggart O0325, AWS (HAGM; NMI); KILDARE: 9 May 1926, Sallins, AWS (NMI); WICKLOW: 28 May 1934, Kilcullen, JNH (NMI).

Reported by Stelfox (1929), Benson (1958a) and Wright (1986). The species feeds on *Crataegus*.

***Hoplocampa flava* (Linnaeus, 1761)**

CAVAN: 16 April 1943, Loughaconnick, RCF (RSM).

Recorded by Johnson (1920) (as *Hoplocampa ferruginea* Panzer) from Poyntzpass, Co. Armagh but we have not located this material. The Loughaconnick specimens were on *Prunus spinosa* (Stelfox and Faris, ms). These authors give another record from Athy, Co. Kildare, on 2 May 1928 (♀, J. O'Mahony) but we have not found this specimen. Also reported by Benson (1958a). The species also feeds on *P. domestica*.

***Hoplocampa pectoralis* Thomson, 1871**

CAVAN: 1 June 1933, Belturbet; 24 May 1942, Cauhoo, RCF; 3 June 1941 and 6 June 1951, Farrinseer; 2 May 1943, Killykeen; 14 May 1943, Loughaconnick, all RCF (RSM); DUBLIN: 31 May 1924, Kilbarrack, EOM (NMI); 23 May 1926, Portrane, AWS (NMI); 6 June 1934, Slade of Saggart O0325, AWS (NMI); 5 June 1937, St Anne's, Clontarf, EOM (NMI); KERRY: 13 April and 9 May 1929, Ardagh, Killarney, EFB (NMI); KILDARE: 28 May 1934, Kilcullen, JNH (NMI); 9 May 1926, Sallins, AWS (NMI); LAOIS: 10 May 1926, Portlaoise, RAP (NMI); WICKLOW: 19 May 1927, Glencullen, AWS (NMI).

Reported by Stelfox (1929) and Benson (1958a). The species feeds on *Crataegus*. Adults are sometimes observed at the flowers of *Sorbus aucuparia*.

***Hoplocampa fulvicornis* (Panzer, 1801)**

= *rutilicornis* (Klug, 1816)

CAVAN: 6 May 1940, Annagh Lake, Arva Road; 20 May 1941, Ballyhugh; 3 May 1943, Cauhoo; 28 April 1940, Drumora; 3 May 1941, Farnham; 16 April 1943, Loughaconnick, all RCF (RSM); WEXFORD: 14 May 1932, Nelson's Bridge, AWS (NMI).

Benson (1958a) records the species from Cavan and Kerry. *H. fulvicornis* feeds mainly on *Prunus spinosa* and is less common on other species of *Prunus*.

Dineurini

***Hemichroa australis* (Lepeletier, 1823)**

CAVAN: 1947, no locality, larva on *Betula*, emerged 27 July and 3 August 1948, RCF (RSM); DOWN: Newcastle, JNH (NMI); DUBLIN: 19 June 1938, Glenasmole, EOM (NMI); 26 June 1976, Bull Island O2538, on *Alnus* in dune slack (Speight and Moller, 1979); KERRY: July 1923, 1925, Killarney, EFB (NMI); LEITRIM: 7 July 1947, Kilbrackan, larva on *Alnus*, emerged 9 May 1948, RCF (RSM); WICKLOW: 28 September 1930, Ballyhenry quarry, larva on *Alnus*, emerged 25 May 1931, AWS (NMI).

Also reported by Stelfox (1929) (as *alni* L.). ♀♂ have been bred from larvae on *Alnus* and *Betula* in Co. Cavan (Stelfox and Faris, ms).

***Hemichroa crocea* (Fourcroy, 1785)**

ANTRIM: 4 July 1973, Rathlin, tetralogical specimen, RN (UM; Moller, 1974); CAVAN: 23 May 1943, Lough Mentis, RCF (RSM); CLARE: 20 May 1928, Kilrush, RAP (NMI);

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DUBLIN: 18 October 1931, Kelly's Glen, adults emerged 10-30 May 1932 from larvae on *Alnus*, AWS (BMNH; HAGM; NMI; Wright 1986); 8 October 1941, Slade Brook, Glenasmole, larva on *Corylus*, emerged 6 August 1942, AWS (RSM); KERRY: 6 May 1987, Glanmore Lake, *Alnus/Salix* scrub pasture, lakeshore, MCDS; 16 August 1978, Tomies Wood, Killarney, *Quercus* woods, MDCW (MCDS); LEITRIM: 1963, Keeldragh, Lough Cloone, from stomach of rainbow trout *Oncorhynchus mykiss* (Walbaum) (NMI).

Stelfox (1929) mentions Clare. Also reported by Benson (1958a). The usual hostplant is *Betula pendula*. *Corylus* is also used but rarely.

***Anoplonyx destructor* Benson, 1952**

ANTRIM: 21 May to 17 June 1988, Glenarm, ADL (NMI); DONEGAL: 30 May 1975, Ards Forest, mixed woodland on the coast, MCDS (Speight, 1979); TYRONE: 15 May 1983, Knockmany Forest, M. Boston (NMI); 27 May 1987, Pomeroy, swept from *Larix*, ADL (RSM; Liston, 1988); WICKLOW: 4 May 1975, Carriglinneen, swept from *Vaccinium* by stream, edge of mixed woods at 229m, MCDS (Speight, 1979).

The species feeds on *Larix* spp.

***Platycampus luridiventris* (Fallén, 1808)**

ANTRIM: 14 May 1988, near Randalstown, old wood, ADL (NMI); CAVAN: 15 May 1943, Farnham, reared from larvae on *Alnus glutinosa*, RCF (RSM); 8 May-11 June (1936-1948) there are many specimens from other Cavan sites (Annagh Lake, Cloggy, Gartinandress, Killykeen, Lough Mentis) RCF (RSM); KERRY: Muckcross, Killarney, JNH (NMI); KILDARE: 13 July 1979, Newbridge Fen N7715, fen, MCDS; WICKLOW: 28 September 1930, Ballyhenry Quarry, on *Alnus*, emerged 15 May 1931, AWS (NMI); 30 May 1933, Powerscourt Deerpark, AWS (NMI).

Reported by Stelfox (1929) and Benson (1958a). *P. luridiventris* feeds on *Alnus glutinosa*. There may be a sibling species on *A. incana*.

***Dineura virididorsata* (Retzius in Degeer, 1783)**

CAVAN: Nahillah Park, Cloverhill; CLARE: Kilrush; DONEGAL: Ards House; DUBLIN: Slade Brook; OFFALY: All Saints Bog N0010; WESTMEATH: Ballyhealy; Lough Ennell; WICKLOW: Athdown; Clara; Glenmalur.

Reported by Stelfox (1929) and Benson (1958a). Adults occurred from 12 May to 22 June.

Larvae were found on *Betula* at the Slade Brook site at 305m altitude and successfully reared (Stelfox and Faris, ms).

***Dineura stilata* (Klug, 1816)**

ARMAGH: 4 June 1930, Poyntzpass, WFJ (NMI); CAVAN: 10 August 1947, Farrinseer, larva on *Crataegus*, emerged 15 May 1948, RCF (RSM); CLARE: 29 May 1976, Dromore, MCDS; DOWN: 30 May 1957, Tullybrannigan, AWS (NMI); DUBLIN: 6 June 1935, Prospect, Templeogue, AMG (NMI); KILDARE: 24 June 1951, Landenstown, AWS (NMI); WEXFORD: 13 June 1986, Stoneyford, JPOC (NMI).

Reported by Johnson (1920) and Benson (1958a). The species feeds on *Crataegus*.

***Dineura testaceipes* (Klug, 1816)**

ARMAGH: Poyntzpass; CAVAN: Cauhoo; CLARE: Kilrush; DOWN: Warrenpoint; DUBLIN: Harold's Cross; St Anne's, Clontarf; LOUTH: Carlingford; TIPPERARY: near Roscrea; WESTMEATH: Ballinlough; WICKLOW: Devil's Glen; Glencullen; Glendalough; King's River; Manor Kilbride; Powerscourt Deerpark.

Reported by Johnson (1920, 1922a) and Benson (1950, 1958a). Adults occurred from 19 May to 15 June. The species feeds on *Sorbus aucuparia* and *S. torminalis*.

***Nematinus acuminatus* (Thomson, 1871)**

CAVAN: July and August 1947, Cornafean, larvae on *Betula*, ♀♀ emerged 28-29 June 1948, RCF (RSM); 3 July 1941, Nahillah Park, Cloverhill, RCF (RSM).

Collected in Dublin by AWS according to Benson (1958a) but this is evidently an error as the record is not cited by Stelfox and Faris (ms). These authors state that one of the reared Cornafean specimens (♀) was sleeved on *Betula* and produced larvae parthenogenetically from which a ♀ emerged on the 21 June 1949. *Corylus* is a rare hostplant.

***Nematinus caledonicus* (Cameron, 1882)**

DOWN: 26 August 1972, Six Road Ends, old peat bog, ♀, A. Irwin (UM; Moller, 1974).

The species feeds on *Betula*.

***Nematinus fuscipennis* (Lepeletier, 1823)**

=*abdominalis* (Panzer, 1799): *misident.*

ANTRIM: Massereene (Moller, 1974); ARMAGH: Oxford Island, Lough Neagh (Moller, 1974); CARLOW: St Mullins; CAVAN: Annagh Lake; Killykeen; CORK: Glengariff Forest;

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Mallow; KERRY: Killarney; WATERFORD: Lismore; WEXFORD: Rosslare; WICKLOW: Arklow District; Ballyhenry (also Wright, 1986).

Also reported by Stelfox (1929) and Benson (1958a). Adults occurred from 30 May to 28 September. The species feeds on *Alnus*.

***Nematinus luteus* (Panzer, 1804)**

CAVAN: 21 May 1934, Arva Road, sandpit; 26 May 1934, Annagh Lake, RCF (RSM); 11 June 1936, Cloggy; 21 May 1934, Farrinseer; 31 August 1947, Finea, larva on *Alnus*, emerged 21 May 1948, all RCF (RSM); DUBLIN: 7 June 1981, Clondalkin O0630, public park, JPOC (NMI); 14 June 1934, Glenageary, JNH (NMI); 17 June 1942, Glenasmole, AWS (NMI); 14 June 1950, Upper Dodder, AWS (NMI); KERRY: June 1936, Flesk, Killarney, EFB (NMI); 7 July 1930, Killarney, lake side, EFB (NMI); WESTMEATH: 26 June 1977, Hare Island, swept lake-shore with *Alnus/Phragmites/Salix* etc., MCDS; WICKLOW: 28 September 1930, Ballyhenry, AWS (HAGM; Wright, 1986).

Also reported by Stelfox (1929) and Benson (1958a). Adults have occasionally been bred from larvae on *Alnus* (Stelfox and Faris, ms).

***Nematinus willigkiae* R. von Stein, 1926**

CAVAN: 21 May 1934, Annagh Lake, RCF (RSM); 10 August 1947, Farrinseer, larva on *Alnus*, emerged 8 May 1948, RCF (RSM); DONEGAL: 26 June 1955, Clonmany, AWS (NMI); FERMANAGH: 29 August 1972, Castle Archdale, campsite, C. Reid (UM; Moller, 1974); WATERFORD: 13 June 1900, Lismore, JNH (NMI); 28 June 1983, Woodstown, JPOC (NMI); WICKLOW: 28 September 1930, Ballyhenry, larvae on *Alnus*, emerged 21 and 25 June 1931, AWS (BMNH; NMI); 10 July 1926, Rathdrum, JNH (NMI).

Reported by Benson (1958a) from Co. Wicklow. According to Stelfox and Faris (ms), adults were repeatedly bred from larvae on *Alnus* in Co. Cavan (cited localities: Annagh Lake, Ballyconnell; Killykeen, Lough Mentis and Lough Oughter). *Corylus avellana* is a rare hostplant.

Mesoneurini

***Mesoneura opaca* (Fabricius, 1775)**

DUBLIN: 19 May 1936, St Anne's, Clontarf, EOM (NMI); KILKENNY: 16 May 1932, Clodeagh, AWS (USNM).

Reported by Benson (1958a). The species feeds on *Quercus robur*.

Nematini

Pristiphora (Lygaeonematus) abietina (Christ, 1791)

= *pini* (Retzius, in Degeer, 1783): preocc.

ARMAGH: Poyntzpass (Johnson, 1920); DUBLIN: no other details (Benson, 1935); Stelfox and Faris (ms) mention St Anne's, Clontarf; LAOIS: 26 May 1978, Creggan Lough, mixed woods on partially drained valley bog (Speight, 1983a, b); WEXFORD: 15 May 1932, south of Cushenstown, AWS (USNM); WICKLOW: 15 May 1938, Devil's Glen, AWS (USNM); 1 May 1935, Golden Hill, AWS (NMI); 16 May 1929, Powerscourt Deerpark, AWS (USNM).

Benson (1935) also mentions Wicklow. The species feeds on *Picea*.

Pristiphora (Lygaeonematus) erichsonii (Hartig, 1837)

WICKLOW: 1 May 1935, Golden Hill, AWS (USNM).

Reported by Benson (1958a). According to Stelfox and Faris (ms), the above specimen (♀) was beaten off *Larix* on a cold windy day at 274m altitude. The species feeds on *Larix*.

**Pristiphora (Lygaeonematus) wesmaeli* (Tischbein, 1853)

DUBLIN: St Anne's, Clontarf, on *Larix kaempferi* (NMI).

New to Ireland. The species feeds on *Larix*.

**Pristiphora (Lygaeonematus) kamtschatica* Malaise, 1931

= *paedida*: misident.

= *luteiventris* Koch, 1989

CLARE: 28 May 1984, Lough Bunny, pavement limestone in the Burren, JMOC (NMI).

New to Ireland. The species feeds on *Rosa*.

Pristiphora (Pristiphora) punctifrons (Thomson, 1871)

= *viridana* Konow, 1902

ANTRIM: 19 June 1988, Cleggan, ADL (NMI); ARMAGH: 22 May 1915 and 1919, Poyntzpass, WFJ (NMI; Johnson, 1920); CAVAN: 20 May 1942, Raheelan (RSM; Liston and Speight, 1981); TYRONE: 3-9 June 1985, Moy, malaise trap, M. Boston (NMI).

The species feeds on *Rosa*.

Pristiphora (Pristiphora) biscais (Förster, 1854)

CAVAN: 2 May 1943, Killykeen, Lough Oughter, RCF (RSM; Liston and Speight, 1981);

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DOWN: May 1969, Bangor, C. Reid (UM; Moller, 1974); WICKLOW: 30 April 1926, Arklow District, AWS (USNM); 21 July and 11 August 1940, Glen of Imaal, AWS (NMI, USNM).

Also reported by Stelfox (1929) and Benson (1958a). The species feeds on *Prunus spinosa*.

***Pristiphora (Pristiphora) cincta* Newman, January 1837**

=*quercus* (Hartig, March 1837)

ANTRIM: 5 June 1988, Slievanorra, swept from *Vaccinium*, ADL (NMI); CAVAN: 18 May 1943, Shannow Wood, RCF (RSM); DUBLIN: 14 June 1975, Tibbradden Mountain, swept, *Vaccinium* at 229m, MCDS; 14 June 1950, Upper Dodder, AWS (NMI); TIPPERARY: 1 June 1944, Ballinacourty, AWS (NMI); WICKLOW: 13 June 1937, Athdown, AWS (NMI).

Reported by Stelfox (1929) and Benson (1950, 1958a). According to Stelfox and Faris (ms) a ♀ was taken at 305m altitude at Slade Brook, Glenasmole, Co. Dublin, on 15 June 1927. The species feeds on *Betula*, *Vaccinium* and *Salix* (Finland).

***Pristiphora (Pristiphora) aphantoneura* (Förster, 1854)**

=*fulvipes* (Fallén, 1808): preocc.

CAVAN: Shannow Wood; CLARE: Slieve Elva; DOWN: Drinnahilly; DUBLIN: Portmarnock; Portrane; KERRY: Killarney; KILDARE: Grand Canal; LEITRIM: Keeldragh, Lough Cloone, from the stomach of a rainbow trout; MAYO: The Mullet; SLIGO: Trawalua; WEXFORD: Cahore; Raven Point; WICKLOW: Brittas Bay; Buckroney; Coan, 305m altitude; Killegar.

Reported by Stelfox (1929) and Benson (1958a). Adults occurred from 26 April to 2 September. According to Stelfox and Faris (ms), the statement in Benson (1958a) that this species is parthenogenetic in Britain does not apply to Ireland. The species feeds on *Salix*.

****Pristiphora (Pristiphora) luteipes* Lindqvist, 1955**

DUBLIN: 3 September 1942, Portmarnock, off *Salix*, AWS (NMI); 2 September 1931, Portrane, AWS (USNM); SLIGO: 25 June 1936, Trawalua, AWS (USNM); WICKLOW: 5 July 1946, Buckroney T3080, AWS (USNM).

New to Ireland. The species feeds on *Salix*.

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***Pristiphora (Pristiphora) brevis* (Hartig, 1837)**

= *thalictri*: misident.

= *fuscata* Benson, 1943

CAVAN: 16 May 1948, Scrabby Bridge, RCF (RSM).

Reported by Benson (1958a). According to Stelfox and Faris (ms), the species was found on *Thalictrum flavum*.

***Pristiphora (Pristiphora) geniculata* (Hartig, 1840)**

WICKLOW: 7 June 1934, Powerscourt Deerpark, ♀ beaten off *Sorbus aucuparia* at 335m altitude, AWS (USNM; Stelfox and Faris, ms).

Reported by Benson (1950, 1958a). According to Stelfox and Faris (ms), another ♀ was taken on *S. aucuparia* by Ms G. C. Scott on 8 June 1932 at Glencree, Co. Wicklow.

***Pristiphora (Pristiphora) testacea* (Jurine, 1807)**

= *betulae* (Retzius in Degeer, 1783): preocc.

ARMAGH: Poyntzpass (Johnson, 1920); CAVAN: 24 July 1949, Farrinseer, RCF (RSM); 19 May 1940, Gartinadress, RCF (RSM); 7 September 1947, Nahillah Park, on *Betula*, emerged June 1948, RCF (BMNH; RSM); DUBLIN: Shankill, on *Betula*, emerged 25 and 30 July 1929, AAL (BMNH; HAGM; NMI); KILDARE: 17 September 1951, Skerries Bog, emerged 10 and 13 May 1952, AWS (NMI).

Also reported by Stelfox (1929), Benson (1958a) and Wright (1986).

***Pristiphora (Pristiphora) atlantica* Lacourt, 1987**

= *denudata* Konow, 1902: preocc.

CAVAN: 17 May 1948, Annagh Lake, RCF (RSM); 16 May 1942 and 4 May 1943, Cauhoo, RCF (RSM); 5 June 1946, Farrinseer, RCF (RSM); 6 June 1942, Killykeen, RCF (RSM); 14 May 1943, Loughaconnick, RCF (RSM); DOWN: 27 June 1973, Stormont, A. Irwin (UM; Moller, 1974); DUBLIN: 17 May 1926, Shankill, AWS (NMI); MAYO: 17 July 1910, Louisburgh, Morley (NMI); WICKLOW: 29 May 1949, Kippure House, AWS (NMI).

Also reported by Benson (1943b, 1950, 1958a). This is a species with an atlantic distribution (Benson, 1966), apparently associated with *Rubus idaeus* agg. Lacourt (1976) records only *R. ulmifolius* as a host.

***Pristiphora (Pristiphora) pallidiventris* (Fallén, 1808)**

ARMAGH; CAVAN; CLARE; DONEGAL; DUBLIN; KERRY; KILDARE; KILKENNY; LAOIS; MAYO; OFFALY; ROSCOMMON; SLIGO; WATERFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920) and Benson (1958a, 1966). Adults occurred from 4 May to 6 September. The species feeds on *Filipendula*, *Geum*, *Potentilla* and *Rubus*.

***Pristiphora (Pristiphora) rufipes* (Lepeletier, 1823)**

=*pallipes* Lepeletier, 1823: preocc.

ANTRIM: 16 and 18 April 1988, Glenarm, ADL (NMI); DUBLIN: emerged 7 August 1933, Monkstown, G. C. Scott (NMI); 1 July 1937, Seapoint, BPB (NMI).

Reported by Stelfox (1929) and Benson (1958a). The species feeds on *Ribes rubum* and *R. uva-crispa*.

***Pristiphora (Pristiphora) ruficornis* (Olivier, 1811)**

ARMAGH: Poyntzpass; CAVAN: Cahoon (Liston and Speight, 1981); Farrinseer (Liston and Speight, 1981); CLARE: Kilrush; DONEGAL: Coolmore (Johnson, 1920); Portnoo; DUBLIN: Dundrum; KERRY: Killarney; TIPPERARY: Clonmel.

Adults occurred from April (no date given) to 24 August. The species feeds on *Betula*.

***Pristiphora (Pristiphora) armata* (Thomson, 1862)**

=*crassicornis* (Hartig, 1837): preocc.

CAVAN: 21 July 1945, Farrinseer, RCF (RSM; Liston and Speight, 1981); also 10 August 1947, larva on *Crataegus*, emerged 7 May 1948, RCF (RSM); 21 May 1944, Loughaconnick, RCF (RSM; Liston and Speight, 1981); DOWN: 1 June 1938, Donaghadee, AWS (NMI); DUBLIN: 5 August 1932, Harold's Cross, AWS (NMI); KILDARE: 5 May 1940, Rye Water, Leixlip, AWS (NMI).

Also reported by Stelfox (1929). The species feeds on *Crataegus*.

***Pristiphora (Pristiphora) melanocarpa* (Hartig, 1840)**

CAVAN: Drumcarban; DONEGAL: Portnoo; DOWN: Tipperary Wood; DUBLIN: Harold's Cross; KILDARE: Landenstown; Robertstown; LAOIS: Woodbrook N5109; TYRONE: Baronscourt; WICKLOW: Athdown; Clara; Deputy's Pass; Glencullen; Powerscourt Deerpark; Upper Liffey.

Reported by Johnson (1920), Liston and Speight (1981), Liston (1988) and Wright (1986).

Adults occurred from 11 April to 2 September. The species feeds on *Betula*.

Pristiphora (Pristiphora) staudingeri (Ruthe, 1859)

MAYO: 20 June 1936, Annagh, The Mullet, AWS (USNM; Benson, 1940a, 1958a);

WEXFORD: 1902, Wexford, J.J. F. X. King (Benson, 1958a).

Also reported by Benson (1950) (as *hyperborea* Malaise). The species feeds on *Salix herbacea* and *S. phylicifolia*.

Pristiphora (Lygaeotus) breadalbanensis (Cameron, 1882)

CAVAN: 7 May 1939, Slieve-na-Killa (RSM; Liston and Speight, 1981); KERRY: 15 June 1946, 739m summit of Gearhan, Cahercorree, AWS (USNM).

The Kerry record is reported by Benson (1958a). The species feeds on *Vaccinium myrtillus*.

[Pristiphora (Lygaeotus) carinata (Hartig, 1837)

=*pallipes* (Fallén, 1808): preocc.

Stelfox (1929) reported the species (as *pallipes* (Fallén)) from Dublin (collected by G. Scott) but we have been unable to trace any specimens.]

Pristiphora (Lygaeotus) mollis (Hartig, 1837)

CAVAN: 3 May 1941, Slieve Glah, RCF (RSM); TIPPERARY: 17 April 1976, Ballydavid, swept *Vaccinium*, mixed woods at 183m, MCDS; WICKLOW: 19 April 1930, Clara, AWS (USNM); 10 May 1953, Kippure, AWS (USNM).

Reported by Benson (1950, 1958a). The species feeds on *Vaccinium*.

Pristiphora (Oligonematus) funerula (A. Costa, 1859)

=*friesei* (Konow, 1904)

DUBLIN: 1 May 1938, Glenasmole, AWS (NMI; O'Connor and Liston (1994) as *P. friesei* (Konow)).

The species feeds on *Larix*.

Pristiphora (Oligonematus) laricis (Hartig, 1837)

ANTRIM: 22 June 1988, Glenarm, ADL (NMI); DOWN: 23 May 1965, Drinnahilly, AWS (NMI); 25 May and 9 June 1957, Tollymore Park, AWS (NMI); DUBLIN: 15 July 1945, Ballinascorney, AWS (NMI).

This species was confused with *P. funerula* and above, we have only included specimens which we have examined. Reported by Stelfox (1929), Benson (1958a), Moller (1974) and

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Wright (1986). The species feeds on *Larix*.

***Sharliphora nigella* (Förster, 1854)**

=*ambigua* (Fallén, 1808): *preocc.*

TYRONE: 23 May 1987, Knockmany Forest, swept from *Picea sitchensis*, ADL (RSM; Liston, 1988); 27 May 1987, Pomeroy, in flight near *Picea abies*, ADL (RSM; Liston, 1988); (both reported as *Pristiphora ambigua* (Fallén)).

Johnson (1920) recorded the species (as *Lygaeonematus ambiguus* Fallén) from Portnoo, Co. Donegal in September but this was a misidentification. The species feeds on *Picea*.

[*Stauronematus compressicornis* (Fabricius, 1804)

Reported by Johnson (1920, 1922b) from Poyntzpass, Co. Armagh but we have been unable to find any specimens. The species feeds on *Populus tremula* and *Salix*. It is the only European sawfly whose larva erects a palisade of dried saliva around its feeding place.]

***Micronematus monogyniae* (Hartig, 1840)**

CAVAN; 21 May 1944, Loughaconnick, RCF (RSM); DUBLIN: 24 April 1940, Glenasmole, AWS (NMI).

Reported by Benson (1958a). The species feeds on *Prunus spinosa* and occasionally domestic *Prunus*.

***Amauronematus fallax* (Lepeletier, 1823)**

CAVAN: 14 May 1942, Cauhoo, RCF (RSM); 2 May 1942, Drumcarban, RCF (RSM); CLARE: 18 April 1976, Lough Bunny, swept on lake-shore, MCDS; DUBLIN: 25 May 1930 and 12 May 1935, Slade Brook, Glenasmole, AWS (NMI); ROSCOMMON: 12 May 1940, Lough Gara, RCF (RSM); WESTMEATH: 26 May 1940, Ballyhealy, AWS (BMNH); WEXFORD: 24 May 1975, Raven Point, in dune slack with *Salix repens*, MCDS; WICKLOW: 28 May 1940, Drumgoff, larva on *Salix*, emerged 13 April 1941.

Reported by Benson (1950, 1958a). Hostplants are *Salix* spp.

***Amauronematus histrio* (Lepeletier, 1823)**

ANTRIM: 13 May 1988, Glenarm, ADL (NMI); CAVAN: 6 May 1941, Annagh Lake, RCF (RSM); 10 May 1941, Brackley Lake, RCF (RSM); 9 May 1942, Drumcarban, off *Pinus*, RCF (RSM); 1 June 1941 (off *Salix cinerea*) and 14 May 1948, Farrinseer, RCF (RSM); 15 May 1948, Lough Mentis, RCF (RSM); DUBLIN: 8 July 1928, Glenasmole, larvae on *Salix aurita*,

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adults emerged March 1929, AAL (NMI); WICKLOW: 21 April 1933, Ballylusk, AWS (NMI).

Reported by Stelfox (1929) and Benson (1958a). According to Stelfox and Faris (ms), adults have also been reared from larvae on *Salix caprea*, *S. cinerea oleifolia* and *S. fragilis*.

A. fallax and *A. histrio* were for many years the only two names applied to a species group actually including at least fifteen European species. These are much more oligophagous than older literature records suggest. Schmidt (1995) has investigated the biology and taxonomy of some of these taxa, but even for these mainly north European species, the nomenclature has not been fully clarified. The records from widely different *Salix* spp. in Ireland, suggest that several Irish species may presently be misidentified under the names *fallax* and *histrio*. This will require further study.

***Amauronematus mundus* Konow, 1895**

WEXFORD: 7 May 1977, Raven Point, ♀, on *Salix repens* in dune slack, MCDS (Speight and Moller, 1979).

The species feeds on *Salix repens*.

***Amauronematus tunicatus* (Zaddach, 1882)**

ANTRIM: 14 May 1988, Randalstown, ADL (NMI); WICKLOW: 22 April 1934, Clara, beaten off *Salix cinerea*, AWS (NMI; Stelfox and Faris, ms); 13 May 1979, Knocksink, streamside deciduous woods, MCDS.

Reported by Benson (1958a) from Co. Wicklow. The species feeds on *Salix atrocinerea* and *S. aurita*.

***Amauronematus fasciatus* Konow, 1897**

CAVAN: 26 April 1941, Castle Saunderson, RCF (RSM); ♀ emerged 18 May 1949 off *Salix fragilis*, Cornafean, RCF (RSM); 28 May 1941, Lough Mentis, RCF (RSM).

Benson (1958a) reported the species from counties Cavan and Kildare. The species also feeds on *S. caprea*.

***Amauronematus vittatus* (Lepeletier, 1823)**

= *crispus* Benson, 1948

DUBLIN: 19 May 1943, Portmarnock, adults swept from *Salix*, AWS (NMI); MAYO: 5 June 1942, Old Head, AWS (NMI); WEXFORD: 24 May 1975, Raven Point, swept from *Salix*

repens on dune slack at edge of conifer plantation, MCDS.

Reported by Stelfox (1929) and Benson (1958a) from Wexford and by Benson (1958a) from Cavan. The species feeds on *Salix repens*.

***Amauronematus hedstroemi* Malaise, 1931**

= *tillbergi*: Benson, misident.

= *rex* Benson, 1948

CAVAN: 11, 16 and 19 May 1947, Drumcarban, sleeved on *Salix cinerea* and produced larvae, RCF (BMNH; RSM; Benson, 1958a); 18 May 1941, Lough Mentis, RCF (Stelfox and Faris, ms; Benson, 1958a).

Also reported by Benson (1948a) from Kilmarly, Co. Kerry. In addition, this author gives additional dates for the material cited above viz. Drumcarban (11 and 19 May 1947) and Lough Mentis (16 May 1941).

***Amauronematus sagmarius* Konow, 1895**

CAVAN: 10 May 1941, Brackley Lake, RCF (RSM); 4 May 1941, Lough Mentis, RCF (RSM); WICKLOW: 13 May 1934, Clara, AWS (NMI); 28 May 1940, Drumgoff, larvae on *Salix*, emerged 12-13 April and 16 April 1941, AWS (BMNH; NMI); 8 May 1931, Enniskerry, AWS (NMI).

Reported by Benson (1940a, 1958a) and Liston and Speight (1981). The species feeds on *Salix atrocinerea*.

***Amauronematus lateralis* Konow, 1896**

= *trautmanni* Enslin, 1919

CAVAN: 14 May 1943, Loughaconnick, RCF (RSM); DUBLIN: 19 May 1943, Portmarnock Dunes, AWS (BMNH); LEITRIM: 14 May 1941, Kilbrackan, RCF (RSM); WICKLOW: 7 July 1929, Athdown, emerged 6 May 1930 and 1 May 1931 from larvae on *Salix*, AWS (NMI).

Reported by Benson (1958a) from counties Cavan, Dublin and Wicklow. The species feeds on *Salix atrocinerea*.

***Amauronematus amplius* Konow, 1895**

CAVAN: 13 April 1942, Portlongfield, on *Betula*, RCF (RSM; Stelfox and Faris, ms); WICKLOW: 23 April 1933, Clara, on *Salix*, AWS (USNM; Stelfox and Faris, ms).

Reported by Benson (1958a). The species feeds on *Betula pendula*.

***Decanematus viduatus* (Zetterstedt, 1838)**

CAVAN: Cornafean; Drumcarban; DONEGAL: Portnoo; DOWN: Tullybrannigan; DUBLIN: Glenasmole; LAOIS: The Derries N5705; LOUTH: Carlingford; WEXFORD: Raven Point; WICKLOW: Arklow; Clara; Drumgoft; Garryduff.

Reported by Johnson (1920, 1922a), Benson (1958a) and Speight (1983b). Adults occurred from 5 April to 30 May. At Clara, larvae were taken on *Salix aurita* and successfully reared (Stelfox and Faris, ms). The species also feeds on *S. atrocinnerea*, *S. caprea* and *S. repens*.

***Craesus latipes* (Villaret, 1832)**

CAVAN: 19 June 1948, Farnham, larva on *Betula*, emerged 30 July 1948, RCF (RSM); KERRY: July 1925, Killarney, EFB (NMI); LONGFORD: 19 August 1933, Castle Forbes, larva on *Betula*, emerged 5 May 1934, AWS (NMI); TIPPERARY: 25 July 1928, Clonmel, JNH (NMI); WEXFORD: Camolin, Forbes (NMI); WICKLOW: September 1927, Powerscourt Deerpark, emerged April 1928, AMG (NMI).

Reported by Stelfox (1929). Benson (1958a) recorded the species from Cavan. The larvae are gregarious on *Betula*.

***Craesus septentrionalis* (Linnaeus, 1758)**

ANTRIM: River Lagan above Belfast; CAVAN: Gartylough; Sloan's Fort; CORK: Glengarriff Forest; DUBLIN: Howth; Shankill; Slade Brook; KILDARE: Poulaphouca; LAOIS: The Derries; Woodbrook N5109; MAYO: Sraheens Lough, Achill Sound; WICKLOW: Devil's Glen.

Reported by Morley (1911), Benson (1958a) and Wright (1986). Adults occurred from 29 April to September (no date given). The Irish race contains a proportion of specimens with an entirely black abdomen (Benson, 1950, 1958a). Perkins (1929) found through breeding that the black form acted as a simple Mendelian recessive to the normal red-banded form. According to Stelfox and Faris (ms), larvae have been found on *Alnus*, *Salix*, *Betula* and *Corylus*. It also feeds on *Populus*.

***Craesus alniastri* (Scharfenberg, 1805)**

= *varus* (Villaret, 1832)

CAVAN: 7 June 1941, Gartindress, RCF (RSM); KERRY: June 1927, Killarney, EFB (NMI);

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LEITRIM: 7 July 1947, Kilbrackan, larva on *Alnus*, emerged 10 May 1947, sleeved and produced larvae, RCF (RSM); 2 June 1951, Woodville, RCF (RSM); WICKLOW: 28 September 1930, Ballyhenry, larva on *Alnus*, emerged 28 April 1931, AWS (NMI).

Reported by Stelfox (1929). Recorded from Leitrim by Benson (1958a). According to Stelfox and Faris (ms), larvae were collected on *Alnus* at Kilbrackan, Co. Leitrim, on 7 July 1947. A ♀ emerged on 10 May 1947 and she produced larvae parthenogenetically when sleeved on *Alnus*.

***Nematus (Nematus) longispinus* Kriechbaumer, 1885**

= *crassus* (Fallén, 1808): preocc.

DUBLIN: June 1902, Grand Canal, Lucan, JNH (NMI); TIPPERARY: 4 May 1926, Templemore, RAP (NMI); WEXFORD: 28 May 1987, Curracloe T1127, sand dunes, JPOC (NMI).

Reported by Stelfox (1929) and Benson (1958a). Foodplants are *Betula*, *Populus*, *Salix* and *Rumex*.

***Nematus (Nematus) lucidus* Panzer, 1801**

ANTRIM: Glenarm; Glendun; CAVAN: Bellanagh; Cauhoo; Drumcarban; Farrinseer; Shannow Wood; CLARE: Lough Bunny; CORK: Aghada; DOWN: Dundrum; Rostrevor; DUBLIN: Clontarf; Dublin; Harold's Cross; Royal Canal; Shankill; Slade of Saggart; Templeogue; KILKENNY: Brandondale; LOUTH: Carlingford; MEATH: Trim; WATERFORD: Dungarvan; WICKLOW: Powerscourt Deerpark.

Reported by Stelfox (1929) and Speight and Moller (1979). Adults occurred from 1 May to 16 June. The species feeds on *Crataegus* and *Prunus spinosa*. Occasionally, cultivated *Prunus* is eaten.

***Nematus (Pteronidea) ribesii* (Scopoli, 1763)**

ANTRIM: Glenarm; ARMAGH: Poyntzpass; CORK: Gardiner's Hill; DONEGAL: Coolmore; Coxtown; DOWN: Dromore; Newry; Rostrevor; DUBLIN: Dundrum; Harold's Cross; Rathgar; Shankill; Sutton; GALWAY: Ballinasloe; KERRY: Valentia Island; KILDARE: north of Athy; LEITRIM: Tullaghan; TIPPERARY: Templemore; WICKLOW: Greystones.

Reported by Cuthbert (1914), Johnson (1920) and Benson (1958a). According to Stelfox and Faris (ms), larvae have been taken on *Ribes rubrum* agg. and *R. uva crisa* in Dublin. Adults

occurred from 28 March to 10 September. The species also feeds on *Ribes sativum* and *R. nigrum*.

****Nematus (Pteronidea) leucotrochus* Hartig, 1837**

ANTRIM: 4 April, 13 and 21 May 1988, Glenarm, on and around *Ribes uva crisa*, ADL (NMI).

New to Ireland. *N. leucotrochus* differs from the related *N. ribesii* in having a single generation per year, solitary larvae and a preference for more shaded localities. *N. leucotrochus* evidently has strongly fluctuating population levels. Benson (1958a) regarded it as "seldom common" but in recent years, it has often been more abundant in northern England and Scotland than *ribesii*. The species mainly feeds on *Ribes uva-crispa* but will also use *Ribes rubrum*. *Ribes nigrum* is a rare foodplant.

***Nematus (Pteronidea) melanocephalus* Hartig, 1837**

CAVAN: 30 August 1947, Castle Hamilton, larva on *Corylus*, emerged 16 April to 8 May 1948, 3♂♂ progeny from above, sleeved on *Corylus* emerged 24-30 July, RCF (RSM).

Reported by Benson (1958a). The species feeds on *Betula*, *Corylus*, *Salix alba*, *Populus* and *Ulmus*.

[*Nematus (Pteronidea) salicis* (Linnaeus, 1758)]

Reported by Benson (1958a) from Ireland but we have not traced any specimens. The species feeds on *Salix alba*, *S. fragilis* and *S. vitellina*]

***Nematus (Pteronidea) ferrugineus* Förster, 1854**

ANTRIM: Ballycastle; ARMAGH: Acton Glebe; CAVAN: Farrinseer; Finea; DONEGAL: Bundoran; DOWN: Glenmachan; KERRY: Killarney; KILDARE: Robertstown; SLIGO: Trawalua; WATERFORD: Glenmore, Dungarvan; WICKLOW: Brickfields, Arklow; Devil's Glen; Garryduff; King's River.

Reported by Stelfox (1929), Benson (1958a) and Wright (1986). According to Stelfox and Faris (ms), adults have been bred from larvae on *Salix cinerea* x *S. viminalis*, *S. cinerea*, *S. viminalis*, *S. pentandra* and *S. fragilis (decipiens)*. Adults occurred from 16 May to 5 October.

****Nematus (Pteronidea) cadderensis* Cameron, 1875**

ANTRIM: 10 June 1988, Glenarm, ADL (NMI).

New to Ireland. The species feeds on *Betula*, *Populus tremula* and *Salix*.

****Nematus (Pteronidea) umbratus* Thomson, 1871**

CORK: 19 May 1938, Ummara, Donovan sisters (NMI).

New to Ireland. The species feeds on *Alnus*, *Betula*, *Corylus* and *Ulmus*.

[*Nematus (Pteronidea) fagi* Zaddach, in Brischke and Zaddach, 1875

Johnson (1922b) reared the species in July from Poyntzpass, Co. Armagh but we have been unable to locate the material. The species feeds on *Fagus sylvatica*.]

***Nematus (Pteronidea) pavidus* Lepeletier, 1823**

ANTRIM: Carncastle; Carnlough; ARMAGH: Poyntzpass; CAVAN: Bingfield; DONEGAL: Bundoran; Portnoo; DOWN: Dromore; DUBLIN: Dundrum; Harold's Cross; Shankill; KERRY: Valentia Island; MEATH: Kells; SLIGO: Glencar; WEXFORD: Clone; Oaklands; WICKLOW: Devil's Glen.

Reported by Johnson (1920) and Benson (1958a). According to Stelfox and Faris (ms), larvae were frequent on *Salix cinerea* at the harbour, Bundoran, Co. Donegal in 1934 and still abundant on the same bush in 1947. They add that many of their records were based on specimens reared from larvae found on *S. caprea*, *S. cinerea*, *S. fragilis x smithiana*, *Populus nigra* and *P. tremula*. The species also feeds on *Alnus*. Adults occurred from 6 May to 23 August.

***Nematus (Pteronidea) nigricornis* Lepeletier, 1823**

CAVAN: 30 May 1982, Virginia N5987, mixed woodland, JMOC (NMI).

Reported by Benson (1958a) but we have been unable to trace material other than that above. No records are given in Stelfox and Faris (ms). The species feeds on *Betula pendula*, *Populus tremula* and *Salix*.

***Nematus (Pteronidea) miliaris* (Panzer, 1797)**

=*capreae* (Linnaeus, 1758): misident.

ARMAGH: Poyntzpass; CAVAN: Bingfield; Drumcarban; Farnham; Farrinseer (specimens in Cavan were reared from *Salix caprea*, *S. cinerea* and *S. smithiana*); CLARE: Glenville, Lahinch; CORK: Cork; KERRY: Cahirnane, Killarney; Woodlawn, Killarney; WEXFORD: Ballyhighland; WICKLOW: Athdown; Devil's Glen; Glen of Imaal.

Reported by Stelfox (1929) and Benson (1958a). Adults occurred from May to 8 August. The main foodplant is *Salix* but the species sometimes feeds on *Alnus*, *Betula* and *Populus*.

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***Nematus (Pteronidea) incompletus* Förster, 1854**

= *segmentarius*: misident.

ANTRIM: Glenarm; Glenariff; CAVAN: Cauhoo; Drumcarban; Farrinseer; DONEGAL: Finner; DUBLIN: Glenasmole; St Anne's, Clontarf; GALWAY: near Galway; KERRY: Killarney; SLIGO: Castlegal; TYRONE: Seskinore Forest (Liston, 1988).

Also reported by Stelfox (1929) and Benson (1958a). Adults occurred from 10 May to 1 September. Larvae have been taken on *Salix cinerea* (Stelfox and Faris, ms). The species also feeds on *Populus tremula*.

***Nematus (Pteronidea) spiraeae* Zaddach, in Zaddach and Brischke, 1882**

ANTRIM: 19 July 1988, Glenariff, bush heavily infested with larvae, ADL (RSM); DUBLIN: 10 June 1950, Carrickmines, RCF (RSM; Liston and Speight, 1981; Stelfox and Faris, ms).

Known as a garden insect on its introduced foodplant in the British Isles (Benson, 1958a). The sawfly's presence outside its upland continental native range is peculiarly dependent on the vagaries of garden fashion.

***Nematus (Pteronidea) myosotidis* (Fabricius, 1804)**

ANTRIM; ARMAGH; CAVAN; CLARE; CORK; DONEGAL; DOWN; DUBLIN; GALWAY; KERRY; KILDARE; LAOIS; LOUTH; MAYO; MEATH; OFFALY; ROSCOMMON; SLIGO; TIPPERARY; WATERFORD; WESTMEATH; WEXFORD; WICKLOW.

Reported by Morley (1910, 1911), Johnson (1920) and Benson (1958a). Adults occurred from 25 April to 30 August. The species feeds on *Onobrychis* and *Trifolium*.

***[Nematus (Pteronidea) leionotus* (Benson, 1933)]**

Benson (1958a) stated that the species was found in Wicklow by Miss G. S. Scott but we have not located any specimens. The species feeds on *Betula*.]

***Nematus (Pteronidea) melanaspis* Hartig, 1840**

ANTRIM: Glenarm; CAVAN: Drumcarban; Farnham; Farrinseer; DOWN: Murlough (Moller, 1974); DUBLIN: no further details (Stelfox, 1929); Harold's Cross; Slade Brook, Glenasmole; St Anne's, Clontarf; KILDARE: Newbridge Fen N7616; Royal Canal N9936; Royal Canal, Leixlip; Rye Water; MAYO: Carrownacon; WICKLOW: Athdown; Buckroneys T3080; Devil's Glen; Knocksink; Powerscourt.

Also reported by Stelfox (1929), Benson (1958a), Moller (1974) and Wright (1986). Adults occurred from 8 May to 5 August. According to Stelfox and Faris (ms), adults were reared from larvae on *Salix aurita*, *S. cinerea*, *S. purpurea* and *Populus tremula*. The species also feeds on *Betula*.

***Nematus (Pteronidea) hypoxanthus* Förster, 1854**

CAVAN: Annagh Lake, Ballyconnell; Lough Mentis; Portlongfield; CLARE: Ballyvaughan; DOWN: Tullybrannigan; KERRY: Morley's Bridge; MAYO: Old Head; SLIGO: Lough Gill; WICKLOW: Glen of Imaal.

Reported by Benson (1958a). Adults occurred from 9 May to 28 June. At Glen of Imaal, adults were beaten off *Salix aurita* at c.366m altitude (Stelfox and Faris, ms). The species feeds on *Populus* and *Salix*.

***Nematus (Pteronidea) stichi* (Enslin, 1913)**

ANTRIM: 30 July 1931, Glendun, AWS (USNM); DOWN: 6 May 1959 and 24 July 1964, Donard Lodge, AWS (USNM); 1 June 1958, Drinnahilly, AWS (NMI); ROSCOMMON: 13 May 1940, Oakport Lake, RCF (RSM); TIPPERARY: 12 June 1945, Ballinacourty, AWS (USNM); WESTMEATH: 29 May 1932, Ballinlough, AWS (USNM); WICKLOW: 9 October 1927, Devil's Glen, larvae on *Salix*, emerged April 1928; also collected 4 May 1928 and then 17 June 1928, emerged 5, 7-20 July 1928, AWS (BMNH; HAGM; NMI).

Reported by Benson (1933, 1940b, 1953a, 1958a) and Wright (1986). The species feeds on *Salix viminalis*.

***Nematus (Pteronidea) flavescens* Stephens, 1835**

CAVAN: 2 May and 16 May 1940, Farnham, RCF (RSM; Liston and Speight, 1981); DUBLIN: 1 October 1930, Slade Brook, Glenasmole, emerged 26 and 27 June 1931, AWS (BMNH); LAOIS: 25 June 1979, Emo Court, mixed woods on partially drained valley bog, MCDW (MCDS; Speight, 1983b); ROSCOMMON: 11 May 1940, Rockingham, RCF (RSM; Liston and Speight, 1981); TYRONE: 27 May 1987, Pomeroy, ADL (RSM; Liston, 1988); WICKLOW: May 1928, Devil's Glen, EFB (NMI); 24 June 1928, Glenmacnass, AWS (NMI).

The species feeds on *Salix atrocinerea* and *S. cinerea*.

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***Nematus (Pteronidea) bergmanni* Dahlbom, 1835**

=*curtispinus* Thomson, 1871

ARMAGH: Poyntzpass; CAVAN: Annagh Lake; Arnaghan; Killykeen; DONEGAL: Coolmore; DUBLIN: Dundrum; Glenasmole; Portrane; GALWAY: Bracklagh Bridge; KERRY: Ross Castle, Killarney; WICKLOW: Devil's Glen; Enniskerry; Glen of Imaal; Glenealy; King's River.

Reported by Johnson (1920) and Benson (1958a). Adults occurred from 4 June to 16 September. According to Stelfox and Faris (ms), the species has been reared from larvae on *Salix*.

***Nematus (Pteronidea) viridis* Stephens, 1835**

=*prasinus* Hartig, 1837

CAVAN: 14 May 1943, Loughaconnick, RCF (RSM); 19 June 1948, Nahillah Park, emerged 26 July 1948, reared from a larva on *Betula*, RCF (RSM; Stelfox and Faris, ms); MAYO: 21 May 1942, Old Head, AWS (NMI); WESTMEATH: 31 May 1983, Lough Ennell, JPOC (NMI); WICKLOW: 20 August 1944, Athdown, AWS (NMI).

Reported by Benson (1958a) from counties Cavan and Wicklow. The species feeds on *Betula*.

[*Nematus (Pteronidea) reticulatus* Holmgren, 1883

CAVAN: Farrinseer and Annagh Lake, Co. Cavan, RCF.

A large form with black antennae and mesonotum but it may prove to be another species (Benson 1950, 1958a). We have not seen the specimens. The species feeds on *Vaccinium myrtillus*.]

***Nematus (Pteronidea) oligospilus* Förster, 1854**

ANTRIM: Glenarm; ARMAGH: Armagh; Poyntzpass; CAVAN: Annagh Lake; Drumcarban; Gartanoul; Loughaconnick; Lough Mentis; Nahillah Park; DONEGAL: Ards House; DUBLIN: Dundrum; Glenasmole; KILDARE: Newbridge Fen N7616; Sallins; LEITRIM: Drumsillagh; LONGFORD: Scry Bridge; MAYO: Old Head; MEATH: Kells; WICKLOW: Kippure Ho; SLIGO: Trawalua.

Reported by Johnson (1922b), Stelfox (1929) and Benson (1958a). According to Stelfox and Faris (ms), adults have been reared from larvae on *Salix caprea*, *S. cinerea* and *S. pentandra*. Adults occurred from 14 April to 30 August.

***Nematus (Pteronidea) poecilnotus* Zaddach, in Brischke and Zaddach, 1875**

= *viridescens* Cameron, 1885

CAVAN: 5 July 1947, Drumcarban, larva on *Betula*, emerged 5 August 1947, RCF (RSM); 18 May 1940, Nahillah Park, RCF (RSM); ROSCOMMON: Mote Park, JNH (NMI; Speight and Moller, 1979).

The species feeds on *Betula*.

***Nematus (Pteronidea) frenalii* Thomson, 1888**

DUBLIN: 28 August 1978, Bull Island O2538, dune slack, on *Alnus*, MCDS, det G. J. Moller (Speight and de Courcy Williams, 1981).

The species feeds on *Salix*.

***Nematus (Pteronidea) viridissimus* Möller, 1882**

= *polyspilus*: misident.

ANTRIM: Lough Neagh, Buckle (NMI); CAVAN: 14 May 1943, Cauhoo, RCF; 22 May 1948, Farrinseer, RCF; 30 May 1940, Lough Mentis, RCF (RSM; Stelfox and Faris, ms); DUBLIN: 26 June 1976, Bull Island O2538, beaten from *Alnus*, dune slack, MCDS; KILDARE: 25 September 1949, Landenstown, emerged 25 September 1950, AWS (USNM); MAYO: 17 July 1910, Louisburgh, Morley (NMI); 24 May 1942, Old Head, AWS (USNM); WICKLOW: 23 July 1939, Coan, AWS (NMI).

Reported by Morley (1911) and Benson (1958a). The species feeds on *Alnus*.

***Nematus (Pteronidea) brevivalvis* Thomson, 1871**

DUBLIN: 26 June 1976, Bull Island O2538, dune slack, MCDS (Speight and Moller, 1979); also 9 May 1982, Bull Island O2438, JMOC (NMI).

The species feeds on *Betula*.

***Pachynematus (Pachynematus) lichtwardti* Konow, 1904**

= *apicalis* (Hartig, 1837): preocc.

ARMAGH: Poyntzpass; CAVAN: Arva; Farnham; Lough Mentis; Portlongfield; DONEGAL: no locality; DOWN: Greencastle; DUBLIN: St Anne's, Clontarf; KERRY: no locality; LEITRIM: Drumgilra Lough; LOUTH: Termonfeckin; TYRONE: Moy; WEXFORD: Curraclloe T1127.

Reported by Johnson (1920, 1931) and Benson (1948b, 1958a). Adults occurred from 23

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April to 15 July. The species feeds on Gramineae.

Pachynematus (Pachynematus) moerens (Förster, 1854)

ARMAGH: Poyntzpass (Johnson 1920); CAVAN: 15 April 1948, Brackley Lough, RCF (RSM); 24 April 1941, Lough Mentis, RCF (RSM; Benson, 1948b); KERRY: 11 May 1985, Beenkeragh and Carrauntuohill Mountains, on snow patch on summits at 317m, S. Ryan (NMI).

Also reported by Benson (1958a) from Co. Cavan. The species feeds on Gramineae.

****Pachynematus (Pachynematus) calcicola Benson, 1948***

DUBLIN: 25 April 1982, Bull Island O2438, JMOC (NMI).

New to Ireland. The foodplant is unknown.

Pachynematus (Pachynematus) clitellatus (Lepeletier, 1823)

ANTRIM; ARMAGH; CAVAN; CLARE; DONEGAL; DOWN; DUBLIN; KERRY; LIMERICK; LOUTH; MAYO; TIPPERARY; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1920, 1922b, 1931), Benson (1948b, 1958a) and Moller (1974). Adults occurred from 26 April to 6 September. The species feeds on *Carex*, Gramineae and *Juncus*.

Pachynematus (Pachynematus) extensicornis (Norton, 1861)

=*truncatus* Benson, 1948

ANTRIM; ARMAGH; CAVAN; CLARE; CORK; DOWN; DUBLIN; LAOIS; LIMERICK; MAYO; OFFALY; TIPPERARY; WEXFORD; WICKLOW.

Reported by Benson (1948b, 1958a), Moller (1974), Speight (1983b) and Wright (1986). Adults occurred from 21 April to 15 August. The species feeds on Gramineae including cultivated *Triticum*.

Pachynematus (Pachynematus) kirbyi (Dahlbom, 1835)

ANTRIM: Sherrywhirry; ARMAGH: Oxford Island, Lough Neagh; CAVAN: Farrinseer; Lough Mentis; Nahillah Park; CLARE: Ennistymon; DUBLIN: Kilbarrack; Slade of Saggart; St Anne's, Clontarf; Sutton; KERRY: Brandon Mountain, grassland at 2000m; MAYO: Old Head; TIPPERARY: Lough Borheen; WEXFORD: Curracloe T1127; north Wexford Harbour area; Wexford; WICKLOW: Athdown; The Murrough.

Stelfox (1929) also mentioned Clare. In addition, reported by Johnson (1920), Benson (1948b,

1958a) and Moller (1974). Adults occurred from 16 May to 22 August. The species feeds on *Agrostis*, *Carex* and *Juncus*.

****Pachynematus (Pachynematus) xanthocarpus* (Hartig, 1840)**

ANTRIM: 20 June 1927, White Park Bay, AWS (NMI); DUBLIN: 23 May 1926, Portrane, AWS (NMI); WICKLOW: 9 June 1934, Liffey Head, c.518m, AWS (NMI); 14 May 1933, Murrrough, AWS (NMI).

New to Ireland. The species feeds on soft-leaved Gramineae.

***Pachynematus (Pachynematus) vagus* (Fabricius, 1781)**

ANTRIM; CLARE; CORK; DONEGAL; DUBLIN; KERRY; KILDARE; LOUTH; MAYO; SLIGO; TIPPERARY; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1922a), Benson (1948b, 1958a), Moller (1974) and Wright (1986). Adults occurred from 12 May to September. The species feeds on *Carex*.

***Pachynematus (Pachynematus) obductus* (Hartig, 1837)**

ARMAGH; CAVAN; CLARE; DONEGAL; DOWN; DUBLIN; KERRY; KILDARE; KILKENNY; MAYO; TIPPERARY; WATERFORD; WEXFORD; WICKLOW.

Reported by Morley (1911), Johnson (1922b), Benson (1948b, 1950, 1958a), Moller (1974) and Wright (1986). Adults occurred from 21 April to 18 September. The species feeds on *Carex* and Gramineae (*Festuca*, *Poa*).

***Pachynematus (Polynematus) albipennis* (Hartig, 1837)**

MAYO: June 1910, Achill Sound (Keel, Mularennny, Sraheens), WFJ (NMI; Morley 1911).

The species feeds on *Polygonum persicaria*.

***Pachynematus (Polynematus) rumicis* (Linnaeus, 1758)**

ANTRIM: 9 August 1988, Ballypatrick, ADL (NMI); CORK: Cork, JNH (NMI); Mallow, JNH (NMI); DUBLIN: 3 June 1925, Bailey, JNH (NMI); 15 June 1925, Kilbarrack, JNH (NMI); LEITRIM: 26 June 1936, Tullaghan, coast, AWS (NMI); SLIGO: Glencar, JNH (NMI); WEXFORD: 27 June 1932, Baginbug, AWS (NMI); 13 June 1942, Enniscorthy, JNH (NMI).

Reported by Stelfox (1929) and Benson (1948b, 1958a). The species feeds on *Rumex*.

***Pikonema scutellatum* (Hartig, 1837)**

WICKLOW: 16 May 1929, Powerscourt Deerpark, AWS (NMI).

Reported by Stelfox (1929) from Clare. Also recorded by Benson (1948b, 1958a). The species feeds on *Picea*.

***Pikonema montanum* (Zaddach, in Brischke and Zaddach, 1882)**

FERMANAGH: 23 May 1987, Kesh Forest, swept from *Picea sitchensis*, AL (RSM; Liston, 1988); TYRONE: 27 May 1987, Pomeroy, in flight near *P. abies*, ADL (RSM; Liston 1988); 26 May 1987, Baronscourt, swept from the grass under *P. sitchensis*, ADL (RSM; Liston, 1988).

The species feeds on *Picea*.

****Euura* (*Euura*) *amerinae* (Linnaeus, 1758)**

CORK: 15 July 1907, Blarney, JNH (NMI).

New to Ireland. The species feeds on *Salix pentandra* and is most abundant on young or coppiced plants.

***Euura* (*Euura*) *atra* (Jurine, 1807)**

ANTRIM: Ballycastle; Carey River; CAVAN: Brackley Lough; Cauhoo; Cordonagh; Drumcarban; Killykeen; Nahillah Park; DUBLIN: Bohernabreena; Glenasmole; Shankill; GALWAY: Lough Corrib; KILDARE: Royal Canal; WATERFORD: Dunmore East; WEXFORD: Curracloe T1124; WICKLOW: Knocksink.

Reported by Stelfox (1929) from Dublin and Wicklow. Also recorded by Benson (1958a). Adults occurred from 8 April to 26 June. They were reared from galls on *Salix repens* at Lough Corrib, emerging 17 April 1944 and also from galls on *S. purpurea* at the Royal Canal, emerging 30 May 1941 (Stelfox and Faris, ms).

***Euura* (*Gemmura*) *mucronata* (Hartig, 1840)**

ANTRIM: Carnageer; Glendun; Massereene; Randalstown; CAVAN: Cauhoo; Farrinseer; Killykeen; Lough Mentis; Nahillah Park; Virginia; DOWN: Bangor; Rostrevor; DUBLIN: Glenasmole; St Anne's, Clontarf; KERRY: Cahirnane, Killarney; LEITRIM: Kilbrackan; MAYO: Achill; Old Head; MONAGHAN: Capragh; WEXFORD: Curracloe T1127; WICKLOW: Powerscourt; The Murrough.

Reported by Morley (1911), Moller (1974) and Wright (1986). Adults occurred from 12 May to 9 June. The species feeds on *Salix*.

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***Pontania (Phyllocolpa) anglica* (Cameron, 1877)**

CAVAN: 7 June 1941, Arnaghan; 27 May 1941, 22 May 1948, Farrinseer; 17 May 1943, Gartinadress; 24 April 1943, Killagowan; 16 April 1943, Loughaconnick; 29 May 1941, Nahillah Park; 19 April 1943, Portlongfield, all RCF (RSM); SLIGO: 15 May 1949, Lough Gill, RCF (RSM; Liston and Speight, 1981).

Reported by Benson (1958a) from Co. Cavan. The species feeds on *Salix viminalis*.

****Pontania (Phyllocolpa) coriacea* (Benson, 1953)**

WICKLOW: 16 May 1937, Clara, AWS (NMI).

New to Ireland. The species feeds on *Salix atrocinerea*, *S. cinerea* and *S. phylicifolia* x *cinerea*.

***Pontania (Phyllocolpa) excavata* (Marlatt, 1896)**

=*apicifrons* (Malaise, 1931)

=*destricta* (MacGillivray, 1923)

CAVAN: 19 July 1948, Annagh Lake, Ballyconnell, rotted leaf of *Salix pentandra*, emerged 13 June 1948, 5, 19 and 20 May 1949, RCF (BMNH; RSM).

Benson (1956, 1958a) record the species from counties Cavan and Leitrim. According to Stelfox and Faris (ms), larvae were taken on 7 July 1947 on *Salix pentandra* at Drumsillagh, Carrigallen, Co. Leitrim by RCF and a ♀ emerged on 16 May 1948. The species also feeds on *S. phylicifolia*.

***Pontania (Phyllocolpa) leucapsis* (Tischbein, 1846)**

ANTRIM: 12 May 1988, Carnageer, ADL (NMI); 19 May 1973, Massereene, A. Irwin (UM; Moller, 1974); CAVAN: 15 May 1943, Cauhoo, RCF (RSM); 1 October 1942, Drumaleur, emerged 21 May 1943, RCF (RSM); 15 May 1948 and 4 June 1950, Farrinseer, RCF (RSM); ROSCOMMON: 11 May 1940, Rockingham, RCF (RSM); TYRONE: 27 May 1987, Pomeroy, ADL (RSM); WEXFORD: 27 May 1987, Killoughrim Forest, JPOC (NMI); WICKLOW: 3 June 1935, Athdown, AWS (HAGM; Wright, 1986); 5 June 1932 and 16 May 1937, Clara, AWS (NMI).

Also reported by Benson (1958a). The species feeds on *Salix aurita*, *S. caprea*, *S. cinerea* and *S. phylicifolia*.

***Pontania (Phyllocolpa) leucosticta* (Hartig, 1837)**

ANTRIM: Carnageer; Glenarm; ARMAGH: Poyntzpass; CAVAN: Annagh Lake; Cauhoo; Farrinseer; Gartinadress; CLARE: Ballyvaughan; DOWN: Newcastle; Rostrevor; DUBLIN: Clondalkin O0630; Glenasmole; Glencullen; Slade Brook; KILDARE: Rye Water; MAYO: Achill; Old Head; TIPPERARY: Aherlow; WEXFORD: Killoughrim Forest; WICKLOW: Athdown; Ballyhenry; Ballylug; Clara; Glen of Imaal; Glencullen; Glenmacnass.

Reported by Morley (1911), Benson (1958a) and Wright (1986). Adults occurred from 4 May to 17 June. The species feeds on *Salix aurita*, *S. caprea*, *S. cinerea* and *S. phylicifolia*.

***Pontania (Phyllocolpa) piliserra* (Thomson, 1862)**

ANTRIM: 30 May 1973, Massereene, ride in mixed wood, RN (UM; Moller, 1974); ARMAGH: 5 June 1973, Oxford Island, Lough Neagh, RN (UM; Moller, 1974).

The species feeds on *Salix viminalis*.

***Pontania (Eupontania) arcticornis* Konow, 1904**

WICKLOW: 2 June 1935, Athdown, AWS (HAGM; Wright, 1986).

The species feeds on *Salix lapponum* x *phylicifolia* and *S. phylicifolia*.

***Pontania (Eupontania) collactanea* (Förster, 1854)**

ANTRIM: July 1988, Cleggan, galls on *Salix repens* on rocky crops in afforestation site but no adults reared, ADL.

Recorded by Benson (1954) from Ireland and by Benson (1958a) from Co. Mayo. We have not located any adult material.

***Pontania (Eupontania) herbaceae* (Cameron, 1875)**

≡ *crassipes*; misident.

DOWN: 2 July 1992, Slieve Donard, Mourne Mountains, the characteristic red swollen galls were found very widely on the leaf-blades of *Salix herbacea* across the summit heath (Alexander, 1994).

***Pontania (Eupontania) pedunculi* (Hartig, 1837)**

CAVAN: Ballyconnell; Brackley Lake; Cornafean; Drumcarban; Farrinseer; Lough Mentis; Nahillah Park; DONEGAL: Bundoran G8158; DUBLIN: Bride's Glen; Upper Glenasmole; KILDARE: Newbridge Fen N7616; MAYO: Achill; Carrownacon; MONAGHAN: Capragh; WICKLOW: Clara; Enniskerry; Glen of Imaal; Meeting of the Waters; Metal Bridge;

Powerscourt.

Reported by Morley (1911) and Benson (1958a). Adults occurred from 29 April to 11 July. According to Stelfox and Faris (ms), the species has been bred from a rotten branch of *Crataegus* and pea galls on *Salix cinerea*.

A group of three sibling, or biological, species each of which is monophagous on a particular *Salix* sp: *pedunculi* on *S. cinerea*, *bella* (Zaddach) on *S. aurita* and *gallarum* (Hartig) on *S. caprea* (Kopelke, 1991). All occur in Scotland, but the presence of the other two species in Ireland await confirmation.

***Pontania (Eupontania) tuberculata* (Benson, 1953)**

CAVAN: 27 May 1941, Farrinseer, RCF (RSM); 18 May 1941, Lough Mentis, RCF (BMNH).

Reported by Benson (1958a) from both Lough Mentis and Farrinseer in Co. Cavan. Also recorded by Benson (1953a, 1954, 1956). The species feeds on *Salix hastata* and *S. phylicifolia*.

***Pontania (Eupontania) vesicator* (Bremer, 1849)**

ARMAGH: May 1921, Poyntzpass, WFJ (Johnson, 1922b); DONEGAL: May and June, Portnoo, WFJ (Johnson, 1920); KILDARE: 12 April 1982, Newbridge Fen N7616, JMOC (NMI); LOUTH: June 1921, Carlingford, WFJ (Johnson, 1922a).

The species feeds on *Salix purpurea*.

***Pontania (Eupontania) viminalis* (Linnaeus, 1758)**

ANTRIM: Rea's Wood; ARMAGH: Poyntzpass; CAVAN: Annagh Lake; no localities given but said to be abundant wherever *Salix purpurea* occurs (Stelfox and Faris, ms); DONEGAL: Coolmore; DUBLIN: Glenasmole; KILDARE: Royal Canal; Newbridge Fen N7616; MAYO: Claremorris; ROSCOMMON: Oakport; SLIGO: Bunduff Lake G7155; WICKLOW: Clara; Glencree.

Reported by Johnson (1920, 1922b) and Benson (1954, 1958a). Adults occurred from 30 April to 15 August. According to Stelfox and Faris (ms), it has been reared from the galls of *Salix cinerea* and the typical and elongated tricuspid galls of *S. purpurea*.

***Pontania (Pontania) bridgmanii* (Cameron, 1883)**

CAVAN: 9 May 1948, Cordonaghy, RCF (RSM); 4 May 1941, Lough Mentis, RCF (RSM); DUBLIN: 6 May 1948, Glenasmole, AWS (NMI); WEXFORD: 9 June 1982, Curracloe

T1127, JPOC (NMI); WICKLOW: 22 May 1932, The Murrough, AWS (NMI).

Reported by Stelfox (1929) and Benson (1958a). According to Stelfox and Faris (ms), the species has been bred 12 August 1948 from bean galls in *Salix cinerea* at Nahillah Park, Co. Cavan, which were collected on 19 June 1948. Other hostplants are *S. atrocinnerea*, *S. aurita* and *S. caprea*.

***Pontania (Pontania) proxima* (Lepelletier, 1823)**

ANTRIM: 15 May 1988, Waterfoot, ADL (NMI); CAVAN: 1 October 1942, Drumaleur, Belturbet H3813, from oval galls on *Salix alba*, emerged 24 May 1943, RCF (RSM; Liston and Speight, 1981); 18 May 1941, Lough Mentis, RCF (RSM; Liston and Speight, 1981); DUBLIN: October 1925, River Dodder, galls on *Salix fragilis*, emerged 17 and 19 May 1926, AWS (NMI).

Also reported by Benson (1954). Al-Saffar and Aldrich (in press. *Ir. Nat. J.*) give a detailed account of the biology, natural enemies and defence strategies of *P. proxima*.

***Pontania (Pontania) triandrae* Benson, 1941**

ARMAGH: 29 April 1918, Poyntzpass, WFJ (NMI).

Reported by Benson (1954, 1958a). The species feeds on *Salix triandra*.

THE IRISH SAWFLY FAUNA

Diversity of the Irish sawfly fauna

Eight of the twelve families of European Symphyta are represented in Ireland. The Megalodontidae, Xiphydriidae, Orussidae and Blasticotomidae are unrecorded (Table 2).

The diversity of the Irish fauna at generic level is indicated for each family (Table 2) by a comparison of the number of genera (excluding sub-genera) found in Ireland, Europe (based on Liston, 1995), and the World (Abe and Smith, 1991).

The Tenthredinid subfamilies are all represented in Ireland, except the Nearctic Susaninae (only one known genus). Three tribes which are species poor in Europe are entirely absent in the British Isles: the mainly Eastern Asia Rocaliini (Selandriinae) with their fern spore feeding larvae (Naito, 1988), the gall-making Lycaotini (Blennocampinae) and the specialised fruit-feeding Pristoliini (Nematinae). Another tribe, Pristicampini, containing a single genus *Pristicampus* Zinovjev (type species: the Fennoscandian-Scottish "*Pachynematus*" *arcticus* (Lindqvist), (Zinovjev, 1993)) is not found in Ireland.

TABLE 2. Diversity of Irish Symphyta (genera).

Europe: the definition used here includes the former USSR west of the Urals, and north and west of the Caspian Sea and the Caucasus. Asiatic Turkey, North Africa and Cyprus are excluded but the other Mediterranean islands are included.

FAMILY	no. genera Ireland	no. genera Europe*	no. genera world
Xyelidae	1	2	5
Pamphilidae	1	7	7
Argidae	2	4	51
Cimbicidae	5	9	22
Diprionidae	3	6	11
Tenthredinidae	66	103	346
Selandriinae	(8)	(13)	(61)
Dolerinae	(1)	(1)	(2)
Allantinae	(11)	(13)	(78)
Blennocampinae			
Heterarthrini	(1)	(1)	(1)
Fenusini	(6)	(11)	(28)
Caliroini	(2)	(2)	(3)
Phmatocerini	(2)	(19)	7
Blennocampini	(4)		25
Waldheimiini	(1)	(1)	5
Tenthredininae	(7)	(13)	(43)
Nematinae	(23)	(29)	(40)
Siricidae	3	4	11
Cephidae	1	9	15
TOTAL	82	144	468

Character and composition

(a) General

The number of recorded species of Symphyta from Ireland (273) represents approximately 55% of the number recorded from Britain (*circa* 490). Critical modern checklists for other European areas are scarce, and existing literature tends to mask the species-impooverished character of the British Isles fauna compared to those of the closest continental regions. For example, Ritzau (1988) indicates the presence of 474 species in north west Germany and 443 are known in the Netherlands (Ooststroom, 1976; Thomas, 1985; Mol and Aartsen, 1987). However, these areas were themselves probably greatly impoverished during historical times as intensive agricultural practices became widespread. No exhaustive checklist exists for any Central European region, but Zhelochovtsev (1988) records 868 species in the European SSR's whilst Chevin (1981) indicates that around 820 Symphyta are known in France.

(b) Northern and arctic-alpine species

As an exclusively phytophagous group, the history of Ireland's sawfly fauna must have been closely bound to the post-glacial development of its vegetation. It can obviously never be known how many species of sawfly became extinct in Ireland before recording began, but the list of species now known from the country provides some circumstantial evidence. Species with a pronounced northern distribution in the British Isles and in Continental Europe are poorly represented in Ireland. Only 14 Irish species will conveniently fit this category, i.e. *Dolerus gessneri*, *Tenthredo mioceras*, *T. obsoleta*, *Pristiphora staudingeri*, *P. luteipes*, *Pontania arcticornis*, *P. tuberculata*, *Nematus frenalisi*, *N. cadderensis*, (with northern distribution types) and *Empria alpina*, *Pristiphora breadalbanensis*, *P. mollis*, *P. herbaceae* (typically arctic-alpine). This represents just 5% of the Irish fauna. In Britain, 57 species (12% of the fauna) can be so classified. It might be argued that the arctic-alpine species in Ireland are the most likely to have escaped detection, with most collecting activity having been in the lowlands. This fails to explain the apparent absence of several species with boreal distributions, found in Britain in low-lying open or scrub type vegetation. *Tenthredo olivacea* and *T. velox*, conspicuous sawflies which become more abundant in North-Western Britain, are two of the most perplexing examples of species unrecorded in Ireland. Both are characteristic of subalpine and subarctic herb rich grassland in Scotland, Scandinavia and the Alps. They are less common

but still frequent in lower altitude scrub vegetation.

It seems scarcely credible that these absent boreal species should not have initially reached Ireland in the early postglacial period, especially when so many of today's Irish sawflies are of the ecological category associated with climax woodland and must therefore have arrived significantly later. The sawflies of the northern distribution type are not a homogeneous group, i.e. they have this distribution because of monophagous larval development on an arctic-alpine plant or are dependent on an open habitat for other less obvious physiological or ecological reasons (Benson, 1958b).

In Ireland, it may be that the peak development of forest during the post-glacial climatic optimum and the later spread of blanket bog in the Atlantic phase were more pronounced than in Britain because of Ireland's milder climate. Ireland does not offer such high or extensive mountain ranges as refugia for arctic-alpine and boreal species as were available in Scotland.

To-day, the widespread occurrence of *Tenthredo moniliata* in Ireland is of little surprise because the species is restricted to bog habitats where its monophagous larva feeds on *Menyanthes trifoliata*. But *T. moniliata* is almost unique amongst North Western European Symphyta in being characteristic of peat bog ecosystems, and it may be that it was one of the very few species to have thrived during the period at which blanket bogs reached their greatest development. Conversely, *T. olivacea* and *T. velox* require a more herb rich plant community found only where soil drainage is not so severely impeded, and may have suffered a two-phase loss of suitable habitat: first as forest encroached on open areas, and then as blanket bog spread. This could conceivably have led to their eventual extinction in Ireland.

(c) Species attached to woody plants

The proportion of Irish sawflies attached to woody species makes an interesting comparison with the same group as represented in Britain. If the apparent differences in the composition of this part of the Irish fauna are real and not caused by biased collecting techniques, then some interesting trends emerge. Total numbers of species in both Ireland and Britain exclusively associated with Salicaceae and Betulaceae represent 32% of the total fauna of each country.

Inside this group, the Irish fauna is remarkable in having only one species monophagous on *Populus* whilst Britain has 11. *Alnus* possesses 12 monophagous sawflies in both Britain and

Ireland, representing 2% of Britain's Symphyta and 4% in Ireland. Indeed, if *Cimbex connatus* is extinct in Britain, as currently seems quite possible, Ireland has the richer fauna. *Betula* has 28 associated sawflies in Britain (6% of fauna) and 21 in Ireland (8%). Of the Irish species, *Arge metallica*, does not seem to occur in Britain. Several of the British species feeding on *Betula* are inconspicuous and elusive and may yet be found in Ireland. 16% of the Irish sawfly fauna is associated with *Salix* as opposed to 15% in Britain. If so many of the arctic-alpine and northern *Salix* feeders were not apparently absent from Ireland, this figure would be much larger. A total of 23 British sawflies are attached exclusively to Rosaceous trees (*Sorbus*, *Prunus*, *Crataegus* etc.) and 18 of these occur in Ireland, so that this group constitutes 5 and 7% of the respective faunas.

Surprisingly, only six of the 13 British oak specialists occur in Ireland. Some of the oak feeders are however probably already at the edge of their continental type ranges in south-east England (e.g. *Neurotoma mandibularis* (Zaddach)). The overall richness of the Irish fauna in sawfly species associated with Betulaceae, Salicaceae and woody Rosaceae does appear to contrast with the paucity of the oak fauna. This might partly be explained as the destruction by man of much of the oak dominated climax forest and its partial replacement by a secondary succession of *Betula*, *Salix* and other pioneering species.

The character of the Irish fauna attached to conifers is rather special and is dealt with separately below (Section e).

(d) Other woodland species

There are numerous European sawfly species which whilst feeding on plants of the field layer, still require a woodland habitat or are at least very much more abundant in woodland than in treeless localities. They may or may not possess an association with a plant which itself has its niche in the woodland field layer. In Ireland, sawflies attached specifically to woodland field layer plants are fairly poorly represented, with possibly the only true examples being the species on *Rubus idaeus* (*Pamphilus hortorum*, *Arge gracilicornis*, *Empria longicornis*, *Metallus pumilus*, *Perineura rubi*). Rather more Irish species are characteristic of woodland but confined there because of their own requirements rather than because of the distribution of their hosts. Many of the fern-feeding sawflies belong to this category except perhaps *Strongylogaster lineata* which seems to be more abundant in open areas with *Pteridium aquilinum*. A few

polyphagous species such as *Tenthredo balteata*, *T. celtica*, *T. colon*, *T. ferruginea*, *T. livida* and *Pachyprotasis antennata* are typically woodland insects.

Notable absences from the Irish woodland fauna which occur in Britain are the wasp mimic *Tenthredo maculata* Geoffroy (oligophagous on grasses) and *Rhogogaster punctulata* (Klug) (polyphagous on a wide variety of herbs and shrubs). Because of a lack of detailed data, it is impracticable to state whether the proportions of these woodland species vary between the Irish and British faunas. If as we suspect, the Irish fauna is relatively poor in such species, this need not be particularly suprising. With the degradation by man of Ireland's forests in the late postglacial, species of insect associated with the field layer might well have come under greater pressure than those feeding on the actual trees because of, for example, the practice of grazing livestock in woodland.

(e) Species attached to conifers

There is rather more evidence to suggest that *Pinus sylvestris* became extinct in Ireland at some point in historical times than that it survived with a continuous presence until re-introduced by man (see Speight, 1985). Of the 11 British species confined to *Pinus*, five are not known outside the relict stands of native *P. sylvestris* in the Scottish Highlands. The three species which occur in Ireland are widespread in Britain and at least as abundant in plantations far from Caledonian pine as they are in semi-natural woodland. *Neodiprion sertifer* is actually decidedly rare in ancient forest of *Pinus* and may not be native anywhere in the British Isles.

Only one species in Britain feeds on *Juniperus communis*, and this has been found in the Burren, Co. Clare. *Monoctenus juniperi* has been traditionally regarded in the British literature as confined to the *Juniperus* understorey of relict Caledonian Pine in the Spey Valley, Invernesshire. There is however an overlooked published record from the Isle of Rhum National Nature Reserve in the Inner Hebrides (Steel and Woodroffe, 1969). This is an area now virtually devoid of forest, thus showing that *M. juniperi* can at least survive in such situations. On the British mainland, *M. juniperi* is also somewhat more widespread than previous records suggest: one specimen from Morrone Birkwood NNR, a wood of *Betula* with *Juniperus* understorey, is in the National Museum of Scotland, Edinburgh. Abroad, the species is known to inhabit a diversity of habitats from the North German heathlands (Wagner, 1940) to above the tree-line in the Central European Alps where it feeds on *Juniperus communis* ssp

nana at up to 2000m above sea-level (Schedl, 1976). In a wider European context, the Burren record is therefore not so anomalous as it first appears. *Monoctenus* is almost certainly the only native Irish sawfly with a coniferous larval host.

The five Irish species attached to *Larix* are monophagous on that genus and therefore originally alien to the Irish and British faunas. All of them have long been known in plantations of *Larix decidua* and *L. kaempferi* throughout North West Europe, except *Anoplonyx destructor* Benson, which for many years was recorded only in Britain and Finland until detected at very low endemic population levels in the subalpine *Larix* zone of the Central European Alps and at much higher densities in plantations throughout lowland North Western Europe by Pschorn-Walcher and Zinnert (1971). The current status of *Pristiphora erichsonii* in Ireland requires further investigation. There are no recent records from either Britain or Ireland and the species may have either returned to low levels of population after the mass outbreaks recorded in England during the early years of this century or entirely disappeared.

Those Irish sawflies whose larvae feed on *Picea* foliage have basically similar European distributions to the species on *Larix*, except that they have a wider presence in North Europe as native species. The existence of two main possible centres of origin (North or Central Europe) for *Picea* sawflies might have been expected to lead to a higher proportion of the European fauna on *Picea* being accidentally imported to the British Isles than of the *Larix* fauna. This does not appear to have happened. Thirty European *Picea* sawflies are known, with approximately 50% and 13% of these occurring in Britain and Ireland respectively. Of the 15 European sawflies on *Larix*, 47% and 33% are found in Britain and Ireland. The early favour which *Larix* found as a plantation tree with the owners of private estates may partly account for the more complete representation of the *Larix* fauna in Ireland. Only recently has *Picea* been used in afforestation projects on a much larger scale than *Larix* and this in a period of increased awareness of the possibility of accidental introduction of pests, with commensurate control on the import of potentially hazardous materials.

The Siricidae are peculiar amongst the Symphyta in mostly being polyphagous on a variety of coniferous genera. All of those species found in Ireland were almost certainly introduced by man. There is no evidence that *Xeris spectrum* is yet established in Irish forests although it is known to breed in England (Quinlan and Gauld, 1981).

Urocerus auger is faunistically the most interesting of the siricid species established in Ireland because it is not known to breed in British forests, and because it is an European insect probably mostly associated in Ireland with introduced North American conifers. In Continental Europe, it is typical of the upland and mountainous regions, attached primarily to *Abies alba* in mixed montane forest. It has become established as an introduced species in the plantation forests of Denmark (Midtgaard, 1986) and may have a greater potential for establishment and spread in Ireland than in Britain because of the slightly greater use of *Abies procera* and *A. grandis* in afforestation in Ireland.

(f) Species associated with herbaceous and other low plants

As already noted under section d, the Symphyta associated with plants of the field layer can belong to one of a number of different ecological groupings. In the Irish fauna, most species are not highly niche specific and seem to occur in a wide variety of habitat types wherever their foodplants occur. Exceptions to this include many of the species feeding on ferns, which, as previously noted, are more abundant in woodland. Many of the species attached to *Equisetum* (*Dolerus*) and Gramineae or Cyperaceae (*Selandria*, *Brachythops*, *Dolerus* and *Pachynematus* spp.) are apparently intolerant of habitats overshadowed by trees, and in some cases (e.g. *Dolerus germanicus*, *D. gessneri*, *D. pratensis*) appear to be restricted to localities which have a long history of treelessness.

Species in the subgenus *Poodolerus* of *Dolerus* and the subgenus *Pachynematus* of *Pachynematus* are of interest to ecologists working in agricultural areas because of their high larval biomass in grassy habitats. Their consequent importance as a food of game birds is being actively researched in Britain. Unfortunately our knowledge of the larvae is imprecise and difficult to interpret in the literature or the descriptions require substantiation. *Poodolerus* is fairly well represented in Ireland (13 of 18 British Isles species). Those that have not been recorded are mostly the more specialised, and therefore, local ones. Yet, *Dolerus gonager* (Fabricius), so common in a variety of habitats throughout North West Europe and often the only abundant sawfly in intensively arable areas, is surprisingly absent. *D. puncticollis*, the sister-species of *gonager*, is sometimes almost as abundant in Central Europe, but is quite scarce in Ireland, according to available records.

The proportion of species feeding on low plants compared to those on woody plants in the

British and Irish faunas does not seem to be significantly different.

(g) Introduced species

Only those sawflies which are known to be monophagous on plant taxa of definitely exotic origin can be unequivocally assigned to this group. Additionally, there are likely to be species which were introduced to Ireland accidentally by man but which are not now readily detectable because they have a host range which includes plants native to Ireland.

Established species which certainly have been introduced to Ireland include:- 16 of the 17 species on Coniferae (*Monoctenus juniperi* being the exception); *Heterarthrus aceris* on *Acer pseudoplatanus*; *Messa hortulana* on *Populus nigra*; *Nematus ribesii*, *N. leucotrochus* and *Pristiphora pallipes* on *Ribes uva-crispa*; *Nematus spiraeae* on *Aruncus dioecus*. All of the above sawflies and hosts have 'natural' populations in Europe (including Britain in some cases).

Additionally, because *Ulmus* may have been re-introduced to Ireland following its extinction in historic times (McCracken, 1971), *Priophorus rufipes* and *Trichiocampus ulmi* may not be true native species. Two other species have been suggested to occur in Ireland as introductions. Except for a Roscommon record in 1976, *Macrophya punctumalbum* is recorded from specimens taken 1933-38 in counties Carlow, Laois and Wicklow. The appearance of this normally rather scarce insect in an apparent cluster of localities not very far from Dublin, a possible point of importation, and the timing of these records suggest that it may have been introduced as already suggested by Benson (1952). On the other hand, native species are also capable of increases in population level lasting periods of years during which they are more frequently collected or even first discovered. Also, *M. punctum-album* is mostly a south-eastern species in Britain, and these Irish records may simply reflect a parallel type of distribution.

The reasons suggesting that *Calameuta pallipes* (Klug) is possibly a recent arrival in Ireland are discussed by O'Connor and O'Connor (1983).

(h) Species found in Ireland but not Britain

Arge metallica is only known from the British Isles from the specimens collected in Wicklow and Cork. It has a wide distribution in Europe and Siberia, but is rare and extremely local in all European regions.

Urocerus auget (see Section e) is an established alien species of Central European origin not known to be breeding in Britain.

Cimbex connatus has, like *A. metallica*, a wide Eurosiberian distribution. Possibly extinct in Britain but not in Ireland.

Pristiphora luteipes is a North European species which may be found also in British material of the closely related *P. aphantoneura*.

(i) Intraspecific endemic forms

The most obvious example is the black form of *Craesus septentrionalis*. It is only found in Ireland and acts as a recessive to the normal red-girdled colour form known in Britain and elsewhere in Europe. A similar situation may exist with *Tenthredo ferruginea*, of which we have seen three Irish specimens coloured almost completely black and quite unlike any specimen seen from other European regions.

There does seem to be a tendency towards such melanism in Ireland but in the case of *Tenthredo arcuata* and *Dineura virididorsata*, this is but a continuation of a trend already apparent between South-East England and North-West Scotland. This may be due to direct climatic effects (temperature or humidity) during the individual insect's development rather than genetic differences between populations.

In other cases the phenotype of Irish specimens more closely resembles that of southern English specimens than the Scottish (darker) form of the same species (e.g. *Dolerus germanicus*). Both northern and southern 'subspecies' of *Pamphilus hortorum* are known in Ireland, and the proportion of red-marked *Eutomostethus ephippium* in Ireland is less than that of populations in southern England, but much greater than that found in Scotland, where almost all are without the red thoracic markings.

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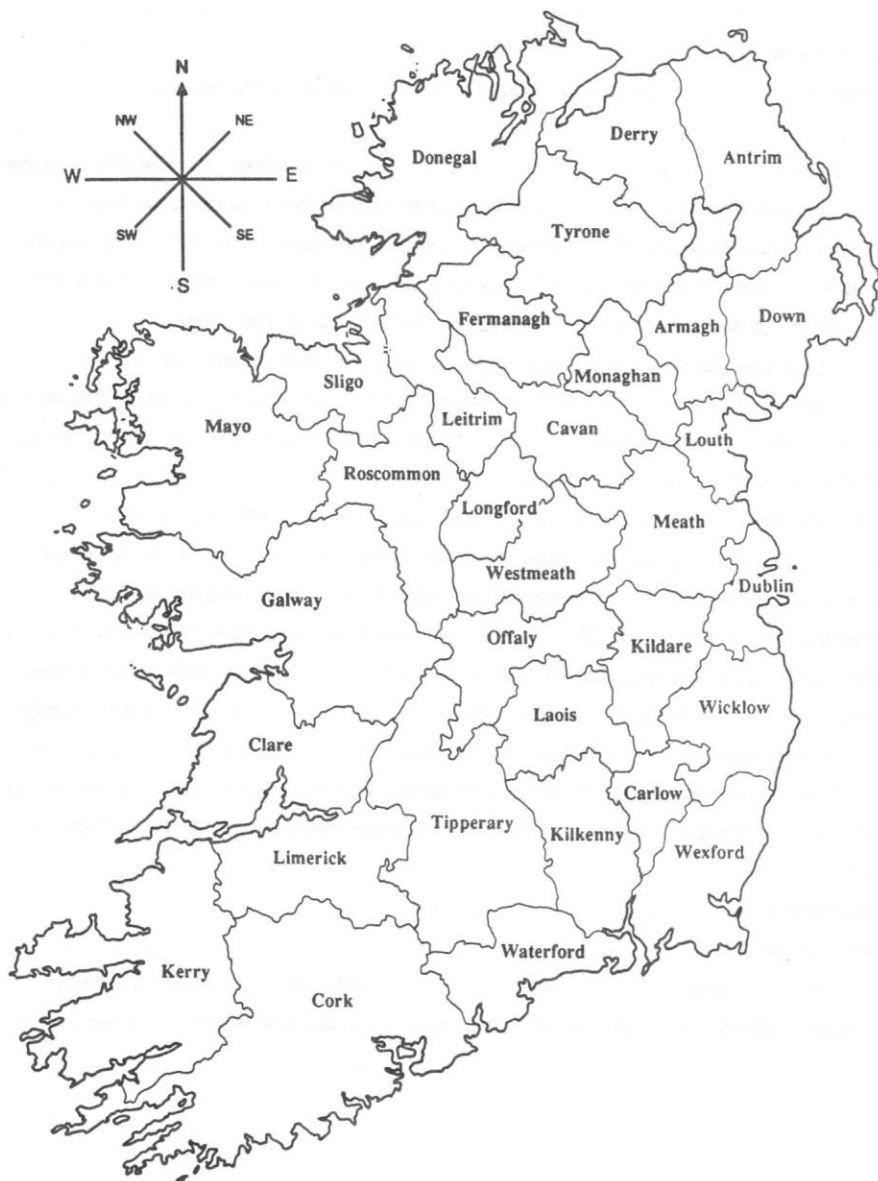
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FIGURE 1: the counties of Ireland.



RECORDS OF LICE (PHTHIRAPTERA) FROM STOATS AND BADGERS IN IRELAND

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Lice are common parasites of wild mammals and birds, but they have received little attention in Ireland and Britain. Records are scarce, such Irish records that exist for Ischnocera and Amblycera have been recently reviewed by Butler and O'Connor (1994). Some Irish records from stoats (*Mustela erminea* L.) and badgers (*Meles meles* (L.)) not included in Butler and O'Connor (1994) are listed below. Nomenclature follows that of Steel (1964).

The records of lice from stoats come from a collection of stoat carcasses, mainly road casualties, made between 1985 and 1987 (Sleeman, 1987). These include a record from the Isle of Man, where the Irish sub-species of stoat (*Mustela erminea hibernica* (Thomas and Barrett-Hamilton)) is found.

For all records only 10km map grid references are available. Further details of the distribution of these lice on Irish stoats are given in Sleeman (1989). Butler and O'Connor (1994) also omitted two Ulster records of the badger louse (*Trichodectes melis* (Fabr.)) published in Sleeman (1979). The incidence on badger hosts and seasonality of these lice detected during a long term study of badgers at Kilmurry in west Cork is given and discussed. The area had a variable badger density in these years (1989-1993) which was approximately 2.5-3 per square km. The population was dominated by females, there being 1.6 females for every male (Sleeman, 1992; Sleeman and Mulcahy, 1993). The seasons are defined as Spring: March-May; Summer: June-August; Autumn: September-November and Winter: December-February.

Amblycera

***Mysidea picae* (L.)**

A bird louse found on an Irish stoat collected in Ireland (X08) but the exact location is unknown. Previously found on magpie (*Pica pica* L.) in Ireland (Butler and O'Connor, 1994).

Ischnocera

Trichodectes ermineae (Hopkins)

All records from stoats.

Ireland

Distribution: C54, G53, Q30, Q95, O14, M13, M23, M66, N02, N81, R10, R55, R38, R48, R60, R65, R70, R94, S01, S03, S09, S15, S18, S22, S96, T01, T04, V99, W28, W39, W45, W46, W54, W55, W57, W59, W66, W69, W77, W86, W88, W96, W97, X07, X08 (with *Mysidea picae*), X19.

Isle of Man

Distribution: S27.

Trichodectes melis (Fabr.)

All records were from live trapped badgers (see Sleeman and Mulcahy, 1993) at Kilmurry, Co. Cork (W46) (Table 1).

Siphunculata

Polyplax spinulosa (Burmeister)

A rodent louse found on a male stoat from Co. Donegal (G98).

TABLE 1. Seasonality of *Trichodectes melis* detected on badgers at Kilmurry, Co. Cork (1989-1993).

	Spring	Summer	Autumn	Winter
Badgers trapped	24	28	10	11
Number with lice	10	15	8	5
Percentage incidence	41 %	53 %	80 %	45 %

Conclusions

It is clear that *Trichodectes erminea* is common and widespread on Irish stoats, and that lice from both mammalian and bird prey can also occur on stoats. It is also clear that *T. melis* is

frequent on badgers in west Cork and may be more frequent on hosts in the autumn (Table 1). The percentage incidence of lice (41-80%) is similar to the incidence reported from elsewhere (Hancox, 1980).

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A FIRST RECORD OF *BRYONIA DIOICA* JACQUIN (CUCURBITACEAE) FROM CO. TYRONE, IRELAND

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On the 30 September 1996, whilst carrying out an environment impact study on lands within the townland of Drumreagh-etra, about 1.5km to the west of Coalisland, Co. Tyrone (H828672), an unusual plant was noticed in a hedgerow which was identified as *Bryonia dioica* Jacquin, White Bryony. On the 10 July 1997, one of us (SW) revisited the area to obtain suitable samples for pressing. A voucher specimen has been deposited in the herbarium of the Botany Department, Trinity College, Dublin (TCD).

This species is native to southern Britain (Stace, 1991) but was introduced into gardens because it was in the past cultivated as a medicinal plant (Mabey, 1996). It was probably introduced into gardens in Ireland in the late 18th century from where it has escaped and become naturalised in some areas. There are old records of naturalised plants from counties Carlow, Dublin (Bailey Lighthouse, Howth), Waterford (Lismore and Tramore), Wicklow (Westaston, near Wicklow) (Colgan and Scully, 1898) and Down (Hackney, 1992). Colgan (1904) gives an account of the extent of the species at the cliffs around Howth, Co. Dublin. In 1926 it was well established in the district (Anon., 1926) and was still spreading in 1956 (Anon., 1961). The species is still extant in Antrim, Down (Hackney, 1995) and Dublin (Wistow, personal observation).

Hackney (1992, 1995) makes no reference to the species occurring in Co. Tyrone so the discovery of this plant in the Coalisland area is the first vice county record for H36. *Bryonia dioica*, which is not listed in the *Census Catalogue* (Scannell and Synnott, 1987), is an alien species in Ireland.

The plant is highly poisonous, especially to children. Less than ten berries can produce repeat vomiting and larger numbers cause respiratory difficulties. Poultry and livestock are also

susceptible. A herd of forty cows died from eating the exposed roots when a pipeline was being laid (Cooper and Johnson, 1988). Fifteen berries are sufficient for a fatal dose in a child and more than thirty for an adult (Mabey, 1996).

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A REVIEW OF THE IRISH PSEUDOSCORPIONS (ARACHNIDA: PSEUDOSCORPIONES)

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Abstract

The Irish pseudoscorpion fauna is reviewed. Seventeen species are recorded and one of these, *Allochneres powelli* (Kew), is new to Ireland.

Introduction

At the beginning of the century, there was great interest in Irish pseudoscorpions and the group was widely collected. The results of this work were summarised by Kew (1916). Subsequently, little research was carried out in Ireland and only two papers appeared (Kew, 1921; Anon., 1925) over the next sixty years. However, there are manuscript records in the papers of D. R. Pack Beresford in the Royal Irish Academy, Dublin (Harding, 1981). In 1969, a recording scheme was organised in Great Britain by the Biological Records Centre, Monks Wood and Irish collectors contributed records and specimens. A summary of the compiled data up to 1977 was provided by Mothersill (1978). Subsequently, a provisional atlas of the British and Irish distributions was published (Jones, 1980). The present paper reviews all the available information on Irish pseudoscorpions and provides additional data. One species *Allochneres powelli* (Kew) is new to Ireland.

Format

The authors decided that it would be useful for future workers to give detailed information for each record and the known data are therefore summarised under each species. Grid references are presented for all the localities including the older records. In some instances, these are approximate and are only meant to be guides to the probable sites. Nomenclature follows Legg and Jones (1988) and the foreign distributions are also from this work. Synonyms occurring in

the Irish literature are given. The following abbreviations are used for the collectors' names:

ABF - A. B. Foster, AGW - A. G. Wilson, AN - A. Norris, AWS - A. W. Stelfox, CM - C. Mothersill, CO - C. Oldham, DCFC - D. C. F. Cotton, DD - D. Doogue, DH - D. Heppell, DRPB - D. R. Pack-Beresford, DWM - D. W. Mackie; EBR - E. B. Rands, ED - E. Duffey, FN - F. Neale, GHC - G. H. Carpenter, GL - G. Legg, HWK - H. W. Kew, JASS - J. A. S. Stendall, JC - J. Chetfield, JCR - J. Crocker, JD - J. Daws, JMCH - J. M. C. Holmes, JNH - J. N. Halbert, JNM - J. N. Milne, JPOC - J. P. O'Connor; MEB - M. E. Bacchus, MJB - M. J. Bishop, MLF - M. L. Foster, MM - M. Murphy, MMC - M. M. Cawley, NES - N. E. Stephens, NHF - N. H. Foster, PTH - P. T. Harding, RA - R. Anderson, RAP - R. A. Phillips, RFS - R. F. Scharff, RP - R. Patterson, RS - R. Standen, RW - R. Welch, SS - S. Slaughter, WDR - W. D. Roebuck, WFJ - W. F. Johnson.

Family Chthoniidae

***Kewochthonius halberti* (Kew) (Fig. 1)**

DUBLIN: v and viii.1915, Malahide O24, under stones on the sea-shore between the levels of orange lichens and *Pelvetia*, JNH (Kew, 1916).

A rare species which has not been found in Ireland since 1915. Outside Ireland, *K. halberti* is only known from England and France.

***Chthonius tetrachelatus* (Preyssler) (Fig. 1)**

ANTRIM: 1896, Belfast J37, AGW (Kew, 1909, 1916); Giant's Causeway C94 (Kew, 1914); Murlough Bay D24 (Kew, 1914); Whitepark Bay D04 (Kew, 1914); **CLARE:** 1.x.1968, Burren M30, in the vegetation in limestone cracks, MEB; **CORK:** 1909, slopes of Esk Mountain at 900ft (275m) near Glengarriff V95, HWK (Kew, 1910a, 1916); **DERRY:** 1913, Benevenagh C73, NHF (Kew, 1914; Kew, 1916); **DONEGAL:** 12.v.1979, Ballycramsy (north of Malin) C4351, under a plywood sheet on grassy sheltered stable dunes near the sea, RA; **DOWN:** 1915, Ballynahinch J35, MLF (Kew, 1916); **DUBLIN:** 1894, Dublin O13, JNH (Kew, 1909, 1916); **KERRY:** viii.1909, Galway's Bridge V98, amongst dead leaves (Kew, 1910a, 1916); viii.1909, Knockanaguish V97 (up to 1645ft (500m)), HWK (Kew, 1910a); 1909, between Templenoe and Sneem V76/V86 (shown as grey dots on map), HWK (Kew, 1910a, 1916); **LIMERICK:** 16.i.1978, by the old canal in the north-east of Limerick City R5857, under builder's rubble and fallen masonry, DD; **LOUTH:** 1912, Clogher Head O18,

NHF (Foster, 1913; Kew, 1916); **MAYO**: Clare Island, north of Kinnacorra L68, in cavities formed by fragments of rock irregularly massed together and more or less sward-covered, HWK (Kew, 1911b); 31.vii.1977, Feeagh Lough L9798, under a stone in bracken (*Pteridium*)/hawthorn (*Crataegus*) acid heath (*Erica*) scrub, CM; 9.iv.1977, Inishcoog M16, in litter of deciduous wood, DCFC; 1909, Westport L98, DRPB (Kew, 1911b, 1916); **ROSCOMMON**: 1915, Rockingham G80, in a greenhouse, ABF (Kew, 1916); **WICKLOW**: 1911, Greystones O21, NES (Kew, 1916).

A widespread species in Ireland, occurring in a diverse variety of habitats. It is known from central, eastern and northern Europe including Britain.

***Chthonius ischnocheles* (Hermann) (Fig. 2)**

synonym *Chthonius rayi* L. Koch

ANTRIM: Armoy D0632 (Kew, 1914); 1909, Garron Tower D32, DRPB (Kew, 1916); 5.viii.1978, Quarry Road, Belfast J3875, under a slate under *Rhododendron* in a suburban garden, RA; **ARMAGH**: 1895, Navan Fort H84, JNM (Kew, 1916); 2.vii.1911, Armagh district (possibly Navan Fort), NHF (Anon., 1911); **CARLOW**: 1895, Borris S75, JNH (Kew, 1909, 1916); **CLARE**: 10.vii.1960, Inchiquin R28, in moss on cave wall, SS; **CORK**: 1907, Carrigrohane (Corrigrohane) W67, WDR (Kew, 1909, 1916); 1898 and c.1900, Glandore W23, attached to leg of an isopod, NMI and JNH (Kew, 1909, 1916); 18 and 20.ix.1973, Glengarriff V9057 and V9256, oak (*Quercus*) woodland, 17.vi.1971, MJB; Killane Mountain near Glengarriff V9060, under pieces of rock, JCR; **DERRY**: 12.iii.1977, Agivey Bann Bridge C9022, in the flood refuse along a marshy graded river bank, RA; 1895, Derry C41, JNM (Kew, 1909); 2.x.1975, Springfield, Moneymore H8682, JC; **DONEGAL**: 1913, Bundoran G85, NHF (Kew, 1916); **DOWN**: 10.ix.1977, Ballyquintin Point J6245, under stones on clayey maritime pasture, RA; Giant's Ring J36 (Kew, 1914); 1912, Hillsborough J25, NHF (Kew, 1916); **DUBLIN**: common in Dublin district (Carpenter, 1908); 16.iv.1977, Ballygall O1538, under stones, PTH; 24.vii.1977, Donabate Sand Dunes O2347, under a stone, DD; 1909, 14.v.1977, 4.viii. 11 and 15.ix.1979, Howth O2639, O2836 and O2936, under decaying vegetation and shore-line boulders and stones, JNH (Kew, 1909), RA, DD, DCFC, PTH; 1892, Lucan O03, RFS (Carpenter, 1895; Kew, 1909, 1916); iv.1977, Malahide Common O2247, on grassy sand dune under wood in estuarine area, DD; 1894 and 1898, North Bull

O23, JNH (Kew, 1909); 1895, Tallaght O02, JNH (Kew, 1909); **FERMANAGH**: 1912, Castle Caldwell H06, NHF (Kew, 1916); **GALWAY**: 11.viii.1977, Athleague M8357, under a stone in a limestone quarry, CM; 11.viii.1977, Kilcomrel Abbey M7431, under a stone by a dry limestone wall, CM; 7.v.1992, Killeenaran M3915, JD; vii.1908, Portumna M80, RW; 11.viii.1977, Radford M6126, sifted from beech (*Fagus*) leaf litter near a stream, CM; **KERRY**: 1909, Kenmare V97, HWK (Kew, 1910a, 1916); 16.vii.1978, Killagh Priory (Milltown) Q8101, under stones in an old ruin, DD; viii.1909, Killarney V99, HWK (Kew, 1910a, 1916); viii.1909, Middle Lake, Killarney V98 (Kew, 1910a); **LAOIS**: 16.vii.1978, between pike of Rushall and Coolrain S2992, under a stone in hedgerow, DD; 5.viii.1977, Rock of Dunamace S5397, under a stone, CM; **KILDARE**: 1977, near Enfield N8042, under a stone in a sandpit, DD; 30.i.1977, near Leixlip N9936, inside an old gastropod shell, DCFC; **KILKENNY**: 1909, 17.iii.1977, Goresbridge S65, under a log, DRPB (Kew, 1916); **LEITRIM**: 26.ix.1990?, Carrick-on-Shannon M9399, MMC; 22.viii.1992, Drumshanbo G9610, beech litter, MMC; 24.viii.1992, Killegar House H2506, beech litter, MMC; 1913, Kinlough G85, NHF (Kew, 1916); 22.viii.1992, River Drumshanbo G9710, MMC; vii.1914, Slish Wood G4732 (Kew, 1915); 24.viii.1992, Tooman N1188, beneath a rock in a grassy field border, MMC; **LONGFORD**: 1915, Longford N17, MM (Kew, 1916); **LOUTH**: 1912, Clogher Head O18, NHF (Foster, 1913; Kew, 1916); **MAYO**: 11.viii.1992, Ballinor G2418, under stone on waste ground, MMC; **MEATH**: 1912, Beau Park N97, NHF (Foster, 1913; Kew, 1916); 16.vi.1977, Enfield N7741, under a railway sleeper on the side of a railway track, PTH; vi.1977, Gormanstown O1967, under drift wood on strandline, CM; **MONAGHAN**: 1912, Monaghan H63 (Foster, 1913; Kew, 1916); **ROSCOMMON**: 1910, Kiltoom M94, AWS (Kew, 1916); **SLIGO**: 3.viii.1992, Ballysadare G6629, under a rock at the river's edge, MCC; 1.viii.1992, Belvoir G7034, beech litter, MMC; 16.ix.1992, Castle Dargan House G7127, leaf litter, MMC; 5.v.1991, Colooney G6726, grassy bank, MMC; 6.viii.1991 and 24.vii.1992, Drumcliff G6742 and G6640, in scrub woodland on a river bank and in a ruined building, MMC; 1913, Grange G64, NHF (Kew, 1916); 22.vii.1992, Hazelwood G7133, in beech litter, MMC; 4.viii.1992, Lissadell G6143, under a rock in a field and sieved from debris in a hayshed, MCC; 18.vii.1990, Sligo Harbour near Ballyweelin G6539, MMC; 13.ix.1992, Sligo Quay G6836, the waste ground at a railway building, MMC; vii. 1914, 16.vii.1992, Slish

Wood G4732, in deciduous litter (Kew, 1915), MMC; 2.vii.1992, Templehouse G6227, deciduous woodland litter, MMC; **TIPPERARY**: 17.x.1976, Lough Derg (R8186, R8291 and R8296), under stones on the lake-shore and under dead wood in scrubland; 6.viii.1971, Glengarra Wood near Mitchelstown R9318, under dead leaves in an old mixed woodland edging a main road, AN; **WATERFORD**: 20.ix.1969, Blackwater River X1090, in leaf litter, ED; 18.vi.1977, Conagher Sand Spit X2792, under drift wood on the sand spit, CM; 1910, Waterford S51, HWK (Kew, 1916); **WEXFORD**: 1910, Wexford T02, HWK (Kew, 1916); **WICKLOW**: 1894, Avoca (Ovoca) T28, RFS (Kew, 1909, 1916); 1895, Bray Head O21, GHC (Kew, 1909).

A very common Irish species, widely distributed and occurring in a wide variety of habitats. It is also widespread in Britain and, southern and western Europe.

***Chthonius orthodactylus* (Leach) (Fig. 2)**

According to Kew (1911a, 1916), this species was recorded by mistake from the Belfast District by Carpenter (1902). **LAOIS**: 6.viii.1977, Castletown S3492, beech litter, DD (Mothersill, 1978).

The senior author has doubts concerning the authenticity of the Laois record. From his knowledge, *C. orthodactylus* is not usually found in beech litter. Instead, it is associated with rank grass stems - not in woodland. The species is also known from Britain and, southern and western Europe with the exception of Spain.

Family Neobisiidae

***Neobisium maritimum* (Leach) (Fig. 3)**

CORK: 1909, Bantry Bay V95/97 (shown as grey dots on map), HWK (Kew, 1910b, 1911a, 1916); viii.1909, Derreenacarrin V85, in vertical rock fissures, HWK (Kew, 1910a); 13.x.1979, Lough Ine (Hyne) W02, the Rapids area, JMCH; **DOWN**: 1970, Ballyhenry Point, near Portaferry J55, under stones between the tide marks, GL; 1916, Ballymacormick Point J58, AWS (Kew, 1916); **DUBLIN**: 1915, Malahide O24, JNH (Kew, 1916); **KERRY**: viii.1909, behind Brennel Island near Dawros Point V86, under large moist stones on the shore between the region of densely seaweed-covered rocks and that of rush (*Juncus*)/thrift (*Armeria*), HWK (Kew, 1910a); 1909, Greenane V86, on the shore near the quay, HWK (Kew, 1910a); 1909, Kenmare Bay V86, HWK (Kew, 1909, 1910b, 1911a, 1916); 1909, behind Ormond's

Island, Kenmare Bay V76, on a rocky shore under stones and in the fissures of slaty seaweed rocks, HWK (Kew, 1910a); **MAYO**: vi.1910, Clare Island (about Gubanoomeen) L68, on the shore between the tide-marks in fissures in slaty rocks, HWK *et al.* (Kew, 1911b, 1916); Clew Bay L98 (Kew, 1911a); **WEXFORD**: 17.ix.1977, Carnsore Point T1203, in a crevice in granite on the upper shore, DH.

A widespread Irish species. In addition to Britain, it is also known from the west of France.

***Neobisium carpenteri* (Kew) (*sensu stricto*) (Fig. 3)**

CORK: 1909-1910, junction of Glengarriff and Canrooska Rivers (Glengarriff) V95, on a rocky wooded hill-side under the flaking outer-bark of strawberry-trees (*Arbutus*), in rock crevices and among dead leaves, HWK (Kew, 1910a, b, 1911a, 1916); 12.vii.1985, Glengarriff Woods V9157, under a stone, JPOC; vi.1971, near Seal Harbour, Glengarriff V9151, in *Sphagnum* clumps around reeds (*Juncus*) on a cliff top, JCR.

In Ireland, *N. carpenteri* is only known from the Glengarriff area in the south-west. The species appears to be restricted to the British Isles and other than Glengarriff, it has been only collected in Essex and south Wales between 1950 and 1985. The Welsh specimens differ from the Irish and English material.

***Neobisium carcinoides* (Hermann) Beier (Fig. 4)**

synonym *Neobisium muscorum* (Leach)

ANTRIM: 1900, Ballycastle D14, RW (Kew, 1909, 1910b); 26.ii.1977, Craigagh Wood (Cushendum) D2432, RA; 9.vii.1977, small lake near Crockcravat D2219, on moss under heather, RA; 1897, Kilbane D04, RW (Kew, 1909, 1910b, 1916); 28.i.1978, Massereene J1485, in the damp moss on the trunk of a large poplar (*Populus*), RA; 6.viii.1978, Trostan D1723, in reindeer moss and *Rhacomitrium* under heather, RA; **ARMAGH**: 18.ii.1978, Denycaul H8757, in thick moss in a dry bank sheltered by trees close to marshy pasture, RA; 1893, Lough Gilly J03, WFJ (Kew, 1909, 1910b, 1916); 1897, Poyntzpass J03, WFJ (Kew, 1909, 1910b); **CARLOW**: 1909, Fenagh S76, DRPB (Kew, 1910b, 1916); 4.v.1925, Tinnahinch S74, RAP; **CLARE**: 24.ix.1969, west of Caherconnell, Burren R29, shaken from moss and leaves in hazel (*Corylus*) scrub, ED; 14.iii.1925, Lisdoonvarna R19, RAP; 12.vi.1965, south of Mullagh More R39, grass area in a wet section of fen, ED; 12.vi.1965, Paularallam, Burren M20, moss and leaf litter under hazel scrub, ED; **CORK**: 1896, Glandore

N23, JNH (Kew, 1909, 1910b, 1916); 20.ix.1973, Glengarriff V9057, in oak woodland, MJB; 25.ix.1973, Glengarriff V9157, in oak/Holly (*Ilex*) woodland, MJB; i.1977, Glengarriff V95, under a log, CM; 23.ix.1973, 1.5km west of Togher Bridge W1754, field, MJB; 18.ix.1973, Glengarriff V9256, woodland, MJB; **DERRY**: 28.x.1977, Ballyhatigan C6510, beaten from dry wood-rush litter in a wet oak/birch wood, RA; 12.ii.1977, Kilrea Wood C9313, in moss and litter in a mixed wood on the river bank, RA; 12.ii.1977, Moyola Park near Castledown H9294, RA; **DONEGAL**: 1913, Bundoran G85, NHF (Kew, 1916); 30.ix.1978, west end of Lough Finn B8901, under stone on rough pasture on the lake shore, RA; **DOWN**: 1910, Hillsborough J25, NHF (Kew, 1916); near Newtonards J47, mixed leaf litter; 28.viii.1978, Slieve Donard J3527, in *Rhacomitrium* heath, granite scree, RA; 5.xi.1977, Quoile Wood J4846, in wood-rush litter under mature oak, RA; **DUBLIN**: common in Dublin district (Carpenter, 1908); 16.iv.1977, Knockree O1815, under a piece of fallen bark on a river bank in acid grassland, DD; 1892, Lucan O03, RFS (Kew, 1909, 1910b, 1916); Rathmines O1531, NES (Kew, 1911a, as *godfreyi* Kew); **FERMANAGH**: 8.iv.1977, Ely Lodge Forest H1851, in thick moss/leaf litter in dense scrub wood near lake shore, RA; 16.iv.1977, Stuhannure H0557, in a peat bog on limestone, RA; **GALWAY**: 1897, Leenane L86, JNH (Kew, 1909, 1910b, 1911b, 1916); 25.x.1925, Portumna M80, RAP; **KERRY**: viii.1909, Galway's Bridge V98, amongst the dead leaves in oak/holly/strawberry-tree woodland, HWK (Kew, 1910a); 19.ix.1973, Gonaglan Wood V9181, oak woodland, MJB; 1899, Kenmare V97, JNH (Kew, 1909, 1910a, b, 1916); 16.vii.1978, Killagh Priory (Milltown) Q8101, under the stones in an old ruin, DD; 1893, Killarney V99, JNH (Kew, 1909, 1910b, 1916); 19.viii.1909, Middle Lough, Cloonee Loughs V86, HWK (Kew, 1910a, b); viii.1909, Mucksna V96, amongst dead leaves, HWK (Kew, 1910a); viii.1909, Knockanaguish V97, HWK (Kew, 1910a); viii.1909, near Torc New Bridge V98, amongst dead leaves in the woods, HWK (Kew, 1910a); 26.ix.1973, Uragh Wood V8462, open woodland, MJB; **KILDARE**: ix.1977, Hahistown House, two miles east-north-east of Kilcullen N8710, EBR; **KILKENNY**: 27.ix.1925, Mount Brandon S64, RAP; 19.x.1977, Nore River bank near Maddockstown S5455, under planks of wood among ruined houses by the river, DD; **LAOIS**: 4.vi.1971, Ballylynan near Athy S68, DWM; **LEITRIM**: 8.i.1993, Drumsna N9898, leaf litter, MMC; 11.ix.1992, Glencar G7543, leaf litter in mixed woodland, MMC; 27.viii.1992, Glenfarne Wood H0138, in beech litter,

MMC; **LIMERICK**: ix.1977, Grange Bridge R3134, in a dry soil sample from a field, EBR; ix.1977, Howardstown R5332, field, EBR; ix.1977, Trenchard R2251, field, EBR; **MAYO**: 1897, Delphi L86, JNH (Kew, 1909, 1910b, 1911b, 1916); 29.x.1978, Owenmore River near Lagan F9021, in moss in open scrub, RA; vi.1910, Portlea, Clare Island L78, in dead leaves and debris of ferns, HWK (Kew, 1911b); **TYRONE**: 1910, Albany, NHF (Kew, 1916); 4.xi.1978, Beltrim Castle H4986, in wood-rush litter in a dense oak wood on a river bank, RA; 25.ii.1978, Knockmany Forest H5355, in moss under a sapling in a conifer plantation, RA; **WATERFORD**: 20.ix.1969, Blackwater River X1090, ED; **WESTMEATH**: ix.1977, Lough Ennell near Carrick House N4146, in friable leaf litter, EBR; **WEXFORD**: 21.ii.1977, Johnstown Castle T01, beneath a log in a shelter belt, DCFC; **WICKLOW**: 1894 and iv.1970, Avoca (Ovoca) T28, HWK (Kew, 1909, 1910b, 1916); 1895, Bray O21, RFS (Kew, 1909, 1910b); ix.1971, Mount Slaney S9193, EBR.

The authors have been unable to trace the data for two records (R07 and W23) which are shown in Jones (1980). A very common Irish species, widely distributed and occurring in a wide variety of habitats. It is known from central, eastern and northern Europe including Britain.

***Roncus lubricus* L. Koch (Fig. 4)**

ANTRIM: 19.viii.1979, Belfast Castle J3279, under a wooden plank by a ruined green house in a mixed deciduous woodland, RA; **CORK**: 20.ix.1973, Glengarriff V9057, field in oak woodland, MJB; **DOWN**: 12.x.1912, Corry's Glen (Hillsborough) J25, NHF (Foster, 1912; Kew, 1916); **SLIGO**: 13.ix.1992, Sligo Quay G6836, on waste ground at a railway building, MMC.

A rare Irish species which is widely distributed elsewhere in Europe including Britain.

***Roncocreagris cambridgei* (L. Koch) (Fig. 5)**

ANTRIM: Armoy D0632 (Kew, 1914); 1913, Giant's Causeway C94, CO (Kew, 1914, 1916); **CORK**: 22.i.1953, Bantry V94, Anon; 1907, Inchigeelagh W26, RS (Kew, 1916); 12.iii.1977, Fota Island W77, field, DD; **DERRY**: 1912, Benevenagh C73, NHF (Kew, 1914, 1916); **KERRY**: 1911, Glencar V78, HWK (Kew, 1916); 1911, Killarney V99, HWK (Kew, 1916).

Widely distributed but a rare Irish species. It is also known from the Atlantic margin of Spain, Portugal, northern and western France, and southern England.

Family Cheiridiidae

***Cheiridium museorum* (Leach) (Fig. 5)**

ANTRIM: 1915, Torr D24, in a hay-loft, MLF (Kew, 1916); **ARMAGH:** 1915, Poyntzpass J03, in a stable-loft, NHF (Kew, 1916); **DOWN:** 1913, Hillsborough J25, NHF (Kew, 1914, 1916); **DUBLIN:** 1903, Dundrum O12, RFS (Kew, 1909, 1911a, 1916); xi.1975, Merrion Square O1633, PTH, specimen in a glass bottle in a building; **MONAGHAN:** 1915, Glasslough H74, NHF (Kew, 1916).

Although a widely distributed Irish species, there are no western or southern records. In addition, the species has only been collected once in recent years. It is found throughout most of Europe including Britain.

Family Chernetidae

***Lamprochernes savignyi* (Simon) (Fig. 6)**

synonym *Chernes godfreyi* Kew

ANTRIM: 1915, Belfast J37, on flies' legs, JASS (Kew, 1916); 18.ix.1978, Newforge Lane, Belfast J3369, on a housefly (*Musca domestica* L.) hatched from the animal dung in an animal house, RA; **DUBLIN:** ix.1915, Glasnevin O13, on the legs of a stable fly (*Stomoxys calcitrans* (L.)), JNH (Kew, 1916); 1910, Rathmines O13, NES (Stephens, 1912).

A rare Irish species for which there are no recent records. Outside Ireland, it is only known from Denmark and Great Britain. It is sparsely distributed in the latter.

***Lamprochernes nodosus* (Schränk) (Fig. 6)**

ANTRIM: 19.ix.1978, Newford Lane J3369, on a housefly from animal dung in an animal house, RA; **DOWN:** 1911, Downpatrick J44, on flies' legs, RP, (Carpenter, 1912; Kew, 1916).

A rare Irish species. It is also found throughout most of Europe including Britain.

***Pselaphochernes scorpioides* (Hermann) (Fig. 7)**

CARLOW: 1920, Fennagh S76, in vegetable debris from a wood, DRPB (Kew, 1921).

A rare Irish species. It is also found throughout most of Europe including Britain.

***Pselaphochernes dubius* (O. P. -Cambridge) (Fig. 7)**

Doubtfully recorded from Co. Wicklow (Kew, 1911a).

ANTRIM: 1913, Glynn D40, HWK (Kew, 1914, 1916); **DUBLIN:** 11.vii.1977, Ireland's Eye

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O2942, under wood on the island, DD (Mothersill, 1978); **WICKLOW**: 1895, near Woodenbridge, Avoca (Ovoca) T27, JNH (Kew, 1909). Originally identified as *Chernes phaleratus* Simon (Carpenter, 1896) but the specimen's determination as *P. dubius* is almost certainly correct (Kew, 1916).

A rare Irish species which is only known from eastern Ireland. In Britain, it is common in the south but more local in the north and Scotland. It is also known from north-western Europe, Italy, Spain and Madeira.

***Allochernes powelli* (Kew) (Fig. 8)**

SLIGO: 31.viii.1992, Rathbraughan G7037, sieved from debris in a horse's stable, MMC.

New to Ireland. It is also known from Denmark, England, north-west Spain and Wales. It is a mainly synanthropic species, occurring in barn and stable refuse.

***Dinocheirus panzeri* (C. L. Koch) (Fig. 8)**

ANTRIM: 1950, Belfast J37, anon; **DOWN**: 1913, Hillsborough J25, in a stable loft, NHF (Kew, 1914, 1916); vi.1970, Portaferry J55, in a pigeon's nest in an old tower, GL; **SLIGO**: 11.x.1992, Doonally House G7139, sieved from hay-shed, MMC; 22.i.1993, Fortland Easky G3737, sieved from hay debris on a farm, MMC; 21.ix.1992, Cummeen G6536, MMC; 31.vii.1992, Sligo Quay G6836, field, MMC.

A rare species, only known from the northern half of Ireland. In Sligo, Cawley (1996) observed that populations occurred in the bedding/debris in old stone farm-sheds where a rich deep humus had accumulated under the hay-straw bedding. Its other European distribution includes Britain, Denmark, Finland, Lapland, The Netherlands and southern Sweden.

Family Cheliferidae

***Chelifer cancroides* (L.) (Fig. 9)**

ANTRIM: Campbell College, Belfast J37 (Anon., 1925); **DUBLIN**: 7.x.1908, Rathmines O13, attached to the legs of a housefly, NES (Stephens, 1910); **LIMERICK**: 1894, Limerick R55, FN (Kew, 1909, 1911a, 1916).

There are no recent records of this rare Irish species. It is found throughout most of Europe including Britain.

Discussion

A total of seventeen species of pseudoscorpions are now recorded from Ireland. By contrast, twenty-five are known from Great Britain. The Irish fauna represents 68% of that of the larger island, a figure which is remarkably close to the 65% estimated for the combined invertebrate one (McCarthy, 1986). Only four species, *Chthonius tetrachelatus*, *C. ischnocheles*, *Neobisium carcinoides* and *N. maritimum*, are common and widespread while another three species, *Kewochthonius halberti*, *Pselaphochernes scorpiodes* and *Chleifer cancroides*, have not been recorded since the early part of this century. Two species are of biogeographical significance. *K. halberti* was collected at Axmouth in Devon by Kew but as at Malahide, attempts to refine the species have been unsuccessful. It has been recorded from France but the description of this material does not fit the type specimens from Malahide (Legg and Jones, 1988). *K. halberti* may be therefore a rare pseudoscorpion which is restricted to the British Isles. Outside Glengarriff, *Neobisium carpenteri* is definitely known only from Essex although specimens from south Wales may belong to the same taxon. Interestingly, *N. carpenteri* resembles a species in Spain and Portugal and it may represent another Lusitanian element in the fauna of south-west Ireland. Further additions to the Irish fauna are probable. *Chthonius tenuis* L. Koch and *Dactylochelifer latreillei* (Leach) are likely ones. The former is common in southern Britain where it occurs in deciduous leaf litter, dead wood and under stones. It should be searched for in the south-east especially in Wexford. The latter is common on the sandy coasts of southern and eastern Britain where it is found at the roots of marram grass (*Ammophila arenaria* (L.) Link) and under driftwood. It can occur elsewhere but is rare (Jones, 1980). It would be worthwhile to look for this pseudoscorpion on the sandy beaches of the eastern and south-eastern coasts of Ireland.

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FIGURE 1: distribution maps of *Kewochthonius halberti* and *Chthonius tetrachelatus*.

Kewochthonius halberti



Chthonius tetrachelatus

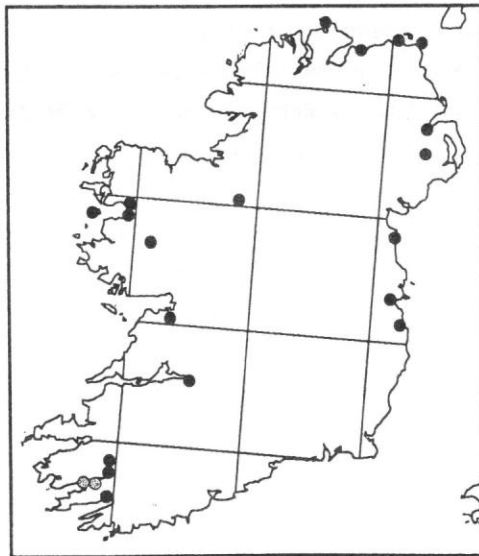
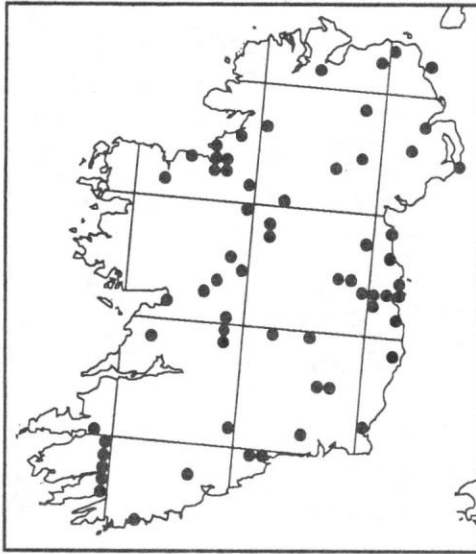


FIGURE 2: distribution maps of *Chthonius ischnocheles* and *C. orthodactylus*.

Chthonius ischnocheles



Chthonius orthodactylus



FIGURE 3: distribution maps of *Neobisium maritimum* and *N. carpenteri*.

Neobisium maritimum

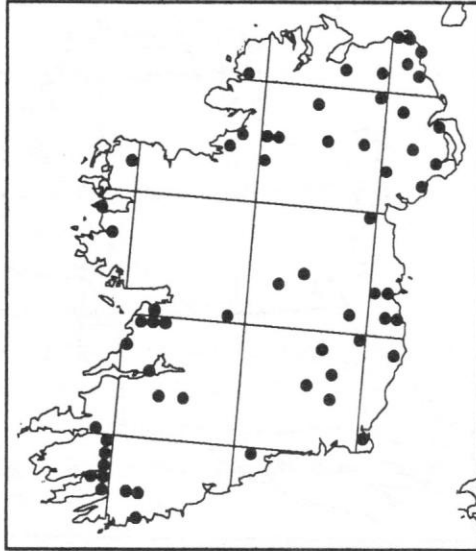


Neobisium carpenteri



FIGURE 4: distribution maps of *Neobisium carcinoides* and *Roncus lubricus*.

Neobisium carcinoides



Roncus lubricus



FIGURE 5: distribution maps of *Roncocreagris cambridgei* and *Cheiridium museorum*.

Roncocreagris cambridgei



Cheiridium museorum



FIGURE 6: distribution maps of *Lamprochernes savignyi* and *L. nodosus*.

Lamprochernes savignyi



Lamprochernes nodosus



FIGURE 7: distribution maps of *Pselaphochernes scorpioides* and *P. dubius*.

Pselaphochernes scorpioides



Pselaphochernes dubius



FIGURE 8: distribution maps of *Allochneres powelli* and *Dinocheirus panzeri*.

Allochneres powelli



Dinocheirus panzeri



FIGURE 9: distribution map of *Chelifer cancroides*.

Chelifer cancroides



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**RECOLONISATION BY STAPHYLINIDAE (COLEOPTERA) OF RESTORED
MEADOWS ON REHABILITATED CEMENT KILN MOUNDS NEAR DROGHEDA,
CO. LOUTH, IRELAND**

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Introduction

Old meadows, with their typical fauna and flora, are becoming scarce throughout Ireland due to changes in land use. As a result, there is a growing interest in restoring herb-rich meadows by sowing species-rich seed mixtures. An example of this type of restoration was the rehabilitation of inherited cement kiln waste mounds near Drogheda, Co. Louth, by Premier Periclase Ltd in 1989. This involved contouring, topsoiling (with agricultural topsoil stored since 1978), and seeding to meadow. Many species of Staphylinidae occur in Irish meadows (Good and Giller, 1990), and a study of their recolonisation of the restored meadows near Drogheda is reported here. Botanical nomenclature follows Stace (1991).

Two areas were examined: (1) a south-facing steep slope, with loose-tipped soil, facing the Boyne estuary; and (2) the plateau of a topsoiled mound with compacted soil, adjacent to a wheat field. The south-facing slope was planted with a species-rich calcareous meadow seed mixture in spring 1989; the seed originated from England, so non-native genotypes (and even species like *Dianthus deltoides*) were established. During the three years of investigation, the vegetation of the site changed from a pioneer community (with *Papaver rhoeas*, for instance, abundant in 1991) to a grass-dominated community in 1993. Several species increased in cover and then declined, in particular *Leucanthemum vulgare* and *Lotus corniculatus*, a typical pattern in meadow succession (e.g. Wells, 1990). The plateau area was planted one year later, in 1990, to *Lolium perenne* and *Trifolium repens*. All areas were mown once in 1991 and twice in 1992 and 1993 (summer and winter). Staphylinidae recorded from three other Irish south-facing

calcareous grass slopes are also included for comparison with the rehabilitated slope.

Methods

The two rehabilitated areas (O 1176) were sampled as follows. (1) South-facing slope, sampled using plastic cup pitfall traps with ethylene glycol preservative (July 1991, October 1992, and May-June 1993, $n = 4$ traps/year, laid for c. 3 weeks) and a D-vac suction sampler (July 1991, June 1992, June 1993, c.3 m²/year). In 1992, pitfall traps appeared to be inefficient due to drying of soil around the rim of the trap, so the area was retrapped in October. (2) Plateau, sampled using pitfall traps as above (July 1991, October 1992, October 1993, $n = 4$ traps/year) and a D-vac suction sampler (July 1991, October 1992). The D-vac could not be used on this area in October 1993 because the grass sward was too wet to allow efficient sampling.

The south- and north-facing slopes of an esker ridge pasture being invaded by scrub (near Shannonbridge (Co. Offaly), in Co. Roscommon (M 9625), July 1992) were also sampled using the D-vac suction sampler. The herbaceous vegetation included *Briza media*, *Dactylis glomerata*, *Anthoxanthum odoratum*, *Lotus corniculatus*, *Centaurea nigra* and *Sanguisorba minor*, with *Crataegus monogyna*, *Prunus spinosa*, *Fraxinus excelsior* and *Rosa* sp. scrub. *Thymus polytrichus* occurred only on the south-facing slope, associated with the frequent ant mounds. Two other south-facing slopes were also examined, both old road cutting banks near limestone pasture: near Tulla, Co. Clare (R 5079), June-July 1991, pitfall traps; Ballydavid, Co. Galway (M 7016), July 1991, pitfall traps. The traps were operated in the same manner as above.

Voucher specimens of *Scopaeus sulcicollis* and several other species have been deposited in the Natural History Museum, Dublin; specimens of many of the other species have been retained in the senior author's collection.

Results

There were large changes in the species recorded and the numbers of each species in samples taken over three years from the south-facing slope (Table 1). These changes can be understood by examining selected species with known habitat preferences. *Aloconota gregaria* (Erichson), a

species characteristic of disturbed ground (Good and Giller, 1991), and *Scopaeus sulcicollis* (Stephens), a species preferring uncovered soil on slopes (see discussion), occur only in 1991. In contrast, *Staphylinus dimidiaticornis* Gemminger, a species characteristic of undisturbed meadow (Good and Giller, 1991) occurred only in 1993. The change in the numbers of these species over the three year period indicate that stabilisation of the soil/vegetation cover had occurred.

Similar changes occurred on the plateau (Table 2), which had a vegetation cover one year younger than the slope. Again, species characteristic of disturbed ground like *Aloconota gregaria*, *Philonthus carbonarius* (Gravenhorst), *P. cognatus* (Stephens) and *P. laminatus* (Creutzer) (Good and Giller, 1991) occurred in 1991 but had disappeared by 1993. *Oxypoda brachyptera* (Stephens), a species which is reported from disturbed (river banks, etc.) or unstable soils (sand- and gravel-pits, sand dunes) (Horion, 1967), occurred abundantly in 1991, but had also disappeared by 1993. The opposite trend was shown by *Micropeplus staphylinoides* (Marshall), *Ocypus olens* (Müller) and *Olophrum piceum* (Gyllenhal), which occurred abundantly in 1993, but not in previous years. *M. staphylinoides* is mycetophagous (Hinton and Stephens, 1941), and was probably associated with fungi attacking grass litter. The litter had accumulated in the absence of an effective earthworm population, which had not sufficiently colonised the plateau area at the time of sampling. The occurrence of *O. piceum* is interesting because it is associated with wet habitats such as *Juncus*, *Sphagnum*, water margins, etc. (Horion, 1963; Hammond, 1970), and may therefore be associated with patches of vegetated compacted soil.

The staphylinid fauna of the south-facing slope was characterised by the myrmecophilous species *Drusilla canaliculata* (Fabr.), which occurred in abundance on the slope but was absent from the other parts of the site sampled. Both this species and *Falagria thoracica* Stephens appear to have a preference for relatively warm, dry soils, and this is shown in a comparison of staphylinids taken from the south and north slopes of a midlands esker ridge (Table 3), and from other south-facing slopes (Table 4). Also note from Tables 3 and 4 that fewer species and lower numbers of staphylinids occur on dry south-facing slopes compared to normal grassland samples.

Discussion

Including additional samples not reported here, a total of 64 staphylinid species was recorded from the rehabilitated mounds between 1991 and 1993. Of these, only *Scopaeus sulcicollis* could be regarded as an indicator of biological conservation value, based on the criteria of stenotopic habitat and local distribution (see Good and Butler, 1995). *S. sulcicollis* is the most widespread of the four species of this genus occurring in Britain, and one of the two recorded from Ireland (Allen, 1968). Allen (1968) describes the preferred habitat of this species as "warm damp sandy spots at the base of sea cliffs, etc., and sometimes under stones on dry chalky ground." Damp loamy-sandy fairly uncovered soils on grassy slopes on embankments, steep banks, stone quarries, brickworks, etc. are cited by Horion (1965). Palm (1963) records calcareous clayey gravel or rotting litter in gravel pits as its habitat.

It is ironic that a species like *S. sulcicollis*, which could be regarded as the only indicator of conservation value from the site, is also an indicator of instability of a soil/vegetation cover. Its loss from the south-facing slope is a welcome indication of the success of site stabilisation and rehabilitation, but nonetheless this type of unstable coastal habitat is an important conservation feature for insects (Kirby, 1992). Nearby eroding sea cliffs and banks probably provide suitable habitat for this species.

Despite the loose soil and dry summer conditions occurring on the revegetated south-facing meadow slope, changes in the staphylinid fauna indicated the development of a stable soil/vegetation cover over a period of four years after seeding. A corresponding change in the staphylinid fauna occurred on the plateau of the revegetated kiln waste mounds, also indicating the development of more stable conditions. However, although re-created grasslands have a role in conservation (Morris, 1990), conservation value was not demonstrated by the staphylinid fauna, four years after seeding.

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TABLE 1. Staphylinid beetles from a south-facing revegetated meadow slope on cement kiln waste mounds near Drogheda, Co. Louth, sampled using pitfall traps and a D-vac suction sampler. Nomenclature follows Lucht (1987), Booth (1988) and Lohse and Lucht (1989).

Species	1991	1992	1993
<i>Aloconota gregaria</i> (Erichson)	3	-	-
<i>Amischa analis</i> (Gravenhorst)	16	-	-
<i>Atheta amplicollis</i> (Mulsant & Rey)	3	-	1
<i>Atheta fungi</i> (Gravenhorst)	6	2	-
<i>Atheta orbata</i> (Erichson)	-	1	-
<i>Drusilla canaliculata</i> (Fabr.)	11	15	23
<i>Falagria thoracica</i> Stephens	6	4	8
<i>Ocypus olens</i> (Müller)	5	19	1
<i>Oligota inflata</i> Mannerheim	1	1	-
<i>Quedius schatzmayri</i> Gridelli	3	5	3
<i>Quedius semiobscurus</i> (Marshall)	1	3	-
<i>Scopaeus sulcicollis</i> (Stephens)	4	-	-
<i>Stenus clavicornis</i> (Scopoli)	1	-	1
<i>Stenus nanus</i> Stephens	1	-	-
<i>Stenus ossium</i> Stephens	16	21	11
<i>Sunius propinquus</i> (Brisout)	1	2	1
<i>Tachyporus dispar</i> (Paykull)	3	15	19
<i>Tachyporus hypnorum</i> (Fabr.)	5	2	32
<i>Tachyporus nitidulus</i> (Fabr.)	31	4	-
<i>Tachyporus pusillus</i> Gravenhorst	5	-	1
<i>Tachyporus tersus</i> Erichson	1	-	-
<i>Dinaraea angustula</i> (Gyllenhal)	-	1	-
<i>Quedius boops</i> (Gravenhorst)	-	8	-
<i>Rugilus orbiculatus</i> (Paykull)	-	1	2
<i>Sepedophilus nigripennis</i> (Stephens)	-	1	3
<i>Xantholinus glabratus</i> (Gravenhorst)	-	1	-
<i>Amischa decipiens</i> (Sharp)	-	-	1
<i>Quedius molochinus</i> (Gravenhorst)	-	-	1
<i>Staphylinus dimidiaticornis</i> Gemminger	-	-	17
<i>Stenus brunnipes</i> Stephens	-	-	1
<i>Tachyporus chrysomelinus</i> (L.)	-	-	2
<i>Xantholinus linearis</i> (Olivier)	-	-	3
<i>Xantholinus longiventris</i> Heer	-	-	6

TABLE 2. Staphylinid beetles from a revegetated meadow on cement kiln waste mounds near Drogheda, Co. Louth, sampled using pitfall traps and a D-vac suction sampler (1991 and 1992, and pitfall traps only in 1993). Nomenclature follows Lucht (1987), Booth (1988) and Lohse and Lucht (1989).

Species	1991	1992	1993
<i>Aloconota gregaria</i> (Erichson)	2	-	-
<i>Amischa analis</i> (Gravenhorst)	16	15	-
<i>Atheta amicola</i> (Stephens)	1	-	-
<i>Atheta amplicollis</i> (Mulsant & Rey)	21	16	4
<i>Atheta atramentaria</i> (Gyllenhal)	1	-	-
<i>Atheta fungi</i> (Gravenhorst)	4	11	-
<i>Cypha laeviuscula</i> (Mannerheim)	2	-	-
<i>Falagria thoracica</i> Stephens	1	10	2
<i>Micropeplus porcatus</i> (Paykull)	1	-	-
<i>Oxypoda brachyptera</i> (Stephens)	21	1	-
<i>Oxypoda exoleta</i> Erichson	2	-	1
<i>Philonthus carbonarius</i> (Gravenhorst)	2	1	-
<i>Philonthus cognatus</i> (Stephens)	4	-	-
<i>Philonthus laminatus</i> (Creutzer)	1	-	-
<i>Stenus canaliculatus</i> Gyllenhal	1	-	-
<i>Stenus clavicornis</i> (Scopoli)	7	16	1
<i>Stenus nanus</i> Stephens	3	-	1
<i>Stenus ossium</i> Stephens	3	18	-
<i>Tachinus signatus</i> Gravenhorst	1	-	1
<i>Tachyporus dispar</i> (Paykull)	5	4	-
<i>Tachyporus hypnorum</i> (Fabr.)	7	24	1
<i>Tachyporus nitidulus</i> (Fabr.)	37	6	-
<i>Tachyporus pusillus</i> Gravenhorst	11	1	-
<i>Xantholinus glabratus</i> (Gravenhorst)	3	-	1
<i>Micropeplus fulvus</i> Erichson	-	1	-
<i>Oligota inflata</i> Mannerheim	-	1	-
<i>Omalium caesum</i> Gravenhorst	-	1	-
<i>Proteinus brachypterus</i> (Fabr.)	-	1	-
<i>Quedius tristis</i> (Gravenhorst)	-	1	1
<i>Rugilus orbiculatus</i> (Paykull)	-	3	1
<i>Sepedophilus nigripennis</i> (Stephens)	-	64	4
<i>Stenus fulvicornis</i> Stephens	-	1	-
<i>Tachyporus obtusus</i> (L.)	-	1	-
<i>Atheta triangulum</i> (Kraatz)	-	-	2
<i>Micropeplus staphylinoides</i> (Marsham)	-	-	32
<i>Ocyopus olens</i> (Müller)	-	-	23
<i>Olophrum piceum</i> (Gyllenhal)	-	-	7
<i>Philonthus marginatus</i> (Ström)	-	-	2
<i>Quedius schatzmayri</i> Gridelli	-	-	7
<i>Quedius semiobscurus</i> (Marsham)	-	-	3
<i>Sepedophilus marshami</i> (Stephens)	-	-	3
<i>Xantholinus linearis</i> (Olivier)	-	-	6

TABLE 3. Staphylinid beetles from the south- and north-facing slopes of an esker ridge pasture with scrub near Shannonbridge (Co. Offaly), in Co. Roscommon, sampled using a D-vac suction sampler. Nomenclature follows Lucht (1987), Booth (1988), Lohse and Lucht (1989) and Muona (1990).

Species	South-facing slope	North-facing slope
<i>Drusilla canaliculata</i> (Fabr.)	1	-
<i>Falagria thoracica</i> Stephens	9	-
<i>Sepedophilus nigripennis</i> (Stephens)	3	2
<i>Stenus flavipes</i> Stephens	2	65
<i>Stenus fulvicornis</i> Stephens	3	20
<i>Tachyporus dispar</i> (Paykull)	1	2
<i>Amischa nigrofusca</i> (Stephens)	-	1
<i>Anotylus sculpturatus</i> (Gravenhorst)	-	1
<i>Atheta orbata</i> (Erichson)	-	1
<i>Stenus brunnipes</i> Stephens	-	1
<i>Stenus impressus</i> Germar	-	4
<i>Stenus similis</i> (Herbst)	-	2
<i>Tachinus laticollis</i> Gravenhorst	-	1

TABLE 4. Staphylinid beetles from south-facing road-cutting grass slopes near calcareous grassland at Tulla, Co. Clare, and Ballydavid, Co. Galway, sampled using pitfall traps. Nomenclature follows Lucht (1987) and Lohse and Lucht (1989).

Species	Tulla	Ballydavid
<i>Atheta amplicollis</i> (Mulsant & Rey)	1	-
<i>Atheta fungi</i> (Gravenhorst)	1	-
<i>Atheta orbata</i> (Erichson)	1	-
<i>Drusilla canaliculata</i> (Fabr.)	32	9
<i>Geostiba circumcellaris</i> (Gravenhorst)	1	1
<i>Ocypus compressus</i> (Marsham)	1	-
<i>Ocypus olens</i> (Müller)	1	-
<i>Sepedophilus nigripennis</i> (Stephens)	1	-
<i>Stenus brunnipes</i> Stephens	1	-
<i>Tachinus signatus</i> Gravenhorst	1	-
<i>Tachyporus atriceps</i> Stephens	1	-
<i>Tachyporus nitidulus</i> (Fabr.)	1	-
<i>Mycetoporus</i> sp.	-	1
<i>Philonthus varians</i> (Paykull)	-	1

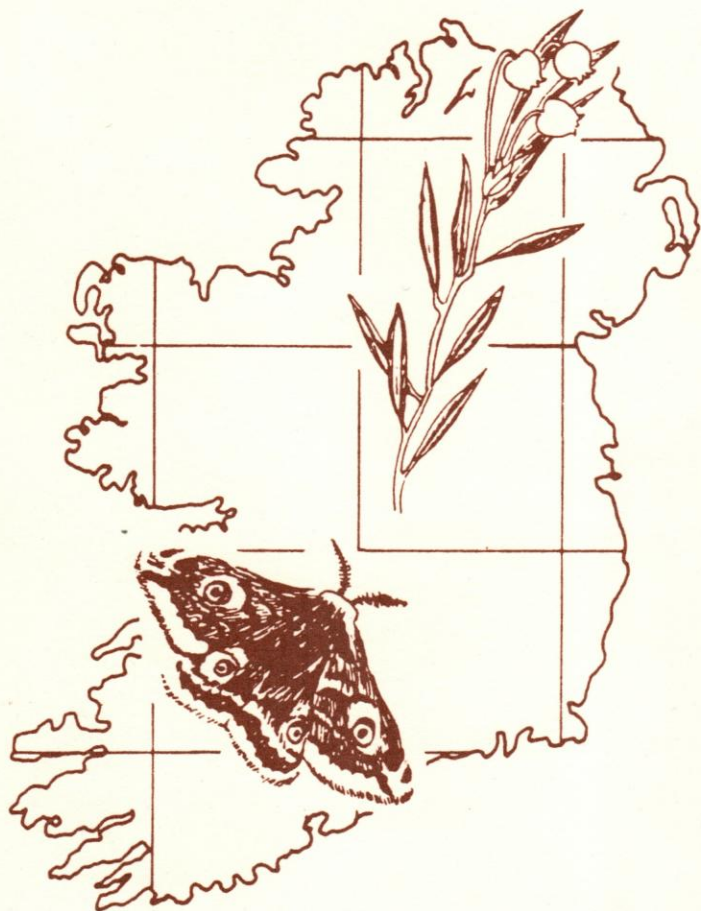


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THIS BULLETIN IS DEDICATED TO THE MEMORY OF R. C. FARIS AND A. W. STELFOX IN RECOGNITION OF THEIR IMPORTANT RESEARCH ON THE IRISH SAWFLIES.

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BEETLES (COLEOPTERA) RECORDED FROM VARIOUS IRISH SITES IN 1993, 1994 AND 1996

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During 1993, 1994 and 1996, the author and his wife made three brief visits to Ireland and collected beetles at various sites. This paper comprises a catalogue of the beetle records made during these visits, together with comments on a few of the species recorded.

Sites visited

Visits were made from 18th to 25th May 1993 (8 days), from 11th to 20th May 1994 (10 days) and from 6th to 10th July 1996 (5 days) - a total of 23 days. The 44 sites at which collecting was done are listed, grouped by vice-county, in Table 1 in which each site has been given a numeric site-code. Some of the locations visited were selected in advance from study of published reports or from personal communications. Others were simply chanced upon.

Species recorded

The 248 species recorded during the three visits are listed in Table 2 in which nomenclature and arrangement follows Anderson, Nash and O'Connor (in press). The sites at which the species were recorded are indicated in Table 2 by means of numeric sites-codes explained in Table 1.

General discussion

Knowledge of the distribution of Irish insects has advanced very considerably since the time when Bouskell (1904) thought it sufficient simply to record that a capture constituted 'a new record to Munster'. It is still, nevertheless, difficult to put the miscellaneous findings from a survey like this into perspective or to determine whether a record for a vice-county is new except for those groups for which comprehensive data have been published - water beetles (Balfour-Browne, 1951), click beetles (Mendel and Clarke, 1996), weevils (Morris, 1993) and bark beetles (O'Connor, Winter and Good, 1991). The author has attempted to assess records obtained in the light of these reviews and of information from other sources. Vice-county records obtained in this survey which were apparently new at the time, are marked with an

asterisk in Table 2 but lack of information about many species means that absence an asterisk should not be taken as evidence of pre-existing vice-county records. Seven of the species recorded are species not known in the British Isles outside Ireland. These are labelled 'Ireland only' in Table 2. Two other species in this category - *Micropeplus caelatus* Erichson and *Barypeithes curvimanus* (Jacquelin du Val) were sought unsuccessfully at locations where they were originally found. The first of these has not been found since its discovery in South Kerry in 1909 (Joy and Tomlin, 1909). The second was found in Dublin and Kildare but not apparently after 1940 (O'Mahony, 1940).

The observations constituting this report are not of sufficient quantity to allow critical evaluation of the sites visited but it seems appropriate, at least, to draw attention to the richness of one site - Lough Gash, Co. Clare. It is already known as a site holding many rarities and a fuller investigation would almost certainly reveal it to be an outstanding wetland site.

Notes on selected species

Full dates and site information for these are given in Table 1.

***Agonum lugens* (Duftschmid)**

A female was taken under a vegetation mat on mud at the northern edge of Lough Gash in May 1993. In May 1996, the lough was nearly dry and numerous examples were seen at the site in the same situation. This species is known in the British Isles only from Ireland where it was discovered in 1983 (Anderson, 1985). It was first found at Lough Gash in 1989 (Lott and Bilton, 1991). It was found at the site also by Mr Hodge in 1995.

***Badister anomalous* (Perris)**

A male was taken in company with the previous specimen. This was the first Irish record (Owen, 1994). Attempts to find further examples at the site in 1994 and in 1996 were unsuccessful.

***Panagaeus cruxmajor* (L.)**

A specimen of this species was sieved from moss collected in a marshy area near Corofin, Co. Clare in May 1994. In the British Isles as a whole this species has become increasingly scarce in recent years. Recorded in England from 18 or so vice-counties in the past (Hyman and Parsons, 1992), it has been noted from only three sites since 1970. Mr Mendel took two specimens in the same area in the following week and Mr Hodge took a specimen at Lough

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Mask, Co. Mayo, on 20 May 1994.

***Enochrus affinis* (Thunberg) and *E. coarctatus* (Gredler)**

A few *Enochrus* specimens from the bog at Danesfort, North Kerry were found to contain a male of each of these closely related species. It is quite unusual to find both species in the same habitat though both are recorded for North Kerry (Balfour-Browne, 1951). The former typically occurs in acidic pools while the latter favours neutral detritus-ponds.

***Ptenidium intermedium* Wankowicz**

Two examples of this species new to Ireland were sieved from reed-debris at the edge of Lough Avoher, Co. Clare, in May 1994. The grid reference of the site was R5374, not R6374 as previously reported (Owen, 1995a).

***Carpelimus impressus* (Boisduval and Laccordaire)**

A specimen was taken at the northern edge of Lough Gash in May 1993 (Owen, 1994). Attempts in 1994 and 1995 to find other specimens at the site were unsuccessful.

***Stenus kiesenwetteri* Rosenhauer**

Two examples of this species new to Ireland were found in marshy ground at the edge of Caragh Lough, Co. Kerry, in May 1993 (Owen, 1994). Attempts by Mr Mendel and the author to rediscover the species at the site in the following year were not successful but Mr Mendel found it at the site in 1996.

***Stenus glabellus* Thomson**

This species was recorded new to Ireland in 1990 (Lott and Foster, 1990). A pair was taken by trampling moss at the south-east corner of Scragh Bog, Co. Westmeath, in May 1993.

***Stenus palustris* Erichson**

This species was recorded new to Ireland from a site in Co. Offaly by Good (1989). A male was obtained by trampling moss at the south-east corner of Scragh Bog in May 1993.

***Philonthus furcifer* Renkonen**

This is another species not found in the British Isles outside of Ireland. Lott and Foster (1990) comment that little has been published on the species since Tottenham (1939) discovered specimens among material collected at Killarney, Co. Kerry, by Bullock. The author has drawn attention to two problems in the identification of the species (Owen, 1996).

***Philonthus punctus* (Gravenhorst)**

This species was added to the Irish list by Lott and Bilton (1991) who found three specimens at Lough Gash and five at Coole Lough, Co. Galway, in 1989. It was plentiful on mud under a mat of vegetation at Lough Gash in May 1993 and even commoner in July 1996. Mr Hodge took specimens at Lough Mask, Co. Mayo in 1994.

***Dacrila fallax* (Kraatz)**

An example of this species new to Ireland was sieved from reed-debris at Ballyvergan Marsh, Co. Cork, in May 1995 (Owen, 1995a).

***Hygropora cunctans* (Erichson)**

One specimen of this species was found among vegetation at the edge of a turlough near Kilnaboy, Co. Clare, in 1995. There appears to be only one previous record for this species in Ireland for a single specimen taken at Mollygollan Turlough, Co. Roscommon, in 1989 (Lott and Bilton, 1991).

***Biblopectus spinosus* Raffray**

A female of this species new to Ireland was sieved from reed-debris at Stradbally, Co. Kerry, in May 1994 (Owen, 1995a).

***Heterocerus fenestratus* (Thunberg)**

One specimen of this species new to Ireland was taken on mud at Lough Gash in July 1996 (Owen, in press a).

***Ampedus pomonae* (Stephens)**

In the British Isles, this species is known only from Caragh Lough, South Kerry where it was re-discovered by Mendel in 1989 after a gap of about 50 years (Mendel, 1990; Mendel and Clarke, 1996). Accompanied by Mr Mendel, the author and his wife found a specimen in a birch (*Betula*) log at the site in May 1994, together with three larvae in other birch logs, two of which were successfully reared.

***Otiorhynchus uncinatus* Germar**

This species, another confined in the British Isles to Ireland, was brought forward as British by Prof. Morris on the basis of a specimen discovered at Killballyboy Wood, Clogheen, Co. Tipperary, in 1967 (Morris, 1969). A second specimen was discovered at the same site in 1969 (Morris, 1970). No further specimens appear to have been taken (Morris, 1993) until the author

found the species quite plentiful in moss in a restricted portion of the roadside bordering Killballyboy Wood in 1994 (Owen, 1995b). Subsequently, Mr Mendel and Mr Hodge also found it at the same spot. In July 1996, two specimens were obtained from moss at another roadside site about 5km from the original site (Owen, in press b).

***Rhynchaenus calceatus* Germar**

This species was first noted in Ireland in 1994 at All Saints' Bog, Co. Offaly (Mendel, 1994). It was discovered at Killaun Bog, Co. Offaly the following year (Hodge, 1996). It was found to be quite plentiful on downy birch (*Betula pubescens* Ehrh.) at All Saints' Bog on a visit with Prof. Morris in July 1996 and also on the same trees, at a site near Rathcabban a few km to the south in North Tipperary (Morris and Owen, in press).

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TABLE 1. Location and nature of collecting sites.

Sites are grouped by vice-county as delineated in Scannell and Synnott (1987).

Map references are for the Irish National Grid.

SITE	SITE CODE
South Kerry H1	
Glenbeigh, V7095, 18.v.93 - roadside vegetation.	1
Rosbeigh, V6592, 18.v.93 - coastal dunes.	2
Caragh Lake, V7190, 18.v.93 and 18.v.94 - bog and fens at south end.	3
Inch, V69, 15.v.94 - coastal dunes and shoreline.	4
Stradbally, Q5813, 17.v.94 - reed beds, old hay, coastal dunes.	5
North Kerry H2	
Upper Lake, Killarney, V9081, 16.v.94 - deciduous woodland.	6
Ross Castle, V9081, 6.vii.96 - moss in dried up pools.	7
Danesfort, V9888, 6.vii.96 and 7.vii.96 - marsh vegetation.	8
Muckcross, V9786, 6.vii.96 - cut grass in parkland.	9
East Cork H5	
Ballyvergan Marsh, X0776, 14.v.94 - reed-beds.	10
Ballymacoda, X0673, 14.v.94 - littoral zone and salt-marsh.	11
South Tipperary H7	
Mallow, W5298, 6.vii.96 - roadside vegetation.	12
Killballyboy Wood, S0113, 11.v.94 - roadside moss.	13
Shanrahan Wood, Clogheen, R9812, 10.vii.96 - roadside moss.	14
Ballyporeen, R9211, 10.vii.96 - roadside moss.	15
Newcastle, S1211, 10.vii.96 - roadside moss.	16
Limerick H8	
Abbeyfeale, R1726, 19.v.93 - road side vegetation.	17
Clare H9	
Lough Gash, R3967, 19.v.93, 11.v.94 and 7.vii.96 - in dead vegetation on mud at edge of lough.	18
Dromore, R3486, 19.v.93 - stones by lakeside and fen by castle.	19
Lough Bunny, R3797, 21.v.93 and 12.v.94 - moss at edge of lough.	20
Killnaboy, R3195, 12.v.94 - edge of turlough - 8.vii.96 - dry turlough.	21

TABLE 1 (cont.)

Corofin, R3288, 12.v.94 - marshy area by roadside.	22
Lough Avoher, R5374, 13.v.94 - reed-bed by loughside.	23
Scarriff, R6584, 13.v.94 - reed-bed by loughside.	24
Ogonnelloe, R69827, 10.vii.96 - roadside vegetation.	25
Tinarana Bay, R6978, 10.vii.96 - stones at edge of Lough Derg.	26
Rinnaman Point, R6975, 10.vii.96 - water at edge of Lough Derg.	27
North Tipperary H10	
near Rathcabban, N0007, 9.vii.96 - dry peat bog with birch trees.	28
Carrigahorig, M9001, 9.vii.96 - marshy field.	29
near Annagh Castle, M8390, 9.vii.96 - loughside vegetation.	30
Castlelough, R7483, 10.vii.96 - loughside vegetation.	31
Wexford H12	
Ballycarney, S9749, 20.v.94 - roadside vegetation.	32
South-east Galway H15	
Craughwell, R5220, 21.v.93 - wet meadow by roadside.	33
Portumna, M8604, 23-25.v.93 - cut grass on bank of Shannon.	34
Garryland Wood, M4203, 21.v.93 - reed-bed and stones by loughside.	35
Offaly H18	
All Saints Bog, N0210, 9.vii.96 - dry peat bog with birch trees.	36
Dublin H21	
Portmarnock, O2442, 19.v.94 - <i>Rubus</i> thicket on shore.	37
St Anne's Park, O1238, 19.v.94 - dead wood and cut grass.	38
Westmeath H23	
Scragh Bog, N4259, 22.v.93 - wet moss at south-east corner.	39
Roscommon H25	
Lough Croan, M8749, 21.v.93 - moss at west end of lough.	40
East Mayo H26	
Lough Mask, L1260, 20.v.93 - vegetation at edge of lough.	41
Clyard, L2357, 20.v.93 - vegetation at edge of small lough.	42
West Mayo H27	
Belmullet, F6530, 20.v.93 - coastal turf and dunes.	43
Annagh Bay, F6534, 20.v.93 - littoral zone.	44

TABLE 2. Beetles recorded at various Irish sites.

An asterisk against a vice-county number indicates that the record was, at the time, a new vice-county record - see text. The message 'Ireland only' against a species means that it is not known in the British Isles outside Ireland.

	Site-codes (see Table 1)			Vice-county
	1993	1994	1996	1993-1996
CARABIDAE				
<i>Carabus clathratus</i> Linnaeus		3		H1
<i>C. granulatus</i> Linnaeus		5		H1
<i>Pelophila borealis</i> (Paykull)	19		18	H9
<i>Nebria salina</i> Fairmaire & Laboulbène	1,20			H1,H9
<i>Blethisa multipunctata</i> (Linnaeus)	19			H9
<i>Elaphrus cupreus</i> Duftschmid		5	26	H1,H9
<i>E. riparius</i> (Linnaeus)	19			H9
<i>Dyschirius globosus</i> (Herbst)	18,43	3,22	18	H1,H9,H27
<i>D. impunctipennis</i> Dawson	44	4		H1,H27
<i>D. luedersi</i> Wagner	19			H9
<i>Clivina fossor</i> (Linnaeus)	35	5		H1,H15
<i>Trechus obtusus</i> Erichson			8	H2
<i>Asaphidion flavipes</i> (Linnaeus)		5		H1
<i>Bembidion assimile</i> Gyllenhal	18,34,35			H9,H15
<i>B. clarki</i> (Dawson)	3,18,34,35			H1,H9,H15
<i>B. dentellum</i> (Thunberg)	35			H15
<i>B. harpaloides</i> Serville	1			H1
<i>B. lampros</i> (Herbst)	34			H15
<i>B. mannerheimi</i> Sahlberg	35	4,5,13		H1,H7,H15
<i>B. pallidipenne</i> (Illiger)	44			H27
<i>B. tetracolum</i> Say		5		H1
<i>Pterostichus anthracinus</i> (Panzer)	1		26	H1,H9
<i>P. cupreus</i> (Linnaeus)		5		H1
<i>P. melanarius</i> (Illiger)	19			H9
<i>P. minor</i> (Gyllenhal)	3,18			H1,H9
<i>P. nigrita</i> aggr.	18,19,35,39	10		H5,H9,H15,H23
<i>P. strenuus</i> (Panzer)	18,20,34	5	8,9	H1,H2,H9,H15
<i>P. vernalis</i> (Panzer)	18	5		H1,H9
<i>P. versicolor</i> (Sturm)	20	5		H1,H9
<i>Abax parallelopedus</i> (Pill. & Mitt.)	35			H15
<i>Calathus cinctus</i> Motschulsky	43			H27
<i>C. fuscipes</i> (Goeze)		5		H1
<i>C. melanocephalus</i> (Linnaeus)		5		H1
<i>C. mollis</i> (Marsham)	44			H27
<i>Agonum albipes</i> (Fabricius)			21,26	H9
<i>A. assimile</i> (Paykull)	34			H15
<i>A. fuliginosum</i> (Panzer)	3,19,39	9		H1,H2,H9,H23
<i>A. lugens</i> (Duftschmid)	18		18	H9 Ireland only
<i>A. marginatum</i> (Linnaeus)	19,35		26	H9,H15

TABLE 2 (cont.)

	Site-codes (see Table 1)		1996	Vice-county 1993-1996
	1993	1994		
<i>A. moestum</i> (Duftschmid)	18,19	24		H9
<i>A. muelleri</i> (Herbst)		13		H7
<i>A. obscurum</i> (Herbst)	1,18	11		H1, H5, H9
<i>A. thoreyi</i> Dejean	18,39	10		H5, H9, H23
<i>Amara aenea</i> (DeGeer)	17,43			H8, H27
<i>A. communis</i> (Panzer)		5		H1
<i>A. tibialis</i> (Paykull)	43	5		H1, H27
<i>Harpalus affinis</i> (Schrank)		11		H5
<i>H. latus</i> (Linnaeus)	35	5		H1, H15
<i>H. tardus</i> (Panzer)		5		H1
<i>Trichocellus placidus</i> (Gyllenhal)	19			H9
<i>Bradycellus sharpi</i> Joy		13		H7
<i>Stenolophus mixtus</i> (Herbst)	18,19,35			H9, H15
<i>Acupalpus dorsalis</i> (Fabricius)	3			H1
<i>A. dubius</i> Schilsky			9	H2
<i>Badister anomalus</i> (Perris)	18			H9*
<i>B. bipustulatus</i> (Fabricius)		5		H1
<i>B. peltatus</i> (Panzer)	40			H25
<i>Panagaeus cruxmajor</i> (Linnaeus)		22		H9
<i>Chlaenius nigricornis</i> (Fabricius)	18			H9
<i>Demetrias atricapillus</i> (Linnaeus)	34	5,24	12	H1, H7, H9, H15
<i>Dromius linearis</i> (Olivier)	34			H15
<i>D. notatus</i> Stephens	34			H15
<i>D. quadrinotatus</i> (Zenker)	34		30	H10, H15
<i>Metabletus foveatus</i> (Fourcroy)		5		H1
NOTERIDAE				
<i>Noterus clavicornis</i> (DeGeer)	42			H26
DYTISCIDAE				
<i>Laccophilus minutus</i> (Linnaeus)			21	H5
<i>Hydroporus angustatus</i> Sturm	39			H23
<i>H. erythrocephalus</i> (Linnaeus)			9	H2
<i>H. palustris</i> (Linnaeus)			21	H9
<i>H. scalesianus</i> Stephens	39			H23
<i>Graptodytes bilineatus</i> (Sturm)			21	H9
<i>G. granularis</i> (Linnaeus)	39			H23
<i>Laccornis oblongus</i> (Stephens)	39			H23
<i>Copelatus haemorrhoidalis</i> (Fabricius)			9	H2
<i>Agabus bipustulatus</i> (Linnaeus)			9,18	H2, H9
<i>A. melanocornis</i> Zimmermann	39			H23
<i>A. nebulosus</i> (Forster)			21	H9
<i>Ilybius guttiger</i> (Gyllenhal)	39			H23
<i>Rhantus grapii</i> (Gyllenhal)	39			H23
<i>Hydaticus seminiger</i> (DeGeer)	39			H23
GYRINIDAE				
<i>Gyrinus aeratus</i> Stephens	41,42		27	H9, H26
<i>G. caspius</i> Ménétriés	42			H26
<i>G. minutus</i> Fabricius	42			H26
<i>G. substriatus</i> Stephens	42			H26

TABLE 2 (cont.)

	Site-codes (see Table 1)			Vice-county
	1993	1994	1996	1993-1996
HYDROPHILIDAE				
<i>Hydrochus ignicollis</i> Motschulsky	19			H9
<i>Helophorus obscurus</i> Mulsant	18			H9
<i>Coelostoma orbiculare</i> (Fabricius)			9	H2
<i>Sphaeridium lunatum</i> Fabricius		5		H1
<i>Cercyon analis</i> (Paykull)	34			H15
<i>C. atomarius</i> (Fabricius)		13		H7
<i>C. convexusculus</i> Stephens	18,34	10,22		H5,H9,H15
<i>C. littoralis</i> (Gyllenhal)	43			H27
<i>C. marinus</i> Thomson			18	H9
<i>C. sternalis</i> Sharp	18,34			H9,H15
<i>C. tristis</i> (Illiger)	18			H9
<i>C. ustulatus</i> (Preysler)	33			H15
<i>Megasternum obscurum</i> (Marshall)		5		H1
<i>Cryptopleurum minutum</i> (Fabricius)	34			H15
<i>Anacaena globulus</i> (Paykull)	34			H15
<i>A. limbata</i> (Fabricius)	39			H23
<i>Enochrus affinis</i> (Thunberg)			9	H2
<i>E. coarctatus</i> (Gredler)			9	H2
<i>E. fuscipennis</i> (Thomson)			9	H2
<i>Cymbiodyta marginella</i> (Fabricius)		10		H5
HISTERIDAE				
<i>Abraeus globosus</i> (Hoffmann)		38		H21
<i>Acrilus nigricornis</i> (Hoffmann)		5		H1
<i>Baeckmanniolus dimidiatus</i> (Illiger)		5		H1
<i>Onthophilus striatus</i> (Forster)		5		H1
<i>Paralister carbonarius</i> (Hoffmann)		3		H1
HYDRAENIDAE				
<i>Hydraena britteni</i> Joy	3			H1
<i>Limnebius truncatellus</i> (Thunberg)	39			H23
PTILIDAE				
<i>Ptenidium fuscicorne</i> Erichson		5,22		H1,H9
<i>P. intermedium</i> Wankowicz		23		H9*
<i>P. nitidum</i> (Heer)		23		H9
<i>P. pusillum</i> (Gyllenhal)	34	5,10,23		H1,H5,H9,H15
<i>Acrotichis atomaria</i> (DeGeer)		5,10		H1,H5
<i>A. brevipennis</i> (Erichson)		22		H9
<i>A. danica</i> Sundt		8		H2
<i>A. fascicularis</i> (Herbst)		22,23		H9
<i>A. intermedia</i> (Gillmeister)		10		H5
<i>A. sitkaensis</i> (Motschulsky)		10		H5
SILPHIDAE				
<i>Thanatophilus dispar</i> (Herbst)	19			H9
<i>Dendroxena quadrimaculata</i> (Scopoli)		6		H2
<i>Silpha atrata</i> Linnaeus	34	5,13		H1,H7,H15
SCYDMAENIDAE				
<i>Stenichnus collaris</i> (Müller & Kunze)		5		H1
<i>S. poweri</i> (Fowler)		10		H5

TABLE 2 (cont.)

	Site-codes (see Table 1)			Vice-county 1993-1996
	1993	1994	1996	
<i>Euconnus hirticollis</i> (Illiger)	39	5		H1, H23
STAPHYLINIDAE				
<i>Olophrum piceum</i> (Gyllenhal)		5		H1
<i>Lesteva heeri</i> Fauvel	3, 34	5, 10, 23		H1, H5, H9, H15
<i>Eusphalerum minutum</i> (Fabricius)	42			H26
<i>Omalius riparium</i> Thomson	44	4, 11		H1, H5, H27
<i>O. rugulipenne</i> Rye	44			H27
<i>Xylodromus concinnus</i> (Marsham)	house in Oranmore	20. v. 93		H15
<i>Bledius fergussoni</i> Joy	44			H27
<i>B. germanicus</i> Wagner		11		H5
<i>B. opacus</i> (Block)		4		H1
<i>B. subniger</i> Schneider		4		H1
<i>Carpelimus bilineatus</i> Stephens		24		H9
<i>C. corticinus</i> (Gravenhorst)		5	21	H1, H9
<i>C. impressus</i> (Boisduval & Laccordaire)	18			H9*
<i>C. rivularis</i> (Motschulsky)		5, 10	18	H1, H5, H9
<i>Platystethus nodifrons</i> Mannerheim	35, 39			H15, H23
<i>Anotylus maritimus</i> Thomson		4		H1
<i>A. rugosus</i> (Fabricius)	34, 39	5, 22	18	H1, H9, H15, H23
<i>A. sculpturatus</i> (Gravenhorst)			18	H9
<i>Oxytelus laqueatus</i> (Marsham)	43			H27
<i>Stenus bimaculatus</i> Gyllenhal	3, 19	10		H1, H5, H9
<i>S. boops</i> Ljungh	18, 19, 34	5, 10, 21		H1, H5, H9, H15
<i>S. brunnipes</i> Stephens		5, 10, 22		H1, H5, H9
<i>S. canaliculatus</i> Gyllenhal		6		H2
<i>S. carbonarius</i> Gyllenhal		21	18	H9
<i>S. cinctoides</i> (Schaller)	34, 44	5	21	H1, H9, H15, H27
<i>S. crassus</i> Stephens		5		H1
<i>S. europaeus</i> Puthz	19, 40			H9, H25
<i>S. flavipes</i> Stephens			36	H18
<i>S. formicetorum</i> Mannerheim		5		H1
<i>S. fulvicornis</i> Stephens	3, 34, 44			H1, H15, H27
<i>S. fuscipes</i> Gravenhorst		5, 22		H1, H9
<i>S. geniculatus</i> Gravenhorst			28, 36	H10, H18 Ireland only
<i>S. glabellus</i> Thomson	39			H23
<i>S. impressus</i> Germar		13	30, 36	H7, H10, H18
<i>S. juno</i> (Paykull)	3, 18, 34	5, 22, 23, 24		H1, H9, H15, H27
	35, 44			
<i>S. kiesewetteri</i> Rosenhauer	3			H1
<i>S. latifrons</i> Erichson	19			H9
<i>S. lustrator</i> Erichson	3	5, 23		H1, H9
<i>S. nanus</i> Stephens		5, 13		H1, H7
<i>S. nitens</i> Stephens	3, 34		22	H1, H9, H15
<i>S. nitidiusculus</i> Stephens	3, 39	6		H2, H23
<i>S. ossium</i> Stephens		5		H1
<i>S. pallitarsis</i> Stephens	33, 34	5		H1, H15
<i>S. palustris</i> Erichson	39			H23
<i>S. picipes</i> Stephens	33			H15

TABLE 2 (cont.)

	Site-codes (see Table 1)			Vice-county 1993-1996
	1993	1994	1996	
<i>S. pusillus</i> Stephens		5		H1
<i>S. providus</i> Erichson	34	5,32	8	H1,H2,H12,H15
<i>S. similis</i> (Herbst)	3,33,34		32	H1,H12,H15
<i>S. tarsalis</i> Ljungh	33		12,18	H7,H9,H15
<i>Euaesthetus ruficapillus</i> Bois. & Lac.		5,22	9	H1,H2,H9
<i>Paederus riparius</i> (Linnaeus)		10		H5
<i>Lathrobium brunnipes</i> (Fabricius)	3,34,35,39	5,10,13		H1,H5,H7,H15,H23
<i>L. quadratum</i> (Paykull)	18	5,10		H1,H5,H9
<i>L. terminatum</i> Gravenhorst	3		9	H2
<i>Octhephilum fracticorne</i> (Paykull)	3,10,22			H1,H5,H9
<i>Sunius propinquus</i> (Brisout)		5		H1
<i>Rugilus erichsoni</i> (Fauvel)		23		H9
<i>R. orbiculatus</i> (Paykull)		38		H21
<i>R. rufipes</i> Germar	34,44	5		H1,H15,H27
<i>Leptacinus batychnus</i> (Gyllenhal)		5		H1
<i>Gyrohypnus angustatus</i> Stephens		5		H1
<i>G. fracticornis</i> (Müller)	39	3,10		H1,H5,H23
<i>Xantholinus linearis</i> (Olivier)	34			H15
<i>X. longiventris</i> Heer		5		H1
<i>Erichsonius cinerascens</i> (Gravenhorst)	39	3,10	9	H1,H2,H5,H23
<i>Philonthus addendus</i> Sharp	34,40			H15,H25
<i>P. cephalotes</i> (Gravenhorst)	43			H27
<i>P. cognatus</i> Stephens	34	13		H7,H15
<i>P. fimetarius</i> (Gravenhorst)	34			H15
<i>P. fumarius</i> (Gravenhorst)	18,34	5,10,13,22		H1,H5,H7,H9,H15
<i>P. furcifer</i> Renkonen	18,34,39,40			H9,H15,H23,H25
				Ireland only
<i>P. micans</i> (Gravenhorst)	3,18			H1,H9
<i>P. nigrita</i> (Gravenhorst)	18		9	H2,H9
<i>P. punctus</i> (Gravenhorst)	18			H9
<i>P. quisquiliarius</i> (Gyllenhal)	18,44	21	18	H9,H27
<i>P. sordidus</i> (Gravenhorst)	33,34			H15
<i>P. splendens</i> (Fabricius)		5		H1
<i>P. umbratilis</i> (Gravenhorst)	18	5		H1,H9
<i>P. varians</i> (Paykull)	44			H27
<i>P. varius</i> (Gyllenhal)		5,10,13		H1,H5,H7
<i>Gabrieus osseticus</i> (Kolenati)		5		H1
<i>Cafius xantholoma</i> (Gravenhorst)	44			H27
<i>Staphylinus dimidiaticornis</i> Gemminger		3		H1
<i>Heterothops binotatus</i> (Gravenhorst)	44			H27
<i>Quedius curtispennis</i> Bernhauer	34			H15
<i>Q. fuliginosus</i> (Gravenhorst)	39			H23
<i>Q. schatzmayri</i> Gridelli			9	H2
<i>Q. semiaeneus</i> (Stephens)	43,44			H27
<i>Mycetoporus splendidus</i> (Gravenhorst)		5		H1
<i>Sepedophilus immaculatus</i> (Stephens)	18			H9
<i>S. marshami</i> (Stephens)	35			H15
<i>S. nigripennis</i> (Stephens)		4,20		H1,H9

TABLE 2 (cont.)

	Site-codes (see Table 1)			Vice-county 1993-1996
	1993	1994	1996	
<i>S. pedicularius</i> (Gravenhorst)	18,19			H9
<i>Tachyporus chrysomelinus</i> Linnaeus			8	H2
<i>T. dispar</i> (Paykull)	18	5,13		H1,H7,H9
<i>T. hypnorum</i> (Fabricius)		10	12	H5,H7
<i>T. nitidulus</i> (Fabricius)			8	H2
<i>T. obtusus</i> (Linnaeus)		13,38		H7,H21
<i>T. pallidus</i> Sharp		5		H1
<i>Tachinus laticollis</i> Gravenhorst		10		H5
<i>T. signatus</i> Gravenhorst	34	5		H1,H15
<i>Oligota punctulata</i> Heer		5	8	H1,H2
<i>Myllaena dubia</i> (Gravenhorst)	39	10		H5,H23
<i>Diglotta submarina</i> (Fairm. & Lac.)		4		H1
<i>Hygronoma dimidiata</i> (Gravenhorst)			9	H2
<i>Phytosus balticus</i> Kraatz	44			H27
<i>Autalia rivularis</i> (Gravenhorst)	34			H15
<i>Cordalia obscura</i> (Gravenhorst)	34	5		H1,H15
<i>Tachyusa atra</i> (Gravenhorst)	19	21	21	H9
<i>Gnypeta carbonaria</i> (Mannerheim)		5		H1
<i>Dacryla fallax</i> (Kraatz)		10		H5*
<i>Aloconota gregaria</i> (Erichson)			21	H9
<i>Dochomonota clancula</i> (Erichson)	18			H9
<i>Dilacra luteipes</i> (Erichson)			22	H9
<i>Microdota amicula</i> (Kraatz)		5		H1
<i>Dinaraea aequata</i> (Erichson)			7	H2
<i>Philhygra elongatula</i> (Gravenhorst)			21	H9
<i>Microdota amicula</i> (Stephens)		5		H1
<i>Mocytta fungi</i> aggr.	34,43	5,10,13	8	H1,H2,H5,H7
		38		H15,H21,H27
<i>Atheta aquatica</i> (Thomson)		24		H9
<i>A. castanoptera</i> (Mannerheim)		38		H21
<i>A. graminicola</i> (Gravenhorst)	19			H9
<i>A. laticollis</i> (Stephens)	34			H15
<i>Dimetrota nigripes</i> (Thomson)	34			H15
<i>Thinobaena vestita</i> (Gravenhorst)	44	4		H1,H27
<i>Halobrecta algae</i> (Hardy)	44			H27
<i>Deubelia picina</i> (Aubé)	39			H23
<i>Ocyusa maura</i> (Erichson)		10		H5
<i>Hygropora cunctans</i> (Erichson)		21		H9
<i>Oxypoda elongatula</i> Aubé	3,34	5	7	H1,H2,H15
<i>O. haemorrhoea</i> (Mannerheim)		5		H1
<i>O. umbrata</i> (Gyllenhal)		13		H7
<i>Aleochara algarum</i> Fauvel		11		H5
<i>A. grisea</i> Kraatz		11		H5
<i>A. lanuginosa</i> Gravenhorst	3,44			H1,H27
<i>A. obscura</i> Gravenhorst	44	4		H1,H27
PSELAPHIDAE				
<i>Biblopectus ambiguus</i> (Reichenbach)		22		H9
<i>B. spinosus</i> Raffray		5		H1*

TABLE 2 (cont.)

	Site-codes (see Table 1)			Vice-county 1993-1996
	1993	1994	1996	
<i>Bryaxis bulbifer</i> (Reichenbach)		5,20		H1,H9
<i>B. curtisi</i> (Leach)	35		7	H2,H15
<i>B. puncticollis</i> (Denny)		13		H7
<i>Rybaxis longicornis</i> (Leach)	3,18,39			H1,H9,H23
<i>Trissemus impressus</i> (Panzer)	39			H23
<i>Pselaphus heisei</i> Herbst		22		H9
SCARABAEIDAE				
<i>Aphodius ater</i> (DeGeer)	44			H27
<i>A. constans</i> Duftschmid	43			H27
<i>A. depressus</i> (Kugelann)		21		H9
<i>A. fimetarius</i> (Linnaeus)	43	5		H1,H27
<i>A. sphacelatus</i> (Panzer)	43	5		H1,H27
<i>Phyllopertha horticola</i> (Linnaeus)	1,43			H1,H27
<i>Cetonia aurata</i> (Linnaeus)	20			H9
DASCILLIDAE				
<i>Dascillus cervinus</i> (Linnaeus)			30	H10
CLAMBIDAE				
<i>Clambus pubescens</i> Redtenbacher		5		H1
SCIRTIDAE				
<i>Elodes elongata</i> Tournier			30	H10
<i>E. marginata</i> (Fabricius)		32		H12
<i>Microcara testacea</i> (Linnaeus)			28	H10
<i>Cyphon coarctatus</i> Paykull	39	10	28	H5,H10,H23
<i>C. padi</i> (Linnaeus)	3			H1
<i>C. variabilis</i> (Thunberg)	3,10		9	H1,H2,H5
BYRRHIDAE				
<i>Simplocaria semistriata</i> (Fabricius)	43			H27
<i>Cytilus sericeus</i> (Forster)	39	22		H9,H23
HETEROCERIDAE				
<i>Heterocerus fenestratus</i> (Thunberg)			18	H9*
ELATERIDAE				
<i>Agrypnus murinus</i> (Linnaeus)	2			H1
<i>Hypnoidus riparius</i> (Fabricius)		5		H1
<i>Aplotarsus incanus</i> (Gyllenhal)	34,43			H15,H27
<i>Selatosomus melancholicus</i> (Fabricius)	43,44			H27 Ireland only
<i>Athous haemorrhoidalis</i> (Fabricius)	33,34	13	21,28,30	H7,H9,H10
			36	H15,H18
			28	H10*
<i>A. subfuscus</i> (Müller)				H15
<i>Agriotes obscurus</i> (Linnaeus)	35			H7
<i>Dalopius marginatus</i> (Linnaeus)		13		H1 Ireland only
<i>Ampedus pomonae</i> (Stephens)		3		H10
<i>A. pomorum</i> (Herbst)			28	
THROSCIDAE				
<i>Trixagus dermestoides</i> (Linnaeus)			28	H10
CANTHARIDAE				
<i>Rhagonycha lignosa</i> (Müller)		5		H1
ANOBIIDAE				
<i>Anobium punctatum</i> (DeGeer)			31	H10

TABLE 2 (cont.)

	Site-codes (see Table 1)		Vice-county
	1993	1994	1993-1996
CLERIDAE			
<i>Thanisimus formicarius</i> (Linnaeus)		6	H2
NITIDULIDAE			
<i>Kateretes pedicularius</i> (Linnaeus)		10	H5
<i>K. rufilabris</i> (Latreille)		5	H1, H9
<i>Brachypterus glaber</i> (Stephens)		13	H7
<i>B. urticae</i> (Fabricius)	17		H7, H8
<i>Meligethes obscurus</i> Erichson	35		H15
RHYZOPHAGIDAE			
<i>Monotoma bicolor</i> Villa		5	H1
CRYPTOPHAGIDAE			
<i>Cryptophagus vini</i> (Panzer)		28	H10
<i>Atomaria atricapilla</i> Stephens	34		H15
<i>A. basalis</i> Erichson		5	H1
<i>A. fuscata</i> (Schoenherr)	19, 34		H9, H15
<i>A. lewisi</i> Reitter	34		H15
<i>A. mesomela</i> (Herbst)	19		H9
<i>A. munda</i> Erichson		5	H1
<i>A. testacea</i> (Marsham)	34		H15
<i>Ephistemus globulus</i> (Paykull)		5	H1
CORYLOPHIDAE			
<i>Corylophus sublaevipennis</i> Jacquelin du Val		10	H5
COCCINELLIDAE			
<i>Coccidula rufa</i> (Herbst)		5	H1
<i>Rhyzobius litura</i> (Fabricius)		23	H9
<i>Nephus redtenbacheri</i> (Mulsant)		5	H1
<i>Adalia 10-punctata</i> (Linnaeus)	3		H1, H18
<i>Coccinella 11-punctata</i> Linnaeus		5	H1, H9
<i>Propylea 14-punctata</i> (Linnaeus)		13	H7, H9
<i>Calvia 14-guttata</i> (Linnaeus)			H9, H10
<i>Thea 22-punctata</i> (Linnaeus)		10	H5
LATHRIDIIDAE			
<i>Aridius bifasciatus</i> (Reitter)	34		H2, H15
<i>Dienerella ruficollis</i> (Marsham)		5	H1
<i>Corticarina fuscata</i> (Gyllenhal)			H9
<i>Corticaria gibbosa</i> (Herbst)	18, 34		H2, H9, H15
TENEBRIONIDAE			
<i>Lagria hirta</i> (Linnaeus)		30	H10
PYROCHROIDAE			
<i>Pyrochroa serraticornis</i> (Scopoli)		32	H12
SCRAPTIDAE			
<i>Anaspis frontalis</i> (Linnaeus)		9, 12	H2, H7
<i>A. maculata</i> Fourcroy	34, 35	6	H2, H15
<i>A. regimbarti</i> Schilsky		6	H2
CERAMBYCIDAE			
<i>Rhagium mordax</i> (DeGeer)		6	H2
<i>Grammoptera ruficornis</i> (Fabricius)	33		H7, H15
<i>Strangalia quadrifasciata</i> (Linnaeus)		6	H2, H10

TABLE 2 (cont.)

	Site-codes (see Table 1)			Vice-county
	1993	1994	1996	1993-1996
BRUCHIDAE				
<i>Bruchus atomarius</i> (Linnaeus)	17			H8
CHRYSOMELIDAE				
<i>Oulema septentrionis</i> (Weise)	35			H15 Ireland only
<i>Lamprosoma concolor</i> (Sturm)		32		H12
<i>Chrysolina polita</i> (Linnaeus)	19			H9
<i>Gastrophysa viridula</i> (DeGeer)	17,35		9	H2,H8,H15
<i>Phaedon armoraciae</i> (Linnaeus)	18,34			H9,H15
<i>P. cochlearia</i> (Fabricius)	34		18	H9,H15
<i>Hydrothassa marginella</i> (Linnaeus)	20			H9
<i>Prasocuris junci</i> (Brahm)			18	H9
<i>P. phellandrii</i> (Linnaeus)	18,39			H9,H23
<i>Phyllodecta vitellinae</i> (Linnaeus)			28	H10
<i>P. vulgatissima</i> (Linnaeus)	1,35		21,30	H1,H9,H10,H15
<i>Galerucella calmarienensis</i> (Linnaeus)		10		H5
<i>G. lineola</i> (Fabricius)	1			H1
<i>G. pusilla</i> (Duftschmid)	3,17			H1,H8
<i>Lochmaea caprea</i> (Linnaeus)		13		H7
<i>L. crataegi</i> (Forster)			9	H2
<i>Phyllotreta flexuosa</i> (Illiger)	35			H15
<i>Aphthona euphorbiae</i> (Schrank)	17			H8
<i>A. lutescens</i> (Gyllenhal)	35	5		H1,H15
<i>A. nonstriata</i> (Goeze)		5	31	H1,H10
<i>Longitarsus melanocephalus</i> (DeGeer)			21	H9
<i>Altica oleracea</i> (Linnaeus)	39			H23
<i>Batophila rubi</i> (Paykull)		32		H12
<i>Crepidodera ferruginea</i> (Scopoli)			8	H2
<i>Chalcoides aurea</i> (Fourcroy)			28	H10
<i>Chaetocnema concinna</i> (Marsham)	35			H15
<i>Sphaeroderma rubidum</i> (Graells)			30	H10
<i>S. testaceum</i> (Fabricius)			28	H10
ATTELLABIDAE				
<i>Caenorhinus germanicus</i> Herbst	17			H8
<i>Deporaus betulae</i> (Linnaeus)			28	H10*
APIONIDAE				
<i>Apion apricans</i> Herbst			31	H10
<i>A. cerdo</i> Gerstaecker			15,30	H7*,H10*
<i>A. cracca</i> (Linnaeus)			14	H7*
<i>A. dichroum</i> Bedel	17		18	H8,H9
<i>A. ervi</i> Kirby			16,31	H7,H10*
<i>A. loti</i> Kirby			15	H7*
<i>A. minutum</i> Germar	18			H9
<i>A. modestum</i> Reitter			25	H9*
<i>A. viciae</i> (Paykull)			25,30,31	H9,H10*
CURCULIONIDAE				
<i>Otiorhynchus atroapterus</i> (DeGeer)	43,44	5		H1,H27
<i>O. auropunctatus</i> Gyllenhal		37		H21
<i>O. singularis</i> (Linnaeus)		13	21	H7,H9

TABLE 2 (cont.)

	Site-codes (see Table 1)			Vice-county
	1993	1994	1996	1993-1996
<i>O. sulcatus</i> (Fabricius)	3	13	12	H1,H7
<i>O. uncinatus</i> Germar		13	14	H7 Ireland only
<i>Caenopsis waltoni</i> (Boheman)			15,16	H7*
<i>Phyllobius calcaratus</i> (Fabricius)	34	5		H1,H15
<i>P. oblongus</i> (Linnaeus)	17			H8*
<i>Polydrosus cervinus</i> (Linnaeus)			21,28	H9,H10
<i>P. pulchellus</i> Stephens		11		H5*
<i>Barypeithes araneiformis</i> (Schrank)		38		H21
<i>B. pellucidus</i> (Boheman)			8	H2
<i>Strophosoma melanogrammum</i> (Forster)		13	15	H7*
<i>Philopodon plagiatu</i> s (Schaller)	2,43	4		H1,H27
<i>Liophloeus tessulatus</i> (Müller)	34			H15*
<i>Sitona ambiguus</i> Gyllenhal	17			H8*
<i>S. hispidulus</i> (Fabricius)		5		H1
<i>S. lineatus</i> (Bonsdorff)	43			H27
<i>S. sulcifrons</i> (Thunberg)	17			H8*
<i>Hypera nigrirostris</i> (Fabricius)	43			H27
<i>H. ruficollis</i> (Linnaeus)	33			H15*
<i>Anoplus plantaris</i> (Naezen)			8	H2
<i>Bagous collignensis</i> (Herbst)	39			H23*
<i>Dorytomus rufatus</i> (Bedel)			30	H10*
<i>D. taeniatus</i> (Fabricius)			30	H10*
<i>Coeliodinus rubicundus</i> (Herbst)			36	H18
<i>Micrelus ericae</i> (Gyllenhal)		20	28	H9,H10*
<i>Nedys quadrimaculatus</i> (Linnaeus)	33			H15
<i>Trichosiocalus troglodytes</i> (F.)	1,43	32		H1,H12,H27
<i>Ceutorhynchus contractus</i> (Marsham)	43			H27*
<i>C. floralis</i> (Paykull)			18	H9
<i>Rhinoncus castor</i> (Fabricius)	17,33			H8*,H15*
<i>Pelenomus canaliculatus</i> (Fahraeus)			21	H9
<i>P. quadrituberculatus</i> (Fabricius)		5		H1
<i>Anthonomus pedicularius</i> (Linnaeus)			29	H10*
<i>A. rubi</i> (Herbst)	33			H15*
<i>Curculio pyrrhoceras</i> Marsham			28	H10*
<i>Rhynchaenus calceatus</i> Germar			28,36	H10*,H18
<i>R. rusci</i> (Herbst)			28	H10*
<i>Tachyerges salicis</i> (Linnaeus)	17			H8*
SCOLYTIDAE				
<i>Hylastes opacus</i> (Erichson)		13		H7*

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NEW RECORDS OF IRISH WEEVILS (INSECTA, COLEOPTERA, CURCULIONOIDEA)

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Introduction

Even in relatively popular groups of insects such as the beetles the distribution of many species in Ireland is poorly understood. The records listed below should help to fill in gaps in the known distributions of common species, while for others perceptions of their rarity and limited range need to be changed. Moreover, species new to Ireland are being discovered at a fairly rapid rate and this circumstance, taken with advances in the taxonomy of weevils, involves continual re-assessment of the fauna in relation to that of western Europe more generally.

The records are the fruit of three short, but intensive, periods of wide-ranging field work in September 1992, May-June 1995 and July 1996. Records accumulated by Dr J. P. O'Connor (JPO'C) over a longer period, and those made by Dr Philippe Ponel in 1991 and 1992 (PP) are included and contribute to the comprehensiveness of this account.

In order to keep the text within reasonable length details of how specimens were collected have been omitted in most cases and only locality data and dates are included. The outlines of the biology of Irish weevils are well known and obtainable from other publications. In a few instances, where host-plant or other biological information is especially relevant, an extended treatment is given in discussion of species of particular interest. Irish grid references are given for most occurrences; those in square brackets have been extracted *post hoc* from topographical locality data. At some future date distribution data for Irish (and British) weevils may be presented in 10km 'dot map' form. Until that time vice-counties are preferred for summarised information (Morris, 1993a). New vice-county records are indicated by an asterisk, *.

Names of plants follow Stace (1991) and those of weevils follow Morris (1993b). Where names have changed the new name is given in square brackets, together with the author; otherwise authors' names have been omitted. Two species, *Rhynchaenus calceatus* (Germar)

and *Tychius junceus* (Reich), are mentioned in the present account but are not included in Morris (1993b).

Species new to Ireland

A single specimen of *Tychius junceus* was sieved from moss collected at Killballyboy Wood, Tipperary on 1.vi.95, as noted below. It is oligophagous on a wide range of Fabaceae (=Papilionaceae), with species of *Trifolium*, *Medicago*, *Lotus* and *Anthyllis* recorded as hosts (Koch, 1992). The larvae are probably seed-feeders, but there is little information on the biology of the species. It is generally common in central and southern Europe but has not been recorded north of southern Sweden, Denmark, Latvia and Lithuania (Silfverberg, 1992). In Great Britain the northern limit of its recorded distribution is Herefordshire and Cambridgeshire; it is therefore likely to be occur only in the south of Ireland and not to be distributed throughout the country.

Re-assessments of range

Rhynchites tomentosus

Previous records suggested that this species was restricted to the extreme south-west of Ireland (North and South Kerry and West Cork) (Morris, 1993a). Dr O'Connor's record from Carlow indicates that the species is more widely distributed, though still rare in Ireland.

Ceratapion carduorum

Although not uncommon in Ireland, this species seems to be less abundant than *C. gibbistrostre*, as is the case elsewhere in Europe. The status of the two species has been clarified only relatively recently.

Diaplacion confluens

This species was detected among material collected by Halbert at Howth, Dublin, in 1909 (Morris, 1993a). Its occurrence in Wicklow confirms its current status in Ireland and represents a slight extension of known range.

Exapion ulicis

The apparent absence of this species from the north of Ireland appears to be because it is so common that coleopterists in the past did not consider it worth recording. As well as the records from Tyrone and Down included in this account, Dr Roy Anderson tells me that it is common in the vicinity of Belfast (*pers. comm.*).

Ischnoptera pium modestum

This species has been known to occur in the British Isles only since its status was clarified by Dieckmann (1973). The single previous record in Ireland was from Sraghmore, Wicklow (Morris, 1992; 1993a), but it proves, as expected, to be widely distributed and was found in most places where the host, *Lotus pedunculatus*, was examined in 1996. The records presented here, from vice-counties 1, 3, 4, 5, 6, 7, 8, 12, 13 and 20 indicate its abundance and widespread occurrence in the south of Ireland.

Pirapion immune

This very local species was previously known from only three vice-counties in the east of Ireland (Morris, 1993a). The records from Cork and Tipperary show that it also occurs in the west. In both cases the weevil was taken from *Ulex galii*, although Morris (1990) stated that it occurred 'probably exclusively on *Cytisus scoparius* in Britain'.

Phyllobius pomaceus

The record of this species from Offaly is notable in view of the 'remarkable rarity' of the weevil in Ireland (Morris, 1993a). The species, which is common and widespread throughout England and Wales (apparently less so in Scotland, but probably under-recorded), has previously been recorded only from Kerry and Cavan.

Hypera adspersa

Dr Pone!l's record from Limerick adds a fifth vice-county to the localities from which this rare Irish species is now known.

Magdalis armigera

This species is now known from four vice-counties. Its short adult season of occurrence may account in part for its apparent rarity.

Anoplus roboris

Previously regarded as rare, with no recent records (Morris, 1993a), this species is now known from North Tipperary, East Mayo and Fermanagh as well as Kilkenny and Derry, showing it to be widespread in Ireland.

Acalles misellus

The supposition that this apparently local species has been under-recorded (Morris, 1993a) appears to be correct, as the present account lists six additional vice-county records, with two

occurrences from the well-worked Burren area of Clare.

Ceutorhynchus pyrrhorhynchus

This species was previously known as Irish only from specimens collected in St Anne's Park, Clontarf, Dublin (Morris, 1992; 1993a). Its occurrence in Wicklow indicates that it is more widely distributed.

Sirocalodes mixtus

Offaly may now be added to the four vice-counties from which this rare species has been recorded.

Anthonomus bituberculatus

Attention is drawn to this species because of past and potential confusion with others, especially *A. ulmi*. *A. bituberculatus* is probably commoner in Ireland than the latter species and has *Crataegus* spp. as its hosts; *A. ulmi* feeds on *Ulmus* spp.

Tychius squamulatus

As this very local species was previously known only from the vice-counties of Waterford and Wexford its occurrence in Wicklow represents an extension of known range. It appears to be exclusively coastal in Ireland, occurring on *Lotus corniculatus* on sand dunes.

Rhynchaenus calceatus

The remarkable abundance of this species at three sites in Offaly and Tipperary is the subject of a separate note (Morris and Owen, 1997). The species was added to the Irish list by Mendel (1994).

Ramphus oxyacanthae

This weevil has been previously confused with *R. pulicarius*, and is Irish on only one published record from the Burren, Clare (Morris, 1993a). It is unlikely to be restricted to the centre-west of Ireland, although so far the only records are from this area (Limerick, Clare, North Tipperary).

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Systematic account

ATTELABIDAE

Rhynchites germanicus

Kerry: near Bonane, V9363, 13.vii.96, 1*. Cork: near Carriganimmy, W2784, 12.vii.96.

Offaly: All Saints' Bog, N0211, 31.v.95, 18*.

Rhynchites tomentosus

Carlow: Bahana Woods, S7239, 14.vi.91 (JPO'C), 13*.

Deporaus betulae

Cork: Graig Upper, near Kildorrery, R6512, 11.vii.96 (larval leaf rolls), 5*. Tipperary: near Annagh House, N0007, 9.vii.96, 10*. Offaly: All Saints' Bog, N0211, 31.v.95, 9.vii.96, 18*.

Mayo: near Claremorris, M3572, 5.vi.95 (larval leaf rolls), 26*. Fermanagh: near Tempo, H3448, 4.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*.

APIONIDAE [BRENTIDAE-APIONINAE]

Ceratapion carduorum

Cork: Mallow, [W59], 23.vi.32 (*leg. Harald Lindberg, coll. Zoological Museum, Helsinki*), 4(*) or 5(*) (this record is not new but is given by Wanat (1995) in a publication unlikely to be seen by many Irish entomologists). Wexford: Clones sand dunes, O2363, 7.ix.92. Carlow: Bolton Abbey (Castle), [IGR not recorded], 7.ix.92, 13*.

Ceratapion gibbirostre

Limerick: Kilmallock, [R62], 22.vii.92 (PP); near Kilbehany, R8615, 11.vii.96, 8*. Tipperary: Donohill, R9042, 9.vii.96, 10*. Kilkenny: near Gowran Castle, [S6353], 8.ix.92. Wexford: Clones sand dunes, O2363, 7.ix.92; Carne Beach, T1004, 7.vii.96; Craanford, O0969, 7.ix.92; Greenfield Crossroads, T0709, 7.vii.96; near Kilmore Quay, S9604, 7.vii.96. Carlow: near Grangeford, S8274, 7.ix.92; Bolton Abbey (Castle), [IGR not recorded], 7.ix.92, 13*. Wicklow: Roundwood Park, O1902, 6.ix.92; Sraghmore, O1905, 6.ix.92. Dublin: St Anne's, Clontarf, [O2136], 2.vi.95. Down: near Newry, [J0935], 2.vi.95. Antrim: Shane's Castle, J1187, 3.vi.95.

Diplapion confluens

Wicklow: Five Mile Point, O3102, 6.xi.92, 31.v.95. 20*.

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Aspidapion radiolus

Wexford: Lady's Island Lake, T104071, 30.viii.80, (JPO'C); Our Lady's Island, T1106, 7.vii.96. Wicklow: Five Mile Point, O3102, 6.xi.92, 31.v.95. Dublin: St Anne's, Clontarf, [O2136], 2.vi.95.

Pseudapion rufirostre

Wicklow: Five Mile Point, O3102, 6.vii.96.

Exapion ulicis

Cork: near Inchigeelach, W2467, 12.vii.96; near Kildorrery, R7210, 11.vii.96, 5*. Tipperary: Killballyboy Wood, S0112, 10.vii.96; near Annagh House, N0007, 9.vii.96. Clare: Lough Bunny, [M39], 28.v.92 (JPO'C). Kilkenny: near Gowran Castle, [S6353], 8.ix.92. Wexford: Wexford Town, T0519, 2.ix.80 (JPO'C); Coolbawn, [S83], 19.iv.92 (JPO'C); Clones sand dunes, O2363, 7.ix.92. Carlow: Scullogue Gap, S8147, 8.ix.92. Offaly: All Saints' Bog, N0211, i.vi.95, 9.vii.96, 18*. Kildare: Louisa Bridge, [N9936], 24.ii.92 (JPO'C). Sligo: near Ballynacarrow, G6321, 5.vi.95, 28*. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*. Down: near Newry, [J0935], 2.vi.95, 38*.

Protapion apricans

Kerry: near Bonane, V9363, 13.vii.96. Cork: Beara, [?V64], 20.vii.92 (PP); near Dromagh Castle, W3297, 12.vii.96; Bowenford Crossroads, R4219, 13.vii.96. Waterford: near Castle Dodard, S0405, 10.vii.96. Tipperary: Killballyboy Wood, S0102, 10.vii.96. Limerick: Kilmallock, [R62], 22.vii.92 (PP). Clare: near Lisdoonvarna (Burren), [M1398], 23.vii.92 (PP); Ballyvaughan, M2307, 6.vi.95. Tipperary: Grange, S1119, 10.vii.96; near Annagh Castle, R8290, 9.vii.96; Donohill, R9042, 9.vii.96. Kilkenny: near Gowran Castle, [S6353], 8.ix.92. Wexford: Carne Beach, T1004, 7.vii.96. Carlow: Scullogue Gap, S8147, 8.ix.92; near Ballykeenan, S7346, 8.ix.92, 13*. Offaly: All Saints' Bog, N0211, i.vi.95; near Sharavogue, S0796, i.vi.95; Cedar Hill, near Shinrone, S1092, i.vi.95. Kildare: near Naas, N9117, 8.vii.96. Wicklow: Brittas Bay, T3032, 6.vii.96, 20*. Dublin: St Anne's, Clontarf, [O2136], 2.vi.95. Sligo: Strandhill Dunes, G5936, 5.vi.95, 28*. Cavan: near Black Lion, [H0838], 4.vi.95. Fermanagh: near Clabby, [H4249], 4.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*. Down: near Newry, [J0935], 2.vi.95.

Protapion fulvipes

Kerry: near Kenmare, V8972, 13.vii.96. Cork: near Dromagh Castle, W3297, 12.vii.96; Bowenford Crossroads, R4219, 13.vii.96. Limerick: near Angleborough, R8116, 11.vii.96. Tipperary: Killballyboy Wood, S0102, 10.vii.96. Clare: near Lisdoonvarna (Burren), [M1398], 23.vii.92 (PP); Ballyeigher Loughs (Burren), R3595, 6.vi.95. Kilkenny: near Gowran Castle, [S6353], 8.ix.92. Wexford: Carnsore Point, [T10], 26.viii.80 (JPO'C); Slieve Coiltia, [S7321], 14.vi.90 (JPO'C). Offaly: near Sharavogue, S0796, i.vi.95; Cedar Hill, near Shinrone, S1092. Wicklow: Five Mile Point, O3102, 6.xi.92, 31.v.95; near Kippure House, O0913, 8.vii.96. Carlow: Scullogue Gap, S8147, 8.ix.92; near Ballykeenan, S7346, 8.ix.92. Sligo: Strandhill dunes, G5936, 5.vi.95, 28*.

Perapion curtirostre

Limerick: Kilmallock, [R62], 22.vii.92 (PP); near Angleborough, R8116, 11.vii.96. Tipperary: near Carrigahorig, M9001, 9.vii.96; Donohill, R9042, 9.vii.96; Killballyboy Wood, S0102, 10.vii.96. Clare: near Lisdoonvarna, Burren, [M1398], 23.vii.92 (PP), 6.vi.95. Wexford: near Coolgreany, O2168, 7.ix.92. Carlow: Scullogue Gap, S8147, 8.ix.92. Wicklow: Sraghmore, O1905, 6.ix.92. Fermanagh: near Tempo, H3448, 4.vi.95, 33*. Down: near Newry, [J0935], 2.vi.95.

Perapion hydrolapathi

Cork: near Dromagh Castle, W3297, 12.vii.96. Wexford: Clones sand dunes, O2363, 7.ix.92. Wicklow: near Mizen Head, T2878, 6.vii.96, 20*. Sligo: near Sea Mount House, G6736, 5.vi.95; Strandhill Dunes, G5936, 5.vi.95.

Perapion violaceum

Cork: near Carriganimmy, W2784, 12.vii.96, 3*. Tipperary: Glengarra Wood, R9218, 11.vii.96, 7*. Limerick: Kilmallock, [R62], 22.vii.92 (PP). Clare: near Lisdoonvarna, Burren, [M1398], 23.vii.92 (PP). Carlow: Scullogue Gap, S8147, 8.ix.92, 13*.

Apion frumentarium (=miniatum)

Carlow: St Mullins, S7238, 17.vi.91 (JPO'C).

Apion haematodes

Kerry: near Kenmare, V8972, 13.vii.96. Limerick: Carrigeen, R8717, 11.vii.96. Wexford: Clones sand dunes, O2363, 7.ix.92, 12*.

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Catapion seniculus

Kilkenny: near Gowran Castle, [S6353], 8.ix.92, 11*.

Stenopterapion scutellare

Cork: Glengarriff Woods, V9156, 13.vii.96.

Ischnopterapion loti

Clare: near Gregan's Castle (Burren), [M2003], 30.v.92 (JPO'C). Wexford: Clones sand dunes, O2363, 7.ix.92; near Ferns, [T0149], 8.ix.92; Carne Beach, T1004, 7.vii.96; Ballyteige Burrow, S9603, 7.vii.96. Carlow: near Ballykeenan, S7346, 8.ix.92, 13*. Wicklow: Five Mile Point, O3102, 31.v.95, 6.vii.96; near Mizen Head, T2878, 6.vii.96; near Kippure House, O0913, 8.vii.96. Sligo: Cummeen, G6733, 5.vi.95; Strandhill dunes, G5936, 5.vi.95.

Ischnopterapion modestum

Kerry: Iveragh Peninsula, [V56], 19.vii.92 (PP); near Bonane, V9363, 13.vii.96; near Kenmare, V8972, 13.vii.96, 1*. Cork: near Carriganimmy, W2784, 12.vii.96, 3*; near Dromagh Castle, W3297, 12.vii.96, 4*; Graig Upper, near Kildorrery, R6512, 11.vii.96, 5*. Waterford: near Castle Dodard, S0405, 10.vii.96, 6*. Limerick: near Angleborough, R8116, 11.vii.96, 8*. Tipperary: Killballyboy Wood, S0102, 10.vii.96; Glengarra Wood, R9218, 11.vii.96, 7*. Wexford: near Coolgreany, O2168, 7.ix.92, 12*. Carlow: Scullogue Gap, S8147, 8.ix.92, 13*. Wicklow: near Mizen Head, T2878, 6.vii.96.

Ischnopterapion virens

Limerick: near Angleborough, R8116, 11.vii.96. Cavan: near Black Lion, [H0838], 4.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*.

Protopirapion atratulum

Cork: Glengarriff Woods, V9156, 13.vii.96; Graig Upper, near Kildorrery, R6512, 11.vii.96; Beara, [V64], 20.vii.92 (PP). Waterford: near Castle Dodard, S0405, 10.vii.96. Tipperary: Glen of Aherlow, Newtown, [R8829], 22.vii.92 (PP), 7*. Sligo: near Ballynacarrow, G6321, 5.vi.95.

Holotrichapion pisi

Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95, 18*.

Holotrichapion aethiops

Limerick: near Angleborough, R8116, 11.vii.96, 8*. Wexford: near Coolgreany, O2168,

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7.ix.92; near Castletown, [O2364], 7.ix.92; Our Lady's Island, T0908, 6.vii.96, 12*. Carlow: near Ballykeenán, S7346, 8.ix.92, 13*. Sligo: Castlegal, [G7457], 4.vi.95; Lugnadetra, G6228, 4.vi.95, 28*. Fermanagh: near Tempo, H3448, 4.vi.95, 33*. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*. Down: near Newry, [J0935], 2.vi.95.

Pirapion immune

Cork: Glengarriff Woods, V9156, 13.vii.96, 3*. Tipperary: Killballyboy Wood, S0102, 10.vii.96, 7*.

Oxystoma cerdo

Cork: Graig Upper, near Kildorrery, R6512, 11.vii.96, 5*. Tipperary: near Carrigahorig, M9001, 9.vii.96; near Annagh Castle, R8290, 9.vii.96, 10*. Wexford: Our Lady's Island, T0908/1106, 6-7.vii.96. Carlow: near Ballykeenán, S7346, 8.ix.92. Wicklow: Five Mile Point, O3102, 6.xi.92.

Oxystoma subulatum

Limerick: Kilmallock, [R62], 22.vii.92 (PP). Carlow: near Ballykeenán, S7346, 8.ix.92, 13*. Fermanagh: near Clabby, [H4249], 4.vi.95, 33*.

Eutrichapion ervi

Cork: Bowenford Crossroads, R4219, 13.vii.96; Graig Upper, near Kildorrery, R6512, 11.vii.96; near Dromagh Castle, W3297, 12.vii.96. Limerick: Kilmallock, [R62], 22.vii.92 (PP); near Angleborough, R8116, 11.vii.96, 8*. Tipperary: Glen of Aherlow, Newton, [R8829], 22.vii.92 (PP); Grange, S1119, 10.vii.96; Killballyboy Wood, S0102, 10.vii.96; near Carrigahorig, M9001, 9.vii.96; near Annagh Castle, R8290, 9.vii.96; 10*. Kilkenny: near Gowran Castle, [S6353], 8.ix.92, 11*. Wexford: Our Lady's Island, T0908, 6.vii.96. Carlow: near Ballykeenán, S7346, 8.ix.92, 13*. Kildare: near Naas, N9117, 8.vi.96. Wicklow: near Mizen Head, T2878, 6.vii.96. Sligo: Castlegal, [G7457], 4.vi.95; Lugnadetra, G6228, 4.vi.95; near Sea Mount House, G6736, 5.vi.95. Fermanagh: near Clabby, [H4249], 4.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*. Down: near Newry, [J0935], 2.vi.95.

Eutrichapion viciae

Cork: Graig Upper, near Kildorrery, R6512, 11.vii.96, 5*. Limerick: near Angleborough, R8116, 11.vii.96, 8*. Tipperary: Grange, S1119, 10.vii.96; Killballyboy Wood, S0102, 10.vii.96, 7*; near Annagh Castle, R8290, 9.vii.96, 10*. Wexford: Our Lady's Island, T0908,

6.vii.96, 12*. Carlow: near Ballykeenán, S7346, 8.ix.92, 13*.

Nanophyes marmoratus

Kerry: Iveragh Peninsula, [V56], 19.vii.92 (PP). Waterford: Ballin Lough, S4403, 4.vii.89 (JPO'C); Belle Lake, S6605, 1.vi.91 (JPO'C), 6*. Tipperary: near Annagh Castle, R8290, 9.vii.96. Clare: Kilshany, [R1392], 25.v.92 (JPO'C). Wexford: Curracloe, T1127, 10.vi.91 (JPO'C); near Coolgreany, O2168, 7.ix.92; near Castletown, [O2364], 7.ix.92; Our Lady's Island, T1106, 7.vii.96. Carlow: St Mullins, S7238, 17.vi.91 (JPO'C); near Ballykeenán, S7346, 8.ix.92, 13*. Cavan: Woodlawn, Lough Sheelin, N4686, 12.ix.91 (JPO'C).

CURCULIONIDAE

Otiorhynchus atroapterus

Wexford: Clones sand dunes, O2363, 7.ix.92. Sligo: Strandhill dunes, G5936, 5.vi.95, 28*.

Otiorhynchus auropunctatus

Dublin: Portmarnock, O2342, 2.vi.95.

Otiorhynchus desertus

Carlow: near Grangeford, S8274, 7.ix.92, 13*. Wicklow: Five Mile Point, O3102, 31.v.95; Brittas Bay, T3032, 6.vii.96; near Mizen Head, T2878, 6.vii.96.

Otiorhynchus ovatus

Tipperary: Donohill, R9042, 9.vii.96, 10*. Wicklow: near Mizen Head, T2878, 6.vii.96.

Otiorhynchus rugosostriatus

Carlow: near Ballykeenán, S7346, 8.ix.92, 13*. Wicklow: near Newcastle, O300025, 31.v.95; near Mizen Head, T2878, 6.vii.96, 20*.

Otiorhynchus singularis

Kerry: Killarney National Park, [c. V98], 21.vii.92 (PP); near Bonane, V9363, 13.vii.96. Cork: Glengarriff Woods, V9156, 13.vii.96; near Carriganimmy, W2784, 12.vii.96; near Inchigeelach, W2467, 12.vii.96; near Dromagh Castle, W3297, 12.vii.96; Bowenford Crossroads, R4219, 13.vii.96; Ballyhoura Mountain Park, R6513, 12.vii.96. Limerick: near Kilbehany, R8615, 11.vii.96; near Kilmallock, R5929, 13.vii.96, 8*. Tipperary: Glengarra Wood, R9218, 11.vii.96. Clare: Ballyvaughan (Burren), M2307, 6.vi.95; Poulsallagh (Burren), [M0901], 6.vi.95; Ballyeigher Loughs (Burren), R3595, 6.vi.95. Tipperary: Coolbaun, R8291, 9.vii.96. Kilkenny: near Inistioge, S6537, 7.vii.96. Wexford: Our Lady's Island, T0908,

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6.vii.96; near Tagoat, T0009, 7.vii.96; Greenfield Crossroads, T0709, 7.vii.96; near Ballynaboola, S7924, 7.vii.96. Carlow: near Ballykeenane, S7346, 8.ix.92. Offaly: All Saints' Bog, N0211, 9.vii.96, 18*. Wicklow: near Newcastle, O300025, 31.v.95. Dublin: Portmarnock, [O2342], 2.vi.95. Sligo: Lughnadedra, G6228, 4.vi.95; near Sea Mount House, G6736, 5.vi.95; Cummeen, G6733, 5.vi.95; Culleenamore House, G6134, 5.vi.95; near Tobercurry, G5313, 5.vi.95. Fermanagh: near Clabby, [H4249 and 3949], 4.vi.95; near Tempo, H3448, 4.vi.95, 33*. Tyrone: Fivemiletown, H4448, 4.vi.95. Down: near Newry, [J0935], 2.vi.95.

Otiorynchus sulcatus

Cork: near Carriganimmy, W2784, 12.vii.96. Kilkenny: near Inistioge, S6537, 7.vii.96. Wexford: Our Lady's Island, T0908, 6.vii.96; Greenfield Crossroads, T0709, 7.vii.96; near Ballynaboola, S7924, 7.vii.96. Wicklow: near Newcastle, O300025, 31.v.95. Mayo: near Claremorris, M3572, 5.vi.95, 26*. Sligo: Lughnadedra, G6228, 4.vi.95, 28*.

Otiorynchus uncinatus

Tipperary: Killballyboy Wood, S0113, 1.vi.95.

Phyllobius argentatus

Cork: Glengarriff Woods, V9156, 13.vii.96; Graig Upper, near Kildorrery, R6512, 11.vii.96. Clare: near Lisdoonvarna, [M1497], 6.vi.95; Ballyeigher Loughs (Burren), R3595, 6.vi.95. Tipperary: Glengarra Wood, R9218, 11.vii.96, 7*; near Annagh House, N0007, 9.vii.96, 10*. Galway: near Derrybrien, M5801, 6.vi.95, 15*. Offaly: Derrinlough, N0715, 14.vii.96, 18*. Sligo: Cummeen, G6733, 5.vi.95. Fermanagh: near Clabby, [H4249], 4.vi.95; near Tempo, H3448, 4.vi.95; near Tobercurry, G5313, 5.vi.95.

Phyllobius calcaratus

Tipperary: near Annagh Castle, R8290, 9.vii.96, 10*. Galway: near Derrybrien, M5801, 6.vi.95. Mayo: near Claremorris, M3572, 5.vi.95, 26*. Sligo: Cummeen, G6733, 5.vi.95; Culleenamore House, G6134, 5.vi.95, 28*. Fermanagh: near Tempo, H3448, 4.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*.

Phyllobius oblongus

Clare: Ballyvaughan (Burren), M2307, 6.vi.95; Ballyeigher Loughs (Burren), R3595, 6.vi.95. Tipperary: near Carrigahorig, M9001, 9.vii.96, 10*. Wexford: near Tagoat, T0009,

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7.vii.96; Greenfield Crossroads, T0709, 7.vii.96. Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95. Sligo: Lugnadetra, G6228, 4.vi.95; Cummeen, G6733, 5.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95. Antrim: Shane's Castle, J1187, 3.vi.95.

Phyllobius pomaceus

Offaly: All Saints' Bog, N0211, 9.vii.96, 18*.

Phyllobius pyri

Cork: Graig Upper, near Kildorrery, R6512, 11.vii.96, 5*. Galway: near Derrybrien, M5801, 6.vi.95, 15*. Offaly: All Saints' Bog, N0211, 31.v.95, 9.vii.96. Mayo: near Claremorris, M3572, 5.vi.95, 26*. Fermanagh: near Clabby, [H4249], 4.vi.95; near Tempo, H3448, 4.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*. Down: near Newry, [J0935], 2.vi.95, 38*.

Phyllobius roboretanus

Cork: Bowenford Crossroads, R4219, 13.vii.96. Limerick: near Angleborough, R8116, 11.vii.96; near Kilmallock, R5929, 13.vii.96. Clare: Ballyvaughan (Burren), M2307, 6.vi.95. Wexford: Greenfield Crossroads, T0709, 7.vii.96, 12*. Offaly: All Saints' Bog, N0211, 31.v.95; Tullanisk, N0507, 1.vi.95; near Sharavogue, S0796, 1.vi.95; Cedar Hill, near Shinrone, S1092, i.vi.95. Wicklow: Sraghmore, O1905, 31.v.95. Dublin: Portmarnock, [O2342], 2.vi.95. Sligo: near Sea Mount House, G6736, 5.vi.95, 28*. Fermanagh: near Clabby, [H3949], 4.vi.95; near Tempo, H3448, 4.vi.95, 33*. Tyrone: Fivemiletown, H4448, 4.vi.95. Down: near Newry, [J0935], 2.vi.95, 38*. Antrim: Shane's Castle, J1187, 3.vi.95.

Polydrusus cervinus

Cork: Ballyhoura Mountain Park, R6513, 12.vii.96, 5*. Clare: Ballyeigher Loughs (Burren), R3595, 6.vi.95. Tipperary: Glengarra Wood, R9218, 11.vii.96, 7*; near Annagh House, N0007, 9.vii.96; near Annagh Castle, R8290, 9.vii.96. Galway: near Derrybrien, M5801, 6.vi.95, 15*. Offaly: All Saints' Bog, N0211, 31.v.95, 9.vii.96; near Birr, N0808, 14.vii.96; near Cloghan, N0812, 14.vii.96; Derrinlough, N0715, 14.vii.96. Mayo: near Claremorris, M3572, 5.vi.95, 26*.

Polydrusus pterygomalis

Cork: Glengarriff Woods, V9156, 13.vii.96. Clare: Ballyeigher Loughs (Burren), R3595, 6.vi.95. Tipperary: near Annagh House, N0007, 9.vii.96; near Annagh Castle, R8290,

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9.vii.96. Offaly: near Cloghan, N0812, 14.vii.96. Sligo: Castlegal, [G7457], 4.vi.95; Cummeen, G6733, 5.vi.95; near Tobercurry, G5313, 5.vi.95, 28*.

Barypeithes araneiformis

Wicklow: near Newcastle, O300025, 31.v.95, 20*.

Barypeithes pellucidus

Waterford: near Lismore, X0398, 10.vii.96, 6*. Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95, 18*. Antrim: Shane's Castle, J1187, 3.vi.95, 39*.

Sciaphilus asperatus

Tipperary: near Carrigahorig, M9001, 9.vii.96, 10*. Wexford: near Tagoat, T0009, 7.vii.96, 12*. Offaly: Cedar Hill, near Shinrone, S1092, 18*. Kildare: near Naas, O9117, 8.vii.96. Wicklow: Roundwood Park, O1902, 6.ix.92, 20*. Sligo: Lughnadedra, G6228, 4.vi.95, 28*. Fermanagh: near Clabby [H3949], 4.vi.95.

Strophosoma melanogrammum

Kerry: Killarney National Park, [c. V98], 21.vii.92 (PP). Cork: Glengarriff Woods, V9156, 13.vii.96; Ballyhoura Mountain Park, R6513, 12.vii.96. Tipperary: Glengarra Wood, R9218, 11.vii.96, 7*. Kilkenny: near Thomastown, [S5941], 7.vii.96, 11*. Carlow: Scullogue Gap, S8147, 8.ix.92. Laois: Emo, N538052, 3.x.92 (PP). Wicklow: Sraghmore, O1905, 6.ix.92; Laragh [T1496] 6.ix.92. Fermanagh: near Clabby, [H4249], 4.vi.95; near Tempo, H3448, 4.vi.95.

Strophosoma nebulosum

Down: Bloody Bridge, J390269, 1.ix.91 (PP).

Philopodon plagiatum

Wexford: Carne beach, T1004, 7.vii.96. Clare: Fanore sand dunes, [M1308], 26.v.92 (JPO'C). Wicklow: Five Mile Point, O3102, 6.xi.92, 31.v.95, 6.vii.96; Brittas Bay, T3032, 6.vii.96; near Mizen Head, T2878, 6.vii.96. Sligo: Strandhill dunes, G5936, 5.vi.95.

Liophloeus tessulatus

Clare: Ballyeighter Loughs (Burren), R3595, 6.vi.95. Offaly: Tullanisk, N0507, i.vi.95; Cedar Hill, near Shinrone, S1092, 1.vi.95; near Coffey's Cross, S0899, 6.vi.95, 18*. Wicklow: near Newcastle, O300025, 31.v.95. Sligo: Lughnadedra, G6228, 4.vi.95, 28*. Fermanagh: near Clabby [H3949], 4.vi.95, 33*.

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Barynotus moerens

Cork: Bowenford Crossroads, R4219, 13.vii.96, 4*.

Barynotus obscurus

Limerick: Kilmallock, [R62], 22.vii.92 (PP), 8*.

Barynotus squamosus

Kildare: near Naas, N9117, 8.vii.96, 19.

Sitona ambiguus

Cork: near Dromagh Castle, W3297, 12.vii.96; Bowenford Crossroads, R4219, 13.vii.96; near Kildorrery, R7210, 11.vii.96; Graig Upper, near Kildorrery, R6512, 11.vii.96. Limerick: near Angleborough, R8116, 11.vii.96; near Kilbehany, R8615, 11.vii.96, 8*. Tipperary: Grange, S1119, 10.vii.96; Killballyboy Wood, S0102, 10.vii.96; near Annagh Castle, R8290, 9.vii.96. Clare: Kilshany, [M1393], 25.v.92 (JPO'C). Kilkenny: near Gowran Castle, [S6353], 8.ix.92. Carlow: near Grangeford, S8274, 7.ix.92; near Ballykeenan, S7346, 8.ix.92, 13*. Offaly: All Saints' Bog, N0211, 1.vi.95. Kildare: near Naas, O9117, 8.vii.96. Wicklow: near Newcastle, O300025, 31.v.95. Sligo: Castlegal, [G7457], 4.vi.95; Lugnadetra, G6736, 4.vi.95; near Sea Mount House, G6736, 5.vi.95, 28*. Cavan: near Black Lion, [H0838], 4.vi.95. Fermanagh: near Clabby, [H4249], 4.vi.95; near Tempo, H3448, 4.vi.95. Down: near Newry, [J0935], 2.vi.95, 38*.

Sitona griseus

Wexford: Clones sand dunes, O2363, 7.ix.92.

Sitona hispidulus

Wexford: Carnsore Point, T1103, 26.viii.80 (JPO'C), 12*. Carlow: near Ballykeenan, S7346, 8.ix.92, 13*.

Sitona lepidus

Clare: near Lisdoonvarna, Burren, [M1398], 23.vii.92 (PP). Wexford: near Coolgreany, O2168, 7.ix.92; Clones sand dunes, O2363, 7.ix.92; Craanford, O0969, 7.ix.92. Wicklow: Five Mile Point, O3102, 6.xi.92; near Kippure House, O0913, 8.vii.96. Down: Derry Hill Fen, J437448, i.ix.91 (PP); Glastry Claypits, J635630 etc., 2.ix.91 (PP).

Sitona lineatus

Tipperary: Grange, S1119, 10.vii.96, 7*. Wexford: near Castletown, [O2364], 7.ix.92; Inch,

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T1967, 8.ix.92, 12*. Carlow: near Grangeford, S8274, 7.ix.92, 13*. Kildare: near Naas, O9117, 8.vii.96. Wicklow: Five Mile Point, O3102, 6.xi.92, 31.v.95, 20*.

Sitona lineellus

Sligo: Strandhill dunes, G5936, 5.vi.95, 28*.

Sitona regensteinensis

Cork: Graig Upper, near Kildorrery, R6512, 11.vii.96. Waterford: near Castle Dodard, S0405, 10.vii.96, 6*. Tipperary: Killballyboy Wood, S0112, 10.vii.96; Glengarra Wood, R9218, 11.vii.96. Kilkenny: near Gowran Castle, [S6353], 8.ix.92, 11*. Wexford: Our Lady's Island, T0908, 6.vii.96. Carlow: Scullogue Gap, S8147, 8.ix.92, 13*. Offaly: All Saints' Bog, N0211, 1.vi.95. Wicklow: Sraghmore, O1905, 6.ix.92. Sligo: near Ballynacarrow, G6321, 5.vi.95, 28*. Fermanagh: near Clabby, [H4249], 4.vi.95; near Tempo, H3448, 4.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95. Down: near Newry, [J0935], 2.vi.95, 38*.

Sitona striatellus

Cork: Graig Upper, near Kildorrery, R6512, 11.vii.96, 5*. Tipperary: Killballyboy Wood, S0102, 10.vii.96, 7*. Offaly: All Saints' Bog, N0211, i.vi.95, 9.vii.96, 18*.

Sitona sulcifrons

Limerick: Kilmallock, [R62], 22.vii.92 (PP), 8*. Clare: near Lisdoonvarna, Burren, [R1398], 23.vii.92 (PP). Offaly: near Sharavogue, S0796, i.vi.95, 18*.

Sitona suturalis

Wexford: near Castletown, [O2364], 7.ix.92; Our Lady's Island, T0908, 6.vii.96. Wicklow: near Mizen Head, T2878, 6.vii.96; near Arklow, [T2370], 6.vii.96, 20*.

Sitona waterhousei

Wicklow: Five Mile Point, O3102, 6.xi.92, 31.v.95.

Hypera adspersa [*H. pollux* (Fabr.)]

Limerick: Kilmallock, [R62], 22.vii.92 (PP), 8*.

Hypera nigrirostris

Cork: Beara, [c. V75], 20.vii.92 (PP), 3*; near Dromagh Castle, W3297, 12.vii.96; Bowenford Crossroads, R4219, 13.vii.96. Tipperary: Grange, S1119, 10.vii.96; Killballyboy Wood, S0102, 10.vii.96 (larvae), 7*. Offaly: near Sharavogue, S0796, 1.vi.95, 18*.

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Hypera plantaginis

Kerry: near Bonane, V9363, 13.vii.96. Tipperary: Glen of Aherlow, Newtown, [R8829], 22.vi.92 (PP), 7*. Wicklow: Five Mile Point, O3102, 31.v.95; near Kippure House, O0913, 8.vii.96 (larvae).

Hypera postica

Tipperary: Killballyboy Wood, S0102, 10.vii.96 (larvae), 7*. Kildare: near Naas, N9117, 8.vii.96.

Hypera rumicis

Cork: Bowenford Crossroads, R4219, 13.vii.96. Tipperary: Killballyboy Wood, S0112, 10.vii.96, 7*; Donohill, R9042, 9.vii.96, 10*. Sligo: near Sea Mount House, G6736, 5.vi.95; Strandhill dunes, G5936, 5.vi.95, 28*.

Hypera venusta

Cork: Beara, [c. V75], 20.vii.92 (PP). Wicklow: Five Mile Point, O3102, 31.v.95, 20*.

Cionus hortulanus

Kerry: near Kenmare, V8972, 13.vii.96 (larvae). Cork: Glengarriff Woods, V9156, 13.vii.96. Limerick: near Angleborough, R8116, 11.vii.96, (larvae-reared); Carrigeen, R8717, 11.vii.96, 8*. Offaly: All Saints' Bog, N0211, 31.v.95, 18*. Galway: Coole Woods, [M4304], 1.vi.92 (JPO'C), 15*. Antrim: Shane's Castle, J1187, 3.vi.95.

Hylobius abietis

Cork: Ballyhoura Mountain Park, R6513, 12.vii.96. Tipperary: near Annagh House, N0007, 9.vii.96, 10*. Carlow: Scullogue Gap, S8147, 8.ix.92, 13*.

Leiosoma deflexum

Wexford: near Castletown, [O2364], 7.ix.92, 12*. Wicklow: Roundwood Park, O1902, 6.ix.92, 20*. Dublin: St Catherine's Wood, O0136, 12.v.91 (JPO'C). Mayo: near Claremorris, M3572, 5.vi.95, 26*. Sligo: Lugnadetra, G6228, 4.vi.95; near Sea Mount House, G6736, 5.vi.95, 28*.

Magdalis armigera

Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95, 18*. Dublin: Phoenix Park, [O1235], 11.vi.83 (JPO'C).

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Anoplus plantaris

Tipperary: Glengarra Wood, R9218, 11.vii.96, 7*; near Annagh House, N0007, 9.vii.96, 10*. Offaly, All Saints' Bog, N0211, 31.v.95, 9.vii.96; near Cloghan, N0812, 14.vii.96; Woodfield Bog, N2636, 14.vii.96. Mayo: near Claremorris, M3572, 5.vi.95, 26*. Fermanagh: near Tempo, H3448, 4.vi.95, 33*. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*.

Anoplus roboris

Tipperary: near Annagh Castle, R8290, 9.vii.96, 10*. Mayo: near Claremorris, M3572, 5.vi.95, 26*. Fermanagh: near Tempo, H3448, 4.vi.95, 33*.

Euophryum confine

Limerick: near Killmallock, R5929, 13.vii.96, 8*. Dublin: Phoenix Park, [c. O1235], 11.vi.83, (JPO'C).

Pentarthrum huttoni

Mayo: six specimens in the Natural History Museum, London, have the data 'Glas Valley, Ballycurran, xi-x 1984, G.F.B. Pullar', [?M15], 26*.

Cryptorhynchus lapathi

Waterford: Dunhill, S5304, 29.vi.88 (JPO'C), 6*.

Acalles misellus

Cork: near Inchigeelach, W2467, 12.vii.96, 3*. Clare: Ballyvaughan (Burren), M2307, 6.vi.95; Ballyeigher Loughs (Burren), R3595, 6.vi.95, 9*. Tipperary: near Annagh Castle, R8290, 9.vii.96, 10*. Offaly: Cedar Hill, near Shinrone, S1092, 1.vi.95, 18*. Wicklow: near Newcastle, O300025, 31.v.95, 20*. Sligo: Lugnadetra, G6228, 4.vi.95, 28*.

Dorytomus rufatus

Cork: Ballyhoura Mountain Park, R6513, 12.vii.96, 5*. Tipperary: Killballyboy Wood, S0112, 10.vii.96, 7*; near Annagh Castle, R8290, 9.vii.96, 10*. Kilkenny: near Instioge, S6537, 7.vii.96, 11*. Offaly: All Saints' Bog, N0211, 9.vii.96, 18*. Mayo: near Claremorris, M3572, 5.vi.95, 26*. Down: near Newry, [J0935], 2.vi.95.

Dorytomus taeniatus

Cork: near Inchigeelach, W2467, 12.vii.96; near Carriganimmy, W2784, 12.vii.96; Pass of Keimeneigh, W1063, 12.vii.96, 3*; Ballyhoura Mountain Park, R6513, 12.vii.96, 5*.
Limerick: near Angleborough, R8116, 11.vii.96, 8*. Tipperary: Killballyboy Wood, S0112,

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10.vii.96, 7*; near Annagh Castle, R8290, 9.vii.96, 10*. Kilkenny: near Inistioge, S6537, 7.vii.96. Wexford: Ferrycarrig, T0023, 15.vi.91 (JPO'C); Our Lady's Island, T0908, 6.vii.96; Greenfield Crossroads, T0709, 7.vii.96. Down: near Newry, [J0935], 2.vi.95.

***Eirrhinus acridulus* [Notaris]**

Clare: near Lisdoonvarna, Burren, [R1498], 23.vii.92 (PP). Carlow: Bolton Abbey (Castle), [IGR not recorded], 7.ix.92, 13*.

***Eirrhinus scirpi* [Notaris]**

Clare: Burren Village marsh (Burren), [M2711], 4.vi.92 (JPO'C), 9*.

Thryogenes nereis

Cavan: Virginia Woods, N5987, 4.vi.90 (JPO'C). Down: Balloo, pools near Heron Lough, J503580, 30.viii.91 (PP).

Pelenomus quadrituberculatus

Clare: near Lisdoonvarna, Burren, [R1398], 23.vii.92 (PP). Wexford: Fetard, S7905, 10.vi.90 (JPO'C), 12*. Antrim: Masserene, J1485, 3.vi.95; Shane's Castle, J1187, 3.vi.95.

Rhinoncus pericarpus

Tipperary: Grange, S1119, 10.vii.96; Killballyboy Wood, S0102, 10.vii.96. Limerick: Carrigeen, R8717, 11.vii.96. Clare: Burren Village marsh (Burren), [M2711], 4.vi.92 (JPO'C). Kilkenny: near Gowran Castle, [S6353], 8.ix.92, 11*. Carlow: Bolton Abbey (Castle), [IGR not recorded], 7.ix.92, 13*. Wicklow: Roundwood Park, O1902, 6.ix.92. Dublin: St Anne's, Clontarf, [O2036], 2.vi.95. Sligo: Castlegal, [G7457], 4.vi.95; near Sea Mount House, G6736, 5.vi.95, 28*.

Poophagus sisymbrii

Carlow: Bolton Abbey (Castle), [IGR not recorded], 7.ix.92, 13*. Offaly: near Coffey's Cross, S0899, 6.vi.95, 18*.

Coeliodes dryados

Cork: Glengarriff Woods, V9156, 13.vii.96, 3*. Waterford: near Lismore, X0398, 10.vii.96, 6*. Carlow: Altamont Gardens, S8665, 31.iii.91 (JPO'C), 13*.

Coeliodes rubicundus

Kerry: Killarney National Park, [c. V98], 21.vii.92 (PP), 1/2*. Tipperary: near Annagh House, N0007, 9.vii.96, 10*. Offaly: All Saints' Bog, N0211, 31.v.95. Tyrone: Fivemiletown,

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H4448, 4.vi.95, 36*.

Micrelus ericae

Cork: Ballyhoura Mountain Park, R6513, 12.vii.96, 5*. Waterford: Nier Valley, S2417, 13.vii.87 (JPO'C); Mahon Falls, S3009, 3.vii.89, (JPO'C), 6*. Offaly: All Saints' Bog, N0211, 31.v.95.

Parethelcus pollinarius

Cork: near Carriganimmy, W2784, 12.vii.96; near Dromagh Castle, W3297, 12.vii.96, 4*; near Kildorrery, R7210, 11.vii.96. Limerick: near Kilbehany, R8615, 11.vii.96. Tipperary: Horse and Jockey, S1451, 14.vii.96; Coolbaun, R8291, 9.vii.96. Wexford: near Coolgreany, O2168, 7.ix.92; near Gorey, T1657, 6.xi.96; Greenfield Crossroads, T0709, 7.vii.96. Carlow: near Grangeford, S8274, 7.ix.92; Bolton Abbey (Castle), [IGR not recorded], 7.ix.92, 13*. Wicklow: Five Mile Point, O3102, 6.xi.92; Roundwood Park, O1902, 6.ix.92. Sligo: Lugnadetra, G6228, 4.vi.95, 28*. Antrim: Shane's Castle, J1187, 3.vi.95.

Microplontus rugulosus

Tipperary: Donohill, R9042, 9.vii.96, 10*. Wexford: Clones sand dunes, O2363, 7.ix.92. Wicklow: near Mizen Head, T2878, 6.vii.96.

Hadroplontus litura

Tipperary: Donohill, R9042, 9.vii.96, 10*. Wexford: Stoneyford, T1009, 5.ix.80 (JPO'C). Down: near Newry, [J0935], 2.vi.95.

***Ceutorhynchus assimilis* [*C. obstructus* (Marshall)]**

Cork: near Kildorrery, R7210, 11.vii.96. Wexford: Craanford, O0969, 7.ix.92; Carne Beach, T1004, 7.vii.96; Our Lady's Island, T1106, 7.vii.96, 12*. Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95, 18*. Wicklow: Five Mile Point, O3102, 31.v.95, 6.vii.96. Down: near Newry, [J0935], 2.vi.95, 38*.

Ceutorhynchus cochleariae

Antrim: Shane's Castle, J1187, 3.vi.95, 39*.

Ceutorhynchus contractus

Tipperary: Donohill, R9042, 9.vii.96, 10*. Wexford: near Gorey, T1657, 6.vii.96; Our Lady's Island, T1008, 6.vii.96. Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95, 18*. Wicklow: near Newcastle, O300025, 31.v.95.

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Ceutorhynchus erysimi

Tipperary: Donohill, R9042, 9.vii.96, 10*. Wexford: Craanford, O0969, 7.ix.92; Carne Beach, T1004, 7.vii.96; Greenfield Crossroads, T0709, 7.vii.96; near Kilmore Quay, S9604, 7.vii.96.

Ceutorhynchus floralis

Waterford: Mahon Falls, S3009, 20.vi.91 (JPO'C). Tipperary: Horse and Jockey, S1451, 14.vii.96, 7*. Wexford: Craanford, O0969, 7.ix.92; Our Lady's Island, T1008/1106, 6-7.vii.96; near Tagoat, T0009, 7.vii.96. Wicklow: near Newcastle, O300025, 31.v.95, 20*.

Ceutorhynchus pallidactylus

Cork: near Kildorrery, R7210, 11.vii.96, 5*. Tipperary: Horse and Jockey, S1451, 14.vii.96. Wexford: Craanford, O0969, 7.ix.92; Carne Beach, T1004, 7.vii.96; Our Lady's Island, T1106, 7.vii.96. Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95, 18*. Wicklow: near Rathnew, T2729, 6.vii.96.

Ceutorhynchus pyrrhorhynchus

Wicklow: near Rathnew, T2729, 6.vii.96; Five Mile Point, O3102, 6.vii.96 20*.

Sirocalodes mixtus

Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95, 18*.

Trichosirocalus troglodytes

Kerry: Glenbeigh, V7095, 18.v.93 (JAO). Wexford: Clones sand dunes, O2363, 7.ix.92. Offaly: Tullanisk, N0507, 1.vi.95; near Sharavogue, S0796, 1.vi.95; Cedar Hill, near Shinrone, S1092, 1.vi.95, 18*. Wicklow, Five Mile Point, O3102, 31.v.95; Brittas Bay, T3032, 6.vii.96, 20*. Fermanagh: near Tempo, H3448, 4.vi.95.

Nedys quadrimaculatus

Cork: near Inchigeelach, W2467, 12.vii.96; near Carriganimmy, W2784; near Dromagh Castle, W3297, 12.vii.96; Bowenford Crossroads, R4219, 13.vii.96; near Kildorrery, R7210, 11.vii.96. Limerick: near Angleborough, R8116, 11.vii.96; near Kilbehany, R8615, 11.vii.96; near Kilmallock, R5929, 13.vii.96. Tipperary: Horse and Jockey, S1451, 14.vii.96, Killballyboy Wood, S0102, 10.vii.96; Coolbaun, R8291, 9.vii.96. Kilkenny: near Gowran Castle, [S6353], 8.ix.92, 11*. Wexford: Rosslare Strand, T0917, 15.vi.91 (JPO'C); near Coolgreany, O2168, 7.ix.92; Clones sand dunes, O2363, 7.ix.92; Craanford, O0969, 7.ix.92;

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near Tallow, [X0095], 7.ix.92; near Ferns, [T0149], 8.ix.92; Carne Beach, T1004, 7.vii.96. Carlow: Bolton Abbey (Castle), [IGR not recorded], 7.ix.92. Offaly: All Saints' Bog, O0211, 1.vi.95, 18*. Wicklow: near Kippure House, O0913, 8.vii.96. Dublin: Furry Glen, Phoenix Park, [O1235], 16.iii.92 (JPO'C). Sligo: Lugnadetra, G6228, 4.vi.95; near Sea Mount House, G6736, 5.vi.95; Culleenamore House, G6134, 5.vi.95. Fermanagh: near Clabby, [H4249], 4.vi.95. Antrim: Masserene, J1485, 3.vi.95; Shane's Castle, J1187, 3.vi.95.

***Limnobaris dolorosa* (= *L. pilistriata* (Stephens))**

Westmeath: Ballynafid Lough, N4060, 22.vi.89 (JPO'C).

Anthonomus bituberculatus

Cork: Bowenford Crossroads, R4219, 13.vii.96, 4*. Tipperary: Grange, S1119, 10.vii.96, 7*. Wexford: Our Lady's Island, T0908, 6.vii.96; near Tagoat, T0009, 7.vii.96.

Anthonomus brunnipennis

Cork: Pass of Keimeneigh, W1063, 12.vii.96; Graig Upper, near Kildorrery, R6512, 11.vii.96, 5*. Waterford: near Castle Dodard, S0405, 10.vii.96. Tipperary: Killballyboy Wood, S0102, 10.vii.96; Glengarra Wood, R9218, 11.vii.96. Carlow: Scullogue Gap, S8147, 8.ix.92, 13*. Offaly, All Saints' Bog, N0211, 1.vi.95, 18*. Wicklow: Sraghmore, O1905, 31.v.95.

Anthonomus pedicularius

Kerry: Killarney National Park, [c. V98], 21.vii.92 (PP). Limerick: near Angleborough, R8116, 11.vii.96; near Kilmallock, R5929, 13.vii.96, 8*. Clare: Green Road, Corker Pass (Burren), [IGR not recorded], 27.v.92 (JPO'C); Ballyvaughan (Burren), M2307, 6.vi.95. Carlow: Scullogue Gap, S8147, 8.ix.92, 13*. Offaly, All Saints' Bog, N0211, 31.v.95, 9.vii.96, 18*. Sligo: Cummeen, G6733, 5.vi.95, 28*. Fermanagh: near Clabby, [H4249], 4.vi.95, 33*. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*.

Anthonomus rubi

Kildare: near Naas, N9117, 8.vii.96. Wicklow: Brittas Bay, T3032, 6.vii.96, 20*.

Anthonomus rufus

Clare: Ballyvaughan (Burren), M2307, 6.vi.95.

Curculio pyrrhoceras

Tipperary: Killballyboy Wood, S0102, 10.vii.96; Glengarra Wood, R9218, 11.vii.96, 7*;

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near Annagh House, N0007, 9.vii.96, 10*. Clare: Ballyeigher Loughs (Burren), R3595, 6.vi.95. Kilkenny: Clonassy Wood, S5622, 20.vi.90 (JPO'C), 11*. Carlow: St Mullins, [S7338], 24.iv.92 (JPO'C), 13*.

Curculio salicivorus

Cork: Glengarriff Woods, V9156, 13.vii.96; Ballyhoura Mountain Park, R6513, 12.vii.96. Waterford: near Castle Dodard, S0405, 10.vii.96, 6*. Tipperary: Killballyboy Wood, S0102, 10.vii.96; Glengarra Wood, R9218, 11.vii.96, 7*; near Annagh Castle, R8290, 9.vii.96, 10*. Kilkenny: near Inistioge, S6537, 7.vii.96, 11*. Offaly: All Saints' Bog, N0211, 1.vi.95, 18*. Mayo: near Claremorris, M3572, 5.vi.95, 26*. Fermanagh: near Tempo, H3448, 4.vi.95.

Tychius junceus

Tipperary: Killballyboy Wood, S0112, i.vi.96, 7* and **New to Ireland**.

Tychius picirostris

Wicklow, Five Mile Point, O3102, 31.v.95, 20*.

Tychius squamulatus

Wicklow, Five Mile Point, O3102, 31.v.95, 20*.

Miarus campanulae

Clare: Knockaunroe, Burren, R296940, 24.vii.92 (PP).

Mecinus pyrastrer

Waterford: Tramore, S5901, 14.vii.89 (JPO'C).

Gymnetron labile

Offaly: Cedar Hill, near Shinrone, S1092, i.vi.95, 18*.

Rhynchaenus alni

Tipperary: Grange, S1119, 10.vii.96, 7*. Limerick: near Kilmallock, R5929, 13.vii.96, 8*. Wexford: Tintern Abbey, S7810, 15.vi.90, (JPO'C); Lady's Island Lake, T104071, 25.v.87 (JPO'C); Our Lady's Island, T0908, 6.vii.96; near Tagoat, T0009, 7.vii.96; near Ballynaboola, S7924, 7.vii.96, 12*. Offaly: Cedar Hill, near Shinrone, S1092, 1.vi.95, 18*.

Rhynchaenus calceatus

Tipperary: near Annagh House, N0007, 9.vii.96, 10*. All Saints' Bog, N0211, 31.v/1.vi.95, 9.vii.96; Woodfield Bog, N2636, 14.vii.96.

Rhynchaenus fagi

Cork: Bowenford Crossroads, R4219, 13.vii.96. Tipperary: Glengarra Wood, R9218, 11.vii.96. Laois: Emo, N538052, 3.x.82 (JPO'C). Kilkenny: Clonassy Wood, S5622, 20.vi.90 (JPO'C), 11*. Offaly: near Sharavogue, S0796, 1.vi.95; Cedar Hill, near Shinrone, S1092, 1.vi.95, 18*. Wicklow: Roundwood Park, O1902, 6.ix.92; near Kippure House, [O0913], 31.v.95. Westmeath: Ballynafid Lough, N4060, 22.vi.89 (JPO'C), 23*. Sligo: Culleenamore House, G6134, 5.vi.95; near Tobercurry, G5313, 5.vi.95. Tyrone: Fivemiletown, H4448, 4.vi.95.

Rhynchaenus quercus

Tipperary: Glengarra Wood, R9218, 11.vii.96.

Rhynchaenus rusci

Kerry: Killarney National Park, [c. V98], 21.vi.92 (PP). Cork: Ballyhoura Mountain Park, R6513, 12.vii.96, 5*. Tipperary: Glengarra Wood, R9218, 11.vii.96, 7*; near Annagh House, N0007, 9.vii.96, 10*. Offaly: All Saints' Bog, N0211, 31.v.95; near Birr, N0808, 14.vii.96; near Cloghan, N0812, 14.vii.96; Derrinlough, N0715, 14.vii.96, 18*.

Tachyerges salicis

Cork: Beara, [c. V75], 20.vii.92 (PP), 3*; Graig Upper, near Kildorrery, R6512, 11.vii.96, 5*. Wexford: Tintern Abbey, S7810, 15.vi.90 (JPO'C). Carlow: Bahana Woods, S7239, 14.vi.91 (JPO'C), 13*. Offaly: All Saints' Bog, N0211, 1.vi.95, 18*. Mayo: near Claremorris, M3572, 5.vi.95, 26*.

Ramphus oxyacanthae

Limerick: near Kilmallock, R5929, 13.vii.96, 8*. Tipperary: near Annagh Castle, R8290, 9.vii.96, 10*.

Ramphus pulicarius

Kerry: Iveragh Peninsula, [c. V56], 19.vii.92 (PP); Killarney National Park, [c. V98], 21.vii.92 (PP). Cork: Ballyhoura Mountain Park, R6513, 12.vii.96, 5*. Tipperary: Killballyboy Wood, S0102, 10.vii.96; Glengarra Wood, R9218, 11.vii.96, 7*. Tyrone: Fivemiletown, H4448, 4.vi.95, 36*.

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THE DISTRIBUTION OF AQUATIC COLEOPTERA IN NORTHERN IRELAND. PART 1: FAMILIES HALIPLIDAE, HYGROBIIDAE, NOTERIDAE, DYTISCIDAE AND GYRINIDAE

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Summary

1. One hundred species of aquatic Coleoptera in the families Haliplidae, Hygrobiiidae, Noteridae, Dytiscidae and Gyrinidae are recorded from Northern Ireland.
2. The distribution of these species is mapped. Records have been gathered intensively since 1988 from 397 sites covering the entire Province and all biotopes.
3. Since 1988 twelve species have been recorded in Northern Ireland for the first time, but four species have not been recorded since 1950.
4. Significant populations of some relict fen species have been discovered.
5. The most threatened fauna is that of brackish lagoons.

Introduction

This paper is the first part of an intended series detailing the distribution of aquatic Coleoptera in Northern Ireland and will cover the aquatic Adephaga in the families Haliplidae, Hygrobiiidae, Noteridae, Dytiscidae and Gyrinidae. A second paper will cover the aquatic Polyphaga species in the families Hydrophilidae (*sensu lato*), Hydraenidae, Dryopidae and

Elmidae. Species of Chrysomelidae and other families which are dependant on aquatic plants will also be covered. Appendix 1 lists all species in the families covered in this paper which have been recorded from Ireland.

Literature and study of the Northern Irish fauna

The paper by Johnson and Halbert (1902) has been the only complete account of the Irish Coleoptera fauna. The comments on the aquatic species are now only of historical interest. There are some problems with interpreting records in Johnson and Halbert due to taxonomic and nomenclatural changes. The occurrence of most species in Northern Ireland is simply noted and in general little of significance regarding habitat and ecology can be gleaned from the records. The most significant publications on the Irish aquatic fauna since this are the paper written by Professor F. Balfour-Browne in 1951 and his three volume treatise on the British Isles fauna (1940, 1950 and 1958). Balfour-Browne's 1951 paper presented the distribution of the Irish aquatic Coleoptera by vice-county lists with more detailed comments on individual species. Balfour-Browne was the acknowledged authority on the aquatic Coleoptera in his time and between 1907 and 1913 he lived in Belfast. He collected aquatic Coleoptera extensively in Northern Ireland but worked mainly in Co. Down. His records were maintained on a card index which still exists but the data have not been fully extracted. Other local entomologists in the first part of the 20th Century recorded the group but it was never a major interest of any of them. The most significant contribution was that of William Crawford who lived in Belfast and collected in many parts of the north in the mid 1930s. He published a number of short notes and papers (Ryan *et al.*, 1984). Much of Crawford's and some of Johnson's material is in the Ulster Museum's collections. A large proportion of this material is inadequately labelled so that data cannot be incorporated into modern maps. The Ulster Museum also has a small number of specimens collected by Chris Reid in the early 1970s. These have been identified and the records included in the maps.

In 1988 a major effort in recording the group started, initiated by a week long course in Co. Fermanagh (Foster, 1989), resulting in a vast improvement of our knowledge of the distribution of the group. The number of post-1988 records far exceeds the number of earlier ones. These records have been gathered by intensive sampling of individual sites in order to compile

complete species lists. There has also been more recording in the rest of Ireland since 1986 (Friday, 1987; Bilton, 1988; Foster and Lott, 1988, 1989; Bilton and Lott, 1991) such that the Irish fauna is now better documented than ever. All the recent Irish data collected up to 1991 have been used in an analysis of the species assemblages (Foster *et al.*, 1992). In Northern Ireland the bulk of the collecting has been done by the authors. Additional records have been obtained from Ulster Museum material, the work of Keith Alexander and Andrew Foster of the National Trust Biological Survey Team and published records. All this information is held on a computer database at CEDaR, the biological records centre for Northern Ireland based at the Ulster Museum. The voucher material is held in the Ulster Museum and private collections, with some duplicates in other collections including the National Museum of Ireland.

A total of 87 species are listed as occurring in at least one county of Northern Ireland by Balfour-Browne (1951). This includes *Acilius sulcatus* (L.), records of which seem to have been mistakenly omitted from the list, as shown on the map in Balfour-Browne (1950). The recent recording has added the following species to the Northern Irish list:- *Agabus chalconatus* (Panzer), *A. congener* (Thunberg), *Dytiscus lapponicus* Gyllenhal, *Gyrinus distinctus* Aubé, *G. paykulli* Ochs, *Hydaticus seminiger* (DeGeer), *Hydroporus glabriusculus* Aubé, *H. scalesianus* (Stephens), *Ilybius guttiger* (Gyllenhal), *I. subaeneus* Erichson, *Laccornis oblongus* (Stephens) and *Rhantus grapii* (Gyllenhal).

Modern Database

The current state of our knowledge of the species distribution is still somewhat variable both geographically and across different biotopes. Most of the recording effort has concentrated on fens, lakes and cutover bogs, habitats which are very well-represented in Northern Ireland. The riverine fauna has not been well-covered and this remains one of the biggest gaps in the database. The data in Roberts and Mackie (1993), which were derived from standardised kick samples, have been incorporated and this has significantly improved the picture for some of the river species. Similarly newly created artificial and degraded habitats have been neglected which may account for the apparent scarcity of some highly mobile species. The geographical coverage is also variable and whilst it is especially good in counties Armagh, Down and Fermanagh, it is noticeably poorer in the remaining three counties. However it has to be said that the fen and lake habitats are much less common in these counties, particularly Londonderry

and much of north Antrim. Figure 1 shows the coverage within Northern Ireland by 10km square. The size of the dots is related to the number of species recorded within each 10km square.

Identification of the species

Friday (1988) provides the most comprehensive keys for the Irish fauna. Alternative, more detailed keys can be found in Drost *et al.* (1992). Keys for the Gyrinidae, Haliplidae, and Noteridae are found in Holmen (1987). Additional information and alternative keys are given in Balfour-Browne's volumes (1940 and 1950) on the group. These should however be used with caution owing to the many changes in nomenclature and taxonomic definitions, and additions of a number of species to the British Isles fauna.

Comparison with other regions

Table 1 gives comparative figures for the fauna of Ireland, the whole of Great Britain and Scotland. In common with other insect groups, the Irish fauna is impoverished compared to that of Great Britain with 72% of the fauna of the larger island present. The Irish and Scottish faunas show a high degree of similarity in total species numbers across the families. The proportion of the Irish fauna found in Northern Ireland is 93% indicating relatively little variation in the freshwater fauna across the whole island. The British species which are absent from Ireland are mostly distributed in the south and east. However, some species do occur widely in western Britain and these may have been overlooked in Ireland. This includes *Hydroporus ferrugineus* Stephens, *H. rufifrons* (Müller) and *Agabus didymus* (Olivier).

TABLE 1: Comparison of the aquatic Coleoptera faunas of different regions within the British Isles.

	Ireland	Northern Ireland	Great Britain	Scotland
Haliplidae	13	13	18	12
Noteridae	2	2	2	2
Hygrobiidae	1	0	1	0
Dytiscidae	81	75	114	83
Gyrinidae	10	10	12	9
TOTAL	107	100	147	106

Species Accounts

The following accounts are arranged in systematic order. The nomenclature follows Pope (1977), but incorporating recent changes which have affected the following species names. *Agabus melanocornis* Zimmermann is now *Agabus montanus* (Stephens) (Foster, 1994); *Potamonectes griseostriatus* (DeGeer) is now *Stictotarsus multilineatus* (Falkenström) (Nilsson and Holmen, 1995); *Potamonectes* is now *Nebrioporus* (Nilsson and Angus, 1992); and *Coelambus* is treated again as a subgenus of *Hygrotus* (Nilsson and Holmen, 1995). For each species a brief account is given describing the observed distribution, ecological information and a discussion where appropriate of the significance of the Northern Irish records. Following each species account is a list of the sites at which the species has been recorded by the authors since 1988. Site details are given in Appendix 2. The distribution of each species is mapped and this includes all the listed records plus the additional records held on the CEDaR database. The black dots signify post-1988 records. The maps are plotted on a tetrad basis using the DMAP mapping software.

In the accounts and Appendix 2, the county names refer, unless stated otherwise, to the political counties. These differ from the biological vice-counties used in Balfour-Browne (1951) in that the portion of Londonderry to the west of the River Foyle is included in the vice-county of East Donegal.

Haliplidae

This is a family containing small beetles with pale elytra and varying degrees of dark markings. They are open water species which swim characteristically by moving the legs alternately. They are herbivorous and feed particularly on algae. There are records of 13 species in Ireland, all of which have been recorded from Northern Ireland.

1. *Brychius elevatus* (Panzer, 1793) (Fig. 2)

This is a riverine species found in moderate flowing stretches of rivers. It is common in the Foyle catchment but only known from a few localities on other major rivers. However as rivers are an under-recorded habitat, the species may prove to be more widespread and common than the records suggest.

Sites: 70, 75, 210, 277, 353.

2. *Haliplus apicalis* Thomson, 1868 (Fig. 3)

A saltmarsh species which is tolerant of moderate salinity. In Britain *H. apicalis* has a south-eastern distribution and it appears to have declined in the north of its range and become extinct in Scotland (Foster, 1994). In Ireland this species is recorded only from Down (Balfour-Browne, 1940) and Wexford (Foster, 1981). The only modern records are from the brackish lagoons in the Harbour Estate in inner Belfast Lough and at Strand Lough, Killough, Down. Both sites are in reclaimed estuarine ground and it is clearly under continuing threat of habitat loss.

Sites: 232, 291.

3. *Haliplus confinis* Stephens, 1828 (Fig. 4)

Uncommon, found in scattered lowland sites principally in Down but also Antrim, Armagh and Fermanagh. There are no records from Londonderry or Tyrone. The majority of the records are from pools in cutover bogs and fens with a few records from mesotrophic lakes and artificial ponds. The larvae feed on charophytes (Holmen, 1987).

Sites: 64, 155, 235, 240, 256, 263, 264, 289, 298, 299, 316, 364.

4. *Haliplus flavicollis* Sturm, 1834 (Fig. 5)

This is a pond and lake species which occasionally can be found in running water. No obvious habitat association is apparent in Northern Ireland. Records come from all counties though there are no post-1988 records from Londonderry.

Sites: 23, 68, 102, 186, 221, 240, 251, 267, 286, 299, 301, 315, 317, 341, 346.

5. *Haliplus fluviatilis* Aubé, 1836 (Fig. 6)

Apparently rare but this is mainly a riverine species which may be very under-recorded. It can also occur in drains and disused canals and occasionally lakes. According to Balfour-Browne (1951) this species has a widespread distribution in Northern Ireland, and recorded from all counties except Fermanagh. However, the only recent records have been from two lowland rivers and disused stretches of canal connected to them in Armagh and a mesotrophic lake in north Tyrone.

Sites: 64, 65, 123, 170, 277, 341.

6. *Haliplus fulvus* (Fabricius, 1801) (Fig. 7)

A widespread but local species which is found principally in deep pools and small lakes often

in upland areas as high as 455m. There are recent records from all counties except Londonderry.

Sites: 3, 30, 35, 61, 38, 75, 84, 102, 116, 134, 145, 166, 234, 250, 251, 256, 263, 266, 279, 283, 299, 311, 315, 329, 335, 341, 346, 385, 389.

7. *Haliplus immaculatus* Gerhardt, 1877 (Fig. 8)

This is predominantly a lowland species of brackish and base-rich still and running water. In Northern Ireland the few records include brackish coastal sites in Down and Londonderry and a marl lake in Fermanagh. There are clusters of records from ponds on the shores of Lough Neagh and along the River Lagan and associated disused canals.

Sites: 95, 184, 189, 257, 258, 260, 262, 271, 291, 299, 301, 360, 363, 378.

8. *Haliplus lineatocollis* (Marshall, 1802) (Fig. 9)

One of the commonest haliplids this species is found in rivers and streams, and to a lesser extent in still waters, throughout Northern Ireland.

Sites: 11, 31, 33, 40, 59, 70, 75, 81, 82, 98, 102, 103, 116, 120, 121, 134, 137, 144, 145, 156, 163, 167, 168, 185, 186, 187, 191, 196, 210, 215, 231, 252, 255, 267, 291, 300, 301, 305, 322, 325, 329, 344, 347, 353, 358, 359, 363, 366, 374, 393.

9. *Haliplus lineolatus* Mannerheim, 1844 (Fig. 10)

This is lake species typically found in clear, unpolluted lakes. Apart from a single Antrim and two Down sites, all recent records are from Fermanagh where it is widespread but local. There are no published or recent records from Armagh, Tyrone and Londonderry.

Sites: 16, 23, 30, 41, 42, 84, 155, 169, 235, 283, 299.

10. *Haliplus obliquus* (Fabricius, 1787) (Fig. 11)

Uncommon. A *Chara* feeding species found in base-rich pools and lakes. It is very local occurring in natural marl type lakes and a turlough in Fermanagh and flooded quarries and lakes in Antrim, Armagh and Down.

Sites: 31, 56, 148, 168, 231, 264, 286, 356, 358, 364.

11. *Haliplus ruficollis* (DeGeer, 1774) (Fig. 12)

This is the commonest species of *Haliplus* in Northern Ireland, as it is in the rest of Britain and Ireland. It is found in a wide variety of still waters including lakes and ponds and occasionally in rivers below 300m. Whilst it is very common in the south of the province, there are very

few records north of Lough Neagh.

Sites: 3, 6, 11, 14, 20, 24, 36, 55, 62, 67, 74, 82, 90, 92, 96, 98, 101, 122, 124, 139, 144, 145, 146, 148, 152, 153, 154, 157, 158, 159, 160, 162, 166, 167, 168, 186, 187, 197, 199, 200, 202, 207, 208, 210, 211, 212, 213, 221, 225, 231, 232, 235, 240, 242, 247, 252, 255, 262, 263, 266, 270, 280, 285, 286, 291, 292, 295, 296, 298, 299, 300, 312, 314, 316, 321, 330, 336, 340, 343, 348, 353, 356, 363, 378, 385, 388.

12. *Haliplus variegatus* Sturm, 1834 (Fig. 13)

Very rare. There is only one recent record from a shallow pool at Brackagh Bog NNR, Armagh, an area where it has previously been recorded (Balfour-Browne, 1951). Rare elsewhere in Ireland and Britain where it has been given RDB3 status and there is evidence of a serious decline here and in the rest of Europe (Foster, 1981).

Sites: 312.

13. *Haliplus wehncke* Gerhardt, 1877 (Fig. 14)

This is a common species, found most frequently in rivers but also small lakes throughout Northern Ireland.

Sites: 11, 30, 37, 42, 64, 65, 75, 76, 90, 95, 123, 124, 144, 145, 148, 151, 155, 170, 186, 187, 189, 210, 230, 232, 235, 237, 240, 241, 257, 277, 288, 291, 293, 308, 315, 337, 346, 353, 359, 363, 366, 369, 377.

Hygrobiidae

Hygrobia hermanni (Fabricius) is the only European species of this family. It is a southern species, with no records from Northern Ireland, although it has been recorded in Donegal (McCarthy, 1974).

Noteridae

This family is represented by just two species in Ireland. They are streamlined, brownish beetles which live in open water and in open fens. Old records are unreliable unless accompanied by vouchers due to the confusion over nomenclature.

14. *Noterus clavicornis* (DeGeer, 1774) (Fig. 15)

N. clavicornis is the larger and most common of the two *Noterus* species, recorded from all counties. It is especially common in the interdrumlin fens of Down and in the west it is found in lakeside fens. It is a strictly lowland species not recorded above 150m. This is a locally

distributed species in Britain and appears to be more generally distributed in Ireland.

Sites: 13, 29, 53, 55, 71, 94, 102, 138, 141, 145, 160, 167, 169, 176, 187, 196, 197, 209, 212, 219, 221, 223, 225, 231, 234, 235, 244, 245, 247, 249, 254, 256, 258, 260, 262, 263, 276, 278, 280, 285, 286, 287, 290, 292, 295, 296, 298, 299, 300, 305, 306, 311, 312, 313, 315, 318, 319, 330, 331, 332, 333, 340, 343, 346, 384, 385, 389, 396.

15. *Noterus crassicornis* (Müller, 1776) (Fig. 16)

This is locally common within its restricted lowland range, inhabiting open water in fen pools and mesotrophic lakes. The majority of records are from fens around Upper Lough Erne and the Lough Neagh wetlands. It is however noticeably absent from the Down interdrumlin fens. Like its larger relative, *N. crassicornis* is commoner in Ireland than in Britain. It is a flightless species considered indicative of undisturbed sites.

Sites: 13, 67, 92, 152, 153, 158, 159, 160, 168, 169, 186, 209, 213, 219, 223, 247, 258, 262, 269, 271, 280, 282, 285, 286, 303, 306, 312, 314, 316, 323, 348, 369, 388.

Dytiscidae

The Dytiscidae is the largest family of the aquatic Coleoptera. The species range in size from under 2mm to nearly 40mm and are adapted for swimming with smooth streamlined shape and modified hind legs. Many of the species occur in mossy wet areas rather than in open water. Eighty-one species are recorded from the whole of Ireland and 74 in Northern Ireland.

16. *Laccophilus hyalinus* (DeGeer, 1774)

There are old records for this species from Antrim and Armagh (Johnson and Halbert, 1902; Balfour-Browne, 1951), but no recent ones from anywhere in Northern Ireland. There are four modern records from southern and central Ireland as far north as the Boyne valley in Meath (Bilton, 1988; B. Nelson unpublished record). It has a lowland south-eastern distribution in Britain where it is found in slow-running water. Lack of sampling in its habitat may account for the absence of records.

17. *Laccophilus minutus* (Linnaeus, 1758) (Fig. 17)

A common species of open water in lowland lakes and large ponds. Found in all counties.

Sites: 28, 63, 67, 93, 94, 124, 145, 156, 157, 176, 187, 197, 208, 212, 235, 244, 250, 251, 252, 258, 262, 263, 269, 270, 276, 278, 290, 299, 300, 302, 303, 313, 314, 335.

18. *Hyphydrus ovatus* (Linnaeus, 1761) (Fig. 18)

This is a very distinctive water beetle quite unlike any other species found in Ireland. It is a common species in lowland eutrophic lakes and large ponds in fens and cutover bogs. It has been found in all counties but is most frequent in the east.

Sites: 3, 24, 29, 56, 82, 94, 158, 159, 176, 183, 187, 189, 212, 223, 225, 234, 240, 245, 254, 255, 270, 271, 275, 277, 288, 290, 292, 293, 299, 300, 305, 311, 313, 316, 330, 343, 371, 386, 389, 396.

19. *Hygrotus confluens* (Fabricius, 1787) (Fig. 19)

A pioneer species and a rapid coloniser of newly-created sites, but also tolerant of considerable eutrophication. It is however a rare species in Ireland as its habitat is not common and has not received much attention from recorders. There are only four confirmed recent records from Northern Ireland from a flooded quarry in Antrim, a highly eutrophic lough and a flooded sandpit, both in Down and an upland lake in Fermanagh. There are no published records from other counties.

Sites: 186, 243, 347, 358.

20. *Hygrotus impressopunctatus* (Schaller, 1783) (Fig. 20)

Very local but can be common at individual sites. Previous records have been from coastal sites, both freshwater and brackish lagoons (Balfour-Browne, 1940) but modern records have extended its distribution to include inland lakes in Antrim and Fermanagh. A similar pattern is apparent in Britain (Foster, 1981) where it is as common inland as in coastal localities.

Sites: 179, 232, 233, 237, 258, 293, 314, 363, 373.

21. *Hygrotus inaequalis* (Fabricius, 1777) (Fig. 21)

A widespread and often abundant species in ponds and small lakes throughout lowland areas and more locally in upland areas up to 300m. It has been recorded in all counties and also on Rathlin Island, Antrim.

Sites: 6, 11, 28, 29, 52, 56, 71, 74, 77, 84, 92, 96, 101, 102, 111, 112, 122, 124, 138, 139, 144, 145, 148, 156, 158, 162, 167, 168, 176, 183, 187, 199, 200, 202, 209, 212, 213, 219, 221, 225, 229, 232, 233, 235, 237, 244, 247, 250, 251, 252, 254, 255, 258, 260, 262, 269, 270, 271, 272, 277, 278, 281, 282, 283, 285, 286, 289, 291, 292, 293, 296, 298, 300, 305, 308, 310, 313, 314, 316, 321, 331, 333, 335, 336, 343, 356, 358, 363, 371, 376, 385, 388,

389, 396.

22. *Hygrotus novemlineatus* (Stephens, 1829) (Fig. 22)

A lake species which in Britain has a modern northern distribution and is largely confined to Scotland. It inhabits clean lakes with sandy beds and has died out in southern parts of its range (Foster, 1981). Balfour-Browne (1951) lists the species from 10 vice-counties, including Armagh (Marlacoo and Lowry's Lough), Down (Ellis's Gut Lough Neagh; collected by Crawford, vouchers in Ulster Museum) and Antrim (Lough Neagh at Toome). The only recent Northern Irish record is from the west shore of Lough Beg, Londonderry, where a single individual was taken by Richard Weyl. The only other post-1950 records are from three lakes in Co. Clare (Lansbury, 1965), an upland lake in Co. Mayo (Foster and Lott, 1988) and an unpublished record from west Donegal (B. Nelson). This is the only species for which the number of old records exceeds the number of recent ones. This strongly suggests that *H. novemlineatus* has declined in Northern Ireland, mirroring the trend in England.

Sites: 327.

23. *Hygrotus quinquelineatus* (Zetterstedt, 1828) (Fig. 23)

This species is characteristic of and common in the large Fermanagh lakes. It is also locally frequent in eastern Down in artificial sites around Strangford Lough and on the Ards peninsula. There are just scattered records from all the other counties apart from Antrim, although it has been recorded from here in the past (Balfour-Browne, 1951). *H. quinquelineatus* is found in larger water bodies than *H. inaequalis* and seems to require productive or base-rich waters. It is found throughout Ireland, whereas in Britain this species has declined in parts of its limited range and is now largely confined to Scotland (Foster, 1994).

Sites: 4, 11, 16, 52, 67, 85, 92, 102, 141, 144, 158, 207, 208, 212, 234, 235, 250, 260, 262, 264, 269, 308, 315, 317, 321, 346.

24. *Hydroporus angustatus* Sturm, 1835 (Fig. 24)

Common in suitable habitat, and recorded in all counties. A characteristic species of eutrophic fens, *H. angustatus* is especially frequent in the inter-drumlin mires in the south-east but is much more local in the north and west where this habitat is less common.

Sites: 31, 50, 60, 79, 90, 94, 100, 101, 109, 117, 151, 173, 183, 185, 186, 188, 197, 212, 223, 225, 231, 245, 247, 271, 277, 285, 286, 300, 305, 306, 312, 313, 316, 318, 330, 333,

384, 385, 387, 388, 391, 392, 393, 396.

25. *Hydroporus discretus* Fairmaire, 1859 (Fig. 25)

Apparently rare, with well-scattered post-1988 records in Antrim, Armagh and Fermanagh and pre-88 records for Londonderry and Down (Balfour-Browne, 1951). *H. discretus* is found in springs and muddy streams and does not appear to be common elsewhere in Ireland. It occurs throughout Britain but is considered a local species in most areas (Foster, 1984).

Sites: 101, 110, 113, 118, 145.

26. *Hydroporus erythrocephalus* (Linnaeus, 1758) (Fig. 26)

Common and widespread in a wide variety of still, permanent water in fens and bogs and small lakes. Found in all counties.

Sites: 25, 31, 37, 54, 57, 60, 61, 63, 66, 77, 78, 79, 80, 87, 94, 96, 98, 100, 101, 102, 106, 114, 116, 118, 124, 134, 144, 145, 147, 148, 152, 155, 157, 174, 176, 177, 178, 182, 183, 185, 188, 197, 198, 202, 212, 217, 218, 225, 231, 234, 247, 250, 251, 252, 255, 260, 263, 270, 271, 273, 281, 284, 285, 286, 291, 292, 293, 296, 297, 300, 302, 305, 306, 310, 311, 312, 313, 316, 318, 326, 328, 330, 336, 340, 348, 354, 384, 385, 387, 388, 389, 391, 392, 393, 394, 395, 396.

27. *Hydroporus glabriusculus* Aubé, 1838 (Fig. 27)

Bilton (1988) recorded this species for the first time in Ireland in the Mullingar area. It inhabits mesotrophic fens and is considered a post-glacial relict. It is rare in most of its range due to pollution and habitat loss. *H. glabriusculus* was first recorded in Northern Ireland in 1995 by R. Weyl in the Finn catchment in south-east Fermanagh.

Sites: 99.

28. *Hydroporus gyllenhalii* Schiödte, 1841 (Fig. 28)

A common and widespread species found in acid pools, poor fens and small lakes throughout Northern Ireland.

Sites: 14, 17, 19, 20, 39, 47, 51, 54, 57, 66, 73, 74, 77, 78, 79, 88, 98, 100, 102, 103, 106, 113, 116, 119, 131, 140, 145, 172, 190, 193, 195, 197, 202, 217, 231, 238, 247, 252, 260, 261, 263, 274, 284, 287, 297, 300, 302, 305, 306, 309, 312, 313, 316, 318, 326, 333, 335, 336, 345, 349, 362, 384, 385.

29. *Hydroporus incognitus* Sharp, 1869 (Fig. 29)

Typically found in acid pools in woodland or the edges of bogs. Apparently uncommon though recorded from all six counties and with most records from the north and west.

Sites: 57, 60, 63, 79, 82, 88, 96, 101, 103, 109, 140, 145, 217, 246, 247, 252, 263, 284, 293, 302, 318, 328, 345, 392, 393, 394.

30. *Hydroporus longulus* Mulsant, 1860 (Fig. 30)

Rare. Inhabits seepages and flushes and occasionally rivers in upland blocks and less frequently in lowland areas. There have been only six post-88 records, from two sites in the Mourne (Down), two in Antrim and one each in Londonderry and Tyrone. This is despite intensive survey of its habitat in the Mourne in 1994. *H. longulus* has been recorded in the past from Armagh (Balfour-Browne, 1951).

Sites: 110, 125, 136, 352, 368, 381.

31. *Hydroporus melanarius* Sturm, 1835 (Fig. 31)

Uncommon, predominantly an upland species found in shallow seepages and pools. As in Britain, *H. melanarius* is also found occasionally in lowland habitats in heathland and woodland pools, which provide the acid conditions it requires. The recent records are all in the north and west in Antrim, Londonderry, Tyrone and Fermanagh apart from one site in the Mourne, Down. There appear to be no recent or previously published records from Armagh. These Northern Irish records are the only post-88 Irish records. The only additional records are from the south-western vice-counties of North Kerry, South Kerry and West Cork (Balfour-Browne, 1951).

Sites: 32, 66, 110, 116, 129, 145, 149, 172, 212, 222, 246, 362.

32. *Hydroporus memnonius* Nicolai, 1822 (Fig. 32)

Found in shallow pools in woodland, bogs, fens and brackish pools. Whilst this is never a common species, it is found at many sites and has a wide distribution across the whole of Northern Ireland. Females of this species occur in two forms, the nominate shining form and the matt form var. *castaneus* Aubé. Only shining females are found in Ireland, the matt form is prevalent in most of England and Wales, and a small area of southern Scotland.

Sites: 43, 48, 60, 67, 83, 90, 92, 93, 101, 102, 103, 109, 110, 117, 124, 140, 144, 145, 149, 183, 185, 225, 227, 237, 239, 247, 248, 260, 263, 265, 274, 285, 286, 293, 297, 300, 305,

308, 309, 312, 313, 316, 318, 328, 330, 333, 334, 335, 336, 352, 356, 365, 384, 385, 386, 388, 391, 392.

33. *Hydroporus morio* Aubé, 1838 (Fig. 33)

Rare; an upland species found in small peaty pools. Only a few recent records from the major uplands in the Sperrins (Londonderry), Garron plateau (Antrim) and the Mourne (Down). It was found near Newtownhamilton Armagh in 1900 by Johnson (voucher in Ulster Museum; Johnson and Halbert, 1902). Whilst there have been few other Irish records the published records indicate that *H. morio* has been recorded in most of the major upland areas. The recent records suggest it is, like *Stictotarsus multilineatus* and *Dytiscus lapponicus*, restricted to just one or two sites in each of these upland blocks.

Sites: 105, 114, 116, 131, 190, 349.

34. *Hydroporus nigrita* (Fabricius, 1792) (Fig. 34)

Shallow, usually acid, pools are the main habitat of *H. nigrita* and in Britain it is commonest in the north and west and in upland areas. However relict lowland populations still exist in the heaths of southern England (Foster, 1984). Within Northern Ireland there are as many records from lowland cutover bogs as there are from upland pools. It is found in all counties.

Sites: 10, 20, 24, 27, 37, 45, 60, 77, 83, 98, 103, 107, 125, 127, 129, 140, 141, 145, 179, 183, 197, 209, 232, 241, 252, 265, 297, 312, 313, 318, 326, 354, 392.

35. *Hydroporus obscurus* Sturm, 1835 (Fig. 35)

This is considered an acidophile species, but more accurately it is found in exposed sites. It is common in acid bogs in both lowland and uplands in all counties. It is also recorded from non-acid sites in the centre and west of Ireland (Bilton and Lott, 1991; Foster and Lott, 1988) but has not been found in such sites here.

Sites: 19, 20, 25, 39, 49, 66, 68, 73, 74, 77, 87, 94, 96, 100, 102, 105, 113, 114, 116, 119, 122, 125, 126, 127, 129, 145, 172, 174, 177, 190, 193, 194, 197, 206, 217, 231, 238, 242, 246, 252, 263, 274, 281, 287, 296, 297, 302, 304, 305, 312, 313, 316, 326, 333, 338, 354, 384, 394.

36. *Hydroporus obsoletus* Aubé, 1838 (Fig. 36)

Whilst this is a distinctive species, it is an elusive insect which is believed to be largely a subterranean species. It is found in acid springs though individuals can appear elsewhere after

heavy rain. The list in Balfour-Browne (1951) gives vice counties Londonderry, Antrim, Down and North Kerry as being the only ones from which it has been recorded. Recent records have added little to this. The nature of its habitat and ecology mean this species is difficult to detect and its true status is unclear. There are four recent records from the north from an upland mire, a heathland flush and a river in counties Antrim, Armagh and Down. The only other recent Irish record is from Tipperary (Bilton and Lott, 1991).

Sites: 110, 181, 192, 360.

37. *Hydroporus palustris* (Linnaeus, 1761) (Fig. 37)

Widespread and very common species in a variety of lowland habitats. Recorded from all counties and on Rathlin Island, Antrim.

Sites: 1, 5, 6, 17, 20, 23, 24, 31, 35, 37, 39, 40, 42, 48, 52, 55, 56, 61, 68, 69, 72, 74, 75, 76, 78, 79, 80, 82, 84, 85, 87, 8, 90, 92, 98, 100, 101, 102, 104, 106, 107, 108, 111, 112, 113, 119, 121, 122, 141, 144, 145, 148, 152, 155, 156, 158, 159, 160, 162, 166, 170, 173, 181, 182, 183, 185, 186, 187, 188, 189, 194, 195, 197, 198, 202, 204, 209, 212, 215, 218, 219, 223, 225, 228, 229, 231, 232, 234, 235, 236, 240, 243, 244, 249, 250, 251, 254, 259, 260, 262, 263, 264, 266, 268, 269, 270, 271, 272, 273, 277, 278, 279, 281, 282, 284, 285, 290, 291, 296, 299, 300, 302, 305, 306, 308, 310, 312, 313, 314, 315, 316, 317, 318, 319, 321, 322, 326, 335, 336, 338, 340, 343, 346, 347, 350, 358, 359, 360, 363, 364, 365, 371, 377, 384, 385, 391, 393, 395, 396.

38. *Hydroporus planus* (Fabricius, 1781) (Fig. 38)

A widespread and common species of lakes and ponds throughout the lowlands and in all counties.

Sites: 14, 24, 40, 41, 43, 60, 71, 83, 93, 97, 100, 118, 121, 124, 135, 144, 148, 152, 182, 183, 196, 197, 202, 213, 217, 231, 232, 235, 237, 239, 246, 258, 265, 279, 282, 285, 300, 304, 312, 316, 318, 319, 324, 336, 343, 348, 356, 358, 359, 363, 366, 382, 388.

39. *Hydroporus pubescens* (Gyllenhal, 1808) (Fig. 39)

This is one of the commonest Irish water beetles. It is found in all counties in a variety of still waters from sea level to 475m.

Sites: 5, 7, 9, 14, 15, 17, 19, 20, 21, 25, 26, 29, 30, 39, 40, 41, 45, 47, 51, 52, 54, 55, 56, 58, 60, 62, 63, 65, 66, 68, 69, 71, 72, 73, 74, 78, 79, 80, 81, 82, 83, 84, 96, 97, 98, 102,

103, 105, 110, 113, 114, 115, 116, 118, 119, 124, 125, 127, 128, 129, 130, 131, 135, 142, 143, 144, 145, 147, 148, 165, 167, 172, 173, 174, 175, 179, 180, 185, 190, 192, 193, 194, 197, 201, 202, 204, 205, 206, 213, 217, 218, 222, 223, 224, 229, 231, 232, 240, 241, 242, 246, 247, 248, 250, 252, 260, 265, 266, 271, 272, 274, 279, 281, 282, 284, 287, 293, 297, 300, 302, 304, 305, 306, 307, 308, 310, 312, 313, 314, 316, 318, 321, 322, 326, 329, 335, 343, 349, 350, 352, 355, 356, 360, 362, 363, 364, 365, 369, 384, 387, 389, 394.

40. *Hydroporus scalesianus* Stephens, 1828 (Fig. 40)

This, the smallest Irish *Hydroporus* species, is restricted to mossy carpets in undisturbed fens. It can survive in very small sites (Foster, 1984) and has been recorded from such in Northern Ireland. Whilst it can no longer be considered a major rarity this is considered a good indicator species of intact sites. The first Irish records were in 1986 at two sites in Co. Westmeath (Bilton, 1988) and subsequently it has been found in Co. Limerick (Bilton and Lott, 1991). *H. scalesianus* was first found in Northern Ireland at Derryleckagh, a valley mire in south Down, in 1991. It has been recorded from 17 sites in Armagh, Down, Fermanagh and Tyrone in mossy fens on cutover bogs or lake basins.

Sites: 99, 100, 182, 223, 286, 300, 306, 309, 312, 313, 333, 335, 370, 383, 384, 385, 396.

41. *Hydroporus striola* (Gyllenhal, 1827) (Fig. 41)

A typical and widespread fen species, which is most commonly recorded in Down and Armagh. It is apparently very rare in Antrim, Londonderry and Tyrone, but this is probably due to lack of suitable habitat in these counties.

Sites: 18, 48, 56, 60, 65, 81, 97, 100, 101, 102, 106, 109, 113, 117, 119, 145, 148, 182, 183, 185, 188, 197, 198, 209, 215, 223, 225, 231, 232, 237, 247, 249, 263, 270, 271, 277, 285, 286, 300, 305, 306, 309, 312, 313, 316, 318, 319, 326, 332, 333, 352, 354, 359, 384, 385, 388, 390, 392.

42. *Hydroporus tessellatus* Drapiez, 1819 (Fig. 42)

A common and widespread species of shallow ponds and fens recorded in all counties. *H. tessellatus* can also be found in brackish pools and occasionally running water. It is suggested by Foster (1984) that its distribution is limited by winter temperature but there are records in Northern Ireland for upland sites above 400m in the west.

Sites: 1, 9, 10, 19, 21, 23, 24, 25, 33, 38, 40, 41, 43, 47, 48, 53, 55, 57, 58, 60, 67, 71, 72,

73, 76, 78, 80, 83, 86, 87, 91, 92, 93, 97, 98, 100, 101, 102, 120, 122, 124, 130, 143, 144, 145, 148, 155, 158, 160, 167, 184, 185, 186, 189, 196, 198, 202, 205, 210, 213, 217, 218, 219, 223, 225, 232, 234, 237, 239, 241, 243, 244, 247, 252, 253, 259, 262, 263, 265, 269, 270, 271, 275, 277, 282, 285, 286, 288, 293, 296, 308, 312, 316, 318, 322, 324, 334, 336, 338, 344, 348, 352, 355, 356, 359, 363, 364, 366, 373, 391.

43. *Hydroporus tristis* (Paykull, 1798) (Fig. 43)

A common species of acid pools and poor fens in upland areas and also lowland peat bogs. It is found in suitable habitats throughout the province.

Sites: 15, 17, 30, 51, 57, 62, 66, 73, 74, 77, 78, 88, 90, 96, 100, 102, 103, 113, 114, 116, 143, 145, 190, 193, 201, 205, 217, 222, 224, 231, 238, 246, 263, 265, 274, 284, 287, 296, 297, 302, 304, 305, 311, 312, 313, 316, 326, 336, 349, 362, 394.

44. *Hydroporus umbrosus* (Gyllenhal, 1808) (Fig. 44)

A species of productive fens found in lowland regions. Overwhelmingly an eastern species in Northern Ireland, and very frequent in the Down and Armagh interdrumlin wetlands, with only scattered records from the other four counties.

Sites: 31, 56, 62, 94, 101, 102, 106, 107, 113, 117, 119, 122, 147, 178, 182, 183, 185, 188, 197, 202, 223, 225, 231, 236, 247, 260, 263, 274, 287, 293, 297, 300, 305, 306, 310, 312, 313, 316, 318, 326, 330, 340, 384, 391, 392, 396.

45. *Suphrodytes dorsalis* (Fabricius, 1787) (Fig. 45)

Found in fen pools, where it is tolerant of heavy shading, *S. dorsalis* has been recorded at all the large eastern fen and cutover bog sites. It is much rarer in the west and north due to the lack of suitable habitat. Here the few records have been from fen pools by small lakes.

Sites: 56, 106, 183, 188, 197, 198, 212, 223, 231, 236, 247, 254, 290, 300, 305, 312, 313, 316, 360, 385, 396.

46. *Stictonectes lepidus* (Olivier, 1795) (Fig. 46)

Local, but distributed across the whole of the province. Found in artificial sites such as quarry pools but also natural pools in peat hags and cutover bogs. Sites are typically oligotrophic waters and usually devoid of vegetation.

Sites: 25, 56, 63, 74, 75, 77, 79, 82, 84, 132, 174, 175, 212, 252, 289, 296, 302, 316, 335, 338.

47. *Graptodytes granularis* (Linnaeus, 1767) (Fig. 47)

A species of poor fens and bogs, and occasionally lake margins, where it is found amongst permanently wet moss carpets. It is only found in the north and west and is absent from the Down and Armagh fens, underlining the preference for base-poor conditions. In Britain, *G. granularis* is only common in East Anglia and appears to have declined in much of its range (Foster, 1983).

Sites: 19, 25, 31, 73, 98, 145, 217, 223, 274, 285, 306, 316.

48. *Graptodytes pictus* (Fabricius, 1787) (Fig. 48)

This is the commonest and most widespread member of the genus in Britain and also in Northern Ireland. A species of open water of large pools and small lakes in scattered localities in all counties with no obvious geographical pattern. The map in Foster (1983) indicates a coastal distribution throughout Ireland which is not borne out by modern records and must be an artefact of recording effort.

Sites: 102, 122, 212, 225, 231, 240, 244, 249, 255, 264, 277, 293, 296, 300, 302, 311, 313, 316, 317, 329, 330, 340, 385, 389.

49. *Porhydrus lineatus* (Fabricius, 1775) (Fig. 49)

In Britain *P. lineatus* has a widespread but mainly southern and lowland distribution which has been lost from parts of the English Midlands. It is found in well-vegetated eutrophic lakes, ponds and drains and occasionally in flooded quarries. The Northern Irish records show it be relatively uncommon with most records from the lakes in Fermanagh and eastern Down. There are recent records from all other counties.

Sites: 24, 51, 144, 145, 148, 158, 212, 234, 254, 255, 270, 282, 288, 300, 305, 306, 314, 321, 346, 371, 372, 396.

50. *Nebrioporus assimilis* (Paykull, 1798) (Fig. 50)

This is a northern species of clear lakes, drains and occasionally streams. Most of the Northern Irish records are from small mesotrophic lakes in Fermanagh and Tyrone. The few records in the east are from large pools on cutover bogs in Armagh, Antrim and Down.

Sites: 42, 61, 79, 90, 95, 102, 157, 183, 212, 240, 242, 244, 295, 313, 316, 317, 338.

51. *Nebrioporus depressus* (Fabricius, 1775) (Fig. 51)

The main habitat of this species is rivers and it is common in suitable rivers in the west

(Roberts and Mackie, 1993). It can also be found in small exposed lakes. A northern and western spread of the records is apparent, but like all riverine species this may be due to lack of recording effort in its main habitat. *N. depressus* occurs in two forms (which can hybridise), *N. d. depressus* (Fabricius) and *N. d. elegans* (Panzer). The type form is the only one found in Ireland. In Britain this form occurs commonly in northern Scotland with a few isolated populations in ancient lakes south to the Lake District (Foster, 1994; Balfour-Browne, 1940). Sites: 8, 11, 37, 41, 64, 70, 74, 86, 90, 93, 102, 120, 123, 170, 200, 210, 240, 277, 281, 322, 341, 353, 356, 363, 389.

52. *Stictotarsus duodecimpustulatus* (Fabricius, 1792) (Fig. 52)

This is a strikingly marked species found in clean stretches of rivers and streams and occasionally lakes. The available records show a scattered distribution with no obvious pattern. It does not appear to be a common species, but some degree of under-recording is likely as it is a riverine species. There are no recent or published records for Fermanagh.

Sites: 1, 37, 64, 65, 75, 79, 191, 210, 262, 291, 315, 344, 346, 367.

53. *Stictotarsus multilineatus* (Falkenström, 1922) (Fig. 53)

This is what was formerly known as *Potamonectes griseostriatus* (DeGeer). This is one of the upland beetles which is present in lakes in all the major upland areas of the Garron (2 sites), Mourne (3 sites) and single sites in the Sperrins Londonderry/Tyrone, Slieve Beagh Tyrone and Cuilcagh Fermanagh. At many of these sites it was noted as being abundant and often associated with *Dytiscus lapponicus* or the heteropteran *Glaenocoris propinqua* (Fieber). Armagh is the only county it is not recorded from and there appears to be very little potential habitat that may be suitable for it. The other Irish records are from counties Waterford, Mayo and Wicklow (Foster and Lott, 1989).

Sites: 14, 51, 81, 116, 128, 133, 193, 243.

54. *Oreodytes davisii* (Curtis, 1831) (Fig. 54)

Rare, restricted to scattered sites on the river Blackwater (Tyrone), Owenrigh (Londonderry), Glenarm (Antrim) and Yellow Water (Down). There are old records for Antrim (Crawford, 1934) and Armagh (Balfour-Browne, 1951). Elsewhere in Ireland it is only known from Donegal, Dublin and Wicklow but there are no recent records from these areas. The British distribution is also a northern and upland one (Foster, 1983).

Sites: 2, 46, 129, 294, 342, 344.

55. *Oreodytes sanmarkii* (Sahlberg, 1826) (Fig. 55)

This is the commonest member of the genus and like the others it is found in clean rivers and streams, with beds of shingle and moderate flow, and occasionally exposed lakes. Roberts and Mackie (1993) found it in most of the rivers surveyed especially in the north and west in Antrim, Londonderry and Tyrone. In contrast there are no recent records for Armagh and only one from Fermanagh. The only recent Down records are from rivers flowing off the Mourne. Sites: 1, 2, 41, 43, 46, 70, 83, 103, 120, 129, 130, 136, 294, 342, 344, 375, 381, 398.

56. *Oreodytes septentrionalis* (Sahlberg, 1824) (Fig. 56)

This is a riverine species occasionally recorded from exposed lakes. Whilst differing in detail the broad distribution in Northern Ireland of *O. septentrionalis* and *O. sanmarkii* are similar and the two species were frequently found at the same site. The major differences are the absence of *O. septentrionalis* from the northern rivers in the Foyle system in Londonderry and its presence in suitable stretches of the Upper Bann in Armagh and the Blackwater on the Armagh/Tyrone border. The only Fermanagh record is from Lough Melvin.

Sites: 4, 37, 43, 70, 120, 130, 146, 170, 181, 191, 210, 341, 344, 375, 381.

57. *Laccornis oblongus* (Stephens, 1835) (Fig. 57)

A flightless relict fen species, first recorded in Northern Ireland from an intact ombrotrophic mire in Armagh in 1992. Within a restricted area of central Armagh and west Down, *L. oblongus* is present at many interdrumlin fens. These sites are typically lacking open water and the beetle has been found in wet moss carpets particularly around clumps of sedges. There are two records from outside these two counties, in south-eastern Fermanagh and south Tyrone. *L. oblongus* was first recorded in Ireland from at Balrath, Co. Meath by G. W. Nicholson (Balfour-Browne, 1940) (not Co. Westmeath as stated in Balfour-Browne, 1951). This specimen is in Cambridge Zoological Museum. Bilton (1988) rediscovered it in fens around Mullingar, Co. Westmeath and subsequently it has been collected at Lough Gur, Co. Limerick (Bilton and Lott, 1991). The British distribution is also strongly clumped in the Scottish Border mosses and East Anglian Brecks, with just a few other records (Foster, 1983). The Northern Irish sites represent one of the major concentrations of this species in the British Isles.

Sites: 100, 101, 102, 106, 109, 117, 119, 139, 178, 183, 185, 225, 260, 305, 306, 334, 384,

387.

58. *Agabus affinis* (Paykull, 1798) (Fig. 58)

This is one of the characteristic species of moss carpets in lowland fens and bogs. The Northern Irish distribution shows a concentration of records in Armagh and Down, where it is very common in the interdrumlin fens. In the north and west these fens are much less common and *A. affinis* is correspondingly more locally distributed.

Sites: 31, 54, 60, 82, 87, 90, 94, 101, 102, 107, 113, 117, 119, 139, 145, 147, 173, 182, 183, 197, 217, 223, 225, 231, 260, 274, 285, 297, 300, 302, 305, 306, 309, 310, 312, 313, 316, 318, 328, 333, 336, 386, 387, 388, 391, 392, 394.

59. *Agabus arcticus* (Paykull, 1798) (Fig. 59)

This is one of four dytiscid species which inhabit upland pools and lakes. Despite its absence from some areas it is the most common and widespread of these species. The distribution extends from the Garron Plateau south-east through the Sperrins in Londonderry and Tyrone to Cuilcagh in Fermanagh and Slieve Beagh, Tyrone. The majority of the sites are small mesotrophic to oligotrophic lakes between 175m and 475m. It is unaccountably absent from the Mourne, a situation noted by Balfour-Browne (1950), and confirmed by a recent survey of all the lakes. The only other Irish counties in which it has been collected are Wicklow, where it can still be found (Foster and Lott, 1988), and Galway (Walton, 1967).

Sites: 9, 14, 17, 51, 79, 96, 116, 143, 150, 173, 204, 205, 222, 243, 246.

60. *Agabus biguttatus* (Olivier, 1795) (Fig. 60)

This elusive species leads a subterranean life amongst gravel on the beds of streams and in springs. Heavy rain can flush it into other habitats. In Britain it is widespread but uncommon and most frequently found in limestone districts. However it is not confined to base-rich waters. It appears to be rare in Ireland but it is a species which requires special effort in recording it. There are old Irish records from counties Armagh, Dublin and Kerry (Balfour-Browne, 1950). The only records since then are of single individuals in Boho cave (Fermanagh) in 1966 (Foster, 1989), in the River Blackwater (Tyrone) and in an acid spring and a chalk stream bed in north Antrim.

Sites: 70, 110, 137.

61. *Agabus bipustulatus* (Linnaeus, 1767) (Fig. 61)

Abundant, very widespread and the commonest medium-sized dytiscid. It can be found from sea-level to some of the highest pools surveyed in the Mourne at almost 500m.

Sites: 3, 9, 10, 14, 17, 19, 20, 24, 28, 29, 30, 31, 32, 40, 44, 45, 48, 49, 50, 54, 56, 57, 58, 59, 60, 62, 63, 66, 68, 69, 72, 73, 74, 76, 77, 78, 80, 81, 82, 83, 84, 87, 88, 90, 92, 93, 97, 98, 100, 101, 102, 103, 105, 106, 107, 111, 112, 115, 116, 118, 119, 121, 122, 124, 125, 126, 127, 128, 129, 131, 133, 135, 144, 145, 148, 150, 152, 155, 158, 163, 165, 166, 176, 179, 182, 183, 185, 186, 188, 190, 193, 197, 198, 201, 202, 203, 204, 205, 210, 212, 213, 217, 218, 219, 222, 223, 224, 225, 228, 229, 231, 232, 235, 237, 238, 239, 243, 244, 245, 246, 247, 250, 252, 253, 259, 261, 263, 265, 269, 270, 272, 273, 274, 275, 281, 285, 288, 289, 290, 292, 293, 297, 298, 300, 302, 304, 305, 306, 309, 310, 312, 313, 314, 316, 318, 320, 321, 322, 326, 328, 332, 333, 334, 335, 338, 340, 343, 347, 348, 349, 351, 352, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 373, 376, 384, 385, 386, 387, 388, 389, 390, 395, 396, 397.

62. *Agabus chalconatus* (Panzer, 1796) (Fig. 62)

This species is very similar to *A. montanus* and until recently both were usually regarded as forms of the same species (Balfour-Browne, 1950). They can only be separated by differences in the male genitalia. All the old Irish records refer to *A. montanus* and the only confirmed records of this species are the recent ones from Crom Estate, Fermanagh and Argory Moss, Armagh (Nash *et al.*, 1997). It has been collected at these sites in woodland pools, a drying out fen and a cutover-bog. In Britain *A. chalconatus* is the rarer of the two and is a southern species which is absent from Scotland.

Sites: 34, 44, 57.

63. *Agabus congener* (Thunberg, 1794) (Fig. 63)

In Britain this is a northern species found in peaty pools. It is very rare in southern England and Wales. Whilst it does occur predominantly in upland areas, it can be found at sea-level if there is suitable habitat (Balfour-Browne, 1950). There is only one pre-1950 record from the Mweelrea Mountains, Co. Mayo. Since 1988 it has been found in six sites Northern Ireland in Antrim, Armagh, Down and Londonderry in lowland poor fens and cutover bogs between 95m and 285m. The only other Irish record is a recent one from a lowland raised bog in Co. Offaly

(Foster and Lott, 1989).

Sites: 94, 101, 107, 118, 139, 225.

64. *Agabus conspersus* (Marshall, 1802)

A brackish water species for which there is an old record from Down (Balfour-Browne, 1950). There are only two recent Irish records from a saltmarsh in Meath (G. Foster) and at Dundalk Harbour, Co. Louth (B. Nelson) but pre-1950 records exist for most coastal counties in the east and south and from Co. Clare in the west.

65. *Agabus guttatus* (Paykull, 1798) (Fig. 64)

A. guttatus is typically, but not exclusively, found in flowing water including seepages and springs in hilly districts. Balfour-Browne (1950) considered it to be an uncommon species in Ireland but recent records show it to be a widespread and locally frequent species in suitable habitat in all upland areas in Northern Ireland, especially in the Mourne and the Antrim hills. There is also one record from a woodland pond at Crom, Fermanagh. Armagh is the only county from which there has not been a recent record.

Sites: 12, 27, 45, 62, 70, 103, 110, 125, 129, 131, 137, 210, 224, 243, 304, 345, 350, 362, 368, 377.

66. *Agabus montanus* (Stephens, 1828) (Fig. 65)

This species was formerly known as *A. melanocornis* Zimmermann (Foster, 1994). It is very similar to *A. chalconatus* and has not always been considered a distinct species. In the British Isles this is the commoner of the two species and this holds true in Northern Ireland. Here it is a widespread but very local species of temporary mossy drains, fens and bogs. There are records from all counties except Fermanagh with most in Down and Londonderry.

Sites: 19, 60, 63, 124, 140, 183, 197, 217, 231, 237, 247, 265, 302, 305, 316, 318, 349, 394.

67. *Agabus nebulosus* (Forster, 1771) (Fig. 66)

This species is a rapid coloniser of artificial pools such as clay pits and flooded quarries. Natural sites occupied include coastal freshwater pools and shallow clear lakes with sandy or gravelly bottoms. In Northern Ireland it has been collected in all types of sites but it cannot be considered a common species. The recent records are well scattered, with no apparent pattern, through all counties.

Sites: 41, 79, 148, 175, 216, 232, 235, 261, 265, 321, 343, 347, 350, 355, 356, 358, 377,

382, 390.

68. *Agabus paludosus* (Fabricius, 1801) (Fig. 67)

This species is found in valley mires and in running water especially vegetated small streams, but not large rivers nor open, still waters except as stray individuals. Where its specific habitat requirements are met this is a common species. It has been recorded from all six counties.

Sites: 37, 40, 41, 43, 60, 70, 73, 75, 101, 102, 105, 107, 127, 137, 141, 144, 165, 210, 217, 225, 318, 325, 335, 384, 397.

69. *Agabus sturmii* (Gyllenhal, 1808) (Fig. 68)

A common and widespread beetles of eutrophic and mesotrophic fens, especially those associated with small lakes, across the southern part of Northern Ireland. It is less frequent north of Lough Neagh.

Sites: 14, 31, 57, 59, 62, 63, 68, 69, 74, 77, 78, 79, 81, 87, 98, 100, 101, 119, 121, 124, 127, 129, 145, 158, 162, 163, 167, 174, 181, 182, 183, 185, 188, 189, 195, 198, 212, 213, 217, 231, 232, 235, 236, 237, 244, 247, 250, 252, 255, 263, 281, 286, 289, 293, 297, 300, 304, 305, 310, 312, 313, 316, 317, 326, 328, 334, 347, 348, 359, 366, 376, 378, 386, 393, 395.

70. *Agabus unguicularis* Thomson, 1867 (Fig. 69)

A. unguicularis is found in mossy fens and drains often with *A. affinis*. The distribution of the two species is similar with a predominance of records from the south-eastern interdrumlin wetlands in Armagh and Down, but many fewer records in the western and northern counties.

Sites: 94, 100, 101, 109, 117, 118, 119, 148, 178, 182, 183, 188, 197, 225, 231, 236, 245, 247, 260, 261, 284, 300, 305, 306, 309, 312, 313, 316, 333, 335, 336, 340, 354, 384, 385, 388, 392, 396.

71. *Ilybius aenescens* Thomson, 1870 (Fig. 70)

A classic acidophile species which is found in pools on lowland cutover bogs and also in upland bogs and peaty lakes. In the south-east it is confined to the acid cutover bogs especially around Lough Neagh and sites in the Mourne. In the north and west *I. aenescens* is common in the west Fermanagh uplands and the Sperrins. There are no records from the Antrim uplands though suitable habitat does exist.

Sites: 15, 19, 25, 47, 66, 79, 82, 87, 122, 126, 145, 175, 194, 246, 252, 263, 274, 281, 287,

293, 296, 302, 304, 311, 316, 338.

72. *Ilybius ater* (DeGeer, 1774) (Fig. 71)

This, the largest *Ilybius*, is found in eutrophic lakes and ponds, especially in Fermanagh and Down. There are only a few records from the other counties. It has been collected on Rathlin Island, Antrim.

Sites: 6, 23, 29, 31, 65, 72, 76, 77, 82, 92, 93, 112, 124, 145, 148, 158, 163, 185, 186, 187, 188, 198, 231, 232, 235, 240, 253, 255, 271, 272, 277, 285, 286, 292, 293, 300, 310, 312, 313, 316, 321, 355, 359, 384, 385, 386, 389, 393.

73. *Ilybius fuliginosus* (Fabricius, 1792) (Fig. 72)

Common and generally distributed throughout the lowlands in lakes and ponds and rarely slow-flowing water, and not infrequently in mesotrophic upland lakes. Recorded from all counties.

Sites: 6, 11, 14, 29, 30, 55, 56, 61, 67, 68, 69, 71, 72, 74, 76, 79, 80, 82, 89, 93, 96, 101, 102, 115, 120, 121, 124, 125, 126, 135, 141, 144, 145, 151, 155, 158, 159, 170, 171, 179, 187, 189, 195, 204, 210, 217, 225, 235, 236, 240, 244, 250, 262, 272, 273, 277, 280, 281, 285, 291, 293, 296, 297, 298, 300, 302, 303, 305, 306, 308, 311, 313, 316, 318, 321, 322, 328, 329, 331, 333, 336, 338, 343, 347, 350, 351, 356, 359, 361, 374, 386, 389, 393, 395.

74. *Ilybius guttiger* (Gyllenhal, 1808) (Fig. 73)

This is the lowland fen counterpart of *I. aenescens*. Balfour-Browne (1951) considered the few old records to be misidentified examples of *I. aenescens* and he did not include it in his Irish list. Recent records have shown *I. guttiger* to be common in Northern Ireland where it is one of the characteristic species of the rich fen beetle community (type G of Foster *et al.*, 1992). The distribution of the two species shows the habitat difference clearly as there is virtually no overlap. *I. guttiger* is found very frequently in the Armagh and Down fens and also in Fermanagh, but is absent from all upland areas. This is a local species in Britain (Foster, 1983) and like several fen species, the Northern Irish sites represent one of its main concentrations.

Sites: 31, 60, 73, 77, 78, 96, 98, 100, 102, 101, 102, 106, 113, 117, 119, 145, 148, 183, 185, 186, 197, 209, 217, 236, 253, 255, 263, 274, 284, 300, 302, 305, 306, 309, 312, 313, 316, 318, 334, 359, 386, 387, 388, 392, 396.

75. *Ilybius quadriguttatus* (Lacordaire and Boisduval, 1835) (Fig. 74)

An inhabitant of eutrophic lowland fens which is common and widespread in south Fermanagh, Armagh and Down but much less common to the north of Lough Neagh presumably due to the lack of suitable habitat.

Sites: 24, 31, 56, 71, 76, 88, 100, 106, 145, 153, 158, 178, 183, 185, 186, 188, 197, 209, 215, 223, 245, 247, 260, 273, 282, 285, 286, 297, 299, 300, 306, 307, 310, 311, 312, 313, 316, 332, 333, 354, 389, 393, 396.

76. *Ilybius subaeneus* Erichson, 1837 (Fig. 75)

A species found in small natural ponds but also artificial sites especially flooded clay pits. It is not common in Britain but the records suggest it has increased as suitable habitat has been created. The only Irish record is from the flooded clay pits at Glaslough, Down where it was first collected in 1990 (Nash *et al.*, 1997).

Sites: 235.

77. *Copelatus haemorrhoidalis* (Fabricius, 1787)

Johnson and Halbert (1902) refers to a record of this species collected by Haliday from 'near Belfast' Down in 1885. This was not included in the 1951 Balfour-Browne vice-county list. There have been no recent records of *C. haemorrhoidalis* from Northern Ireland. This is a southern species which, apart from this record, has not been recorded north of Galway. Its status in Northern Ireland is therefore unconfirmed.

78. *Rhantus exsoletus* (Forster, 1771) (Fig. 76)

Mesotrophic lakes and large ponds with fen of *Carex rostrata* Stokes account for most of the modern records of this relatively common species. It is most common in the mesotrophic lakes in Fermanagh and frequent in the other counties apart from Antrim. There are only two Antrim records, one in the extreme south of the county, and one on Rathlin Island.

Sites: 3, 17, 24, 29, 47, 53, 62, 79, 82, 92, 101, 112, 124, 138, 139, 144, 145, 148, 153, 157, 158, 160, 166, 173, 176, 189, 197, 199, 202, 207, 212, 223, 234, 236, 240, 244, 246, 249, 250, 251, 260, 263, 269, 271, 275, 278, 281, 282, 283, 292, 293, 295, 300, 302, 307, 308, 311, 312, 313, 314, 316, 321, 330, 331, 340, 343, 385, 389.

79. *Rhantus frontalis* (Marsham, 1802) (Fig. 77)

There are recent records of *R. frontalis* from ten sites, in Armagh, Down and Fermanagh.

Londonderry is the only other county in Northern Ireland in which it has been recorded (Balfour-Browne, 1950). The sites are varied in character, ranging from a shallow brackish pool in reclaimed estuarine ground to fen pools and shallow base-rich lakes. In the Ulster Museum there are a number of specimens collected by Crawford from sites in Down and at Binevenagh in Londonderry. There are a number of other widely scattered Irish records. In Britain it has a disjunct distribution in central Scotland and southern England.

Sites: 95, 223, 232, 235, 254, 260, 300, 312, 321, 371.

80. *Rhantus grapii* (Gyllenhal, 1808) (Fig. 78)

There are only two pre-1950 Irish records of *R. grapii* from counties Wexford and Dublin (Balfour-Browne, 1951). Modern records reveal it not to be such a rare species as previously thought. It is a characteristic but uncommon species of rich fens, which in Northern Ireland is found in the large fen systems in the east and also a single fen in Fermanagh. Other recorders have collected it in scattered sites in the central Irish fens (Bilton, 1988; Bilton and Lott, 1991) and in Kerry (Foster, 1995).

Sites: 119, 197, 261, 271, 300, 312, 313, 316, 396.

81. *Rhantus suturalis* (MacLeay, 1825) (Fig. 79)

Crawford (1937) added this species (formerly known as *Rantus pulverosus* Stephens) to the Irish list based on specimens collected initially by Professor Gregg Wilson in 'the pools on the broken ground near the King's Bridge, Belfast on the County Down side of the Lagan'. In the space of three visits between October and December 1936, a total of five specimens were collected. These specimens are all in the Ulster Museum collection. This area is developed and so the pools no longer exist. There have been no other Irish records. *R. suturalis* is a highly mobile species and it is likely that the species was temporarily established in the ponds following an influx. In Britain this species is most common in the south-east, with a scattering of records in the north and west, including Ireland. These temporary populations are probably dependent on sporadic northward movements in warm years (Foster, 1985).

82. *Rhantus suturellus* (Harris, 1828) (Fig. 80)

This is an upland peatland species which is also found in a few lowland fens in Down. The upland distribution includes a single site in the Sperrins, two on the Garron Plateau and two in the Mourne. A similar disjunct pattern is apparent over Britain, but whereas it is still common

in the north, it is extinct in most of the lowland peatland sites (Foster, 1983). There are no records from Armagh and Fermanagh. The published records indicate a wide distribution in Ireland apart from much of the central lowlands (Balfour-Browne, 1950).

Sites: 105, 193, 197, 229, 231, 246, 256, 304, 305.

83. *Colymbetes fuscus* (Linnaeus, 1758) (Fig. 81)

A common lake species also found in large ponds including brackish sites. Widespread in lowland areas of Fermanagh, north Armagh and eastern Down, but much less common in all other counties.

Sites: 24, 50, 71, 82, 100, 104, 144, 148, 155, 183, 187, 188, 198, 213, 230, 232, 235, 237, 247, 252, 262, 275, 281, 287, 300, 303, 314, 317, 323, 340, 385, 388, 393.

84. *Hydaticus seminiger* (DeGeer, 1774) (Fig. 82)

This was recorded for the first time in Northern Ireland in 1990 at several sites. It is a characteristic species of the best examples of mossy fens, which shows a similar distribution to *Acilius canaliculatus*. In common with other notable fen species, the main concentration of records is in the fens of central Down and the Lough Neagh peatlands, with outlying localities in south Fermanagh and south Armagh. Elsewhere in Ireland it is found in fens in central Ireland (Bilton, 1988) and a single site in Kerry. The latter was the only pre-1950 Irish record (Balfour-Browne, 1951). In Britain, *H. seminiger* is confined to south-east England and East Anglia.

Sites: 183, 186, 188, 197, 223, 236, 259, 300, 306, 312, 316, 318, 369, 386.

85. *Acilius canaliculatus* (Nicolai, 1822) (Fig. 83)

In Northern Ireland and parts of England and Scotland this large dytiscid inhabits pools in fens and cutover bogs particularly the less acid examples. There are also records from exposed montane lochans in Scotland. The record from Sallagh Braes, Antrim, is the only Northern Ireland record from a site of this type (Balfour-Browne, 1950). *A. canaliculatus* is locally frequent in the Down interdrumlin fens, and more locally, extending west through the Lough Neagh fens to a scattering of sites in south Tyrone and into Fermanagh. Crawford collected it from a number of small ponds close to Belfast and Lough Neagh in the 1930s. There appear to be no records from Londonderry. This is considered a Red Data Book species in Britain, due to a decline in some parts of its highly localised and disjunct range.

Sites: 78, 88, 99, 183, 185, 197, 231, 245, 252, 253, 263, 285, 300, 303, 305, 312, 316.

86. *Acilius sulcatus* (Linnaeus, 1758) (Fig. 84)

This is an uncommon species found in small base-poor lakes and pools on cutover bogs mostly in the north and west. The distribution extends to Rathlin Island, Antrim. There are few recent records from Down, but there are many specimens in the Ulster Museum collected in Down by Johnson and Crawford. It appears that the species has declined in the east. The literature presents a confusing picture as to the old records. The vice-county list in Balfour-Browne (1951) list no records from Northern Ireland, but the map in his 1950 book indicates a very wide Irish distribution including all Northern Irish counties except for Tyrone. In Britain this is the commonest of the two *Acilius* species, a situation which appears to be reversed in Northern Ireland.

Sites: 3, 14, 17, 78, 82, 112, 252, 296, 302, 316, 338, 350, 394.

87. *Dytiscus circumcinctus* Ahrens, 1811 (Fig. 85)

Rare; found in lowland fens and pools on Upper Lough Erne in Fermanagh and single sites in counties Antrim and Armagh. It has previously been collected in Down (Balfour-Browne, 1950). The only other Irish records are from Co. Cavan (Balfour-Browne, 1950), and recently one site in Co. Westmeath (Bilton, 1988). It is one of the rarer *Dytiscus* species in Britain though it is relatively frequent in central England (Foster, 1985).

Sites: 100, 160, 161, 316, 323.

88. *Dytiscus lapponicus* Gyllenhal, 1808 (Fig. 86)

An upland species which is rare throughout Ireland but recorded from a scattering of sites in most upland areas in the north and west (Foster and Lott, 1989). In the south there are recent records from counties Kerry and Mayo (Foster and Lott, 1989). There are no early records from Northern Ireland. *D. lapponicus* has been recorded in small lakes and bog pools between 285 and 485m in two areas of Fermanagh and on the Garron plateau in Antrim. In Britain, apart from isolated records in north Wales, it is confined to northern and western Scotland (Foster, 1985).

Sites: 3, 87, 116, 143, 243.

89. *Dytiscus marginalis* (Linnaeus, 1758) (Fig. 87)

The commonest *Dytiscus* species present in lowland ponds, small lakes and occasionally

running water throughout the province. It occurs locally as high as 340m in the Garron Plateau and overlaps in range with both *D. lapponicus* and *D. semisulcatus*. This is a common and widespread species in the rest of Britain and Ireland.

Sites: 60, 88, 92, 98, 115, 148, 187, 191, 198, 235, 242, 247, 252, 259, 263, 285, 296, 297, 300, 302, 305, 316, 318, 322, 340, 351, 354, 359, 360, 361.

90. *Dytiscus semisulcatus* Müller, 1776 (Fig. 88)

The vice-county distribution indicates that *D. semisulcatus* has as wide a range in Ireland as *D. marginalis*. The modern records show that this species is recorded from fewer sites and that it is more restricted in habitat choice. It is found most often in peaty pools in cutover bogs and fens. The distribution in Northern Ireland is predominantly lowland and eastern and it is frequent in the inter-drumlin fens of eastern Armagh and Down. There are scattered records from small mesotrophic lakes across south Tyrone into Fermanagh with apparently isolated occurrences in north Antrim and Londonderry.

Sites: 60, 99, 100, 141, 183, 198, 209, 256, 278, 293, 297, 300, 302, 303, 312, 316, 318, 335.

Gyrinidae

This family contains the familiar whirligigs, which are superbly adapted to their surface-dwelling life. Adults frequently school on the water surface, but also dive when disturbed. All of the ten recorded Irish species have been collected in Northern Ireland.

91. *Gyrinus aeratus* Stephens, 1835 (Fig. 89)

Uncommon. This whirligig has been found on unproductive lakes, acidic bog pools, the shore of Lough Neagh and a lowland eutrophic river. The few records are well-scattered, and mostly in the north and west apart from a single fenland site in south Down. There are no records from Antrim.

Sites: 17, 29, 95, 212, 240, 302, 311, 313, 339, 376, 379.

92. *Gyrinus caspius* Ménétériés, 1832 (Fig. 90)

This is a relatively common and widespread species of lakes and large pools on fens and cutover bogs. The map in Foster (1985) shows a striking, almost exclusively coastal, distribution in Britain for this species. The few Irish records available at that time suggested a similar pattern. However it is now known to occur widely inland in Northern Ireland. *G.*

caspius has been recorded from all counties but most of the records are from fen pools and lakes in central and eastern Down.

Sites: 13, 94, 138, 183, 187, 231, 236, 237, 251, 261, 273, 297, 300, 305, 314, 384, 386, 393.

93. *Gyrinus distinctus* Aubé, 1838 (Fig. 91)

Prior to 1988 there were no records of this species in Northern Ireland. Balfour-Browne (1951) lists Roscommon, North and South Kerry as the only vice-counties with records. Records from Co. Galway (Crisp and Heal, 1958) and Co. Westmeath (Bilton, 1988) appear to be the only post 1950 published records. In Northern Ireland, *G. distinctus* is confined to Fermanagh, where it is locally common in open swamps and sheltered bays on mesotrophic and eutrophic lakes, especially around Upper Lough Erne. As *G. distinctus* has been rarely recorded elsewhere in Ireland or Britain (Foster, 1985), the Fermanagh sites appear to constitute the main concentration of records of this rare species.

Sites: 22, 29, 67, 84, 91, 145, 169, 200, 207, 209, 220, 266, 269, 308, 323.

94. *Gyrinus marinus* Gyllenhal, 1808 (Fig. 92)

The second most common whirligig which is widely distributed in the south of Northern Ireland and especially in eutrophic lakes in the Upper Lough Erne basin in Fermanagh. There are no recent records from Antrim and only one in Londonderry.

Sites: 3, 22, 29, 67, 85, 90, 92, 93, 95, 138, 144, 145, 155, 157, 159, 168, 183, 187, 208, 211, 219, 234, 240, 245, 250, 254, 263, 267, 269, 280, 283, 296, 300, 308, 310, 312, 313, 314, 315, 323, 329, 332, 346, 383, 384, 385, 396.

95. *Gyrinus minutus* Fabricius, 1798 (Fig. 93)

G. minutus is the smallest species of whirligig. It is found on acid pools on lowland raised bogs and to a lesser extent on small mesotrophic lakes. The altitudinal range of the sites shows this to be primarily a lowland species which is rare above 250m and apparently absent from natural pools complexes in blanket bogs. The highest record is from a small lake on the Garron plateau, Antrim at 340m. The distribution includes the eastern cutover bog complexes, and mesotrophic lakes in west Fermanagh and south Tyrone.

Sites: 3, 49, 78, 82, 100, 102, 164, 194, 202, 240, 252, 274, 281, 287, 293, 296, 302, 305, 307, 311, 312, 313, 316, 396.

96. *Gyrinus natator* (Linnaeus, 1758) (Fig. 94)

This has been shown to be a highly characteristic species of cutover bogs (Foster *et al.*, 1992). It has been recorded on all the large eastern sites and on outlying sites in south Armagh and Tyrone. It is also found in fen ponds in eastern Down and on the Crom estate in Fermanagh. *G. natator* is a rare species in most of western Europe and has been lost from its few British sites owing to habitat succession. It is clearly one species for which the Northern Irish sites are especially important for its conservation in western Europe. The habitat preferences shown by the recent records, coupled with its extinction from its few British localities (which were also cutover bogs), demonstrates the need to maintain pool complexes on these bogs.

Sites: 78, 177, 197, 211, 213, 299, 300, 305, 311, 312, 313, 316.

97. *Gyrinus paykulli* Ochs, 1927 (Fig. 95)

In the old literature this was called *G. bicolor*. It has a similar habitat preference to *G. distinctus* and the two species are often found together. Prior to 1988 there were no records of this species in Northern Ireland; Balfour-Browne (1951) lists South Kerry, Roscommon, Mid-Cork and Sligo as the only vice-counties with records. Since 1986 it has been recorded in three counties in the Republic (Bilton, 1988; Foster and Lott, 1988) and from 19 sites in south Armagh, east Down and Fermanagh. The records are from mesotrophic lake margins or large fen pools.

Sites: 29, 91, 155, 167, 168, 183, 187, 209, 214, 220, 269, 270, 290, 300, 308, 311, 314, 329, 386.

98. *Gyrinus substriatus* Stephens, 1828 (Fig. 96)

Easily the commonest and most widespread whirligig, found on all types of water throughout the province from sea level to almost 500m.

Sites: 3, 5, 6, 9, 21, 30, 52, 54, 57, 61, 63, 64, 68, 74, 75, 76, 77, 78, 80, 81, 82, 84, 85, 90, 92, 94, 102, 106, 111, 112, 116, 126, 133, 134, 142, 143, 145, 148, 160, 164, 166, 167, 170, 172, 173, 174, 175, 183, 187, 193, 200, 202, 204, 205, 208, 210, 211, 213, 215, 217, 226, 231, 235, 237, 241, 242, 243, 246, 250, 251, 259, 267, 274, 277, 281, 291, 296, 297, 302, 305, 308, 311, 312, 313, 315, 316, 324, 329, 335, 336, 337, 341, 343, 344, 346, 347, 357, 363, 364, 368, 384, 388, 389, 393, 394, 396.

99. *Gyrinus urinator* Illiger, 1807

This is a distinctive riverine species, typically found on quiet backwaters and margins of streams and small rivers. There are no recent records but Balfour-Browne (1951) reports its occurrence in Antrim.

100. *Orectochilus villosus* (Müller, 1776) (Fig. 97)

This is a nocturnal species which rests by day under rocks at the edges of rivers and lakes. Most of the post-88 records are from Upper Lough Erne on open rocky shores, but there are also records from the west shore of Lough Neagh and from smaller, mesotrophic lakes and rivers in Antrim, Fermanagh and Tyrone. Rivers are usually considered its normal habitat in much of its range and therefore the species may be more widespread than the present records indicate. Balfour-Browne (1951) lists Armagh and Down amongst the vice-counties with records.

Sites: 67, 91, 120, 154, 209, 214, 240, 269, 314, 380.

Discussion

Northern Ireland has a rich aquatic Coleoptera fauna comprising virtually the complete Irish list. Of particular significance are the following species suites.

1. The rich fen fauna found in inter-drumlin fens, cutover bogs and lake basins. These sites include those classified as community types G and H as defined in Foster *et al.* (1992). They are found principally in central and south Armagh, east Down and sporadically in south Antrim, south Fermanagh and south Tyrone. It is highly likely, given this geographical spread, that this fauna is present in suitable sites in northern counties of the Republic, particularly in Monaghan. The sites are often small and isolated and individual sites are at risk from runoff from the surrounding land, dumping and natural successional changes. These sites support the greatest diversity of species (up to 43 species at a single site) and are characterised by the presence of notable species including *Acilius canaliculatus*, *Dytiscus circumcinctus*, *Gyrinus natator*, *Hydaticus seminiger*, *Hydroporus scalesianus* and *Laccornis oblongus*. Major rarities in this group are *Haliplus variegatus* and *Hydroporus glabriusculus*.
2. Upland lakes and ponds dominated by a few northern and upland species including *Agabus arcticus*, *Dytiscus lapponicus*, *Hydroporus morio* and *Stictotarsus multilineatus*. It is a naturally

uncommon community in Ireland, for climatic and geographical reasons. Even within large upland blocks there are few sites supporting the full complement of montane species.

3. The open water community of lowland unenriched lakes also supports relatively few species and is characterised by species of whirligigs, in particular *Gyrinus distinctus* and *G. paykulli*.

Hygrotus quinquelineatus is also a common species in the base-rich lakes. *Hygrotus novemlineatus* is now a major rarity as it appears to have declined in Northern Ireland (and also in southern Britain), probably as a result of eutrophication.

4. Brackish lagoons are a rare habitat type in Northern Ireland, confined to just a few artificial sites around the edges of the major sea loughs. These sites are vulnerable to drainage, changes in water chemistry and land reclamation, particularly the Belfast Harbour Estate lagoons.

Further survey of brackish lagoons is required to determine the status of its specialist fauna.

Two species, *Haliphus apicalis* and *Agabus conspersus*, are confined to this habitat. The latter is possibly extinct in Northern Ireland (but still present in Co. Louth), whilst *Haliphus apicalis* is confined to just two sites. It is one of the rarest Irish species, known from just one other part of Ireland.

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APPENDIX 1. Checklist of Irish aquatic Coleoptera in the families Haliplidae, Noteridae, Hygrobiidae, Dytiscidae and Gyrinidae. + denotes the species has been recorded in Northern Ireland. U denotes an unconfirmed record only.

Haliplidae

<i>Brychius elevatus</i> (Panzer, 1794)	+
<i>Haliplus apicalis</i> Thomson, 1868	+
<i>Haliplus confinis</i> Stephens 1829	+
<i>Haliplus flavicollis</i> Sturm, 1834	+
<i>Haliplus fluviatilis</i> Aubé, 1836	+
<i>Haliplus fulvus</i> (Fabricius, 1801)	+
<i>Haliplus immaculatus</i> Gerhardt, 1877	+
<i>Haliplus lineatocollis</i> (Marshall, 1802)	+
<i>Haliplus lineolatus</i> Mannerheim, 1844	+
<i>Haliplus obliquus</i> (Fabricius, 1787)	+
<i>Haliplus ruficollis</i> (DeGeer, 1774)	+
<i>Haliplus variegatus</i> Sturm, 1834	+
<i>Haliplus wehnckeii</i> Gerhardt, 1877	+

Noteridae

<i>Noterus clavicornis</i> (DeGeer, 1774)	+
<i>Noterus crassicornis</i> (Müller, 1776)	+

Hygrobiidae

<i>Hygrobia hermanni</i> (Fabricius, 1775)	
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Dytiscidae

<i>Laccophilus hyalinus</i> (DeGeer, 1774)	+
<i>Laccophilus minutus</i> (Linnaeus, 1758)	+
<i>Hyphydrus ovatus</i> (Linnaeus, 1761)	+
<i>Bidessus minutissimus</i> (Germar, 1824)	
<i>Hygrotus confluens</i> (Fabricius, 1787)	+
<i>Hygrotus impressopunctatus</i> (Schaller, 1783)	+

APPENDIX 1 (cont.)

<i>Hygrotus inaequalis</i> (Fabricius, 1777)	+
<i>Hygrotus novemlineatus</i> (Stephens, 1829)	+
<i>Hygrotus quinquelineatus</i> (Zetterstedt, 1828)	+
<i>Hygrotus versicolor</i> (Schaller, 1783)	
<i>Hydroporus angustatus</i> Sturm, 1835	+
<i>Hydroporus discretus</i> Fairmaire, 1859	+
<i>Hydroporus erythrocephalus</i> (Linnaeus, 1758)	+
<i>Hydroporus glabriusculus</i> Aubé, 1838	+
<i>Hydroporus gyllenhalii</i> (Schiödt, 1841)	+
<i>Hydroporus incognitus</i> Sharp, 1869	+
<i>Hydroporus longicornis</i> Sharp, 1871	
<i>Hydroporus longulus</i> Mulsant, 1860	+
<i>Hydroporus melanarius</i> Sturm, 1835	+
<i>Hydroporus memnonius</i> Nicolai, 1822	+
<i>Hydroporus morio</i> Aubé, 1838	+
<i>Hydroporus nigrita</i> (Fabricius, 1792)	+
<i>Hydroporus obscurus</i> Sturm, 1835	+
<i>Hydroporus obsoletus</i> Aubé, 1838	+
<i>Hydroporus palustris</i> (Linnaeus, 1761)	+
<i>Hydroporus planus</i> (Fabricius, 1781)	+
<i>Hydroporus pubescens</i> (Gyllenhal, 1808)	+
<i>Hydroporus scalesianus</i> Stephens, 1828	+
<i>Hydroporus striola</i> (Gyllenhal, 1827)	+
<i>Hydroporus tessellatus</i> Drapiez, 1819	+
<i>Hydroporus tristis</i> (Paykull, 1798)	+
<i>Hydroporus umbrosus</i> (Gyllenhal, 1808)	+
<i>Suphrodytes dorsalis</i> (Fabricius, 1787)	+
<i>Stictonectes lepidus</i> (Olivier, 1795)	+
<i>Graptodytes bilineatus</i> (Sturm, 1835)	

APPENDIX 1 (cont.)

<i>Graptodytes granularis</i> (Linnaeus, 1767)	+
<i>Graptodytes pictus</i> (Fabricius, 1787)	+
<i>Porhydrus lineatus</i> (Fabricius, 1775)	+
<i>Nebrioporus assimilis</i> (Paykull, 1798)	+
<i>Nebrioporus depressus</i> (Fabricius, 1775)	+
<i>Stictotarsus duodecimpustulatus</i> (Fabricius, 1792)	+
<i>Stictotarsus multilineatus</i> (Falkenstörn, 1922)	+
<i>Oreodytes davisii</i> (Curtis, 1831)	+
<i>Oreodytes sanmarkii</i> (Sahlberg 1824)	+
<i>Oreodytes septentrionalis</i> (Sahlberg 1824)	+
<i>Laccornis oblongus</i> (Stephens, 1835)	+
<i>Copelatus haemorrhoidalis</i> (Fabricius, 1787)	U
<i>Agabus affinis</i> (Paykull, 1798)	+
<i>Agabus arcticus</i> (Paykull, 1798)	+
<i>Agabus biguttatus</i> (Olivier, 1795)	+
<i>Agabus bipustulatus</i> (Linnaeus, 1767)	+
<i>Agabus chalconatus</i> (Panzer, 1796)	+
<i>Agabus congener</i> (Thunberg, 1794)	+
<i>Agabus conspersus</i> (Marsham, 1802)	+
<i>Agabus guttatus</i> (Paykull, 1798)	+
<i>Agabus labiatus</i> (Brahm, 1790)	
<i>Agabus montanus</i> (Stephens, 1838)	+
<i>Agabus nebulosus</i> (Forster, 1771)	+
<i>Agabus paludosus</i> (Fabricius, 1801)	+
<i>Agabus sturmii</i> (Gyllenhal, 1808)	+
<i>Agabus unguicularis</i> Thomson	+
<i>Ilybius aenescens</i> Thomson, 1870	+
<i>Ilybius ater</i> (DeGeer, 1774)	+
<i>Ilybius fuliginosus</i> (Fabricius, 1792)	+

APPENDIX 1 (cont.)

<i>Ilybius guttiger</i> (Gyllenhal, 1808)	+
<i>Ilybius quadriguttatus</i> (Lacordaire and Boisdual, 1835)	+
<i>Ilybius subaeneus</i> Erichson, 1837	+
<i>Rhantus exoletus</i> (Forster, 1771)	+
<i>Rhantus frontalis</i> (Marsham, 1802)	+
<i>Rhantus grapii</i> (Gyllenhal, 1808)	+
<i>Rhantus suturalis</i> (MacLeay, 1825)	+
<i>Rhantus suturellus</i> (Harris, 1828)	+
<i>Colymbetes fuscus</i> (Linnaeus, 1758)	+
<i>Hydaticus seminiger</i> (DeGeer, 1774)	+
<i>Acilius canaliculatus</i> (Nicolai, 1822)	+
<i>Acilius sulcatus</i> (Linnaeus, 1758)	+
<i>Dytiscus circumcinctus</i> Ahrens, 1811	+
<i>Dytiscus circumflexus</i> Fabricius, 1801	
<i>Dytiscus lapponicus</i> Gyllenhal, 1808	+
<i>Dytiscus marginalis</i> Linnaeus, 1758	+
<i>Dytiscus semisulcatus</i> Müller, 1776	+
Gyrinidae	
<i>Gyrinus aeratus</i> Stephens, 1835	+
<i>Gyrinus caspius</i> Ménétré, 1832	+
<i>Gyrinus distinctus</i> Aubé, 1838	+
<i>Gyrinus marinus</i> Gyllenhal, 1808	+
<i>Gyrinus minutus</i> (Fabricius, 1798)	+
<i>Gyrinus natator</i> (Linnaeus, 1758)	+
<i>Gyrinus paykulli</i> Ochs 1927	+
<i>Gyrinus substriatus</i> Stephens, 1828	+
<i>Gyrinus urinator</i> Illiger, 1807	+
<i>Orectochilus villosus</i> (Müller, 1776)	+

APPENDIX 2. List of sites sampled by authors.

Site No., Site Name, Grid reference, County

Brief habitat description

- 1 Faughanvale River C581222 Co. Londonderry.
Small modified river near mouth. Stony bed and vertical banks.
- 2 Owenrigh river, Banagher Glen C670052 Co. Londonderry.
Fast flowing river in wooded glen.
- 3 Lough Nabradagh H493397 Co. Fermanagh.
Small lake in afforested blanket bog.
- 4 Lough Melvin G939520 Co. Fermanagh.
Open fen and open shore of large mesotrophic lake.
- 5 Meenloughabank H053497 Co. Fermanagh.
Peaty drain in upland fen.
- 6 Glencreawan Lough H030567 Co. Fermanagh.
Exposed upland lake
- 7 Lough Doo, flushed heath H039505 Co. Fermanagh.
Flushes in heath.
- 8 Lough Jenkin H483403 Co. Fermanagh.
Upland lake.
- 9 Summit pool on Trien H153319 Co. Fermanagh.
Pool in blanket bog.
- 10 Gortalughany stream H174303 Co. Fermanagh.
Small stream.
- 11 Lough Achork H044555 Co. Fermanagh.
Mesotrophic lake with open fen on exposed sandy shore.
- 12 Boho H128444 Co. Fermanagh.
Dry streambed below cave.
- 13 Annagh Lough H505504 Co. Tyrone.
Lowland eutrophic lake.

APPENDIX 2 (cont.)

- 14 Lough Ouske H7093 Co. Londonderry.
Upland peaty lake in blanket bog.
- 15 Drumanacabranagher H208356 Co. Fermanagh.
Cutover raised bog with blanket bog.
- 16 Lough Acrussel H256411 Co. Fermanagh.
Lowland eutrophic lake.
- 17 New Lough H499842 Co. Tyrone.
Small lake in heath.
- 18 Breandrum Lough H250432 Co. Fermanagh.
Kettle hole lake with dense alder carr.
- 19 Fairywater Bog (Claraghmore) H354761 Co. Tyrone.
Cutover raised bog with flooded peat cuttings.
- 20 Meenadoan NNR H246719 Co. Tyrone.
Unplanted blanket bog in conifer plantation.
- 21 Gortgranagh H350293 Co. Fermanagh.
Cutover raised bog with flooded peat cuttings.
- 22 The Moorings Upper Lough Erne H236401 Co. Fermanagh.
Sheltered shore of large eutrophic lake.
- 23 Lough Nalughoge H365243 Co. Fermanagh.
Lowland eutrophic lake.
- 24 Lough Head H353329 Co. Fermanagh.
Drain linking two lowland eutrophic lakes.
- 25 Drumgallan Bog H304799 Co. Tyrone.
Cutover raised bog with flooded peat cuttings.
- 26 Black Bog H6381 Co. Tyrone.
Upland raised bog.
- 27 Headwaters of Fury River H562452 Co. Tyrone.
Acid flushes and stream.

APPENDIX 2 (cont.)

- 28 Upper Lough Erne Share Centre H341296 Co. Fermanagh.
Shore of large eutrophic lake.
- 29 Cornagogue Lough H474303 Co. Fermanagh.
Lowland eutrophic lake.
- 30 Black Lough H484407 Co. Fermanagh.
Small mesotrophic lake and floating poor fen in afforested blanket bog.
- 31 Cromaghy Lough fen H5130 Co. Fermanagh.
Fen with pools on cutover raised bog.
- 32 Bolusty Beg H052569 Co. Fermanagh.
Cutover raised bog with flooded peat cuttings.
- 33 Mill Race, Wellbrook H752792 Co. Tyrone.
Mill race with beds of water crowfoot.
- 34 Lough Slane H337258 Co. Fermanagh.
Fen on dried out lake.
- 35 Cam Lough H667767 Co. Tyrone.
Mesotrophic lake.
- 36 Fury River H556506 Co. Tyrone.
Upland river.
- 37 Umbra River C733358 Co. Londonderry.
Small river close to its mouth with sea.
- 38 Lough Foyle, Coolagh C588235 Co. Londonderry.
Eutrophic artificial brackish pool at edge of sea-lough.
- 39 Correl Glen H095542 Co. Fermanagh.
Flushes, peaty pools in wet heath.
- 40 Belshaw's Quarry J229671 Co. Antrim.
Small stream in disused chalk quarry.
- 41 Leathemstown Reservoir J2172 Co. Antrim.
Reservoir.

APPENDIX 2 (cont.)

- 42 Parabaun Lough H057572 Co. Fermanagh.
Upland mesotrophic lake in afforested heath.
- 43 Slievenacloy, stream J2571 Co. Antrim.
Small upland stream.
- 44 Gole Wood, Upper Lough Erne H334253 Co. Fermanagh.
Shore of large eutrophic lake.
- 45 Ott Mountain flushes J2827 Co. Down.
Small base-poor flushes in upland acid grassland.
- 46 River Blackwater headwater, Cole Bridge H444523 Co. Tyrone.
Stony river.
- 47 Carnmore Lough H472358 Co. Fermanagh.
Upland lake in heath.
- 48 Derrylea inlet Upper Lough Erne H357287 Co. Fermanagh.
Eutrophic drain through semi-improved grassland.
- 49 Lough Slawn H074560 Co. Fermanagh.
Small mesotrophic lake in upland heath.
- 50 Ballyherly Lough J595525 Co. Down.
Lowland eutrophic lake.
- 51 Lough Sallagh H531438 Co. Tyrone.
Upland peaty lake in blanket bog.
- 52 Lough na Blaney Bane H580474 Co. Tyrone.
Mesotrophic lake.
- 53 Kathleen's Lough C931121 Co. Londonderry.
Eutrophic lake.
- 54 Loughanalbanagh H540440 Co. Tyrone.
Upland lake in blanket bog.
- 55 Craigavon North Lake J057580 Co. Armagh.
Large artificial lake c30 years old.

APPENDIX 2 (cont.)

- 56 Loughnashade H852455 Co. Armagh.
Fen and small lake.
- 57 Argory Moss H878576 Co. Armagh.
Cutover lowland raised bog.
- 58 Sillees River tributary H087525 Co. Fermanagh.
Small stream.
- 59 Straduff Quarry H343667 Co. Tyrone.
Shallow pool in disused quarry.
- 60 Helen's Tower fen J486778 Co. Down.
Fen.
- 61 Lough Doo H037505 Co. Fermanagh.
Upland mesotrophic lake.
- 62 Ballynagilly, Wolf's Hill H736857 Co. Tyrone.
Small pools in blanket bog.
- 63 Ballymacombs H9998 Co. Londonderry.
Cutover raised bog.
- 64 Cusher River J032512 Co. Armagh.
Lowland eutrophic river.
- 65 Maghery Canal H924637 Co. Armagh.
Canal linking river to eutrophic lake.
- 66 Lough Naman bog H0254 Co. Fermanagh.
Blanket bog.
- 67 Upper Lough Erne, Lady Craigavon Bridge H332279 Co. Fermanagh.
Shore of large eutrophic lake.
- 68 Lough Fad D255195 Co. Antrim.
Upland lake in heath blanket bog.
- 69 Loughisland D253198 Co. Antrim.
Upland lake.

APPENDIX 2 (cont.)

- 70 River Blackwater at Waring Bank H517529 Co. Tyrone.
Stony river.
- 71 Ballagh Lough H500500 Co. Tyrone.
Lowland eutrophic lake.
- 72 limb of Ross Lough H129459 Co. Fermanagh.
Lowland eutrophic lake.
- 73 Tullylammy bog H207564 Co. Fermanagh.
Cutover raised bog.
- 74 Mill Lough H7488 Co. Tyrone.
Small peaty lake in blanket bog.
- 75 Fairy Water H304799 Co. Tyrone.
River.
- 76 Lough Leen H137544 Co. Fermanagh.
Eutrophic lowland lake.
- 77 Tullyavy/Drumcullion Bog H242510 Co. Fermanagh.
Cutover lowland raised bog with flooded peat cuttings.
- 78 Annaghloughan Bog H571551 Co. Tyrone.
Cutover lowland raised bog with flooded peat cuttings.
- 79 Murrins H568787 Co. Tyrone.
Upland lake.
- 80 Ballintempo Forest H075435 Co. Fermanagh.
Fire pond at edge of conifer forest.
- 81 Lough Namanfin H0545 Co. Fermanagh.
Mesotrophic lake with sandy bed.
- 82 Braade H044548 Co. Fermanagh.
Small pool in relict area of blanket bog.
- 83 Cladagh River H127356 Co. Fermanagh.
Intact lowland river with stony bed.

APPENDIX 2 (cont.)

- 84 Tullywannia Lough H044508 Co. Fermanagh.
Mesotrophic lake.
- 85 Lough Scolban H005612 Co. Fermanagh.
Large mesotrophic lake.
- 86 Cooneen Water, Grogey Bridge H448428 Co. Fermanagh.
Stony river.
- 87 Lough Nagor H1441 Co. Fermanagh.
Upland lake in heath with floating fen.
- 88 Tattenamona Bog H187352 Co. Fermanagh.
Cutover raised bog .
- 89 Rossdoney Quay H253358 Co. Fermanagh.
Lowland eutrophic river.
- 90 Meenameen Lough H0255 Co. Fermanagh.
Upland mesotrophic lake with fen.
- 91 Upper Lough Erne Derrylea shore H346273 Co. Fermanagh.
Shore of large eutrophic lake.
- 92 Inisherk, Upper Lough Erne H358244 Co. Fermanagh.
Shore of large eutrophic lake.
- 93 Lough Neagh Ballyronan Marina H948858 Co. Londonderry.
Shore of large eutrophic lake.
- 94 Killelagh Lough C834025 Co. Londonderry.
Eutrophic lowland lake.
- 95 Lough Skale H309440 Co. Fermanagh.
Small lake with open fen.
- 96 Lough Mulshane H320509 Co. Fermanagh/Co. Tyrone.
Shallow peaty lake in relict area of blanket bog.
- 97 Dernish Island, Upper Lough Erne H346261 Co. Fermanagh.
Shore of large eutrophic lake.

APPENDIX 2 (cont.)

- 98 Tonnagh Bog H112521 Co. Fermanagh.
Cutover raised bog.
- 99 Finn Floods H479208 Co. Fermanagh.
Drains and fen along lowland river.
- 100 Moyrourkan Lough H985426 Co. Armagh.
Fen and small lake.
- 101 Outlack Bog H907399 Co. Armagh.
Inter-drumlin fen.
- 102 Cashel Lough Upper H967198 Co. Armagh.
Lake and cutover bog with fen.
- 103 Cargan Water D170180 Co. Antrim.
Upland river.
- 104 Magheramorne ponds J4498 Co. Antrim.
Pools in reclaimed ground in sea lough.
- 105 Inver River mire D225183 Co. Antrim.
Flushed blanket bog.
- 106 Castle Enigan fen J1231 Co. Down.
Fen on old cutover bog.
- 107 White Hill fen J252729 Co. Down.
Inter drumlin fen.
- 108 Ballygill 2, Rathlin D117527 Co. Antrim.
Large pond.
- 109 Drumire Fen J020431 Co. Down.
Inter-drumlin fen.
- 110 Loughareema D206357 Co. Antrim.
Watershed mire.
- 111 East Light pool 1, Rathlin D160520 Co. Antrim.
Pool in maritime heath.

APPENDIX 2 (cont.)

- 112 East Light pool 3, Rathlin D158521 Co. Antrim.
Pool in maritime heath.
- 113 Granemoor Bog H883330 Co. Armagh.
Cutover raised bog.
- 114 Crockravar D235195 Co. Antrim.
Natural pools in blanket bog.
- 115 Lemnalary Mtn, Garron Plateau D248194 Co. Antrim.
Pool in blanket bog.
- 116 Upper Glenariff Mountain West, unnamed lake D225196 Co. Antrim.
Upland oligotrophic lake.
- 117 Drumbee Bog H911434 Co. Armagh.
Cutover bog and fen.
- 118 Lagan Fen H823335 Co. Armagh.
Drained cutover fen.
- 119 Derryadd Lough south end H9160 Co. Armagh.
Poor fen and shallow peaty lake.
- 120 Conogher Bridge, River Bush C962305 Co. Antrim.
Deep river with modified, eroding banks .
- 121 Collin Glen J265726 Co. Antrim.
River and dammed pond.
- 122 Lough Gullion bog J005625 Co. Armagh.
Flooded peat cuttings in relict lowland raised bog.
- 123 River Blackwater, The Argory H865580 Co. Armagh.
Lowland eutrophic river.
- 124 Turmoyra Marsh J056605 Co. Armagh.
Eutrophic peaty drains.
- 125 Deer's Meadow, Spelga J277255 Co. Down.
Flushed upland wet heath.

APPENDIX 2 (cont.)

- 126 Doan, pools on slope J299269 Co. Down.
Peaty pools in wet heath.
- 127 Leitrim Lodge J2225 Co. Down.
Flushed wet heath.
- 128 Lough Shannagh J2926 Co. Down.
Exposed upland oligotrophic lake with sandy bed.
- 129 Yellow water river J2222 Co. Down.
Upland river.
- 130 River Dun, Glendun D2132 Co. Antrim.
Fast-flowing river.
- 131 Sallagh Braes D3305 Co. Antrim.
Peat pools in blanket bog.
- 132 Ballinran Upper J303218 Co. Down.
Deep unvegetated flooded granite quarry.
- 133 Binnian Lough J325245 Co. Down.
Exposed upland lake.
- 134 Cypress Pond, Castlewellan J324374 Co. Down.
Artificial pond.
- 135 Glynn J410995 Co. Antrim.
Brackish artificial lagoon.
- 136 Trassey River valley J3030 Co. Down.
Flushed wet heath.
- 137 Ess Bridge D175400 Co. Antrim.
Fast-flowing stream with eroding bank.
- 138 Interlaken J398649 Co. Down.
Lowland eutrophic lake.
- 139 Mountnab, fen near H944410 Co. Antrim.
Inter-drumlin fen.

APPENDIX 2 (cont.)

- 140 The Isles, Dunloy D037195 Co. Antrim.
Drainage ditch along edge of raised bog.
- 141 Struell Wells J513441 Co. Down.
Fen and stream.
- 142 Loughnabrick D258199 Co. Antrim.
Upland lake.
- 143 Pool system, Cuilcagh H140297 Co. Fermanagh.
Natural pools in upland blanket bog.
- 144 Lower Lough Macnean H124384 Co. Fermanagh.
Shore of large eutrophic lake.
- 145 Five Points Bog H199380 Co. Fermanagh.
Cutover lowland raised bog.
- 146 Owenreagh River at Aghnamirigan Bridge H663836 Co. Tyrone.
Stony river.
- 147 Derryhennet fen H823361 Co. Armagh.
Inter-drumlin fen.
- 148 Green Lough H177507 Co. Fermanagh.
Turlough.
- 149 Breen Bridge / Breen fen D1234 Co. Antrim.
Drained tussocky fen.
- 150 Denny's Lough D261202 Co. Antrim.
Upland lake.
- 151 Lisbane Quarry J045446 Co. Down.
Flooded disused quarry.
- 152 Lower Lough Erne, Trory H225482 Co. Fermanagh.
Shore of large eutrophic lake.
- 153 Corraacoash Lough H256341 Co. Fermanagh.
Lowland eutrophic lake.

APPENDIX 2 (cont.)

- 154 Upper Lough Erne Drummee. & Slee Td H2936 Co. Fermanagh.
Shore of large eutrophic lake.
- 155 Lough Coole H255435 Co. Fermanagh.
Lowland eutrophic lake.
- 156 Crockanaver H226635 Co. Fermanagh.
Flooded limestone quarry.
- 157 Lough Doo H202741 Co. Tyrone.
Mesotrophic lake in degraded bog.
- 158 Friar's Lough H368268 Co. Fermanagh.
Lowland eutrophic lake.
- 159 Derrymacrow Lough H365254 Co. Fermanagh.
Lowland eutrophic lake.
- 160 Corraharra Lough H355225 Co. Fermanagh.
Lowland eutrophic lake.
- 161 Corlatt, Upper Lough Erne H356236 Co. Fermanagh.
Shore of lowland eutrophic lake.
- 162 Moorlough H386303 Co. Fermanagh.
Large lowland eutrophic lake.
- 163 Lough Napeasta H395366 Co. Fermanagh.
Mesotrophic lake in conifer plantation.
- 164 Loughnacarry D227201 Co. Antrim.
Small upland lake.
- 165 Loughnabrick pool D263199 Co. Antrim.
Small pool with poor fen in blanket bog.
- 166 Lough Cushkeery H487399 Co. Fermanagh.
Upland mesotrophic lake with open poor fen.
- 167 Corranny Lough H477332 Co. Fermanagh.
Lake and open fen.

APPENDIX 2 (cont.)

- 168 Cromaghy Lough H5130 Co. Fermanagh.
Eutrophic lake.
- 169 Inver Lough H520312 Co. Fermanagh.
Eutrophic lake.
- 170 Clare Glen J020445 Co. Armagh.
Stony river in wooded valley.
- 171 Killyvilly Lough H5533 Co. Fermanagh.
Lake and degraded fen.
- 172 Lough Navarad H558446 Co. Tyrone.
Upland mesotrophic lake in blanket bog.
- 173 Glenbower Lough H549446 Co. Tyrone.
Upland mesotrophic lake in blanket bog.
- 174 Slieve Beagh H534445 Co. Tyrone.
Pools amongst peat hags in eroding blanket bog.
- 175 Stone Hill sandpit H7489 Co. Tyrone.
Shallow pond in disused sand workings.
- 176 Temple Water, Castle Ward J574503 Co. Down.
Artificial lake on estate.
- 177 Mullaghbane West H990168 Co. Armagh.
Fen on cutover bog.
- 178 Ballygroobany Bog H958460 Co. Armagh.
Fen on cutover bog.
- 179 Loughareema D206360 Co. Antrim.
Temporary lake.
- 180 Lake nr Big Trosk D266201 Co. Antrim.
Upland lake.
- 181 R. Blackwater, Benburb H812521 Co. Tyrone.
Lowland river just downstream of shallow gorge.

APPENDIX 2 (cont.)

- 182 Cumran House fen, Clough J407406 Co. Down.
Inter-drumlin fen.
- 183 Burren Lough J319523 Co. Down.
Lowland eutrophic lake and fen.
- 184 Lough Neagh, Maghery H927635 Co. Armagh.
Sheltered shore of large eutrophic lake.
- 185 Corbet Fen J180465 Co. Down.
Lowland fen.
- 186 Scarva Lough J060440 Co. Armagh.
Lowland eutrophic lake.
- 187 Magheralagan Lake J443432 Co. Down.
Lowland eutrophic lake.
- 188 Lough Money fen J538459 Co. Down.
Enriched and grazed fen and *Cladium* swamp.
- 189 Closet River J048613 Co. Armagh.
Lowland eutrophic river.
- 190 Shanlough J233229 Co. Down.
Poor fen in lake basin in upland heath.
- 191 Shankys River J224255 Co. Down.
Small upland stream.
- 192 Bloody Bridge valley J389269 Co. Down.
Flushed wet heath in steep valley.
- 193 Blue Lough J327253 Co. Down.
Peaty upland lake.
- 194 Sally Lough J304215 Co. Down.
Artificial lake.
- 195 Mountain Lake, Castlewellan J328375 Co. Down.
Small lake in clearing in conifer forest.

APPENDIX 2 (cont.)

- 196 Lagoon, Dundrum Inner Bay J418392 Co. Down.
Artificial brackish pond.
- 197 Turmennan J4850 Co. Down.
Mesotrophic fen and shallow pools in narrow valley.
- 198 Loughkeelan J563453 Co. Down.
Eutrophic lake and fen.
- 199 Mallard Pond, Castleward J555490 Co. Down.
Eutrophic pond.
- 200 Keenaghan Lough G980600 Co. Fermanagh.
Lake and stream.
- 201 Glenedra Bridge C708002 Co. Londonderry.
Shallow peaty pools in degraded blanket bog and small stream.
- 202 Shean Lough H067565 Co. Fermanagh.
Small mesotrophic lake in upland heath.
- 203 Strangford Lough, north shore J489709 Co. Down.
Brackish ditch.
- 204 Lough Akista H042502 Co. Fermanagh.
Upland lake in heath.
- 205 Lough Aleim H151321 Co. Fermanagh.
Small upland lake in blanket bog.
- 206 Pools at Gortmacconnell H136304 Co. Fermanagh.
Natural ponds in upland blanket bog.
- 207 Upper Lough Erne, Knockninny H280314 Co. Fermanagh.
Sheltered shore of large eutrophic lake with rich fen.
- 208 Upper Lough Erne, Inishcreenry H297334 Co. Fermanagh.
Shore of large eutrophic lake with rich fen.
- 209 Mill Lough H244384 Co. Fermanagh.
Large eutrophic lake and fen.

APPENDIX 2 (cont.)

- 210 River Derg at Castleberg H2684 Co. Tyrone.
Riffly section of river.
- 211 Rosssdill Lough H360256 Co. Fermanagh.
Eutrophic drain linking two lakes.
- 212 Traad Point Ponds H954874 Co. Londonderry.
Mature artifical flooded sand pits.
- 213 "Green Bottoms", Crom H363246 Co. Fermanagh.
Artificial peaty pool in area of rich fen.
- 214 Inishcrevan Island, Upper Lough Erne H3129 Co. Fermanagh.
Stony shore of large eutrophic lake.
- 215 Bog SW of Cor Lough H741415 Co. Tyrone.
Shaded peat cuttings.
- 216 Kilcraigagh H727994 Co. Londonderry.
Shallow unvegetated pool in disused quarry.
- 217 Ballynahone Bog H860980 Co. Londonderry.
Large intact raised bog with poor fen.
- 218 Drumroosk H352335 Co. Fermanagh.
Shallow peaty pools in relict area of cutover bog.
- 219 Summerhill Lough H491281 Co. Fermanagh.
Marl lake with fen.
- 220 Kilmacbrack Lough H407296 Co. Fermanagh.
Lowland eutrophic lake.
- 221 Acton Lake/Lough Shark J0641 Co. Armagh/Co. Down.
Eutrophic lake.
- 222 Lough Eshbrick H544448 Co. Tyrone.
Mesotrophic lake in blanket bog.
- 223 Killymackan Lough H3220 Co. Fermanagh.
Large eutrophic lake with relict area of mossy fen.

APPENDIX 2 (cont.)

- 224 Slieve Binnian J3224 Co. Down.
Flushes in upland heath.
- 225 Lough Moss J237516 Co. Down.
Lowland fen.
- 226 Loughnaweelan D197187 Co. Antrim.
Upland lake in blanket bog.
- 227 Ballymacormick Point J5283 Co. Down.
Seepages and small stream on rocky coastal headland.
- 228 Ballytrustan Fen J538436 Co. Down.
Inter-drumlin fen.
- 229 Lough Natrosk D273198 Co. Antrim.
Large upland lake.
- 230 Bartin's Bay, Lough Neagh J073658 Co. Antrim.
Sandy shore of large eutrophic lake.
- 231 Dunmore Fen and Black Lough J358451 Co. Down.
Mesotrophic ponds, shallow peaty pools and large area of poor fen.
- 232 Sydenham pools J3877 Co. Down.
Brackish pools on reclaimed upper estuary.
- 233 Victoria Park Lake J367754 Co. Down.
Artificial brackish lagoon.
- 234 Lough Money J532452 Co. Down.
Natural lake used as reservoir.
- 235 Glastry Clay Pits J638630 Co. Down.
Deep flooded clay pits.
- 236 Carrowcarlin J560496 Co. Down.
Over grown rich fen.
- 237 Donnybrewer Level C520234 Co. Londonderry.
Brackish drain around polder.

APPENDIX 2 (cont.)

- 238 Ballymacashen J467603 Co. Down.
Lowland fen.
- 239 Anne's Point, Strangford Lough J559686 Co. Down.
Brackish pools.
- 240 Monawilkin Lough H085530 Co. Fermanagh.
Mesotrophic lake and fen.
- 241 Legalough H088345 Co. Fermanagh.
Sheltered lake and fen in limestone hills.
- 242 Lough A Waddy H041648 Co. Fermanagh.
Upland exposed lake in blanket bog.
- 243 Lough Atona H110292 Co. Fermanagh.
Upland oligotrophic lake.
- 244 Mullaghbane Moss H735590 Co. Tyrone.
Lowland eutrophic lake.
- 245 Black Lough H763609 Co. Tyrone.
Mesotrophic lake.
- 246 Teal Lough H730880 Co. Tyrone.
Upland raised bog and small lake.
- 247 Lough Neagh Blacker's Rock H9472 Co. Tyrone.
Sheltered shore of large eutrophic lake with fen.
- 248 Bloody Bridge Coastal pools J390269 Co. Down.
Small pools on rocky shore above splash zone.
- 249 Raw Lough H251618 Co. Fermanagh.
Mesotrophic lake with floating scraw.
- 250 Watson's Lough H307495 Co. Fermanagh.
Lake and fen.
- 251 Aughnagurgan Lough H873311 Co. Armagh.
Lake and fen.

APPENDIX 2 (cont.)

- 252 Peatlands Country Park H890604 Co. Armagh.
Large cutover raised bog.
- 253 Big Bog J1950 Co. Down.
Lowland fen.
- 254 Clea Lakes J505548 Co. Down.
Eutrophic lake and fen.
- 255 Derryvore, Portadown J017567 Co. Armagh.
Eutrophic fen.
- 256 Greenan Lough J119233 Co. Down.
Lake and fen.
- 257 Lough Neagh, Rea's Wood J143855 Co. Antrim.
Sandy shore of large eutrophic lake.
- 258 Rea's Wood, pond J140853 Co. Antrim.
Eutrophic artificial pond.
- 259 Garvaghy (Gall) Bog J214487 Co. Down.
Eutrophic fen.
- 260 Lough Aghery, Dromore J293538 Co. Down.
Large eutrophic lake with mossy fen.
- 261 Ballynoe Fen J480396 Co. Down.
Interdrumlin fen.
- 262 Quoile Pondage J4974, J5048 Co. Down.
Artificially impounded estuary.
- 263 Aughnadarragh Lough J443595 Co. Down.
Lake and fen.
- 264 Castle Espie Quarry J492673 Co. Down.
Flooded disused quarry.
- 265 The Umbra C7235 Co. Londonderry.
Dune slack.

APPENDIX 2 (cont.)

- 266 Tullyvacaday Lough H060647 Co. Fermanagh.
Mesotrophic lake in partially afforested heath.
- 267 Lough Barry H274359 Co. Fermanagh.
Lowland eutrophic lake.
- 268 Ballydoolagh Lough H284479 Co. Fermanagh.
Lake used as reservoir.
- 269 Trannish Island, Upper Lough Erne H322294 Co. Fermanagh.
Open stony shore of large eutrophic lake.
- 270 Lough Doo H3429 Co. Fermanagh.
Lowland eutrophic lake with dense *Phragmites* swamp.
- 271 Knockballymore Lough H475267 Co. Fermanagh.
Marl lake with relict mossy fen.
- 272 Lough Nabull H470376 Co. Fermanagh.
Small lake and fen.
- 273 Derry Hill fen J437448 Co. Down.
Inter-drumlin fen.
- 274 Garry Bog C940290 Co. Antrim.
Lowland raised bog.
- 275 Edenknappagh H923419 Co. Armagh.
Eutrophic pond.
- 276 Marlacoo Lough H983447 Co. Armagh.
Lowland eutrophic lake.
- 277 Newry Canal, Moneypenny's J031513 Co. Armagh.
Disused 200yr old canal.
- 278 Skillyscolban Lough J187498 Co. Down.
Small lake and fen.
- 279 Blue Lough J306275 Co. Down.
Upland lake.

APPENDIX 2 (cont.)

- 280 Camagh Bay, Lower Lough Erne H160517 Co. Fermanagh.
Sheltered shore of large eutrophic lake.
- 281 Loughanquin H058463 Co. Fermanagh.
Upland lake with poor fen.
- 282 Drummully Lough H3028 Co. Fermanagh.
Lowland eutrophic lake.
- 283 Lough Narye H396339 Co. Fermanagh.
Lake and open swamp.
- 284 Drumawhy J547756 Co. Down.
Relict cutover raised bog.
- 285 Burdautien Lough H4928 Co. Fermanagh.
Marl lake with relict birch covered cutover bog with flooded peat cuttings.
- 286 Drumacrittin Lough H5432 Co. Fermanagh.
Lake and floating mossy fen.
- 287 Selshion Moss H985545 Co. Armagh.
Poor fen on cutover lowland raised bog.
- 288 Drumvale J300678 Co. Down.
Eutrophic pond and ditch.
- 289 Tullyframe Sandpit J262169 Co. Down.
Shallow pool in sandpit.
- 290 Ballykine Loughs J356537 Co. Down.
Lowland eutrophic lake.
- 291 Strand Lough J535374 Co. Down.
Brackish lagoon and inflowing stream.
- 292 Crossgar, Cuttyshane J485526 Co. Down.
Relict cutover raised bog with flooded peat cuttings.
- 293 Lough Alaban H070438 Co. Fermanagh.
Mesotrophic lake in partially afforested blanket bog.

APPENDIX 2 (cont.)

- 294 Glenarm River D3012 Co. Antrim.
Upland river in wooded glen.
- 295 Legane Lough H736537 Co. Tyrone.
Lowland eutrophic lake.
- 296 Claraghmore Lough H356761 Co. Tyrone.
Mesotrophic lake.
- 297 Lough Fadden D187420 Co. Antrim.
Mesotrophic lake with floating poor fen.
- 298 Derrylard Clay pit H957615 Co. Armagh.
Flooded disused clay pit.
- 299 Lough Brickland J111411 Co. Down.
Eutrophic lake.
- 300 Heron & Carrigullian Lough J5589 Co. Down.
Eutrophic lake with large fen.
- 301 River Lagan at Drumvale J303677 Co. Down.
Eutrophic lowland river.
- 302 Curran Bog H8795 Co. Londonderry.
Large cutover raised bog with many flooded peat cuttings.
- 303 Kinnego Pond, Oxford Island J061612 Co. Armagh.
Artificial eutrophic lake.
- 304 Kilbroney Red Bog J215216 Co. Down.
Shallowly flooded cutover upland blanket bog.
- 305 Lackan Bog J237375 Co. Down.
Cutover raised bog with poor fen and flooded peat cuttings.
- 306 Kilroosky Lough H4927 Co. Fermanagh.
Marl lake with floating mossy fen.
- 307 Lough Martincrossagh H0542 Co. Fermanagh.
Mesotrophic lake in afforested heath.

APPENDIX 2 (cont.)

- 308 Bannagh R. mouth, Lower Lough Erne H137651 Co. Fermanagh.
Shore of large eutrophic lake with open *Phragmites* swamp.
- 309 Edenslate J605652 Co. Down.
Fen on cutover bog.
- 310 Altnadua Lough J3134 Co. Down.
Lake and fen.
- 311 Drumcarn fen (Drumnahavil) H813285 Co. Armagh.
Flooded peat cuttings with fen and swamp in wet heath.
- 312 Brackagh Moss J020510 Co. Armagh.
Extensive fen and relict cutover raised bog.
- 313 Derryleckagh J117253 Co. Down.
Fen and transition mire.
- 314 Upper Lough Erne Corradovar Td. H3029 Co. Fermanagh.
Sheltered shore of large eutrophic lake with rich fen.
- 315 = 346
- 316 Montiaghs Moss J093654 Co. Antrim.
Extensive lowland cutover bog with numerous flooded peat cuttings.
- 317 River Erne, Belleek G942588 Co. Fermanagh.
Eutrophic river.
- 318 Helen's Tower pond J484775 Co. Down.
Pool and fen.
- 319 Hillsborough Park Lake J245585 Co. Down.
Lake in conifer woodland.
- 320 Horse Island, Strangford Lough J5960 Co. Down.
Brackish pools in saltmarsh.
- 321 Fardrum Lough H181501 Co. Fermanagh.
Shallow lake with fluctuating water levels.

APPENDIX 2 (cont.)

- 322 Arney River at Drumane Bridge H235365 Co. Fermanagh.
Lowland eutrophic river with modified banks.
- 323 Cleenish, Upper Lough Erne H255385 Co. Fermanagh.
Shore of large eutrophic lake.
- 324 Kilclief Point J599460 Co. Down.
Small brackish pools in saltmarsh.
- 325 Stream near Ballykeel J327165 Co. Down.
Small lowland stream.
- 326 Rowantree Moss J177513 Co. Down.
Fen on relict cutover bog.
- 327 Lough Beg H975948 Co. Antrim/Co. Londonderry.
Large eutrophic lake.
- 328 Black Lough H711539 Co. Tyrone.
Mesotrophic lake with large floating poor fen.
- 329 Drumlougher Lough H8918 Co. Armagh.
Mesotrophic lake with sparse open fen in rocky basin.
- 330 Cullentra Lough H474474 Co. Tyrone.
Mesotrophic lake with extensive floating fen.
- 331 Drumskimly Lough H134524 Co. Fermanagh.
Small eutrophic lake.
- 332 Cleenish Island Loughs H260392 Co. Fermanagh.
Eutrophic lowland lakes.
- 333 Maghera Lough H310557 Co. Tyrone.
Large inter-drumlin lake with small spring-fed floating fen.
- 334 Lough Patrick H5068 Co. Tyrone.
Lake basin with floating poor fen and little open water in relict area of bog.
- 335 Lough McCall H540482 Co. Tyrone.
Small mesotrophic lake with surrounding poor fen.

APPENDIX 2 (cont.)

- 336 Crab Lough C927117 Co. Londonderry.
Small lake with floating poor fen.
- 337 River Lagan west of Dromore J178538 Co. Down.
Lowland river.
- 338 Loughnatorpoge H574783 Co. Tyrone.
Small lake in blanket bog.
- 339 River Bann, Hutchinson's Quay C948114 Co. Londonderry.
Lowland river.
- 340 Round Lough H4448 Co. Tyrone.
Lowland lake and fen.
- 341 Moor Lough H4498 Co. Tyrone.
Upland lake with sparse poor fen. Stocked with fish.
- 342 Cashel Burn H577806 Co. Tyrone.
Modified stream.
- 343 Castle Archdale ponds H178585 Co. Fermanagh.
Artificial ponds.
- 344 Owenkillev River at Trinamadan Bridge H492860 Co. Tyrone.
Large unmodified stony river.
- 345 Loughan D296219 Co. Antrim.
Shaded muddy stream just above seashore.
- 346 Greyabbey J582675 Co. Down.
Coastal lagoon.
- 347 Lurganconary J276117 Co. Down.
Abandoned sand workings and stream.
- 348 Ardmore, Lough Neagh J025630 Co. Armagh.
Shore of large eutrophic lake.
- 349 Ballybriest Lough Fea H761873 Co. Londonderry.
Pools in cutover blanket bog.

APPENDIX 2 (cont.)

- 350 Craigahulliar Quarry C883388 Co. Antrim.
Flooded basalt quarry.
- 351 Cregagh Glen J365701 Co. Down.
Stream in wooded glen.
- 352 Devenagh Burn, Ballykeel D122034 Co. Antrim.
Stream in semi-improved grassland.
- 353 River Lagan Holm Terrace, Dromore J191533 Co. Down.
Eutrophic river.
- 354 Keeran Moss J386931 Co. Antrim.
Cutover bog.
- 355 Kennedy's Quarry Macosquin C816278
Flooded quarry.
- 356 Magheramorne Quarry J445983 Co. Antrim.
Flooded basalt quarry.
- 357 Lough Naroon D004175 Co. Antrim.
Pools in degraded raised bog.
- 358 Mullaghglass Quarry J248688 Co. Antrim.
Abandoned basalt quarry with shallow pools.
- 359 Stormont Estate J401744 Co. Down.
Mesotrophic stream and fen.
- 360 Bog Meadows J315725 Co. Antrim.
Relict fen with drains.
- 361 Clandeboy Lake J484792 Co. Down.
Shallow eutrophic lake.
- 362 Broughderg River Beaghmore H683855 Co. Tyrone.
Upland raised bog.
- 363 Ballykelly Level C620245 Co. Londonderry.
Brackish drain around polder.

APPENDIX 2 (cont.)

- 364 Ladyhill Quarry J174915 Co. Antrim.
Deep pool in active basalt quarry.
- 365 Lagan Meadows J335704 Co. Antrim.
Relict fen.
- 366 Sliderryford, Dundrum J395342 Co. Down.
Stagnant ditches at landward side of saltmarsh.
- 367 Lough Enagh Eastern C473195 Co. Londonderry.
Mesotrophic lake.
- 368 Binevenagh cliffs C686307 Co. Londonderry.
Flushed heath.
- 369 R. Blackwater mouth, Lough Neagh H922643 Co. Armagh.
Shallow shore of large eutrophic lake.
- 370 Tullycross Ponds J614562 Co. Down.
Ponds and fen.
- 371 Lisadian quarry H835467 Co. Armagh.
Flooded quarry.
- 372 Rocks quarry H870435 Co. Armagh.
Flooded quarry.
- 373 Bann estuary pools C789356 Co. Londonderry.
Pools and estuarine marsh.
- 374 Ballywoolen stream C788357 Co. Londonderry.
Small stream.
- 375 Glenelly River at Sperrin H634940 Co. Tyrone.
Fast flowing river.
- 376 Topped Mountain Lough H309453 Co. Fermanagh.
Mesotrophic lake and fen.
- 377 Duncastle Road landfill C410718 Co. Londonderry.
Stream and temporary pools in semi-improved grassland.

APPENDIX 2 (cont.)

- 378 Drumlea, Inch, R. Quoile J471463 Co. Down.
Inter-drumlin fen.
- 379 Toome weir beach, Lough Neagh H988905 Co. Antrim.
Shore of large eutrophic lake.
- 380 Ballinderry river mouth, Lough Neagh H954810 Co. Tyrone.
Shore of large eutrophic lake.
- 381 River Derg at Legvin H126777 Co. Tyrone.
Stony river through degraded blanket bog.
- 382 Lowry's Lough H912447 Co. Armagh.
Lake with sparse fen; stocked with fish.
- 383 Brackly Lough H821309 Co. Armagh.
Mesotrophic lake with floating scraw.
- 384 Loughaveely H954141 Co. Armagh.
Small lake with extensive poor-fen.
- 385 Lurgan Lough Upper H951156 Co. Armagh.
Small lake with extensive poor-fen.
- 386 Clonalig Lough H900121 Co. Armagh.
Lake with adjoining fen on cutover bog.
- 387 Drumlougher fen H896185 Co. Armagh.
Mossy fen on cutover bog.
- 388 Kiltubbrid Loughs H769395 Co. Armagh.
Calcareous mossy fen.
- 389 Crossbane Lough H800299 Co. Armagh.
Lake with sparse *Carex rostrata* swamp.
- 390 Mew Island J604683 Co. Down.
Freshwater pool on offshore island.
- 391 Drumnamether fen H990436 Co. Armagh.
Eutrophic fen and peaty pools.

APPENDIX 2 (cont.)

- 392 Foughil Etra fen J055913 Co. Armagh.
Mossy fen.
- 393 Ballynagross Lower fen J537438 Co. Down.
Eutrophic lowland fen.
- 394 Ballard J024230 Co. Armagh.
Peaty pools and poor fen.
- 395 Ballycam J523348 Co. Down.
Eutrophic lowland fen.
- 396 Corbally fen J451382 Co. Down.
Mossy fen and deep clear pools.
- 397 Ballybannan J371357 Co. Down.
Peaty pools and fen along narrow stream.
- 398 Ladyhill Burn J183912 Co. Antrim.
Stream with marl deposits.

FIGURE 1: map of Northern Ireland showing extent of coverage by 10km square and the relative species richness of each square. The largest dots correspond to 45 or more species recorded.



FIGURES 2-3: distribution maps of *Brychius elevatus* and *Haliplus apicalis*.



Brychius elevatus



Haliplus apicalis

FIGURES 4-5: distribution maps of *Haliplus confinis* and *H. flavicollis*.



Haliplus confinis



H. flavicollis

FIGURES 6-7: distribution maps of *Haliplus fluviatilis* and *H. fulvus*.



Haliplus fluviatilis



H. fulvus

FIGURES 8-9: distribution maps of *Haliplus immaculatus* and *H. lineatocollis*.



Haliplus immaculatus



H. lineatocollis

FIGURES 10-11: distribution maps of *Haliplus lineolatus* and *H. obliquus*.

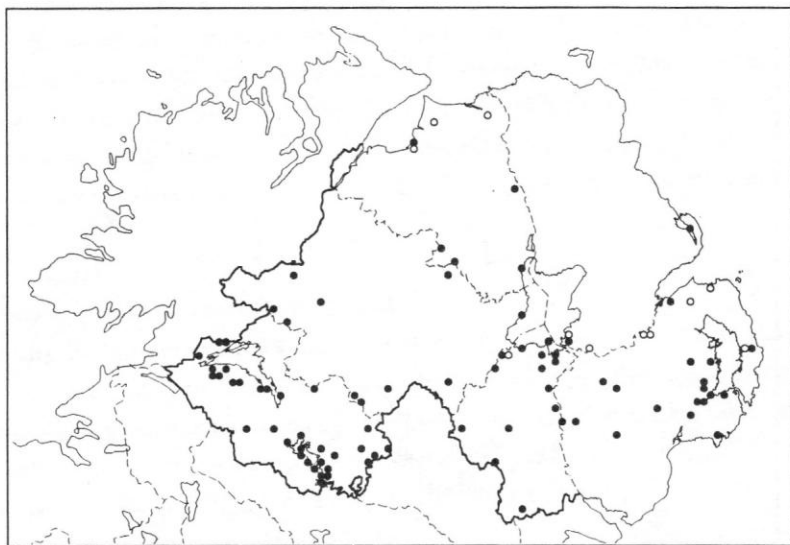


Haliplus lineolatus

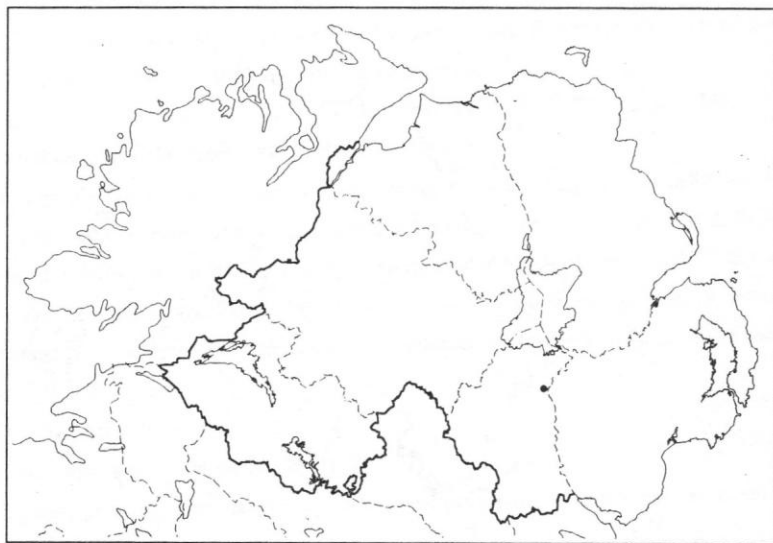


H. obliquus

FIGURES 12-13: distribution maps of *Haliplus ruficollis* and *H. variegatus*.



Haliplus ruficollis



H. variegatus

FIGURES 14-15: distribution maps of *Haliplus wehnckei* and *Noterus clavicornis*.



Haliplus wehnckei



Noterus clavicornis

FIGURES 16-17: distribution maps of *Noterus crassicornis* and *Laccophilus minutus*.



Noterus crassicornis



Laccophilus minutus

FIGURES 18-19: distribution maps of *Hyphydrus ovatus* and *Hygrotus confluens*.



Hyphydrus ovatus



Hygrotus confluens

FIGURES 20-21: distribution maps of *Hygrotus impressopunctatus* and *H. inaequalis*.



Hygrotus impressopunctatus



H. inaequalis

FIGURES 22-23: distribution maps of *Hygrotus novemlineatus* and *H. quinquelineatus*.



Hygrotus novemlineatus



H. quinquelineatus

FIGURES 24-25: distribution maps of *Hydroporus angustatus* and *H. discretus*.



Hydroporus angustatus



H. discretus

FIGURES 26-27: distribution maps of *Hydroporus erythrocephalus* and *H. glabriusculus*.



Hydroporus erythrocephalus



H. glabriusculus

FIGURES 28-29: distribution maps of *Hydroporus gyllenhalii* and *H. incognitus*.



Hydroporus gyllenhalii



H. incognitus

FIGURES 30-31: distribution maps of *Hydroporus longulus* and *H. melanarius*.



Hydroporus longulus



H. melanarius

FIGURES 32-33: distribution maps of *Hydroporus memnonius* and *H. morio*.



Hydroporus memnonius



H. morio

FIGURES 34-35: distribution maps of *Hydroporus nigrita* and *H. obscurus*.

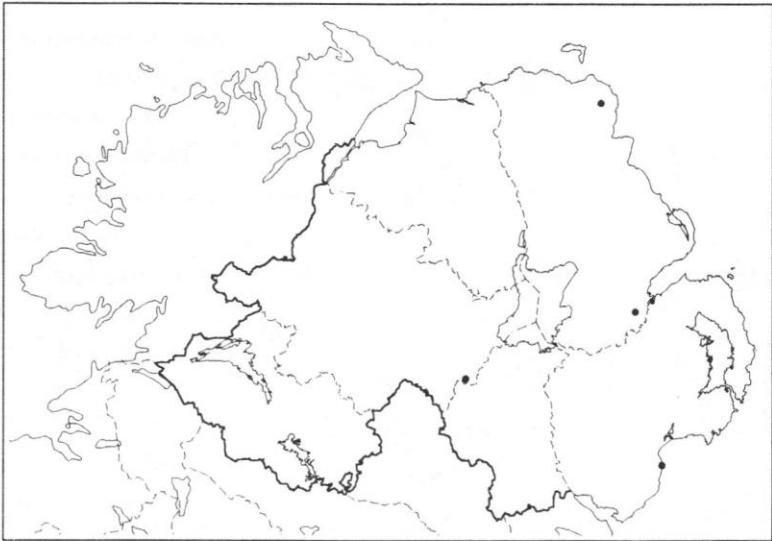


Hydroporus nigrita

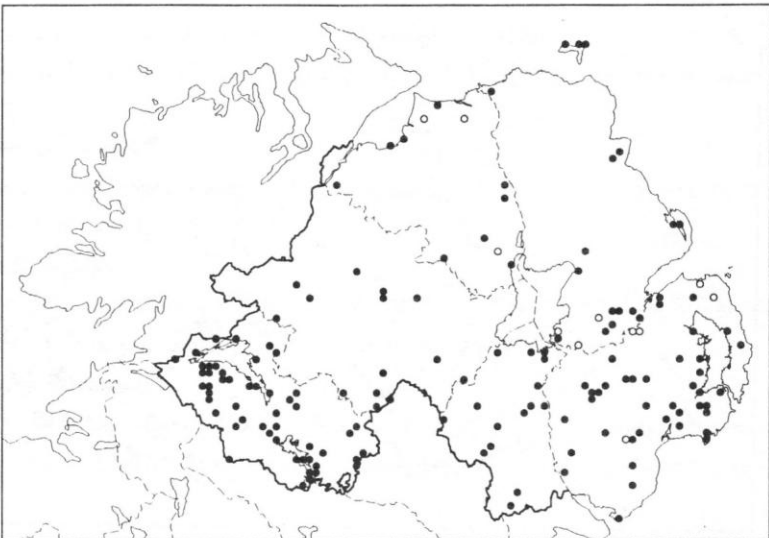


H. obscurus

FIGURES 36-37: distribution maps of *Hydroporus obsoletus* and *H. palustris*.



Hydroporus obsoletus

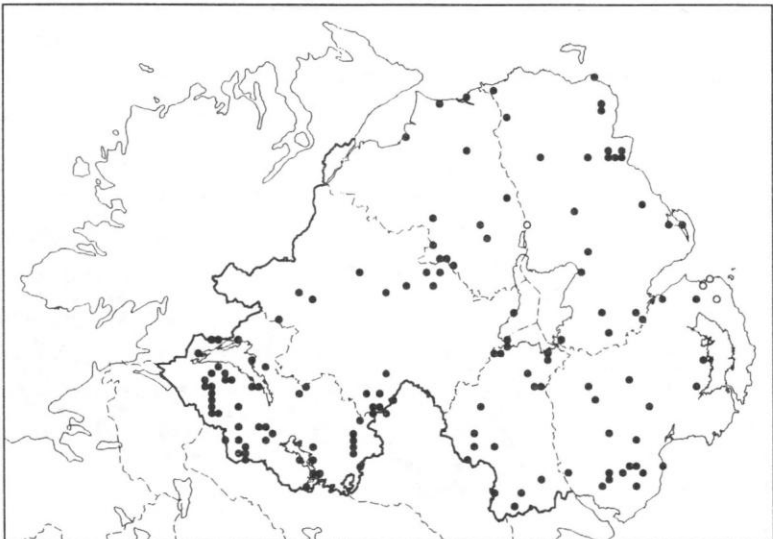


H. palustris

FIGURES 38-39: distribution maps of *Hydroporus planus* and *H. pubescens*.



Hydroporus planus



H. pubescens

FIGURES 40-41: distribution maps of *Hydroporus scalesianus* and *H. striola*.

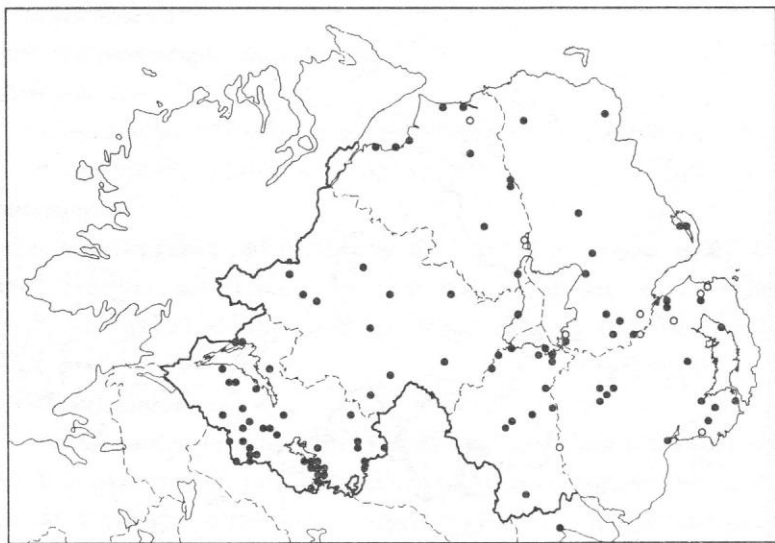


Hydroporus scalesianus

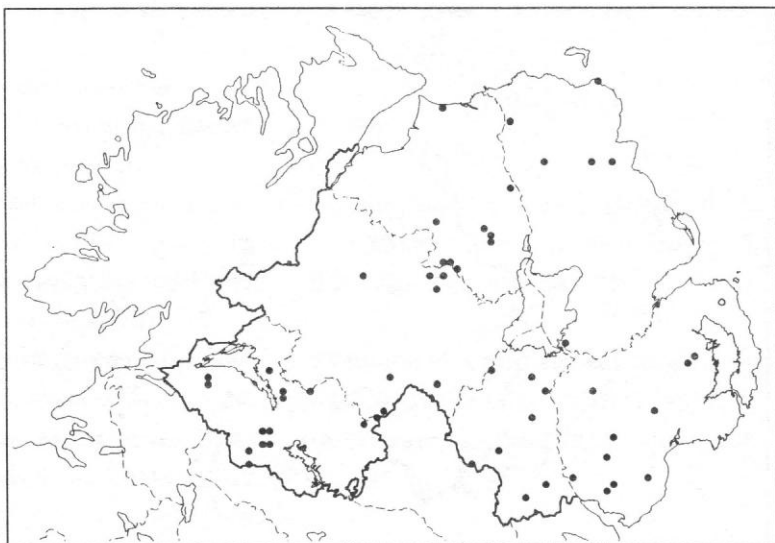


H. striola

FIGURES 42-43: distribution maps of *Hydroporus tessellatus* and *H. tristis*.



Hydroporus tessellatus



H. tristis

FIGURES 44-45: distribution maps of *Hydroporus umbrosus* and *Suphrodytes dorsalis*.



Hydroporus umbrosus



Suphrodytes dorsalis

FIGURES 46-47: distribution maps of *Stictonectes lepidus* and *Graptodytes granularis*.



Stictonectes lepidus



Graptodytes granularis

FIGURES 48-49: distribution maps of *Graptodytes pictus* and *Porhydrus lineatus*.



Graptodytes pictus

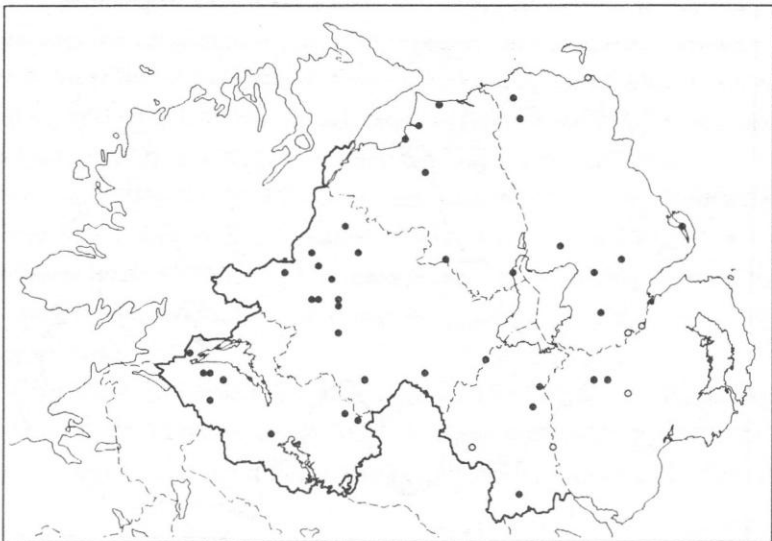


Porhydrus lineatus

FIGURES 50-51: distribution maps of *Nebrioporus assimilis* and *N. depressus*.



Nebrioporus assimilis



N. depressus

FIGURES 52-53: distribution maps of *Stictotarsus duodecimpustulatus* and *S. multilineatus*.



Stictotarsus duodecimpustulatus

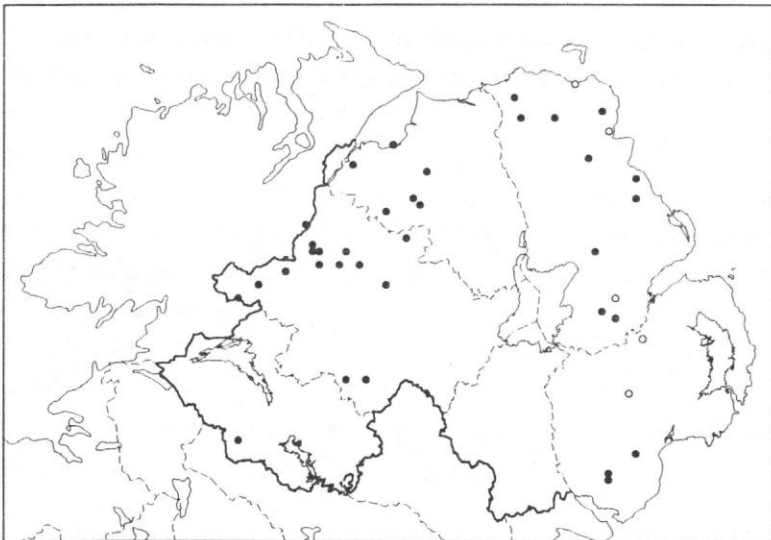


S. multilineatus

FIGURES 54-55: distribution maps of *Oreodytes davisii* and *O. sanmarkii*.



Oreodytes davisii



O. sanmarkii

FIGURES 56-57: distribution maps of *Oreodytes septentrionalis* and *Laccornis oblongus*.



Oreodytes septentrionalis



Laccornis oblongus

FIGURES 58-59: distribution maps of *Agabus affinis* and *A. arcticus*.



Agabus affinis

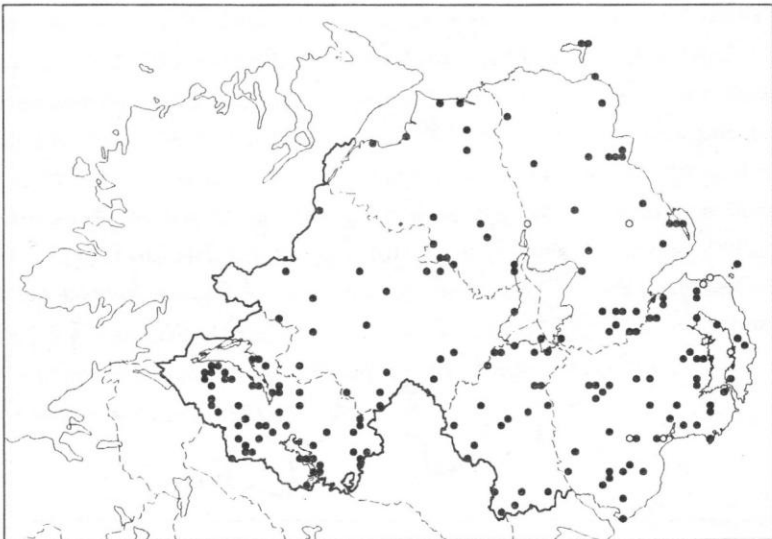


A. arcticus

FIGURES 60-61: distribution maps of *Agabus biguttatus* and *A. bipustulatus*.



Agabus biguttatus



A. bipustulatus

FIGURES 62-63: distribution maps of *Agabus chalconatus* and *A. congener*.



Agabus chalconatus



A. congener

FIGURES 64-65: distribution maps of *A. guttatus* and *A. montanus*.



A. guttatus



A. montanus

FIGURES 66-67: distribution maps of *Agabus nebulosus* and *A. paludosus*.



Agabus nebulosus



A. paludosus

FIGURES 68-69: distribution maps of *Agabus sturmii* and *A. unguicularis*.



Agabus sturmii



A. unguicularis

FIGURES 70-71: distribution maps of *Ilybius aenescens* and *I. ater*.

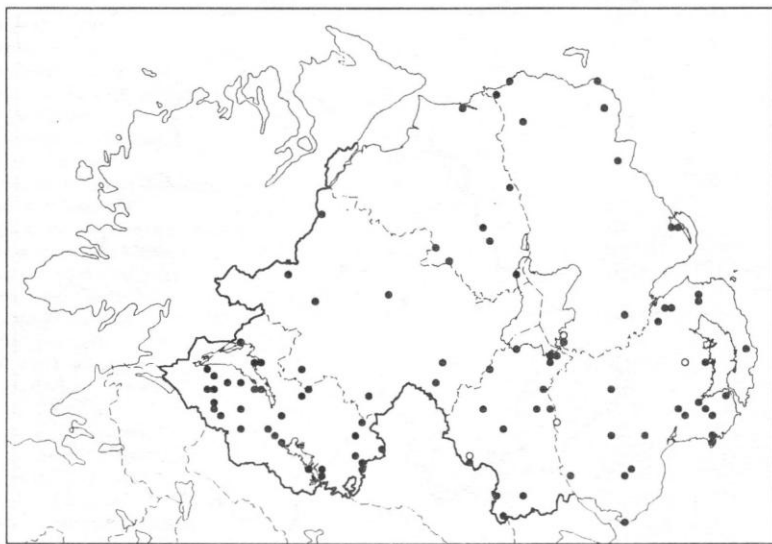


Ilybius aenescens



I. ater

FIGURES 72-73: distribution maps of *Ilybius fuliginosus* and *I. guttiger*.



Ilybius fuliginosus



I. guttiger

FIGURES 74-75: distribution maps of *Ilybius quadriguttatus* and *I. subaeneus*.



Ilybius quadriguttatus



I. subaeneus

FIGURES 76-77: distribution maps of *Rhantus exsoletus* and *R. frontalis*.



Rhantus exsoletus



R. frontalis

FIGURES 78-79: distribution maps of *Rhantus grapii* and *R. suturalis*.



Rhantus grapii

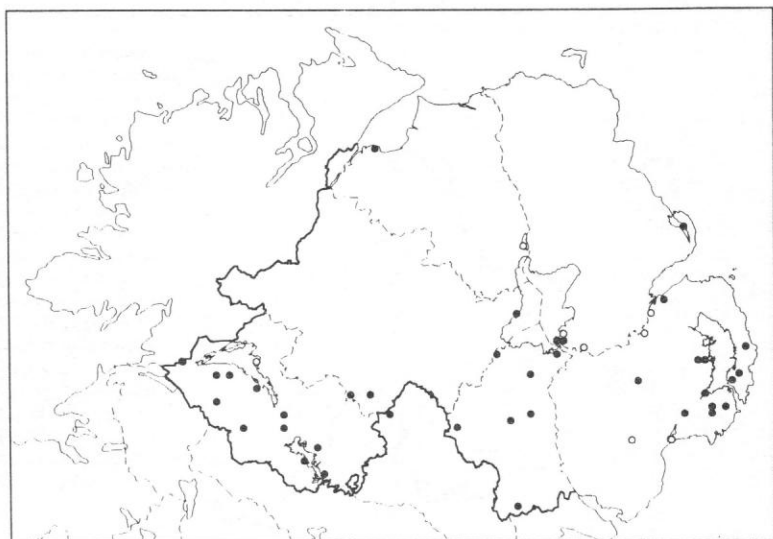


R. suturalis

FIGURES 80-81: distribution maps of *Rhantus suturellus* and *Colymbetes fuscus*.



Rhantus suturellus

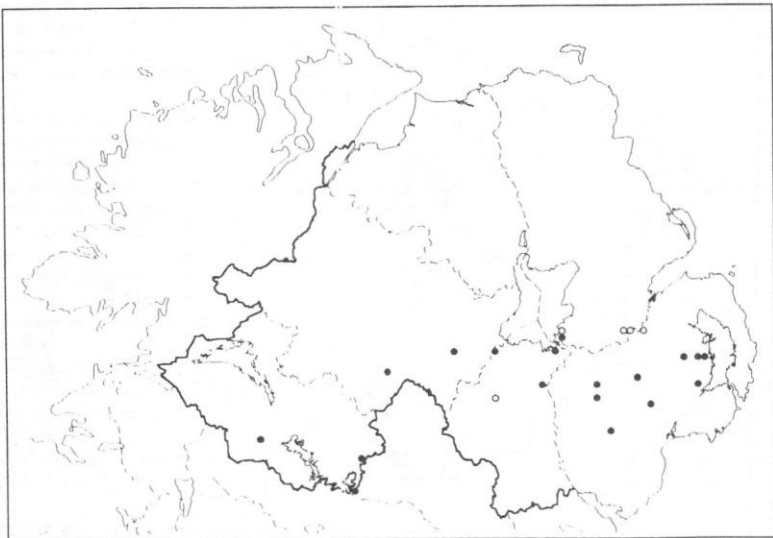


Colymbetes fuscus

FIGURES 82-83: distribution maps of *Hydaticus seminiger* and *Acilius canaliculatus*.



Hydaticus seminiger



Acilius canaliculatus

FIGURES 84-85: distribution maps of *Acilius sulcatus* and *Dytiscus circumcinctus*.



Acilius sulcatus



Dytiscus circumcinctus

FIGURES 86-87: distribution maps of *Dytiscus lapponicus* and *D. marginalis*.



Dytiscus lapponicus



D. marginalis

FIGURES 88-89: distribution maps of *Dytiscus semisulcatus* and *Gyrinus aeratus*.



Dytiscus semisulcatus



Gyrinus aeratus

FIGURES 90-91: distribution maps of *Gyrinus caspius* and *G. distinctus*.



Gyrinus caspius



G. distinctus

FIGURES 92-93: distribution maps of *Gyrinus marinus* and *G. minutus*.



Gyrinus marinus



G. minutus

FIGURES 94-95: distribution maps of *Gyrinus natator* and *G. paykulli*.

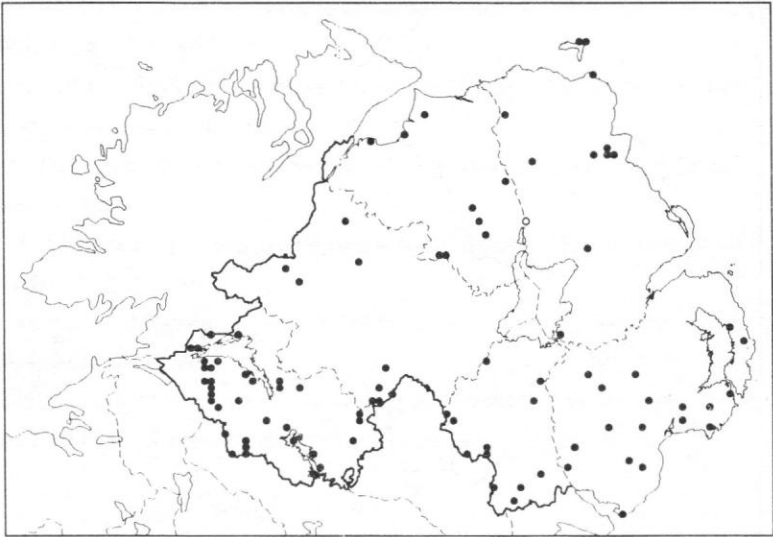


Gyrinus natator



G. paykulli

FIGURES 96-97: distribution maps of *Gyrinus substriatus* and *Orectochilus villosus*.



Gyrinus substriatus



Orectochilus villosus

BOOK REVIEW

ALIEN GRASSES OF THE BRITISH ISLES by T. B. Ryves, E. J. Clement and M. C. Foster. With guidance on nomenclature by D. H. Kent and illustrations by G. M. Easy. pp. xxi, 181. 29 figs. Botanical Society of the British Isles, 1996. ISBN 0 901158 27 5. Price £10.50 Sterling. Softback. Available from BSBI Publications, Green Acre, Wood Lane, Uundle, Peterborough PE8 5TP, United Kingdom.

This BSBI publication - one of an expanding and very useful series - is a follow-on and companion volume to Clement and Foster's earlier (1994) *Alien plants of the British Isles*, which excluded the grasses, and it essentially follows the same layout and format. A brief history of the introduction of alien grasses precedes the main body of the work, describing how in the last century ship ballast and grain imports brought in many associated grass species from abroad, with quaysides, mills and breweries being fertile ground for alien-hunters. Nowadays improved seed cleaning techniques, absence of ballast dumps, and containerised transport have reduced grain and ballast aliens, and these have been replaced by (in England) wool waste aliens and bird seed aliens. Others have been introduced with exports and are associated with paper mills, and other sources. Wool aliens are said to be the most important, but this applies to the British Isles as a whole, and England especially. So far as Ireland is concerned wool aliens are more or less unknown. Nevertheless even in England the use of wool shoddy became negligible after 1975. A small number of grasses, mostly bamboos, are planted as horticultural ornamentals.

In the main text, each species and hybrid listed is scored for the number of localities recorded since 1930, a résumé of distribution and ecology with examples of notable sites, a list of herbaria with named specimens seen by the authors, and references to the bibliography, which appears to be comprehensive. References with illustrations are asterisked. Synonyms are listed last. 580 species of grasses (including the bamboos) are dealt with in this way.

Of particular value will be the excellent line drawings by G. M. S. Easy and the keys to certain genera, and a key to bamboos. Bamboos are notoriously difficult, with scarcely adequate existing identification keys (the one in *Flora Europaea*, for example, is pretty useless). I have not had the opportunity to try out the new key in this work (by D. T. Holyoak)

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but it looks as though it uses distinct features rather than some of the vaguer characteristics of some earlier keys. The bamboo key is based on vegetative characters - useful as most cultivated bamboos flower infrequently. Eight grass genera have keys as well.

Most of the records of alien grasses are from Great Britain, which may reflect both the actual greater prevalence of aliens in Great Britain (particularly the southern half of that island) and the greater number of alien-seekers. Nonetheless Irish records are included, drawn mainly from published local floras and with a specific acknowledgement to Mrs Sylvia Reynolds of Dublin who has made an enthusiastic study of aliens in Ireland in recent years.

For those botanists who are interested in the waifs of docksides and rubbish dumps, or the bamboos of Ireland's parks and demesnes, this book is a valuable mini-encyclopaedia of information and an absolute must if you already possess the earlier volume on non-gramineous aliens.

PAUL HACKNEY

INSTRUCTIONS TO CONTRIBUTORS

1. Manuscripts should follow the format of articles in this *Bulletin*.
2. Manuscripts should be submitted as typed copy on A4 paper, using double-spacing and 2.5cm (1 inch) margins. Whenever possible, also submit the text on diskette. Wordperfect 5.1 is preferred.
3. Figures should be submitted in a size suitable for reduction to A5 without any loss of detail.
4. Records: please ensure that, when possible, the following information is incorporated in each record included in a manuscript:-
 - (a) latin name of organism.
 - (b) statement of reference work used as the source of nomenclature employed in the text. The describer's name should be also given when a zoological species is first mentioned in the text.
 - (c) locality details including at least a four figure Irish grid reference (e.g. N3946), county, vice-county number and some ecological data about the collection site, plus date of capture.
 - (d) collector's name and determiner's name (where different from collector's name), and
 - (e) altitude data should be included where relevant.
- (5). Manuscripts should be submitted to the Editor, Dr J. P. O'Connor, at the following address:- National Museum of Ireland, Kildare Street, Dublin 2, IRELAND.

NOTICES

ROYAL IRISH ACADEMY PRAEGER COMMITTEE FOR FIELD NATURAL HISTORY

Grant Information

Grants, not normally exceeding IR£300 in any one year, are available for field work relevant to the natural history of Ireland. Grantees need not be based in Ireland. Applications are particularly welcome from amateurs. Awards cannot be made in support of undergraduate or postgraduate student programmes or for any part of the applicants' professional work. Preference will be given to projects which concern sites of special scientific interest and/or endangered species. Applicants should ensure that the proposed work, or work closely resembling the proposal, has not already been carried out in the same geographical area.

A representative set of any material collected must be deposited in the National Museum, Dublin, or the National Herbarium, Dublin, or the Ulster Museum, Belfast or any other recognised institution in Ireland.

Application forms, which should be returned by **15th February**, are now available from:

*The Secretary,
Praeger Committee,
Royal Irish Academy,
19 Dawson Street,
Dublin 2,
IRELAND*

FOURTH INTERNATIONAL CONGRESS OF DIPTEROLOGY 1998

The Fourth International Congress of Dipterology will be held in Oxford, United Kingdom, from 6-13 September 1998. Chairman: Dr R. P. Lane, Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, United Kingdom (fax: +44 171 938 8937; email: R.Lane@nhm.ac.uk). Secretary: Dr A. C. Pont, Hope Entomological Collections, University Museum, Parks Road, Oxford OX1 3PW, United Kingdom (fax: +44 1491 873749).

To register your interest or for further information, please contact:

*Oxford International,
ICD4,
Summertown Pavilion, Middle Way,
Oxford OX2 7LG,
U. K.*

(fax: +44 1865 511570; email: 101475.1765@compuserv.com).



IRISH NATURALISTS' JOURNAL

The *Irish Naturalists' Journal*, successor to the *Irish Naturalist*, commenced publication in 1925. The quarterly issues publish papers on all aspects of Irish natural history, including botany, ecology, geography, geology and zoology. The *Journal* also publishes distribution records, principally for cetaceans, fish, insects and plants, together with short notes and book reviews.

Current subscription rates for four issues (including postage) are – £IR15.00 (£14.00stg). Further details may be obtained from Ms Catherine Tyrie, Ulster Museum, Botanic Gardens, Belfast BT9 5AB.

