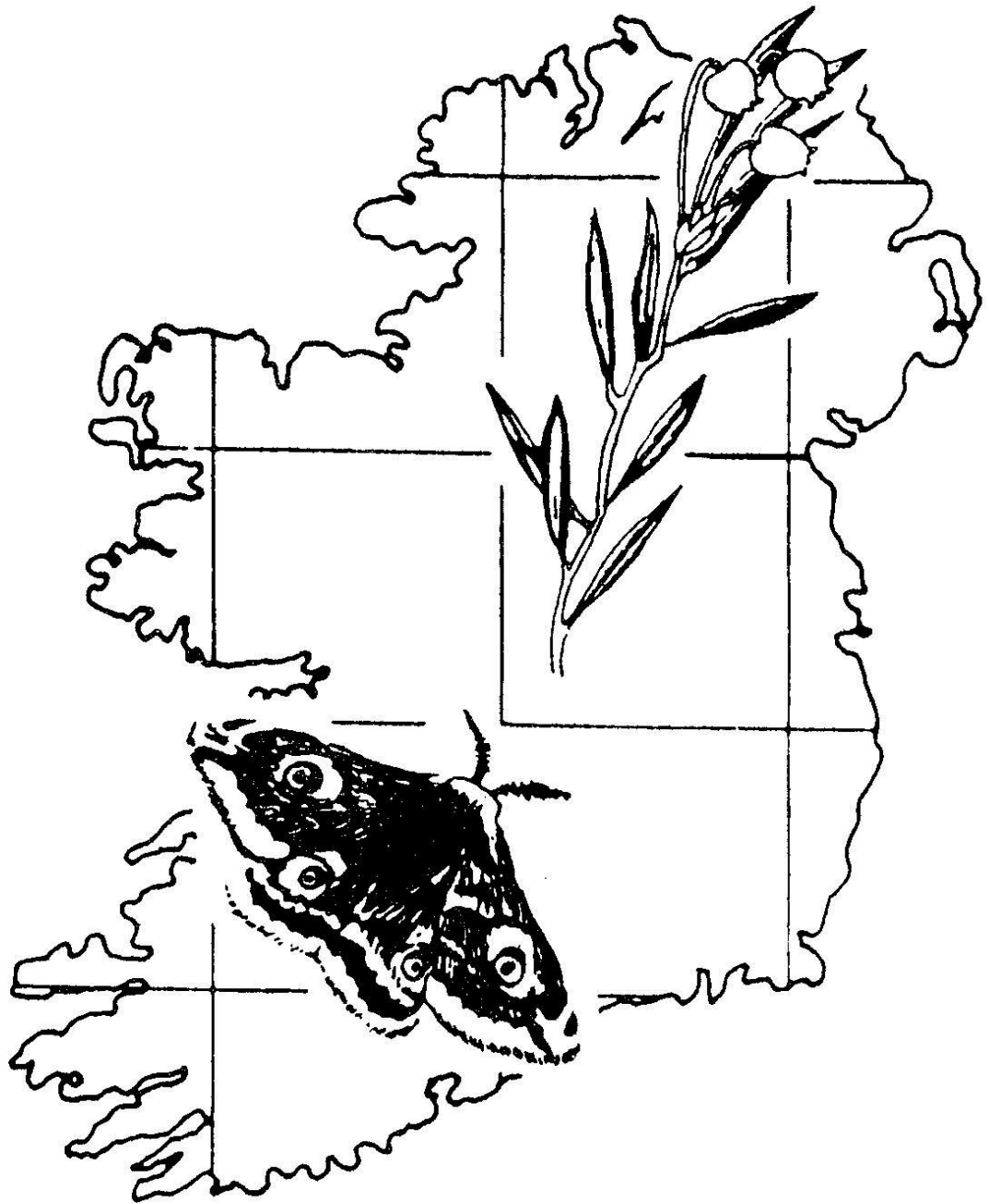


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BULLETIN OF THE IRISH BIOGEOGRAPHICAL SOCIETY

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EDITORIAL

The new format, introduced with *Bulletin* **Number 38**, has been well received by our members. The space and cost savings have been impressive resulting in reduced printing and postal expenses. This year's *Bulletin* is another large one and includes Part 3 of the Irish distribution records of the non-biting midges or Chironomidae. The lead author, Declan Murray, also made other discoveries reported in this issue. As an initiative of the Co. Meath Heritage Plan 2015-2020, the Boyne Valley Natural History Field Club was set up. During its first field outing, Declan discovered seven species new to Co. Meath including one new to Ireland. Afterwards, while on holidays, he found two species new to Portugal.

Jervis Good returns to one of his earlier interests – the earwigs. In a fascinating account, he examines the effect of soil type on female mate choice and male forceps dimorphism. Mary O'Connor and the editor describe further caddisfly records from Co. Fermanagh including two species new to Northern Ireland. *An annotated catalogue and atlas of the caddisflies (Trichoptera) of Ireland* will be published as *Occasional Publication* **Number 11** on the same date as this *Bulletin*.

The scarab bug, *Thyreocoris scarabaeoides*, has been a mysterious shield-bug in Ireland. For a long time it was only known from Co. Wexford based on specimens taken in the nineteen thirties. Subsequently, several entomologists searched for it but with no success. Martin Cawley was fortunate to discover that he had collected a specimen in Co. Waterford during 2004 while looking for spiders. He records this important find. Serguei V. Triapitsyn, an authority on the fairyflies (Mymaridae), recently visited the National Museum of Ireland – Natural History to examine the historic mymarid collection of Alexander Haliday. These tiny wasps attack the eggs of other insects. His contribution deals with some of the important discoveries that he made while examining the type specimens in Dublin.

The marine isopod *Idotea metallica* is a large crustacean associated with surface drifting objects in the sea. After the find of a dead specimen inside a stranded plastic vented bait jar of North American origin near Waterville, Co. Kerry, Declan Quigley and Rosemary Hill have taken the opportunity to review the species' habitats, trophic associations and ecology in North-West European waters. Finally, Myles Nolan provides two erudite papers on the life of the nineteenth century entomologist Alfred Furlong and his links to the carabid beetle *Carabus nitens*.

On behalf of the Society, I would like to thank the authors and referees for such an interesting *Bulletin*, and our sponsors whose financial support is greatly appreciated.

J. P. O'Connor
Editor, 11 November 2015

REVISED INSTRUCTIONS TO AUTHORS

1. Submitted manuscripts should follow the format of articles in *Bulletin Number 39* and other recent issues. The titles of journals should be given in full in the references. The references should be arranged alphabetically with, where relevant, Anon. appearing first.

2. Manuscripts may be submitted by e-mail to the Editor at <joconnor@museum.ie> or *via* our Treasurer Mr John Walsh at <ampersandwalsh@gmail.com>. Figures and photographs should be sent as jpegs. Complex tables should also be sent as jpegs and not in Excel. Remember that all figures and tables should be submitted in a type size which will remain legible after reduction to A5. Typed copy is still acceptable. It should be sent, on A4 paper, using double-spacing and 2.5cm (one inch) margins with the text and any figures on an accompanying compact disc, to the Editor, Dr J. P. O'Connor, Emeritus Entomologist, National Museum of Ireland – Natural History, Merrion Street, Dublin D02 F627, Ireland.

3. Word is preferred and Times New Roman 13pt should be used.

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 the 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 or vice-county and some ecological data about the collection site, plus date of capture.

(d) collector's name and determiner's name (where different from the collector's name), and

(e) altitude data should be included where relevant.

5. Each year, the closing date for submissions will be the 15 October for that year's *Bulletin*. Mss received after that date will be considered for the following year's *Bulletin*. All papers will be refereed and any major changes referred to the author(s) for consideration.

RECORDS OF CHIRONOMIDAE (DIPTERA) FROM COUNTY MEATH INCLUDING *RHEOTANYTARSUS REISSI* LEHMANN, 1970 (TANYTARSINI) NEW TO IRELAND

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Abstract

Seven species are added to the known chironomid fauna of County Meath, one of which, *Rheotanytarsus reissi* Lehmann, 1970 collected from the River Skane, Hydrometric Area 7, is new to the Irish faunal checklist.

Key words: Chironomidae, *Rheotanytarsus reissi*, pupal exuviae, Boyne Valley Natural History Field Club, County Meath, new record, Ireland.

Introduction

As an initiative of the County Meath Heritage Plan 2015 – 2020 (see <www.meath.ie>), the Natural Heritage and Biodiversity Working Group of the County Meath Heritage Forum established the Boyne Valley Natural History Field Club as part of a Biodiversity Strategic Action Plan. It is anticipated that this initiative will promote community appreciation of the natural heritage of Co. Meath - its geology, landscape, flora and fauna, and encourage the recording of biodiversity in Co. Meath by the submission of records to the National Biodiversity Data Centre. At the inaugural field outing of the Boyne Valley Natural History Club, on 23 May 2015, collections of chironomid pupal exuviae were made from aquatic habitats in the wildlife sanctuary of the Missionary Society of St Columban, Dalgan Park, Navan, Co. Meath. Examination of the samples collected yielded a new species record for Ireland and several records new to the county.

Collection sites and methods

Collections of chironomid pupal exuviae were taken at three sites in the grounds of the wildlife sanctuary at Dalgan Park, Navan, Co. Meath. Downstream surface drifting material was collected by net from two sites. Site 1 (Grid reference N901626, latitude/longitude 53.605N, 6.638W) was located on the River Skane, at a bridge approximately 1.0km upstream of its confluence with the River Boyne. Site 2 (Grid reference N898637, latitude/longitude 53.616N, 6.643W) was an unnamed shaded woodland stream approximately 500m upstream of its entry to the R. Boyne. At each site, a drift net was strategically placed to collect surface drifting material

from 17.00 hrs on 22 May to approximately 12.00 hrs on 23 May 2015. Site 3 (Grid reference N900634, latitude/longitude 53.612N, 6.638W) was an isolated drinking trough for cattle. All three sites lie in Hydrometric Area 7 (River Boyne/Blackwater catchment) of the 40 Hydrometric Areas recognised for Ireland (see <www.epa.ie> for further details of Hydrometric Areas). Aliquots of material collected by drift net were later dispensed to a white tray (15x10cm), scanned under a binocular microscope at 10x or 25x magnification and chironomid pupal exuviae were removed and slide mounted for identification following Langton and Visser (2003). Existing Irish distribution data are after Murray *et al.* (2013, 2014, 2015) while data on European distribution are taken from the Fauna Europaea database (Sæther and Spies, 2013).

Results

Examination of the samples collected from the three sites yielded twenty seven species in four subfamilies of Chironomidae (Table 1). Twenty-three species occurred in the Site 1 samples including *Rheotanytarsus reissi* Lehmann, 1970 – a species new to Ireland and *Parametriocnemus stylatus* (Spärck, 1923) which was also among the four species recorded in the shaded woodland stream (Site 2). *Chironomus* (*Chironomus*) *nuditarsis* Keyl, 1961 was the only species found in the animal drinking trough (Site 3). The majority of the species have been previously recorded in Co. Meath and Hydrometric Area 7. However, six species, *Corynoneura lacustris* Edwards, 1924, *Eukiefferiella coeruleascens* (Kieffer, 1926), *Orthocladius* (*Euorthocladius*) *thienemanni* Kieffer, 1906, *Parakiefferiella scandica* Brundin, 1947, *C. (C.) nuditarsis* and *Tanytarsus curticornis* Kieffer, 1911 are new records for Co. Meath. Five of those, excluding *O. (E.) thienemanni*, together with *Orthocladius* (*Euorthocladius*) *rivicola* Kieffer, 1911, known from Hydrometric Area 8 in Co. Meath (Murray *et al.*, 2014), are also new records for Hydrometric Area 7.

Together with *Rheotanytarsus reissi*, the collections yielded a total of seven species recorded for the first time in Co. Meath and Hydrometric Area 7. Lehmann (1970) described *R. reissi* from material collected by Friedrich Reiss in a woodland stream near Bodensee (Lake Constance), Germany but also noted a record of the species from a calcium-rich stream in north-west Spain. *R. reissi* is now known to occur in Britain and continental European countries of Austria, France (and Corsica), Germany, Italy, Poland, Portugal, Slovakia and Spain (Sæther and Spies, 2013).

A voucher slide-mounted specimen (pupal exuviae) of *R. reissi* is deposited in the National Museum of Ireland and data on all records from this study has been submitted to the National Biodiversity Data Centre, Co. Waterford (<www.biodiversityireland.ie>).

It is gratifying that the collections made on the inaugural field outing of the Boyne Valley Natural History Field Club resulted in a new species record for Ireland and a number of new

records for Co. Meath.

Acknowledgements

The author is grateful to: Fr Patrick Raleigh, Regional Director, Missionary Society of St Columban, for permission to collect samples in Dalgan Park; Meath County Council and the Co. Meath Heritage Officer, Loreto Guinan, for her encouragement and support in establishing the Boyne Valley Natural History Club and Ger Clark, Environmental Education Director, Dalgan Park for hospitality, assistance and laboratory facilities at the Columban Education Resource Room, Dalgan Park.

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- Sæther, O. A. and Spies, M. (2013) Fauna Europaea: Chironomidae In Beuk, P and Pape, T. (eds) *Fauna Europaea: Diptera Nematocera. Fauna Europaea version 2.6*. Internet database <<http://www.faunaeur.org/>>.

TABLE 1. Species recorded at Sites 1, 2 and 3, Dalgan, County Meath. \$ = New Irish record. * = New record for Hydrometric Area 7. + = New record for Co. Meath. Existing county and hydrometric area records of the species listed are based on Murray *et al.* (2013, 2014, 2015).

	Site 1	Site 2	Site 3
TANYPODINAE			
<i>Conchapelopia pallidula</i> (Meigen, 1818)		X	
<i>Thienemannimyia laeta</i> (Meigen, 1818)	X		
DIAMESINAE			
<i>Potthastia gaedii</i> (Meigen, 1838)	X		
ORTHOCLADIINAE			
+* <i>Corynoneura lacustris</i> Edwards, 1924	X		
<i>Eukiefferiella claripennis</i> (Lundbeck, 1898)	X		
+* <i>Eukiefferiella coerulescens</i> (Kieffer, 1926)	X		
<i>Eukiefferiella gracei</i> (Edwards, 1929)	X		
<i>Heleniella ornaticollis</i> (Edwards, 1929)	X		
<i>Nanocladius</i> (<i>Nanocladius</i>) <i>dichromus</i> Kieffer, 1906)	X		
* <i>Orthocladius</i> (<i>Euorthocladius</i>) <i>rivicola</i> Kieffer, 1911	X		
+* <i>Orthocladius</i> (<i>Euorthocladius</i>) <i>thienemanni</i> Kieffer, 1906	X		
<i>Orthocladius</i> (<i>Orthocladius</i>) <i>rhyacobius</i> Kieffer, 1911	X		
<i>Orthocladius</i> (<i>Orthocladius</i>) <i>rubicundus</i> (Meigen, 1818)	X		
+ <i>Parakiefferiella scandica</i> Brundin, 1947	X		
<i>Parametriocnemus stylatus</i> (Spärck, 1923)	X	X	
<i>Rheocricotopus</i> (<i>Rheocricotopus</i>) <i>fuscipes</i> (Kieffer, 1909)		X	
<i>Tvetenia calvescens</i> (Edwards, 1929)	X		
CHIRONOMINAE – Chironomini			
+* <i>Chironomus</i> (<i>Chironomus</i>) <i>nuditarsis</i> Keyl, 1961			X
<i>Microtendipes chloris</i> (Meigen, 1818)		X	
<i>Polypedilum</i> (<i>Uresipedilum</i>) <i>convictum</i> (Walker, 1856)	X		
CHIRONOMINAE – Tanytarsini			
<i>Paratanytarsus dissimilis</i> (Johannsen, 1905)	X		
<i>Rheotanytarsus curtistylus</i> (Goetghebuer, 1921)	X		
\$+* <i>Rheotanytarsus reissi</i> Lehmann, 1970	X		
+* <i>Tanytarsus curticornis</i> Kieffer, 1911	X		
<i>Tanytarsus heusdensis</i> Goetghebuer, 1923	X		
<i>Tanytarsus medius</i> Reiss & Fittkau, 1971	X		
<i>Virgatanytarsus arduennensis</i> (Goetghebuer, 1922)	X		

DISTRIBUTION RECORDS OF IRISH CHIRONOMIDAE (DIPTERA): PART 3 - CHIRONOMINAE

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Abstract

This is the third of three papers of records and distribution data for species-level taxa of Chironomidae currently known to occur in Ireland. Information is presented on 234 species-level taxa of the subfamily Chironominae in the tribes Chironomini (140 taxa), Pseudochironomini (1 taxon) and Tanytarsini (93 taxa). The majority of the approximately 8,274 records documented have not been published previously. Four species: *Chironomus* (*Chironomus*) *lacunarius* Wülker, 1973, *Parachironomus danicus* Lehmann, 1970, *Tanytarsus dibranchius* Kieffer, 1926 and *Tanytarsus nemorosus* Edwards, 1929 are reported as new to the Irish chironomid checklist.

Key words: Chironomidae, Chironominae, Ireland, records, distribution

Introduction

This is the third of three papers containing records and distribution data of Chironomidae in Ireland. Part 1 gave 4,360 distribution records of 84 species-level taxa in the subfamilies Buchonomyiinae, Podonominae, Tanypodinae, Telmatogetoninae, Diamesinae and Prodiamesinae (Murray *et al.*, 2013). Part 2 contained 9,420 distribution records for 220 species-level taxa in the subfamily Orthoclaadiinae (Murray *et al.*, 2014). The present paper contains 8,274 records for 234 species-level taxa of Chironominae within which three tribes are recognised: Chironomini Newman, 1834, Pseudochironomini Sæther, 1977 and Tanytarsini Zavřel, 1917. Andersen *et al.* (2013), being uncertain about the monophyletic status of the Pseudochironomini, included *Pseudochironomus* in the tribe Chironomini. However, since there has been no formal proposal or ruling on this matter, the tribe Pseudochironomini is recognised in the present work and distribution data is given for the Chironomini (4,541 records, 140

species level taxa), Pseudochironomini (167 records, 1 species) and Tanytarsini (3,566 records, 93 species-level taxa). Details of location and dates of collection for the majority of records presented here have not been published previously. The revised status of some genus-group taxa as noted in Ekrem (2004), Stur and Ekrem (2005), Epler *et al.* (2013), Spies and Bolton (2013), and Spies and Dettinger-Klemm (2015), is adopted.

New Irish records

Records of four species, *Chironomus (Chironomus) lacunarius* Wülker, 1973, *Parachironomus danicus* Lehmann, 1970, *Tanytarsus dibranhius* Kieffer, 1926 and *Tanytarsus nemorosus* Edwards, 1929 are presented as new additions to the Irish chironomid checklist.

Record citation format

Genera are treated in alphabetic order, species are documented alphabetically within genus and distribution records are cited by County (Fig.1) and Hydrometric Area (Fig. 2). An account of hydrometric areas of Ireland has been given in Part 1 (Murray *et al.*, 2013). County names and Hydrometric Area numbers (HA #) are depicted in bold capital font followed by the water body type and name, district and/or collection site, the Irish Grid Reference (in parentheses) is given as letter and six figure number where possible, followed by date(s) of record(s), collector and source of record (in parentheses). Records from publications, theses or reports are cited by author and year. Where the source is a personal unpublished record by the collector/determinator then his/her initials are given in parentheses and the “collector” entry is omitted avoiding unnecessary duplication. Initials of the collector determinator are provided if the source is a multi-author citation.

The complete dataset of Parts 1, 2 and 3 will be available in pdf format at the <www.irishbiogeographicalociety.com>, the website of the Irish Biogeographical Society. Species distribution maps may also be viewed at the website of the Irish National Biodiversity Data Centre <www.biodiversityireland.ie>

Abbreviations used in the text

AF - A. Fitzgerald, AJOS - A. J. O’Sullivan, BC - B. Connolly, BH - B. Healy, BPH - B. P. Hayes, CAD - C. A. Duigan; CB - C. Bradley; CD - C. Dowling; CFH - C. F. Humphries; CNP - Connemara National Park; DAM - D. A. Murray; DEM - D. E. Morgan; det. - determined; d/s - downstream; DJD - D. J. Douglas; EF - E. Fahy; EPA - Environmental Protection Agency; FC - F. Curran; FWE - F. W. Edwards; GF - G. Free; GM - G. Morgan; GNP - Glenveagh National Park; GO - G. Oliver; GPF - G. P. Forde; HA - Hydrometric Area; HD - H. Daoud; IFT - Inland

Fisheries Trust; JNH - J. N. Halbert; LMcL - L. Mc Larnon; LPR - L. P. Ruse; JPOC - J. P. O'Connor; JRB - J-R. Baars; L - Lough; LJH - L. J. Heneghan; MB - M. Berrigan; MC - M. Carroll; MKQ - M. Kelly-Quinn; MK - M. Kennedy; MT - M Tokeshi, Mt - Mountain / Mount; NH - N. Hackett; NMI - National Museum of Ireland; NOM - N. O'Maoilideigh; PG - P. Gargan; PHG - P. H. Grimshaw; PHL - P. H. Langton; PJA - P. J. Ashe; POD - P. O'Dwyer; R - River; RF - R. French; RH - R. Hernan; RL - R. Little; SF - S. Fahy; SMcB - S. McBean; SR - S. Reilly; UCD - University College Dublin; u/s - upstream; UU - University of Ulster; WM - W. Murray; WMNP - Wicklow Mountains National Park; WT - W. Trodd.

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The senior author acknowledges: colleagues and former students in the Zoology Department, University College Dublin, in particular, Patrick Ashe, Fiona Curran, Dermot Douglas, Colette Dowling, Gregory Forde, Patrick Gargan, Brian Hayes, Liam Heneghan, Robert Hernan, Jane Lynch, Declan Morgan, Churchill C. Omoku and Wayne Trodd who, between 1970 and 2000 undertook directed research projects on Chironomidae and provided some specimens and data incorporated into this work; support for fieldwork on Clare Island and west Mayo in 2002 and 2004 from the Praeger Committee of the Royal Irish Academy during the New Survey of Clare Island; the Heritage Council of Ireland for support through the Wildlife Grant Schemes in 2005 and 2006 (projects WLD/2005/13985 and WLD/2006/14748); research staff of the Environmental Protection Agency - Catherine Bradley, Gary Free, Bryan Kennedy, Ruth Little, Patricia McCreesh, Caroline Plant and Wayne Trodd who collected samples of pupal exuviae in a variety of lakes between 2006 and 2009 and the Agency's Senior Research Officer, Dr Deirdre Tierney, for permission to publish data from analyses of CPET samples; Dr Jan-Robert Baars for providing specimens in collections from small oligotrophic upland Lakes during 2005 and W. A. Murray B.Sc. for assistance with fieldwork, assembly of data, constructive and practical comments on the manuscript and proof reading. P.H Langton acknowledges financial support from the Praeger Committee, Royal Irish Academy, towards a preliminary survey of Chironomidae in Northern Ireland in 2000.

SUBFAMILY CHIRONOMINAE - tribe Chironomini

***Benthalia carbonaria* (Meigen, 1804)**

CAVAN: HA 7 - L. Acurry, Baileborough (N584990), 5 July 2007, EPA (DAM).
FERMANAGH: HA 36 - L. Macnean, upper, Belcoo (H042403), 29 June 2000 (Langton, 2002 sub *Chironomus* (*Lobochironomus*) *dissidens*). **GALWAY: HA 30** - L. Corrib Lower, Hurney (M258310), 18 May 1980, BC (DAM). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 24 June 2008, EPA (DAM): **HA 34** - L. More, Ballynagoraher (G115044), 29 June 2006, EPA

(DAM). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 27 June 2006 and L. Drumore, Drum (H614164), 2 May 2007, EPA (DAM).

Langton (2002) published the first Irish record from a collection in June 2000 at L. Macnean, Co. Fermanagh. An earlier unpublished record is documented here from L. Corrib, Co. Galway in May 1980.

***Chironomus (Chironomus) alpestris* Goetghebuer, 1934**

[*C. dorsalis* Auctt., *C. dorsalis* sensu Strenzke, 1956 (adult male) and sensu Langton and Viser, 2003 (pupal exuviae).]

ARMAGH: HA 6 - L. Camlough, Camlough (J024258), 16 August 2011 (PHL). **GALWAY: HA 32** - pond near Administration Centre, CNP, Letterfrack (L715573), 17 September 1986 (Heneghan, 1987). **MAYO: HA 32** - Demesne garden, Westport (L990845), July 1911, PHG (Grimshaw, 1912): **HA 33** - bog pools, Glenamoy (F896345), 1973, CD (Dowling and Murray, 1981): **Clare Island** - no data (L6885), 1911, PHG (Grimshaw, 1912). **MEATH: HA 7** - cattle drinking trough, Ardsallagh, Navan (N896635) 24 April 2000 (DAM): **HA 8** - Meadesbrook, Kilmoon (O040594), 3 April 1999 and 20 June 2014 (DAM).

***Chironomus (Chironomus) annularius* Auctt. (Meigen, 1818)**

ANTRIM: HA 3 - pool, Leslie Hill, Ballymoney (C935263), 26 September 1999 (PHL). **CORK: HA 19** - L. Gouganebarra, Inchegeelagh (W009060), 27 July 1968 (Murray, 1972). **DERRY: HA 3** - R. Bann, Coleraine (C854304), 23 June 1999 (PHL). Water butt, Kylebeg, Coleraine (C858304), 30 May and 4 July 1999 (PHL/NMI). R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). **DUBLIN: HA 9** - Upper Bohernabreena Reservoir (O095219), April 1947, AF (Fitzgerald, 1947). **GALWAY: HA 30** - L. Corrib Lower, Hurney (M258310), 18 May 1980, BC (DAM). **KERRY: HA 22** - L. Leane, Killarney, Muckross Boathouse (V965866), 29 August 1987, NOM (Murray, 2005).

***Chironomus (Chironomus) anthracinus* Zetterstedt, 1860**

ANTRIM: HA 3 - L. Neagh: Lennymore Bay (J115745), 1930, JS (Skillen, 1931); March 1969, RJM (Marks and Henderson, 1970); Antrim Bay (J135866), 4 May 1999 and 17 March 2000 (PHL); Churchtown Point (J056852), 22 August 2001 (PHL): **HA 4** - pond, Benvarren Garden (C946334), 15 May 2005 (PHL): **HA 5** - L. Mourne, Copeland water, Carrickfergus (J415924), 4 and 8 May 1999 (Langton/NMI). **CAVAN: HA 7** - L. Mullagh, Mullagh (N680856), 27 May 1968 (Murray, 1972): **HA 26** - L. Sheelin, Kilnashard (N435860), March 1984 and October 1987 (DAM). **CLARE: HA 25** - L. Graney: Doorus (R556930), 24 May 2003 (PHL); L. Graney (R568907), 24 May 2003, EPA (PHL): **HA 27** - L. Bunny, south east

shore, Aughrim (R377965), 2 May 2006 and L. Inchicronan, Crusheen west basin (R391860), 8 April 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 3 April 2006, EPA (LPR). **CORK: HA 19** - L. Allua, Ballingearry (W180652), 16 September 2008, EPA (DAM): **HA 20** - L. Abisdealy, Skibbereen (W136314), 9 April 2008, EPA (DAM): **HA 21** - L. Bofinna, Bantry (W041488), 8 April 2008, EPA (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 23 March, 26 April, 10 and 18 May 2001, 17 May 2002 (PHL). Pool near Reservoir, Creggan, Derry (C414171), 18 May 2001 and 17 May 2002 and Lower Reservoir, Creggan, Derry (C422174), 10 May 2001 (PHL): **HA 3** - R. Bann, Coleraine (C854304), 26 April 2001 (PHL). L. Neagh (H9080), anon. (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 1988, Tokeshi (1990); 27 April and 4 May 1999, 7 May 2001 and 15 May 2002 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 17 May 2001 and L. Fea, Draperstown (H760868), 15 May 2002 (PHL). **DONEGAL: HA 36** - L. Avehy, Pettigo (H043664), 27 April 2002 and 28 March 2004 (PHL): **HA 37** - Carn L., Blue Stack Mountains (G871886), 10 May 2005, JRB/MC (DAM). L. Eske, Donegal (G973844), 17 April 2009, EPA (DAM). L. Shinvagh, Ballintra (H005675), 28 March 2004 (PHL): **HA 38** - R. Gweedore, outflow from L. Anure, Crolly (B827184) and L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 13 August 1982, BPH (Murray, 2005). **FERMANAGH: HA 36** - L. Erne, Lower, Black Bay (H072639), 27 April 2002 and 28 March 2004 (PHL). **GALWAY: HA 25** - L. Derg, Meelich Bay, Portumna (M860033), 16 August 1995, C. Moriarty (DAM): **HA 29** - L. Rea, Loughrea (M615154), 25 May 2003 (PHL): **HA 30** - L. Corrib Lower, Hurney (M258310), 9 April 1980, BC (DAM). **KERRY: HA 22** - L. Leane, Killarney: Brickeen (V937850), 3 July 1973; Cow Island (V925897), 27 June 1973; mid lake (V930883), 14 July 1973; Inishfallen (V933893), 11 June 1973; O'Sullivan's Cascade (V916886), 17 April 1973, Douglas and Murray (1980). L. Muckcross (Muckcross Lake), Camilan Bay, Killarney (V943859), March to May 1973, DJD/DAM (Douglas and Murray, 1980). L. Annascaul, Dingle Peninsula (Q589152), 14 April 1981 (BPH). **LEITRIM: HA 26** - L. Natire, north of L. Allen (G966340), 3 August 2005, JRB/MC (DAM): **HA 35** - L. Nabrack, Crocknagapple (G860477), 29 April 2005, JRB (DAM). L. Sandy, Crocknagapple (G891448), 28 April 2005, JRB/MC (DAM). **MAYO: HA 32** - L. Knappabeg, Westport (M010803), 18 September 2008, EPA (DAM). **MONAGHAN: HA 36** - Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **TIPPERARY: HA 18** - Black L., Arra Mountains (R738771), 10 August 2005, JRB (DAM). **WATERFORD: HA 16** - L. Ballyscanlan (Ballyscanlan Reservoir), Tramore (S540030), 19 August 2009, EPA (DAM): **HA 18** - R. Blackwater, Ballyduff (W964992), 31 August 1981 (Hayes, 1991). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), May 1981 (Forde, 1985) and 17 April 1989 (DAM). L. Ennell: Lacy's Canal (N420500), 4 February 1975; Tudenham

(N415466), 2 May 1966 (Murray, 1972); April 1981 (Forde, 1985), 31 January 1986 (DAM). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 13 August 1983, HD (DAM).

***Chironomus (Chironomus) aprilius* Meigen, 1818**

ANTRIM: Rathlin Island - pool (3), east of lighthouse (D156516), 24 July 2000 (PHL). Rock pool, Ushet Point (D153476), 5 July 2004 (PHL). Outflow stream from L. Craigmacagan (D153496), 5 July 2004 (PHL). **DONEGAL: HA 39** - Inch Island impoundment, Inch (C346240), 26 June 1998, BH (DAM). **ARMAGH: HA 3** - Upper R. Bann tributary, Cappagh (J156425), 20 August 1997 (PHL). **LOUTH: HA 6** - unnamed lake, Tremonfeckin (O134804), 18 August 1983 (Murray, 2005). **MAYO: HA 32** - L. Roonagh, south east shore, Roonagh (L749759), 30 September 2004 and Westport L., Westport Woods Hotel, Westport (L985843), 7 May and 30 September 2004, DAM/WM (DAM). “Lough near Westport” ?Ballin L. (L9984), July 1911 and Westport Demesne (L990845), July 1911 (Grimshaw, 1912): **Clare Island** - roadside at Bayview Hotel (L716856), 27 April 2000 (Murray and Murray, 2003). Creggan L., Lecarrow (L689857), 11 June 1998, 13 and 20 August 1999 (Fahy, 2002). **MONAGHAN: HA 36** - Kilroosky L., Clones (H494274), 28 June 2000 (PHL). **WEXFORD: HA 13** - Lady’s Island Lake, Carnsore (T105077), 12 July 1974, BH (DAM). Coastal splash pool, Hook Head Road (X732978), 13 June 2012 (DAM).

***Chironomus (Chironomus) bernensis* Kloetzli, 1973**

ANTRIM: HA 3 - R. Main, Randalstown (J084904), 13 October 2000 (Langton, 2002): **HA 4** - R. Bush, Seneirl Bridge (C943362), 16 July 2000 (Langton, 2002). **CLARE: HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 4 July 2006, EPA (PHL). **DERRY: HA 2** - pool at Roe Valley Park, Limavady (C679201), 9 June and 3 July 2000 (PHL). R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000 (Langton, 2002): **HA 3** - R. Bann, Mountsandel, Coleraine (C852305), 25 April 1999, PHL (NMI, Pe). R. Bann, Coleraine (C854304): 12 April to 5 May and 1 October 1999, 3 May and 3 July 2000 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 14 July and 13 October 2000 also 7 May 2001 (PHL). **DONEGAL: HA 39** - L. Swilly - stagnant drain, Newtown Cunningham (C311197), 21 June 2000 (Langton, 2002). **TYRONE: HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002).

***Chironomus (Chironomus) cingulatus* Meigen, 1830**

CAVAN: HA 7 - L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972). **CLARE: HA 25** - L. Graney, Doorus (R556930), 24 May 2003 (PHL). **DERRY: HA 2** - pool at Roe Valley

Park, Limavady (C679201), 9 June 2000 (Langton, 2002): **HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 21 April 2002 and pond near R. Macquosin, Ballytinagh Road, Coleraine (C854255), 20 August 2006 (PHL). R. Bann, Coleraine (C854304): 10 June to 3 July 1999 and 25 April 2010 (PHL). Pond 1 and pond 3, Magherafelt Golf Course, Traad Point (H955874), 10 May 2000 (Langton, 2002). L. Neagh (H9080), April and May, 1971-1974 (Carter, 1975; McLarnon and Carter, 2000). **DONEGAL: HA 37** - L. Shinvagh, Ballintra (H005675), 27 April 2002 (PHL): **HA 38** - L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 13 August 1982, BPH (DAM). **GALWAY: HA 30** - L. Corrib, no data (M1545), April 1964, NH (Murray, 1972); L. Corrib Lower, Hurney (M258310), 8 May 1980, BC (DAM). **KERRY: HA 22** - L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August 1987, NOM (Murray, 2005). **KILDARE: HA 9** - R. Liffey, Straffan Bridge (N924293), 15 July 1983 (Hayes, 1991). Pond, Lyons Estate, Celbridge (N973288), 18 January 1968 (Murray, 1972). **MEATH: HA 7** - R. Boyne, d/s Bellinter Bridge (N895628), 3 May 1982 (DAM). **MONAGHAN: HA 36** - Kilroosky L., Clones (H494274), 28 June 2000 (Langton, 2002). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 2 May 1966 (Murray, 1972). **WEXFORD: HA 12** - R. Slaney, Scarawash Bridge, Marshalstown (S985451), 9 August 1984 (DAM).

Chironomus (Chironomus) commutatus Keyl, 1960

ARMAGH: HA 3 - Upper R. Bann tributary, Cappagh (J156425), 13 August 1998 (PHL). **DERRY: HA 2** - Binevenagh pond, Coleraine (C691305), 18 May 2000 (Langton, 2002): **HA 3** - R. Bann, Coleraine (C854304), 25 April 2010 (PHL). **DONEGAL: HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982, BPH (Murray, 1996). **GALWAY: HA 25** - R. Woodford, Woodford (M732000), 24 May 2003 (PHL): **HA 31** - R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981, BPH (Murray, 1996). **KERRY: HA 22** - L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August 1987, LJH (DAM). **MAYO: Clare Island** - Creggan L., Lecarrow (L689857), 11 August 1998 and 10 June to 13 August 1999 (Fahy, 2002). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981, BPH (Murray, 1996).

Chironomus (Chironomus) lacunarius Wülker, 1973

New to Ireland

WESTMEATH: HA 36 - L. Bane, Collinstown (N550712), 26 April and 23 May 2006, EPA (PHL).

Chironomus (Chironomus) longistylus Goetghebuer, 1921

ANTRIM: Rathlin Island - Nature Reserve Lough (D095505), 24 July 2000 (Langton, 2002).

DERRY: HA 1 - Lower Reservoir, Creggan, Derry (C422174), 26 April 2001 (PHL): **HA 2** - pool at Roe Valley Park, Limavady (C679201), 9 June 2000 (Langton, 2002): **HA 3** - bog pool, Glenullin, Garvagh (C795132), 7 June 2008 (PHL). R. Bann, Coleraine (C854304), 10 June 1999 and 16 July 2000 (PHL). **FERMANAGH: HA 36** - Dummy's L., Magheraveely (H488276), 28 June 2000 (Langton, 2002). **GALWAY: HA 30** - L. Corrib Lower, Hurney (M258310), 24 April 1980, BC (DAM): **HA 32** - pond near Administration Centre, CNP, Letterfrack (L715575), 16 September 1986 (Heneghan, 1987). **MEATH: HA 7** - R. Boyne, d/s Bellinter Bridge (N895628), 3 May 1982 (DAM) and Ardsallagh (N894640), 22 April 2005 (Murray, 2005). **MONAGHAN: HA 36** - Kilroosky L., Clones (H494274), 28 June 2000 (Langton, 2002). **WICKLOW: HA 9** - bog pool, Featherbed Mountain, Sally Gap (O130113), August 1975 (DAM).

***Chironomus (Chironomus) lugubris* Zetterstedt, 1850**

ANTRIM: HA 3 - L. Neagh, Lennymore Bay, north shore (J115745), 1966 (Marks and Henderson, 1970). **GALWAY: HA 32** - stream near Administration Centre, CNP, Letterfrack (L716573), 17 September 1986 (Heneghan, 1987). **WICKLOW: HA 9** - bog pool, Featherbed Mountain, Sally Gap (O130113), 27 August 1981 (DAM).

***Chironomus (Chironomus) luridus* Strenzke, 1959**

ANTRIM: Rathlin Island - *Menyanthes* pool (D123515), 6 July 2004 (PHL). **ARMAGH: HA 3** - Upper R. Bann tributary, Cappagh (J156425), 20 August 1997 (PHL). **CAVAN: HA 36** - R. Erne, Kilsarin (N362910), 27 May 1982 (Hayes, 1991); R. Erne, Drumbarry (N462951), 17 August 1982 (Hayes, 1991). **CORK: HA 18** - R. Blackwater, Knocknagree (W159975) and Duncannon (W180931), 2 September 1981 (Hayes, 1991). **DERRY: HA 1** - pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL): **HA 3** - Downhill Forest lake (C757353) and Bishops Gate, Coleraine (C762361), 21 August 2001 (PHL). R. Agivey, Garvagh (C838154), 30 May 2002 (PHL). Pond, near R. Macquosin, Ballytinagh Road, Coleraine (C854255), 18 April and 16 May 2004 (PHL). R. Bann, Coleraine (C854304), 18 June 1999 (PHL). Water butt, Kylebeg, Coleraine (C858304), 13 and 27 July 2000, 21 April 2001, 29 March and 19 April 2002, 26 April 2004, 27 July 2007 and 4 May 2008 (all PHL). Pond 3, Magherafelt Golf Course, Traad Point (H955874), 10 May 2000 and R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). **DONEGAL: HA 39** - L. Swilly, stagnant drain, Newtown Cunningham (C311197), 21 June 2000 and R. Glashagh, Drumbolage, Letterkenny (C096153), 18 July 2000 (Langton, 2002). **DOWN: HA 3** - Upper R. Bann tributary, Hilltown (J210294), 27 March 1998, LMCL (PHL). **DUBLIN: HA 9** - Woodview Pond, Belfield, UCD (O186203), 24 June 1966 (DAM); Rain-filled exposed small tank on roof

of Science Centre, Belfield, UCD, (O182301), 13 April 1981, PJA (DAM); Rain-filled plastic dustbin in garden, Castleknock (O090370), 22 April 2015, JPOC (DAM). **FERMANAGH: HA 36** - R. Colebrook tributary, Tullyweel, Fivemiletown (H416474), 15 September 1997 and R. Colebrook, Tattenbuddagh Bridge, Brookeborough (H458428), 3 October 1997 (PHL). **GALWAY: HA 25** - R. Woodford, Woodford (M732000), 24 May 2003 (PHL). **MEATH: HA 8** - water tank, Meadesbrook, Kilmoon (O040594), 14 March 1986, 3 April 1999, also 24 April, 16 June, 7 and 30 October 2012, 13 April 2014 and 12 April 2015 (all DAM). **MONAGHAN: HA 36** - Kilroosky L., Clones (H494274), 28 June 2000 (Langton, 2002). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 29 July 1981 (Hayes, 1991).

***Chironomus (Chironomus) nuditarsis* Keyl, 1961**

ANTRIM: HA 3 - pool, Leslie Hill, Ballymoney (C935263), 26 September 1999 (PHL). **ARMAGH: HA 3** - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (PHL). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 25 May 2003 (PHL). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 26 April and 18 May 2001 (PHL). Pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL). Lower Reservoir, Creggan, Derry (C422174), 10 May 2001 (PHL): **HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 22 April 2001 (PHL). Downhill Forest lake, Coleraine (C757353), 21 August 2001 (PHL). Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May 2000 (Langton, 2002) and 21 August 2001 (PHL). R. Bann, Coleraine (C854304): 18 June 1999, 18 and 25 April 2010 (PHL). L. Neagh, Ballyronan (H948862), 22 May 2011 (PHL). **DONEGAL: HA 39** - L. Fern, Milford (C182247), 18 August 2011 (PHL). L. Swilly, stagnant drain, Newtown Cunningham (C311197), 21 June 2000 (Langton, 2002). **GALWAY: HA 25** - R. Woodford, Woodford (M732000), 24 May 2003 (PHL): **HA 29** - L. Rea, Loughrea (M615154), 25 May 2003 (PHL). **LEITRIM: HA 26** - pond in walled garden, Lough Rynn Castle (N098936), 25 September 2014 (DAM). **MEATH: HA 7** - cattle drinking trough in field, Dalgan Park, Navan (N9006347), 23 May 2015 (Murray, 2015a). **MONAGHAN: HA 36** - Kilroosky L., Clones (H494274), 28 June 2000 (Langton, 2002). **TYRONE: HA 1** - L a' Tirrive, Mulderg, Mountfield (H534778), 16 August 2011 (PHL).

***Chironomus (Chironomus) nudiventris* Ryser, Scholl and Wülker, 1983**

ANTRIM: HA 3 - L. Neagh: Antrim Bay (J135866), 4 May 1999; Churchtown Point (J056852), 22 and 31 May 2011 (PHL). **DERRY: HA 3** - Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May 2000 (Langton, 2002). Balinrees Reservoir, Coleraine (C794300), 9 June 2000 (Langton, 2002). R. Bann, Coleraine (C854304): 13 May to 13 October 1999, 3 May to 8 October 2000, 27 April 2001 and 22 September 2002 (all PHL). Water butt,

Kylebeg, Coleraine (C858304), 28 August 2002 (PHL). R. Agivey, Glascort Bridge (C907226), 16 July 2000 (Langton, 2002). Pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). L. Neagh, Ballyronan (H948862), 4 May 1999, 10 May and 4 July 2000, 22 August 2001 and 15 May 2002 (all Langton, 2002). **DONEGAL: HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002): **HA 39** - Inch Island impoundment, Inch (C346240), 18 August 2011 (PHL). **FERMANAGH: HA 36** - L. Erne Upper, slipway (H362242) and Crom Castle, Newtownbutler (H357244), 27 June 2000 (Langton, 2002). **TYRONE: HA 3** - L. Neagh, Washing Bay, Coalisland (H903662), 15 and 30 May 2002 (PHL).

***Chironomus (Chironomus) obtusidens* Goetghebuer, 1921**

ANTRIM: HA 4 - park pond, Carnfunnock (D379069), 20 June 2000 (Langton, 2002): **HA 5** - Three-mile-water, Mossley (J380892), 4 May 1999, SMcB (PHL). **CAVAN: HA 26** - L. Sheelin, Gore Point (N439817), 18 May 1982, PG (DAM). **DONEGAL: HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153), 18 July 2000 (Langton, 2002). **GALWAY: HA 30** - L. Corrib Upper, Dereenmeel (M119465), 18 April 1980, BC (DAM). **KERRY: HA 22** - L. Leane, Killarney, Muckross Boathouse (V965866), 27 August 1987, NOM (Murray, 2005). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 13 August 1983, HD (DAM).

***Chironomus (Chironomus) pallidivittatus* Edwards, 1929**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 August 2001 (Langton, 2004): **Rathlin Island** - outflow stream from L. Craigmacagan (D153496), 5 July 2004, L. Craigmacagan (D154498) and *Menyanthes* pool (D123515), 6 July 2004 also pool east of lighthouse (D156516), 7 July 2004 (all PHL). **CLARE: HA 27** - L. Muckanagh, Tubber, Corrofin (R368926), 2 August 2006, EPA (PHL). **DERRY: HA 1** - pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (Langton, 2004): **HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 7 July 2002 (Langton, 2004). R. Bann, Coleraine (C855304), 25 June 2010 (PHL). **DONEGAL: HA 39** - Inch Island impoundment, Inch (C346240), 18 August 2011 (PHL). **GALWAY: HA 29** - L. Rea, Loughrea (M624153), 25 May 2003 (Langton, 2004). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 26 June 2006 (EPA). **WEXFORD: HA 12** - North Slob, Wexford (T090248), 5 September 2002, G. Oliver (Murray, 2005).

***Chironomus (Chironomus) piger* Strenzke, 1956**

CLARE: HA 27 - L. Bunny, Aughrim, south east shore (R377965), 25 May 2003 (PHL).

DERRY: HA 1 - pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL): **HA 2** - R. Owenbeg, Feeny picnic area, Feeny (C645058), 26 June 2000; R. Bessbrook, Limavady (C655212), 9 June 2000; pool at Roe Valley Park, Limavady (C679201), 9 June 2000; R. Roe, Deerpark Wood, Limavaddy (C682203), 9 June 2000 and R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000 (all Langton, 2002): **HA 3** - R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). Howell's Tarn, Ballywildrick, Coleraine (C766325), 7 and 21 April 2002; Downhill Forest lake, Coleraine (C757353), 24 March 2002; R. Bann, Coleraine (C854304) 26 April and 5 May 1999; Water butt, Kylebeg, Coleraine (C858304), 12 March 1999; Coleraine (C855308), 16 July 2000; Pond, University of Ulster Campus (C846339), 8 June 2003 and pond, Bohill Hotel, Danes Hill, Coleraine (C867344), 30 September 1999 (all PHL). **DONEGAL: HA 39** - L. Swilly, stagnant drain, Newtown Cunningham (C311197), 21 June 2000 (Langton, 2002): **HA 40** - outdoor bucket, Lagacurry, Doagh (C425515), 15 May 2004 and R. Keenagh, Keenagh Bridge, Malin Head (C435555), 18 August 2011 (PHL). **DOWN: HA 3** - Eel Burn, Shanrod House, Shanrod (J223477), 19 September 1997, LMCL (PHL). **FERMANAGH: HA 36** - R. Colebrook tributary (1), Drumcleave, Brookeborough (H367427), 24 September 1998 (PHL). **GALWAY: HA 30** - pool at lay-by picnic site on road N59, Moycullen (M204336), 25 May 2003 (PHL). **MAYO: HA 32** - pond, Laghta, west side of road, Laghta (L845759), 7 May 2004, DAM/WM (DAM): **HA 33** - pool/stream, Campport, Achill Island (L677982), 29 September 2004, DAM/WM (DAM). **MEATH: HA 8** - in a rain-filled bucket, Meadesbrook, Kilmoon (O040594), 7 October 2012 (DAM). **TYRONE: HA 1** - pool by R. Glenelly, Upper Barnes (H553904), 17 August 2011 (PHL). **WEXFORD: HA 13** - animal drinking trough, Horetown House (S870188), 12 June 2012 (DAM).

Chironomus (Chironomus) pilicornis (Fabricius, 1787)

CAVAN: HA 7 - L. Cuilcagh, Virginia (N636895), 30 April 1968 (Murray, 1972). **DERRY: HA 3** - L. Neagh (H9080), no date (McLarnon and Carter, 2000). **MEATH: HA 7** - Headford Pond, Kells (N752763), 28 March 1968 (Murray, 1972). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), August 1979, NH (BPH).

Chironomus (Chironomus) plumosus (Linnaeus, 1758)

ANTRIM: HA 3 - L. Neagh: Lennymore Bay, north shore (J115745), 1965 (Marks and Henderson, 1970); Churchtown Point (J056852), 22 August 2001 and 31 May 2011 (PHL). Pond, Templepatrick (J232856), 26 August 2008 (PHL): **HA 5** - Three-mile-water, Mossley (J380892), 4 May 1999, SMcB (PHL): **Rathlin Island** - L. Ally (D154497) and L. Nanskan (D108524), 24 July 2000 (Langton, 2002). Ushet L. (D154485), 5 July 2004 (PHL).

ARMAGH: HA 6 - L. Camlough (Reservoir), Camlough (J024258), 16 August 2011 (PHL). **CAVAN: HA 7** - L. Acurry, Baileborough (N584990), 5 July 2007, EPA (DAM). L. Ramor, Virginia (N595870), 25 May 1967 (Murray, 1972) and May 1971 (Douglas, 1971). L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972): **HA 26** - L. Sheelin, Kilnahard (N435860), 19 August 1971, NH (DAM): **HA 36** - Glasshouse L., Killashandra (H270060), 7 June 2007, and L. Garty, Arvagh (N278978), 12 April, 7 June and 18 July 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus (R556930), 24 May 2003 (PHL): **HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 4 July 2006, EPA (PHL). L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009, EPA (DAM). **CORK: HA 20** - L. Curraghally, Drinagh, Dunmanway (W234046), 9 April 2008 and L. Ballin, Leap (W199389), 17 June 2008, EPA (DAM): **HA 21** - L. Avaul, Glengarrif (V910553), 19 May 1969 and L. Reenydonegan, Bantry (W000515), 16 September 1969, NH (Bracken and Murray, 1973). **DERRY: HA 1** - pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL): **HA 3** - Balinrees Reservoir, Coleraine (C794300), 9 June 2000; Downhill Lake, Bishops Gate, Coleraine (C762361), 21 August 2001 and Howell's Tarn, Ballywildrick, Coleraine (C766325), 21 April and 7 July 2002 (all PHL). R. Bann, Coleraine (C854304), 2 May and 16 July 2010 (PHL). Water butt, Kylebeg, Coleraine (C858304), 20 August 2002 (PHL). Pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). L. Neagh: no site data (H9080), April and May, 1971-1974 (Carter, 1975; McLarnon and Carter, 2000); Ballyronan (H948862), 1988 (Tokeshi, 1990) also 27 April and 4 and 25 May 1999 (PHL). **DONEGAL: HA 39** - L. Fern, Millford (C180233), 23 July 2009, EPA (DAM) and L. Fern, (C182247), 18 August 2011 (PHL). Inch Island impoundment, Inch (C346240), 18 August 2011 (PHL). **DOWN: HA 5** - Bow L., Ballynahinch (J354577), 22 June 2000 (Langton, 2002). **FERMANAGH: HA 36** - L. Erne Upper, Newtownbutler, slipway (H362242) and Crom Castle (H357244), 27 June 2000; L. Killyfole (Mill L.), Rosslea (H464314), 28 June 2000; L. Kilturk, Newtownbutler, south shore (H374255), 27 June 2000; L. Lattone, Kiltyclogher (H003456) and L. Macnean, lower, Belcoo (H085384), 29 June 2000 (all Langton, 2002). L. Eyes, Lisbellaw (H324434), 16 August 2011 (PHL). **GALWAY: HA 25** - L. Derg, Meelich Bay, Portumna (M860033), 16 August 1995, C. Moriarty (Murray, 2005). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 25 May 2003 (PHL): **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 June and 8 August 2007, EPA (DAM). L. Corrib: Oughterard (M119452), April 1964, NH (Murray, 1972); Hurney's Point (M256315), 9 April 1980 and Knockferry (M230410), 18 May 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL). **KERRY: HA 22** - L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August 1987, NOM (DAM). R. Flesk, u/s L. Leane (V964894), August 1978 (Ashe, 1982). **KILDARE: HA 9** - R. Liffey, Straffan Bridge (N924293), 16 July 1983, BPH (Murray, 2005). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June

and 24 July 2008, EPA (DAM). L. Rinn, Mohill (N095943), 10 September 2008, EPA (DAM). **MAYO: HA 32** - Louisburg (L807807), 1910, JNH; R. Owenwee, Belclare, Westport (L960820), July 1911, PHG; Westport Demesne, Westport (L9984), July 1911, PHG (all Grimshaw, 1912). L. Carrokeel, Murrisk (L924830), 5 August 2004, DAM/WM (DAM): **HA 33** - Achill Island, north east (F7207), 1910, JNH (Grimshaw, 1912, as *Tendipes annularis* DeGeer). **MONAGHAN: HA 36** - L. Drumlona, Rockcorry (H636176), 4 April 2007, EPA (DAM). L. Inner, Dartery, Drum (H625173), 6 June and 10 July 2007, EPA (DAM). **OFFALY: HA 25** - bog lake, Turraun (N172185), June 1998 (DAM). R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). **TYRONE: HA 3** - L. Neagh, Washing Bay, Coalisland (H903662), 15 May 2002 (PHL). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 3 March 1980, NH (BPH), May 1981 (Forde, 1985) and 17 April 1989 (DAM). L. Ennell: Lacy's Canal (N420500), 4 February 1975 (DAM); Tudenham (N415466), 14 June 1966 (Murray, 1972) and 3 June 1985 (BPH): **HA 36** - L. Bane, Collinstown (N550712), 26 June 2006 (EPA). **WICKLOW: HA 10** - Vartry Reservoir, Roundwood, south east shore (O214002), 12 July 1983, HD (DAM).

Chironomus (Chironomus) prasinus sensu Pinder (1978) and Langton & Visser (2003)

CLARE: HA 25 - L. Graney, Doorus (R556930), 24 May 2003 (PHL). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 25 May 2003 (PHL/NMI): **HA 30** - stream at lay-by on road N59, Moycullen (M204326), 25 May 2003 (PHL). L. Corrib, no location data (M1545), 9 June 1964, NH (DAM). First reported from L. Corrib by Murray (1972) as *Chironomus plumosus* var *prasinatus* Meigen determined from Coe (1950) following Edwards (1929).

Chironomus (Chironomus) pseudothummi Strenzke, 1959

ANTRIM: Rathlin Island - pool (1), east of lighthouse (D163521), 24 July 2000 (Langton, 2002). **CLARE: HA 27** - L. Bunny, south east shore, Aughrim (R377965), 4 July 2006, EPA (EPA). **CORK: HA 21** - L. Reenydonegan, Bantry (W000515), 7 July 1969, NH (Bracken and Murray, 1973). **DUBLIN: HA9** - lake in Zoological Gardens, Dublin - formerly in grounds of Aras an Uachtarain (O129353), 23 July 1987, DAM. **GALWAY: HA 32** - pond near Administration Centre, CNP, Letterfrack (L715575), 16 September 1986 (Heneghan, 1987); stream near Administration Centre, CNP, Letterfrack (L716574), 16 September 1986 (Heneghan, 1987): **HA 33** - bog pools, Glenamoy (F896345), 1973, CD (Dowling and Murray, 1981): **Clare Island** - wetland, Ballytouhy (L696882), 20 August 2002; pond east side of Maum road (L710863), 28 April 2000; stream, Fawnglass (L713854), 4 June 2002 (Murray and Murray, 2003). Creggan L., Lecarrow (L689857), 2 and 11 June, 1 September 1998 and 10 June

1999 (Fahy, 2002). Humic pond, Bunnamohaun (L659846), 21 August 2002 (Murray and Murray, 2003). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 26 June 2006 (EPA).

***Chironomus (Chironomus) riparius* Meigen, 1804**

ANTRIM: HA 3 - L. Neagh, Lennymore Bay, north shore (J115745), 1966 (Marks and Henderson, 1970) and Ballyronan (H948862), 1988 (Tokeshi, 1990): **HA 4** - coastal impoundment, Murlough Bay (D198420), 27 March 2003 (PHL): **Rathlin Island** - L. Ally (D153494), 5 July 2004 (PHL). **CAVAN: HA 36** - R. Erne, Carrigan (N391935), August 1982, BPH (Murray, 2005). **DONEGAL: HA 39** - Inch Island impoundment, Inch (C346240), 18 August 2011 (PHL). **DOWN: HA 3** - Upper R. Bann tributary, Shanrod (J215453), 14 August 1998, LMCL (PHL). **KERRY: HA 22** - R. Flesk, u/s L. Leane (V964894), August 1978 (Ashe, 1982). **MAYO: HA 32** - Westport Demesne (L9984), July 1911 and Demesne garden, Westport (L990845), July 1911, PHG (Grimshaw, 1912). R. Owenwee, u/s Aghamore Bridge, Westport (L972817), 8 May 2003, DAM/WM (DAM): **HA 33** - Glendarary, Achill Island (L723997), July 1911, JNH (Grimshaw, 1912): **Clare Island** - Creggan L., Lecarrow (L689857), 11 June to 13 October 1998 and 10 June to 12 October 1999 (Fahy, 2002). **MEATH: HA 7** - R. Boyne, Ardsallagh, Navan, at St Bridget's Well (N897635), 7 July 1988 and Stackallen Bridge (N917713), 17 August 1988 (Murray, 1988). Artificial tank, Ardsallagh, Navan (N896635), 8 May 2005 (DAM). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 1 April 1981, BPH (DAM); Briarfield Turlough, Tulsk (M815760), 25 April 1986, CAD (DAM). **TIPPERARY: HA 16** - stream, Cahir (S048239), 1 November 1981, BPH (Murray, 2005).

***Chironomus (Chironomus) salinarius* Kieffer, 1915**

CORK: HA 21 - L. Reenydonegan, Bantry (W000515), 19 May 1969, NH (Bracken and Murray, 1973). **DONEGAL: HA 39** - L. Swilly, Newtown Cunningham, stagnant drain (C311197) and impoundment (C306195), 21 June 2002 (Langton, 2002). **GALWAY: HA 31** - saline lagoon, Carafinla, Cashla (L963290), 10 August 1998, BH (DAM). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 23 July 1984 (Murray, 2005).

***Chironomus (Chironomus) striatus* Strenzke, 1959**

CAVAN: HA 26 - L. Sheelin, Gore Point (ex trout stomach) (N439817), May 1983, PG (Murray, 2005).

***Chironomus (Chironomus) tentans* Fabricius, 1805**

ANTRIM: Rathlin Island - L. Craigmacagan (D154498), 24 July 2000 (Langton, 2002).

CAVAN: HA 7 - L. Mullagh, Mullagh (N680856), 6 June 1968 (Murray, 1972): **HA 26** - L. Sheelin, Kilnahard (N435860), 29 May 1978 (DAM): **HA 36** - L. Ardan, Milltown, Belturbet (H354124), 6 June 2007; L. Atrain, Gartbrattan, Cavan (H364051), 12 April 2007; L. Oughter, Killashandra (H349051), 17 July 2007 and L. Sillan, Shercock (H705067), 19 April and 8 June 2007 all EPA (DAM). **CLARE: HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 21 April 2009; L. Bunny, Aughrim, south east shore (R377965), 10 May 2005, 5 September 2006 and 11 June 2009 and L. Dromore, Ruan, Corrofin, west basin (R345858), 4 May 2006, all EPA (DAM). **CORK: HA 20** - L. Abisdealy, Skibbereen (W136314), 17 September 2008, EPA (DAM). **DONEGAL: HA 38** - L. Scalpachore, Cruit Island (B730216), 19 July 2000 (Langton, 2002). L. Fallaneas, Kindrum (C173424), 30 April 2009 and L. Kinny, Fanad (C204442), 21 July 2009, EPA (DAM): **Tory Island** - L. ‘Dheas (B845464), 28 June 1998, BH (DAM). **FERMANAGH: HA 36** - L. Inver, Rosslea (H518314), 28 June 2000 (Langton, 2002). **GALWAY: HA 26** - L. Acalla, Ballinasloe (M720344), 7 July 1964 (Murray, 1972): **HA 29** - L. Rea, Loughrea (M615154), 25 May 2003 (PHL) and 7 August 2007, EPA (DAM): **HA 30** - L. Corrib: no data (M1545), 9 June 1964, NH (Murray, 1972); L. Corrib Upper, west shore (M138486), 11 June 2007, EPA (DAM); L. Corrib Lower, Hurney (M258310), 16 April 1980, BC (DAM) and Moycullen (M271360), 11 June and 28 September 2007, EPA (DAM). **LIMERICK: HA 24** - L. Gur, Holycross (R646269), 28 July 2009, EPA (DAM). **MAYO: HA 30** - L. Carra, Ballinrobe (M165680), 25 August 1964, NH (Murray, 1972). L. Mask, Ferry Bridge, Clonbur (M065584), 12 May 1987 (DAM); mid east shore, Cushlough Pier, Ballinrobe (M153650), 22 July 1966, NH (Murray, 1972); west shore, north of Toormakeady (M113702), 24 June 2008, EPA (DAM): **HA 32** - “Lough near Westport” ?Ballin L. (L9984), July 1911, PHG (Grimshaw, 1912). Ballin L., north shore, Westport (L996882), 25 June 2008, EPA (DAM): **HA 34** - L. Conn, Cloghans, north east shore (G205133), 7 July 1965, AJOS (Murray, 1972). L. Cullin, Drummon Wood, Pontoon (G235048), 22 August 1995, DAM/WM (DAM). L. Cornagushlaun, Castlebar (M125892), 25 June 1965, NH (Murray, 1972): **Clare Island** - no data (L6885), June 1911, PHG (Grimshaw, 1912). Creggan L., Lecarrow (L689857), 11 June to 1 September 1998 and 10 June to 20 August 1999 (Fahy, 2002). **MONAGHAN: HA 36** - L. Cloonkeen, Clones (H508246), May 1964, NH (Murray, 1972). Kilroosky L., Clones (H494274), 28 June 2000 (Langton, 2002). **OFFALY: HA 25** - bog lake 1, Turraun (N172185) and bog lake 2, Turraun (N150230), 3 June 1999, DAM (Murray, 2005). L. Derryadd, Ferbane (N100240), June 1966, NH (Murray, 1972). **ROSCOMMON: HA 26** - L. Glinn, Loughglinn, Castlerea (M629870), 12 June 2008, EPA (DAM). **SLIGO: HA 26** - L. Gara, Cuppanagh, Cloonlough (G714013), 26 June 2008 and Monastredan (M708996), 5 September 2008, EPA (DAM). **TYRONE: HA 3** - L. Neagh, Washing Bay, Coalisland (H903662), 15 May 2002 (PHL). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 1 September 2009,

EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 10 August 1971, NH (DAM); 9 August 1979 and 3 March 1980, BPH (Hayes, 1980). L. Ennell, Tudenham (N415466), 14 June 1966 and 4 August 1968, DAM (Murray, 1972), 27 June 1979 (Murray, 2005) and 3 April 1981, GPF (DAM): **HA 26** - L. Killinure, Wineport (N067458), 24 April 2007 and L. Derravaragh, Crookedwood (N468634), 25 June 2007, EPA (DAM): **HA 36** - L. Bane, Collinstown (N550712), 23 May, 26 June and 22 August 2006 (EPA). **WEXFORD: HA 13** - L. Ballyteige, Wexford (S936066), 14 July 1998, BH (DAM).

***Chironomus* sp. A - sensu Pinder, 1978**

CAVAN: HA 26 - L. Sheelin, Gore Point (ex trout stomach) (N439817), 18 May 1982, PG (DAM). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 18 September 2007, EPA (DAM): **HA 30** - L. Corrib, Knockferry (M230410), 28 April 1980, BC (DAM). **WESTMEATH: HA 25** - L. Owel, outflow canal, Cullion (N424563), 22 May 1973, BPH (Murray, 2005).

***Chironomus (Lobochironomus) dorsalis* Meigen, 1818**

[As *Einfeldia longipes* Staeger, 1839 in Murray and Ashe (1983)]

MAYO: HA 30 - L. Carra, Keel Bridge, Ballinrobe (M165680), 5 July 1974, (DAM). L. Corrib lower, west shore, Hurney (M258310), 19 May 1980, BC (DAM).

***Cladopelma bicarinatum* (Brundin, 1947)**

GALWAY: HA 32 - L. Enask, Beaghcauneen (L662468), 6 June 2007, EPA (DAM). **KERRY: HA 21** - L. Currane, Waterville (V535664), 22 July 2008, EPA (Murray, 2010): **HA 22** - L. Cummernamuck, Killorglin (V745897), 20 June 2008, EPA (Murray, 2010). L. Guitane, Crohane, Killarney (W025846), 8 July 2008, EPA (Murray, 2010). **LEITRIM: HA 35** - L. Annary, Dromahair (G817338), 10 June and 23 July 2008, EPA (Murray, 2010).

***Cladopelma goetghebueri* Spies and Sæther, 2004**

CAVAN: HA 7 - L. Drumkeery, Baileborough (H663002), 16 July 2007, EPA (DAM): **HA 36** - L. Cuillaghan, Ballyconnell (H303183), 6 June 2007, EPA (DAM). **CLARE: HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 7 June 2006, EPA (PHL). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 4 June 1969, NH (Murray, 2005). **DONEGAL: HA 38** - L. Keel, Kilmacrennan (C158243), 2 April and 16 June 2009, EPA (DAM). **GALWAY: HA 30** - L. Beaghcauneen, Ballinaboy (L679470), 6 June 2007 and L. Lettercraffroe, Oughterard (M056376), 14 June 2007, EPA (DAM): **HA 31** - L. Aunwillan, Carraroe (L936255), 25 July 2007; L. Ballynahinch, Ballynahinch (L777478), 6 June and 23 July 2007 and L. Illauntrasna, Glentrasna, Garomna (L888254), 6 June 2007, EPA (DAM): **HA 32** - L. Enask, Beaghcauneen

(L662468), 6 June and 17 July 2007 and L. Ballynakill, Cleggan (L639581), 11 September 2007, EPA (DAM). **KERRY: HA 21** - L. Currane, Waterville (V535664), 9 May 2008 and L. Inchiquin, Kenmare (V837629), 18 June 2008, EPA (DAM): **HA 22** - L. Cummernamuck, Killorglin (V745897), 20 June 2008 and L. Leane, Killarney (V931886), 24 June 2008, EPA (DAM). **LEITRIM: HA 26** - L. Rinn, Mohill (N095943), 25 June, 18 July and 10 September 2008, EPA (DAM): **HA 35** - L. Annary, Dromahair (G817338), 23 July 2008 and L. Belhavel, Killarga, Dromahair (G878288), 26 August 2008, EPA (DAM).

***Cladopelma krusemani* (Goetghebuer, 1935)**

ANTRIM: Rathlin Island - pool 1 (D163521) and pool 2 (D164520), east of lighthouse, 24 July 2000 (Langton, 2002). **DONEGAL: HA 38** - L. Veagh, north east shore, Glenveagh (C038236), 24 July 1985 (Heneghan, 1986). **MAYO: Clare Island** - L. Leinapollbauty, Lecarrow (L691856), 5 June 2002 and Creggan L., Lecarrow (L689857), 21 August 2002 (Murray and Murray, 2003).

***Cladopelma virescens* (Meigen, 1818)**

CAVAN: HA 36 - L. Atrain, Gartbrattan, Cavan (H364051), 16 September 2007, EPA (Murray, 2010). **DONEGAL: HA 38** - L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (Murray, 2010). L. Kiltoris, Dawros, Ardara (G675976), 30 July 2009, EPA (DAM). **GALWAY: HA 30** - L. Ross, Moycullen (M188365), 5 September 2007, EPA (Murray, 2010). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (Murray, 2010). L. Rinn, Mohill (N095943), 18 July 2008, EPA (Murray, 2010). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 18 September 2008, EPA (DAM). **TIPPERARY: HA 16** - R. Suir, Kilsheelin (S285120), 1966, MK (Murray, 1972 as *C. laccophilus* Kieffer).

***Cladopelma viridulum* (Linnaeus, 1767)**

ANTRIM: Rathlin Island - L. Ally (D153494), 5 July 2004 (PHL) and L. Nanskan (D108524), 24 July 2000 (Langton, 2002). **CAVAN: HA 7** - L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972): **HA 36** - L. Atrain, Gartbrattan, Cavan (H364051), 16 September 2007, EPA (DAM). L. Garty, Arvagh (N278978), 7 June 2007, EPA (DAM). R. Erne, Dingin's Bridge (N331948), 27 August 1982 (Hayes, 1991). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 6 July 2006, EPA (DAM): **HA 27** - L. Bridget, Badyke, Derrymore, east shore (R558797), 21 April and 29 July 2009; Castle Lake, Kilmurry, Sixmilebridge, south west shore (R481688), 12 June 2009 and west shore (R482691), 17 September 2009; L. Gortglass, Killadysert, north shore (R223599), 11 June 2009 all EPA (DAM): **HA 28** - L. Naminna, north west shore, Boolteagh (R178710), 7 July 2009 also L. Doo, Milltown Malbay (R123721) and L.

Keagh, Milltown Malbay, south west shore (R100811), 8 July 2009, EPA (DAM). **CORK: HA 19** - L. Allua, Ballingearry (W180652), 17 June and 20 August 2008, EPA (DAM): **HA 20** - L. Curragalicky, Drinagh, Dunmanway (W234046), 17 June 2008 and L. Abisdealy, Skibbereen (W136314), 30 July 2008, EPA (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 18 May 2001 and 17 May 2002 (PHL): **HA 3** - pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 and Balinrees Reservoir, Coleraine (C794300), 9 June 2000 (Langton, 2002). **DONEGAL: HA 1** - L. Derg, Pettigo (H074743), 8 June 2009, EPA (DAM): **HA 36** - L. Golagh, Ballyshannon (G965655), 8 June 2009, L. Unshin, Ballyshannon (G951637), 6 July 2009 and L. Tullynasiddagh, Ballyshannon (G983656), 7 July 2009, EPA (DAM): **HA 37** - Carn L., Blue Stack Mountains (G871886), 27 July 2005, JRB (DAM): **HA 38** - L. Altercan, The Rosses (B755158), L. Dunglow, east shore, The Rosses, (B787117), L. Anure, Crolly (B817166) and R. Gweedore outflow from L. Anure, (B827184), 19 July 2000 (all Langton, 2002). L. Dunglow, west shore (B782119), 5 August 2009, EPA (DAM). L. Anure, east shore (B818162), 17 June 2009, EPA (DAM). L. Nasnahida, Doocharry, Dunglow (B852076), 6 August 2009, EPA (DAM). L. Nambraddan, Glenveagh (C022193), 31 July 1985 and L. Veagh, near north-east shore inflow stream, Glenveagh (C033222), 19 August 1985 (Heneghan, 1986). L. Glen, Glen (C105292), 16 June 2009 and L. Kinny, Fanad (C204442), 9 September 2009, EPA (DAM). L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 21 July 2009, EPA (DAM): **HA 39** - L. Gartan, Church Hill (C055159), 10 June 2009 and L. Fern, Millford (C180233), 16 June 2009, EPA (DAM): **HA 40** - L. Fad, Rowantree Hill, Merville (C539397), 18 August 2011 (PHL). **GALWAY: HA 25** - R. Woodford, Woodford (M732000), 24 May 2003 (PHL): **HA 30** - L. Ballyquirke, Moycullen (M232317), 8 August and 14 September 2007; L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007; L. Corrib Upper, Oughterard, west shore (M138486), 14 September 2007; L. Lettercraffroe, Oughterard (M056376), 14 June 2007; L. Maumwee, Maam Cross (L977485), 8 June 2007, all EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Anaserd, Ballyconneely (L605443), 20 June 2006, 6 June and 17 July 2007, L. Ballynakill, Gorumna (L867236), 8 August 2006 and L. Derryclare, Recess (L825485), 6 June 2007, EPA (DAM): **HA 32** - L. Aughrusbeg, Cleggan (L557582), 11 September 2007, L. Ballynakill, Cleggan (L639581), 5 June, 11 July and 11 September 2007 and L. Kylemore, Letterfrack (L771582), 30 July 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June, 13 July and 10 September 2008, EPA (DAM): **HA 22** - L. Caragh, Killorglin (V719904), 20 June and 15 July 2008, EPA (DAM). L. Leane, Killarney: Brickeen (V937850), 3 July 1973 (Douglas and Murray, 1980); Muckross Boathouse (V965866), 29 August and 6 September 1987, NOM (LJH). R. Flesk, d/s Whitebridge (V987900), 27 July 1976 (DAM) and u/s L. Leane (V964894), August 1978 (Ashe, 1982). **LEITRIM: HA 26** - L. Rinn, Mohill (N095943), 10 September

2008, EPA (DAM). **LOUTH: HA 6** - L. Mentrim, Ardee (N913879), 27 June 2005, DAM/WM (DAM). **MAYO: HA 32** - L. Glencullin, south west shore, Delphi (L819696), 25 August 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 23 July 2008 and L. Feeagh, Newport (L975983), 24 July 2008, EPA (DAM): **HA 33** - L. Keel, Achill Island, south east shore (F650051), 17 June 2008 and mid lake (F651059), 16 July 2008, EPA (DAM). L. Carrowmore, Derreens, Bangor Erris (F833299), 28 July 2008, EPA (DAM): **HA 34** - L. Alone, Ox Mountains (G367157), 5 August 2005, JRB/MC (DAM). L. Levally, Massbrook (G146043), 25 June 2008, EPA (DAM). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 27 June 2006, EPA (DAM). Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), June 1998, DAM (DAM); bog lake 2, Turraun (N150230), September 1995, WT (DAM) and 3 June 1999, DAM/WM (Murray, 2005). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 9 April 2008, EPA (DAM). **SLIGO: HA 35** - L. Easky, Ox Mountain (G446230), 17 July 2008, EPA (DAM). **WATERFORD: HA 16** - L. Ballyscanlan (Ballyscanlan Reservoir), Tramore (S540030), 22 April, 19 August and 1 September 2009, EPA (DAM). L. Knockaderry, Knockaderry (S496062), 19 August 2009 and L. Ballyshunock (Reservoir), Portlaw (S455095), 2 September 2009, EPA (DAM): **HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM). **WESTMEATH: HA 26** - L. Derravarragh, Clinton's Bay (N471630), 20 August 1981 (DAM): **HA 36** - L. Bane, Collinstown (N550712), 23 May and 26 June 2006, EPA (EPA). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 24 May, 12 July and 14 August 1983, HD (DAM) also north basin (O205050), 2 July 2009, EPA (DAM).

***Cryptochironomus albofasciatus* (Staeger, 1839)**

CAVAN: HA 7 - L. Drumkeery, Baileborough (H663002), 12 June 2007, EPA (DAM). **CORK: HA 19** - L. Allua, Ballingearry (W180652), 20 August 2008, EPA (DAM). **DERRY: HA 3** - L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990); no data (H9080), no date (McLarnon and Carter, 2000). **DONEGAL: HA 37** - L. Eske (G973844), 14 July 2009, EPA (DAM): **HA 38** - L. Nasnahida, Doocharry, Dunglow (B852076), 17 June 2009, EPA (DAM). L. Veagh, north east shore, (C038230), 24 July 1985, LJH (DAM). **GALWAY: HA 30** - L. Ballyquirke, Moycullen (M232317), 14 June and 8 August 2007, EPA (DAM). L. Corrib, Hurney (M256315) 27 July 1980, BC (DAM): **HA 31** - L. Anaserd, Ballyconneely (L605443), 17 July 2007; L. Derryclare, Recess (L825485), 6 June 2007 and L. Nahasleam, Maam Cross (L972440), 1 August 2007, EPA (DAM): **HA 32** - L. Enask, Beaghcauneen (L662468), 17 July 2007, EPA (DAM). **KERRY: HA 21** - L. Namona, Waterville (V596711), 19 June 2008, EPA (DAM): **HA 22** - L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August and 1 September 1987, NOM (LJH). L. Muckcross (Muckcross Lake), Dundag Bay (V964858), 3

August 1973, DAM (Murray, 2005) and (V950853), 16 July 2008, EPA (DAM). **MAYO: HA 32** - L. Feeagh, Newport (L975983), 25 June 2008, EPA (DAM).

***Cryptochironomus defectus* (Kieffer, 1913)**

ANTRIM: HA 4 - Dungonnell Dam, Newtown Crommelin (D193170), 20 June 2000 (Langton, 2002); **Rathlin Island** - Ushet L. (D154485), 5 July 2004 (PHL). **CLARE: HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 29 July 2009, EPA (DAM). **DERRY: HA 3** - L. Neagh, Ballyronan (H948862), 4 July 2000 (Langton, 2002). **FERMANAGH: HA 36** - Dummys L., Magheraveely (H488276), 28 June 2000; L. Erne Upper, slipway (H362242), 27 June 2000 and L. Macnean, lower, Belcoo (H085384), 29 June 2000, all Langton (2002). **MAYO: HA 33** - L. Carrowmore, Derreens, Bangor Erris (F833299), 28 July 2008, EPA (DAM). **WATERFORD: HA 18** - R. Blackwater, Lismore (X047988), 31 August 1981, in Hayes (1991), as *Cryptochironomus* sp. (DAM).

***Cryptochironomus denticulatus* (Goetghebuer, 1921)**

CLARE: HA 25 - L. Graney, Doorus, west shore (R556930), 8 June 2006, EPA (DAM). **DERRY: HA 2** - R. Roe, Deerpark Wood, Limavaddy (C682203), 9 June 2000 (Langton, 2002); **HA 3** - R. Bann, Coleraine (C854304), 7 June 2000 (PHL). **ROSCOMMON: HA 26** - R. Suck, Ballyforan (M817464), 28 July 1982, BPH (Murray, 2005). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 BPH (DAM).

***Cryptochironomus obreptans* (Walker, 1856)**

ANTRIM: HA 3 - L. Neagh: Antrim Bay (J135866), 22 August 2001 (PHL); Churchtown Point (J056852), 22 August 2001, 22 and 31 May 2011 (PHL); **HA 4** - Dungonnell Dam, Newtown Crommelin (D193170), 20 June 2000 (Langton, 2002); **Rathlin Island** - L. Ally (D153494), 5 July 2004 (PHL). **CAVAN: HA 36** - L. Annagh, Butler's Bridge (H394125), 3 July 2007; L. Garty, Arvagh (N278978), 7 June 2007; L. Gowna north basin, Arnagahan (N285920), 24 July 2007 and L. Macnean, lower, Blacklion (H106378), 7 June 2007, all EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 6 September 2006, EPA (DAM); **HA 27** - L. Dromore, mid basin, Ruan, Corrofin (R352864), 16 June 2009; L. Gortglass (Gortglass L.), south shore, Killadysert (R223596), 7 July 2009; and L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009, all EPA (DAM); **HA 28** - L. Lickeen, Kilfenora, mid-lake (R175909), 6 June 2006 and west shore (R163909), 11 June 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 14 August 2008, EPA (DAM); **HA 20** - L. Curragalicky, Drinagh, Dunmanway (W234046), 17 June and 12 August 2008, EPA (DAM). **DERRY: HA 3** - Downhill Lake, Bishops Gate, Coleraine

(C762361), 21 August 2001; Balinrees Reservoir, Coleraine (C794300), 9 June 2000; R. Bann, Coleraine (C854304), 24 July, 8 August and 7 September 1999, 16 July 2000 and 16 June 2001 (all PHL). L. Neagh, Ballyronan (H948862), 22 August 2001 (PHL). **DONEGAL: HA 38** - L. Scalpachore, Cruit Island (B730216), 19 July 2000 (Langton, 2002). L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (DAM): **HA 39** - L. Fern, Millford (C180233), 16 June, 23 July and 18 August 2011, Inch Island impoundment, Inch (C346240), 18 August 2011 (PHL). **DOWN: HA 5** - Bow L., Ballynahinch (J354577), 22 June 2000 (Langton, 2002). **FERMANAGH: HA 36** - L. Erne, Lower, Boa Island (H107627), 17 August 2011 (PHL). L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). L. Eyes, Lisbellaw (H324434), 16 August 2011 (PHL). **GALWAY: HA 29** - L. Cutra, Gort (R485986), 24 May 2003, EPA (EPA): **HA 30** - L. Corrib Upper, Oughterard, west shore (M138486), 14 August 2007, EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Aunwillan, Carraroe (L936255), 13 September 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney: Castlelough Bay, east shore (V975873), 27 June 1973 (Murray, 2005); Killarney (V931886), 24 June and 18 September 2008, EPA (DAM): **HA 23** - L. Gill, Castlegregory (Q603139), 29 April and 28 August 2008, EPA (DAM). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 24 July 2008; L. Boderg, Derrycarne, north west shore (N013915), 10 September 2008; and L. Rinn, Mohill (N095943), 25 June 2008, EPA (DAM): **HA 35** - L. Glencar, Glencar (G757435), 2 September 2008 and L. Glenade, south east shore, Glenade, Manorhamilton (G831457), 4 September 2008, EPA (DAM). **LIMERICK: HA 24** - L. Bleach (Bleach Lake), Pallaskenry (R441569), 16 September 2009, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 27 August and 10 September 2008, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June and 27 August 2008, EPA (DAM): **HA 32** - L. Feeagh, Newport (L975983), 25 June, 24 July and 17 September 2008, all EPA (DAM). L. Carrokeel, Murrisk (L924830), 5 August 2004, DAM/WM (DAM). L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 33** - L. Carrowmore, Derreens, Bangor Erris (F833299), 28 July 2008, EPA (DAM). **MONAGHAN: HA 36** - L. Avagnon, Latton, Cotehill (H688133), 6 June and 11 July 2007; L. Drumlona, Rockcorry (H636176), 5 June 2007 and L. Inner, Dartery, Drum (H625173), 6 June 2007, all EPA (DAM). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), 3 June 1999 (Murray, 2005). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July and 9 September 2008; L. Glinn, Loughglinn, Castlerea (M629870), 12 June 2008; L. Grange (Grange L.), Greywood, Strokestown (M938857), 25 June 2008 and L. Key, Boyle Park wharf (G848040), 11 June 2008 also at (G838057), 6 August 2008, all EPA (DAM). **SLIGO: HA 26** - L. Gara, Cuppanagh, Cloonlough (G714013), 26 June 2008 and L. Gara, Monastredan (M708996), 5 September 2008, EPA (DAM). **TYRONE: HA 3** - L. Neagh, Washing Bay,

Coalisland (H903662), 30 May 2002 (PHL). **WATERFORD: HA 16** - L. Knockaderry, Knockaderry (S496062), 2 September 2009, EPA (DAM). **WESTMEATH: HA 7** - L. Lene (N510685), 22 August 2006, EPA (DAM).

***Cryptochironomus psittacinus* (Meigen, 1830)**

ANTRIM: Rathlin Island - Ushet L. (D154485), 5 July 2004 (PHL). **CAVAN: HA 26** - L. Sheelin, Gore Point (N439817), 18 May 1982, PG (DAM). **CLARE: HA 25** - L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM); **HA 27** - L. Bunny, Aughrim, south east shore (R377965), 14 July 2009; Castle L., Kilmurry, Sixmilebridge, south west shore (R481688), 12 June 2009; Gortglass L., Killadysert, north shore (R223599), 11 June 2009 and L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009, all EPA (DAM); **HA 28** - L. Naminna, Boolteagh (R179708), 11 June 2009, EPA (DAM). **DONEGAL: HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Kindrum, Fanad (C186430), 22 July 2009; L. Kinny, Fanad (C204442), 6 June 2009 and L. Shannagh, Magheradrumman, Fanad (C216450), 21 July 2009, all EPA (DAM); **HA 39** - L. Gartan, Church Hill (C055159), 22 July 2009, EPA (DAM). **DOWN: HA 5** - Hillsborough Park Lake, Hillsborough (J246583), 22 May 2000 (Langton, 2002). **DUBLIN: HA 9** - Upper Bohernabreena Reservoir (O095219), 1949 (Reilly, 1950). **FERMANAGH: HA 36** - L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Caherglassaun, Gort (M412061), 13 June 2007 and L. Coole, Gort (M432043), 15 June 2009, EPA (DAM). L. Cutra, Gort (R485986), 24 May 2003, EPA (PHL); **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 June and 8 August 2007; L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007 and L. Bofin, Maam Cross (M034441), 7 June 2007, EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL); **HA 31** - L. Ahalia, north east shore, south of Maam Cross (L971402), 18 June 2009, EPA (DAM); **HA 31** - L. Anaserd, Ballyconneely (L605443), 20 June 2006, L. Aunwillan, Carraroe (L936255), 7 June 2007; L. Ballynahinch, Ballynahinch (L777478), 6 June 2007 and L. Loughanaure, Kilkieran (L828320), 7 June 2007, all EPA (DAM); **HA 32** - L. Ballynakill, Cleggan (L639581), 5 June 2007 and L. Enask, Beaghcauneen (L662468), 6 June 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June and 13 July 2008, EPA (DAM); **HA 22** - Upper Lake, Killarney (V909821), 17 July 2008, EPA (DAM). **LEITRIM: HA 26** - L. Bofin, Rinnafarna, Dromod (N036891), 24 June and 29 July 2008 and L. Rinn, Mohill (N095943), 25 June and 18 July 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June 2008, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 19 June 2008, EPA (DAM). L. Mask, west shore, Toormakeady (M113702), 24 June 2008, EPA (DAM); **HA 32** - L. Knappabeg, Westport (M010803), 24 June and 23 July 2008, EPA (DAM).

Clogher L., Clogher, Westport (M035884), July 1911, PHG (Grimshaw, 1912): **HA 33** - Glendarary, Achill Island (L723997), July 1911, JNH (Grimshaw, 1912): **HA 34** - L. Cullin, Drummon Wood, Pontoon (G235046), 18 June 2008 and L. Levally, Massbrook (G146043), 25 June and 23 July 2008, EPA (DAM). **MONAGHAN: HA 36** - L. Drumlona, Rockcorry (H636176), 5 June 2007 and L. Inner, Dartery, Drum (H625173), 6 June 2007, EPA (DAM). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), 3 June 1999, DAM (Murray, 2005). **WATERFORD: HA 16** - L. Ballyscanlan (Ballyscanlan Reservoir), Tramore (S540030), 19 August 2009, EPA (DAM). **WESTMEATH: HA 26** - L. Derravaragh, Crookedwood (N468634), 25 June 2007, EPA (DAM).

***Cryptochironomus redekei* (Kruseman, 1933)**

GALWAY: HA 29 - L. Caherglassaun, Gort (M412061), 13 June and 7 August 2007 (Murray, 2010): **HA 30** - L. Lettercraffroe, Oughterard (M056376), 14 June 2007 (Murray, 2010): **HA 31** - L. Ballynahinch, Ballynahinch (L777478), 6 June and 23 July 2007 (Murray, 2010): **HA 32** - L. Tully, Tully Cross (L695618), 5 June 2007 (Murray, 2010). **LEITRIM: HA 26** - L. Boderg, Dromod (N020910), 25 June 2008 (Murray, 2010).

***Cryptochironomus rostratus* Kieffer, 1921**

CARLOW: HA 12 - R. Slaney, Kilcarry Bridge (S893624), 28 July 1981 (Hayes, 1991): **HA 12** - R. Derreen, Acann Bridge (S900781), 29 July 1981 (Hayes, 1991). **DERRY: HA 3** - R. Bann, Coleraine (C854304): 20 May, 10, 18 and 23 June, 4 July and 8 August 1999, 17, 25 and 31 May, 7 and 13 June, 16 and 30 July 2000, 16 June 2001 (all PHL). **DONEGAL: HA 38** - L. Veagh, north east shore, Glenveagh (C039231), 24 July 1985 (Heneghan, 1986): **HA 39** - R. Leannan, Drumaboden (C165218), 16 July 1984, BPH (Murray, 2005). **KILDARE: HA 9** - R. Liffey, Sallins (N881245), 17 July 1983 (Hayes, 1991). **MEATH: HA 7** - R. Boyne, Stackallen Bridge (N917713), 17 August 1988 (Murray, 1988). R. Boyne, d/s Oldbridge (O062753), 19 July 1989 (DAM). R. Blackwater, Donaghpatrick (N819723), 19 August 1988 (Murray, 1988). **OFFALY: HA 25** - R. Shannon: Shannon Bridge (M967254), 15 August 1981 and Banagher (N005157), 3 September 1982 (Hayes, 1991). **WEXFORD: HA 12** - R. Slaney, Ederline Bridge (S977345), 29 July 1981 (Hayes, 1991).

***Cryptochironomus supplicans* (Meigen, 1830)**

ANTRIM: HA 3 - L. Neagh: Antrim Bay (J135866), 22 August 2001 and Churchtown Point (J056852), 31 May 2011 (both PHL): **Rathlin Island** - L. Nachiule (D160521), 24 July 2000 (Langton, 2002). L. Ally (D153494), 5 July 2004 (PHL). **CAVAN: HA 7** - L. Ramor, Virginia (N612860), 12 June 2007, EPA (DAM): **HA 36** - L. Annagh, Butler's Bridge (H394125), 5

June and 3 September 2007, EPA (DAM). L. Cuillaghan, Ballyconnell (H303183), 6 June 2007 and L. Oughter, Killashandra (H349051), 17 July 2007, EPA (DAM). **CLARE: HA 25** - L. Graney: Doorus (R557924), 11 August 2009 and Drumandora, west shore (R553938), 15 June 2009, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009 and north east shore (R764914), 23 September 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 29 July 2009, EPA (DAM). Castle L., Kilmurry, Sixmilebridge, south west shore (R481688), 12 June 2009 and west shore, Kilmurry, Sixmilebridge (R482691), 17 September 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin, south west shore (R370922), 11 June 2009 also L. Cullaunyheda, Kilkishen (R484746), 12 June and 17 September 2009, EPA (DAM): **HA 28** - L. Acrow, Lissycasey (R193687), 9 May and 8 June 2006, EPA (DAM). L. Keagh, Milltown Malbay, north shore (R100813), 11 June 2009 and south west shore (R100811), 8 July 2009, EPA (DAM). R. Creegh, Mountrivers Bridge, Doonbeg (Q991659), 30 July 1982 (Hayes, 1991). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 14 August and 16 September 2008, EPA (DAM). L. Aderry, Castlemartyr (W935730), 4 June 1969, NH (Bracken and Murray, 1973). L. Allua, Ballingearry (W180652), 20 August 2008, EPA (DAM): **HA 21** - L. Bofinna, Bantry (W041488), 18 June 2008, EPA (DAM). **DERRY: HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 7 July 2002 (PHL). Pond 3, Magherafelt Golf Course, Traad Point (H955874), 10 May 2000 and Balinrees Reservoir, Coleraine (C794300), 9 June 2000 (Langton, 2002). R. Bann, Coleraine (C854304): 10 April 1999, 7 June 2000 and 22 September 2002 (PHL). L. Neagh (H9080), no data (McLarnon and Carter, 2000). **DONEGAL: HA 38** - L. Anure, Loughanure, east shore (B818162), 17 June 2009 and L. Keel, Crolly (B848162), 17 June and 13 August 2009 also L. Keel, Kilmacrennan (C158243), 16 June 2009, all EPA (DAM). **FERMANAGH: HA 36** - L. Erne, Upper, Newtownbutler, slipway (H362242) and Crom Castle (H357244), 27 June 2000; L. Erne, Lower, Boa Island (H108626), 29 June 2000; L. Killyfole (Mill L.), Rosslea (H464314), 28 June 2000; L. Kilturk Newtownbutler (H374255), 27 June 2000 and L. Macnean, upper, Belcoo (H042403), 29 June 2000, all PHL (Langton, 2002). **GALWAY: HA 26** - R. Suck, Lismanny (M900255), 15 July 1969 (Murray, 1972): **HA 29** - L. Caherglassaun, Gort (M412061), 7 August 2007, EPA (DAM). L. Rea, Loughrea (M615154), 25 May 2003 (PHL/NMI): **HA 30** - L. Corrib Lower, Hurney (M258310), 7 July 1980, BC (DAM). L. Ross, Moycullen (M188365), 8 August 2007, EPA (DAM). R. Grange, Grange Bridge (M428498), 16 August 1981 (Hayes, 1991): **HA 31** - L. Anaserd, Ballyconneely (L605443), 6 June 2007; L. Aunwillan, Carraroe (L936255) and L. Loughanaure, Kilkieran (L828320), 7 June 2007, all EPA (DAM): **HA 32** - L. Kylemore, Letterfrack (L771582), 30 July 2007, EPA (DAM). **KERRY: HA 22** - L. Acoose, Slievanore, Killorglan (V755854), 9 July 2008, EPA (DAM). L. Leane, Killarney: Victoria Bay (V946900), July 1972, DJD/DAM (DAM); Killarney

(V931886), 24 June 2008, EPA (DAM): **HA 23** - L. Gill, Castlegregory (Q603139), 29 April 2008, EPA (DAM). **LEITRIM: HA 26** - L. Natire, north of L. Allen (G966340), 3 August 2005, JRB/MC (DAM). L. Rinn, Mohill (N095943), 25 June, 18 July and 10 September 2008, EPA (DAM): **HA 35** - L. Glenade, Glenade, Manorhamilton, south east shore (G831457), 10 June 2008, EPA (DAM). L. Nabrack, Crocknagapple (G860477), 4 August 2005, JRB/MC (DAM). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 13 June 2009, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 10 September 2008, EPA (DAM). **WESTMEATH: HA 26** - L. Ree, Coosan (N050450), 15 August 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Ree, Yew Point, Barley Harbour (N018485), 13 June 2007, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June 2008, EPA (DAM): **HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 19 June 2008 and L. Mask, Toormakeady (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Doo Delphi, north east shore (L834689), 22 August 2002, DAM/WM (DAM). L. Ballin, Westport (L996882), 25 June 2008, EPA (DAM): **HA 33** - Cross L., Drumreagh, north east shore, Belmullet (F651299), 17 June 2008 and west shore (F645293), 14 August 2008, EPA (DAM). L. Carrowmore, Cloontakilla Bay, Bangor Erris (F851253), 17 June 2008, EPA (DAM): **HA 34** - L. Conn, south basin, Illannaglashy (G207070), 20 August 2008 and L. Cullin, Drummon Wood, Pontoon (G235046), 18 June and 20 August 2008, EPA (DAM). L. Washpool, Ballycarra (M219842), 19 June 2008, EPA (DAM). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 27 June 2006, EPA (DAM). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 12 June and 15 July 2008, EPA (DAM). L. Cavetown, Boyle (M832974), 11 June 2008, EPA (DAM). L. Glinn, Loughglinn, Castlereagh (M629870), 12 June 2008, EPA (DAM). **SLIGO: HA 35** - L. Templehouse, Ballymote (G619182), 9 September 2008, EPA (DAM). **TIPPERARY: HA 25** - L. Derg, Dromineer, east shore (M809858), 17 June 2009, EPA (DAM). R. Kilmastulla, Kilmastulla Bridge, Birdhill (R728698), 3 September 1982, BPH (Murray, 2005). **TYRONE: HA 3** - L. Neagh, Washing Bay, Coalisland (H903662), 30 May 2002 (PHL). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM). **WESTMEATH: HA 7** - L. Lene (N510685), 19 September 2006, EPA (DAM).

***Cryptochironomus* sp. pe1 sensu Langton and Viser, 2003**

GALWAY: HA 30 - L. Maumwee, Maam Cross (L977485), 19 April 2007, EPA (DAM). **ROSCOMMON: HA 30** - R. Dalgan, Cloonfad (M518712), 20 August 1981 and R. Suck, Ballyforan (M817464), 16 July 1984 (Hayes, 1991).

***Cryptotendipes pflugfelderi* Reiss, 1964**

CAVAN: HA 36 - L. Annagh, Butler's Bridge (H394125), 5 June 2007, EPA (DAM).

CLARE: HA 27 - Gortglass L., Killadysert, north shore (R223599), 11 June 2009 and south shore (R223596), 7 July 2009, EPA (DAM). L. Inchiquin, Corrofin, west shore (R266896), 15 July 2009, EPA (DAM). **LEITRIM: HA 26** - L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). L. Rinn, Mohill (N095943), 18 July 2008, EPA (DAM): **HA 35** - L. Glenade, south east shore, Glenade, Manorhamilton (G831457), 22 July 2008, EPA (DAM). L. Glencar, Glencar (G757435), 2 September 2008, EPA (DAM). **MAYO: HA 30** - L. Corrib Upper, Kitten's Bay, west shore (M110463), 25 June 2010, JRB (DAM). **OFFALY: HA 25** - bog lake 2, Turraun (N150230), 3 June 1999, DAM/WM (Trodd and Murray, 2004). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). **SLIGO: HA 35** - L. Arrow, Ballinafad (G789123), 11 June 2008, EPA (DAM). **WESTMEATH: HA 26** - L. Killinure, Wineport (N067458), 26 June and 15 August 2007, EPA (DAM). L. Coosan, Athlone (N055449), 16 August 2007, EPA (DAM).

***Cryptotendipes pseudotener* (Goetghebuer, 1922)**

CAVAN: HA 7 - L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 4 June 1969, NH (Bracken and Murray, 1973).

***Cryptotendipes usmaensis* (Pagast, 1931)**

CLARE: HA 27 - Castle L., Kilmurry, Sixmilebridge, south west shore (R481688), 12 June 2009 and west shore (R482691), 17 September 2009, EPA (Murray, 2012).

***Demeijerea rufipes* (Linnaeus, 1761)**

ANTRIM: HA 3 - Templepatrick Pond, Templepatrick (J232856), 26 August 2008 (PHL). **CLARE: HA 27** - Castle L., Kilmurry, Sixmilebridge, west shore (R482691), 17 September 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 22 July and 14 September 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin, south east shore (R370922), 14 September 2009, EPA (DAM). **CORK: HA 20** - R. Bandon, Castle Bernard (u/s Bandon) (W472546), 25 August 1980 (Morgan, 1982). **DONEGAL: HA 39** - L. Fern, Milford (C182247), 18 August 2011 (PHL). **GALWAY: HA 30** - L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007, EPA (DAM). L. Lettercraffroe, Oughterard (M056376), 14 June, 31 July and 5 September 2007, EPA (DAM): **HA 32** - L. Enask, Beaghcauneen (L662468), 17 September 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 6 June 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney, Castlelough Bay, north shore (V966866), August 1973 (Douglas and Murray, 1980); Muckcross Boathouse (V965866), 29 August 1987, NOM (LJH). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 24 July and 9 September 2008, EPA (DAM). L. Rinn, Mohill (N095943), 10 September 2008, EPA (DAM): **HA 35** - L. Glencar,

Glencar (G757435), 21 July 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June 2008, EPA (DAM). **MAYO: HA 32** - L. Moher, Liscarney, Westport (L977766), 18 September 2008, EPA (DAM): **HA 33** - Glendarary, Achill Island (L723997), July 1911, JNH (Grimshaw, 1912): **HA 34** - L. Conn, east shore, Brackwansha (G194098), 22 August 1995, DAM/WM (Murray, 2005): **Clare Island** - L. Poirtin Fuinch (L706857), 7 September 1999 (Fahy, 2002 (NMI)). **SLIGO: HA 35** - L. Templehouse, Ballymote (G619182), 4 and 9 September 2008, EPA (DAM). **WATERFORD: HA 16** - L. Knockaderry, Knockaderry (S496062), 2 September 2009, EPA (DAM).

Demicryptochironomus (Demicryptochironomus) vulneratus (Zetterstedt, 1838)

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 August 2001 (PHL). R. Kells, Shank Bridge, Kells (J126982), 20 June 2000 (Langton, 2002): **HA 4** - R. Glendun, Drumfresky, Cushendun (D193308), 2 July 2000 (Langton, 2002). Dungonnell Dam, Newtown Crommelin (D193170), 20 June 2000 (Langton, 2002). **CARLOW: HA 12** - R. Slaney, Kilcarray Bridge (S893624), 28 July 1981 (Hayes, 1991). **CAVAN: HA 26** - L. Sheelin, Gore Point (N439817), 27 September 1983, PG (DAM): **HA 36** - L. Oughter, Killashandra (H349051), 17 July 2007, EPA (DAM). R. Erne, Carrigan (N391935), 27 August 1982 (Hayes, 1991). **CLARE: HA 25** - L. Graney, Drumandora, west shore (R553938), 15 June 2009, EPA (DAM). L. Graney, Flagmount, east shore (R563932), 16 September 2009, EPA (DAM): **HA 27** - L. Bunny, Aughrim, south east shore (R377965), 2 May and 14 September 2009, EPA (DAM). L. Gortglass, Killadysert, south shore (R223596), 7 July 2009, EPA (DAM). L. Rosroe, Newmarket on Fergus, north east shore (R449697), 16 September 2009, EPA (DAM). L. Atedaun, Corrofin (R297884), 21 April 2009, EPA (DAM): **HA 28** - L. Naminna, Boolteagh (R180710), 15 September 2009, EPA (DAM). R. Creagh, Mountrivers Bridge, Doonbeg (Q991659), 30 July 1982 (Hayes, 1991). **CORK: HA 18** - R. Blackwater, Killavullen (W648998), 31 August 1981 (Hayes, 1991): **HA 19** - L. Allua, Ballingearry (W180652), 20 August 2008, EPA (DAM): **HA 20** - R. Ovane, Pierson's Bridge (W023454), 24 August 1983 (Hayes, 1991). **DERRY: HA 2** - R. Owenbeg, Feeny picnic area, Feeny (C645058), 26 June 2000 (Langton, 2002): **HA** - L. Neagh (H9080), no date (McLarnon and Carter, 2000). L. Fea, Draperstown (H760868), 15 May 2002 (PHL). **DONEGAL: HA 37** - R. Eany, d/s Eanybeg confluence (G842815), 10 August 1982 (Hayes, 1991): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Dunglow, The Rosses, west shore (B782119), 5 August 2009, EPA (DAM). L. Anure, Loughanure, east shore (B818162), 7 September 2009, EPA (DAM). R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000 (Langton, 2002). L. Keel, Crolly (B848162), 13 August 2009, EPA (DAM). R. Devlin, Dunlewy (B927190), 19 July 2000 (Langton, 2002). L. Barra, Commeen (B935119), 10 June 2009, EPA

(DAM). L. Nambraddan, Glenveagh (C022193), 31 July 1985 (Heneghan, 1986). L. Veagh, Glenveagh, north east shore (C039230), 22 August 1985 and stream near GNP Administration Centre (C041227), 16 August 1985 (Heneghan, 1986). L. Veagh, north east shore near GNP Visitor Centre (C033223), 19 July 2000 (Langton, 2002). L. Glen, Glen (C105292), 16 June 2009, EPA (DAM). L. Kinny, Fanad (C204442), 6 June and 9 September 2009, EPA (DAM): **HA 39** - L. Gartan, Church Hill: north shore (C065173), 18 July 2000 (Langton, 2002) and L. Gartan (C055159), 10 June and 22 July 2009, EPA (DAM). L. Akibbon, Church Hill (C068184), 11 June 2009, EPA (DAM). R. Leannan, Drumaboden (C165218), 12 August 1982 (Hayes, 1991). **DOWN: HA 3** - R. Leitrim, Leitrim Bridge, Hilltown (J217285), 13 August 1998, LMCL (PHL). Upper R. Bann, Roughan Bridge, Rathfriland (J225363), 13 August 1998, LMCL (PHL). **FERMANAGH: HA 36** - L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 23 May 2003 (PHL): **HA 29** - L. Coole, Gort (M425037), 27 July 2009, EPA (DAM). L. Rea, Loughrea (M615154), 14 June 2007, EPA (DAM). L. Cutra, Gort (R485986), 24 May 2003, EPA (PHL): **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 June 2007, EPA (DAM). L. Corrib (M1545), 1980, BC (DAM). L. Lettercraffroe, Oughterard (M056376), 31 July 2007, EPA (DAM): **HA 31** - L. Anaserd, Ballyconneely (L605443), 6 June 2007, EPA (DAM). L. Ardderry, Maam Cross (L982458), 25 March 2003 (PHL). L. Aunwillan, Carraroe (L936255), 7 June 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June and 13 September 2007, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 6 June and 12 September 2007, EPA (DAM). L. Loughanaure, Kilkieran (L828320), 24 July and 12 September 2007, EPA (DAM). L. Nahasleam, Maam Cross South (L972440), 8 August 2006, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 11 September 2007, EPA (DAM). L. Enask, Beaghcauneen (L662468), 6 June 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 11 September 2007, EPA (DAM). L. Tully, Tully Cross (L695618), 19 July 2007, EPA (DAM). L. Nambrackmore, Ballinaboy, Toombeola (L716454), 12 September 2007, EPA (DAM). **KERRY: HA 21** - Erik L., Derrygarraff (V881777), 9 August 2005, JRB (DAM): **HA 22** - L. Caragh, Killorglin (V719904), 15 July 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 16 May 2005 and 8 July 2008, EPA (DAM). L. Leane, Killarney: Castlough Bay, north shore (V966866), 27 June 1973; Juniper Bay (V949863), 11 June 1973; shore at O'Sullivan's Cascade (V916886), 17 April 1973, all DJD/DAM (Douglas and Murray, 1980). L. Leane, Killarney, Muckross Boathouse (V965866), 6 September 1987, NOM (LJH). Muckross Lake, Killarney: Dundag Bay (V964858), 23 July 1973 (DAM); Muckross Lake, Killarney (V950853), 16 July and 18 September 2008, EPA (DAM). **KILDARE: HA 9** - R. Liffey, Sallins (N881245), 17 July 1983 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LEITRIM: HA 26** - L. Boderg, Dromod

(N020910), 25 June 2008 and L. Boderg, Derrycarne, north west shore (N013915), 10 September 2008, EPA (DAM): **HA 35** - L. Glenade, Glenade, Manorhamilton (G831457), south east shore, 10 June 2008, EPA (DAM). L. Glencar, Glencar (G757435), 2 September 2008, EPA (DAM). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 13 June 2009, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 27 August 2008, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 19 June and 28 July 2008, EPA (DAM): **HA 32** - L. Glencullin, Delphi, north west shore, (L815699), 26 June 2008, EPA (DAM). R. Erriff, Ashleigh Falls (L895645), 18 August 1981 (Hayes, 1991). Demesne garden, Westport (L9984), July 1911, PHG (Grimshaw, 1912). L. Ballin, Westport, north shore (L996882), 25 June 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 33** - L. Keel, Achill Island, south east shore (F650051), 17 June 2008 and south west shore (F641055), 17 September 2008, EPA (DAM). L. Carrowmore, Bangor Erris, Derreens (F833299), 28 July 2008 and Knocknascollop (F830282), 17 September 2008, EPA (DAM): **HA 34** - L. Cullin, Drummon Wood, Pontoon (G235046), 18 June and 22 August 1995, DAM/WM (DAM). L. Washpool, Ballycarra (M219842), 19 June 2008, EPA (DAM). **MEATH: HA 7** - R. Boyne, Newtown, Trim (N815571), 9 July 1981 (Hayes, 1991); Ardsallagh, at St Bridget's Well (N897635), 7 July 1988 (Murray, 1988); Knowth Weir (N995720) and Oldbridge (O045761), 19 July 1989 (DAM). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), June 1998 (DAM). **ROSCOMMON: HA 26** - R. Suck, Mount Talbot (M813531), 14 August 1981; Ballyforan (M817464), 16 July 1981 (both Hayes, 1991). L. Cavetown, Boyle (M832974), 11 June and 17 July 2008, EPA (DAM). L. Key, Boyle (G838057), 6 August 2008, EPA (DAM). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168), 30 August 1982; Annagh (G466123), 30 August 1982 (both Hayes, 1991): **HA 35** - L. Easky, Ox Mountain (G446230), 18 June and 17 July 2008, EPA (DAM). **TIPPERARY: HA 16** - R. Suir, d/s Thurles (S128581), 22 May 1992 and Cabragh (S124562), 6 July 1992 (Murray and Lynch, 1992): **HA 18** - Black L., Arra Mountains (R738771), 10 August 2005, JRB (DAM). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 23 May and 26 June 2006, EPA (EPA). **WICKLOW: HA 12** - R. Derry, Balisland (S978645), 28 July 1981 (Hayes, 1991). R. Slaney, Kilmurray (S889856), 28 July 1981 (Hayes, 1991).

Demicryptochironomus (Demicryptochironomus) sp. pe1 sensu Langton and Visser, 2003
CAVAN: HA 36 - R. Erne, Drumbarry (N462951), 17 August 1982, BPH (DAM).
DONEGAL: HA 38 - L. Anure, Loughanure, east shore (B818162), 7 September 2009, EPA (DAM): **HA 39** - R. Leannan, Drumaboden (C165218), 12 August 1982, BPH (DAM).
KILKENNY: HA 15 - R. Nore, Norelands Bridge (S547436), 18 August 1982, BPH (DAM).

WICKLOW: HA 10 - R. Avoca, Avoca village (T203802), 19 June 1997, FC (Curran, 2001; DAM)

Demicryptochironomus (Irmakia) neglectus Reiss, 1988

MAYO: HA 32 - R. Bunowen u/s of bridge, Louisburg (L807807), 15 August 2004, DAM/WM (Murray, 2010). **WICKLOW: HA 10** - R. Avonmore, Lion Arch Bridge (T194833), July 1997, FC (DAM).

Dicrotendipes lobiger (Kieffer, 1921)

ARMAGH: HA 3 - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (PHL). **CAVAN: HA 26** - L. Sheelin, Gore Point (N439817), 28 September 1983, PG (DAM). **CLARE: HA 27** - L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009, EPA (DAM). L. Cullaunyheda, Kilkishen (R488746), 13 August 2009, EPA (DAM). **DERRY: HA 1** - pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL): **HA 3** - L. Neagh, Ballyronan (H948862), 22 May 2011 (PHL). **DONEGAL: HA 38** - L. Nasnahida, Doocharry, Dunglow (B852076), 17 June 2009, EPA (DAM): **HA 39** - L. Fern, Millford (C180233), 16 June, 23 July and 9 September 2009, EPA (DAM). **GALWAY: HA 26** - L. Acalla, Ballinasloe (M720344), 7 July 1964 (Murray, 1972): **HA 30** - L. Corrib (M1545), 1980, BC (DAM). **KERRY: HA 21** - L. Namona, Waterville (V596711), 19 June 2008, EPA (DAM): **HA 22** - Upper Lake, Killarney, Gortroe (V918818), May 1973 (Douglas and Murray, 1980). **LEITRIM: HA 26** - L. Rinn, Mohill (N095943), 25 June 2008, EPA (DAM). **MAYO: HA 32** - L. Doo, Delphi, west shore (L835681), 12 July 2006, EPA (DAM): **HA 34** - L. Cullin, Drummon Wood, Pontoon (G235046), 18 June 2008, EPA (DAM). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). L. Key, Boyle (G838057), 6 August 2008, EPA (DAM). **WATERFORD: HA 16** - L. Ballyscanlan (Reservoir), Tramore (S540030), 22 April 2009, EPA (DAM): **HA 17** - L. Carrigavantry, Tramore (S548022), 21 April 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), May 1973, NH (Hayes, 1980) and June 1981 (Forde, 1985). L. Ennell, Tudenham (N415466), 1981, GPF (Forde, 1985).

Dicrotendipes nervosus (Staeger, 1839)

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 4 May 1999 and 22 August 2001 also Churchtown Point (J056852), 22 August 2001 (PHL). Pond, Templepatrick (J232856), 26 August 2008 (PHL): **HA 5** - L. Mourne, Copeland water, Carrickfergus (J415924), 4 and 8 May 1999 (PHL): **Rathlin Island** - pool 2, east of lighthouse (D164520), 24 July 2000 (Langton, 2002). L. Ally (D153494), 24 July 2000 (Langton, 2002) and 5 July 2004 (PHL). **ARMAGH:**

HA 3 - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (PHL). **CAVAN: HA 26** - L. Sheelin, Gore Point (N439817), 26 September and 3 October 1983, PG (DAM): **HA 36** - L. Gowna, Arnagahan, north basin (N285920), 24 July 2007, EPA (DAM). **CLARE: HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 29 July 2009, EPA (DAM). Castle L., Kilmurry, Sixmilebridge, west shore (R484690), 17 July 2009, EPA (DAM). L. Dromore, Ruan, Corrofin (R345858), 8 April 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 2 May 2006, EPA (PHL). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 21 May 1969, NH (Bracken and Murray, 1973): **HA 21** - L. Avaul, Glengarrif (V910553), 15 July 1969, NH (Bracken and Murray, 1973). **DERRY: HA 3** - Downhill Forest lake, Coleraine (C757353), 21 August 2001 (PHL). R. Bann, Coleraine (C854304), 25 May and 7 June 2000 (PHL). Pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). L. Neagh (H9080), no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862): 4 May 1999, 10 May and 4 July 2000 (Langton, 2002); 22 August 2001, 22 and 31 May 2011 (PHL). **DONEGAL: HA 38** - R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000 (Langton, 2002). L. Veagh, north east shore near Visitor Centre, Glenveagh (C033223), 19 July 2000 (Langton, 2002). L. Glen, Glen (C105292), 16 June 2009, EPA (DAM): **HA 39** - L. Fern, Milford (C182247), 2 June 2000 (Langton, 2002) and 18 August 2011 (PHL). **DUBLIN: HA 9** - lakes in Zoological Gardens, Dublin (O130350), July 1987, DAM/RH (Murray, 2005; Murray *et al.*, 1987). **FERMANAGH: HA 36** - L. Erne, Lower: Boa Island (H108626), 29 June 2000 (Langton, 2002) and Black Bay (H072639), 27 April 2002 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 23 May 2003 (PHL): **HA 30** - L. Corrib, Knockferry (M230410), 28 April 1980, BC (DAM). **KERRY: HA 22** - L. Leane, Killarney, mid lake (V930883), 14 July 1973 (Douglas and Murray, 1980). R. Flesk, Killarney, u/s Newbridge (V978900), 4 May 1973 (DAM) and (V973895), September 1973, DJD/DAM (Ashe, 1982). **LEITRIM: HA 26** - L. Bofin, Rinnafarna, Dromod (N036891), 29 July and 10 September 2008, also L. Rinn, Mohill (N095943), 10 September 2008, EPA (DAM) and pond in Lough Rynn Castle walled garden (N098936), 25 September 2014 (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 10 September 2008, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 28 April 2008, EPA (DAM): **HA 32** - Demesne, Westport (L990845), July 1911, PHG (Grimshaw, 1912): **HA 33** - Glendarary, Achill Island (L723997), July 1911, JNH (Grimshaw, 1912): **HA 34** - Castlebar L., Castlebar (M100870), July 1911, PHG (Grimshaw, 1912): **Clare Island** - L. Poirin Fuinch (L706285), 2 and 11 June, 6 July 1998 also 10 June 1999, all SF (Fahy, 2002). **MONAGHAN: HA 36** - L. Drumlona, Rockcorry (H636176), 11 July 2007, EPA (DAM). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June

2008, EPA (DAM). L. Key, Boyle (G838057), 6 August 2008, EPA (DAM). **SLIGO: HA 35** - L. Easky, Ox Mountain (G446230), 18 June 2008, EPA (DAM). **TYRONE: HA 3** - L. Neagh, Washing Bay, Coalisland (H903662), 30 May 2002 (PHL). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 14 August 1973, NH (Hayes, 1980): **HA 36** - L. Bane, Collinstown (N550712), 24 July 2006, EPA (EPA).

Dicrotendipes notatus (Meigen, 1818)

ANTRIM: HA 3 - pond, Templepatrick (J232856), 26 August 2008 (PHL). **CAVAN: HA 7** - L. Cuilcagh, Virginia (N636895), 30 April 1968 (Murray, 1972). **DONEGAL: HA 38** - L. Veagh, GNP, boathouse near castle (C022211), 21 July 2009, EPA (DAM). L. Greenan, Loughsalt, Kilmacrennan (C117262), 29 April 2009, EPA (DAM): **HA 39** - L. Fern, Millford (C180233), 9 September 2009, EPA (DAM). **GALWAY: HA 30** - L. Corrib Upper, Oughterard (M138486), 14 September 2007, EPA (DAM): **HA 32** - L. Kylemore, Letterfrack (L771582), 2 April 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney, Ross Bay (V945850), February to August 1973 and mid lake (V930883), 14 July 1973 (Douglas and Murray, 1980). R. Flesk, White Bridge (V987904), February to August 1973 (Douglas and Murray, 1980; Ashe, 1982): **HA 23** - L. Cam, Castlegregory (Q597079), 25 June 2008, EPA (DAM). **KILDARE: HA 9** - R. Rye, Kildare Bridge, Carton (N948387), 13 July 1983 (Hayes, 1991). **MAYO: HA 32** - Westport L., Westport Woods Hotel, Westport (L985843), 7 May 2004, DAM/WM (DAM). **MEATH: HA 7** - R. Boyne, Ardsallagh, at St Bridget's Well (N897635), 18 June 2000, DAM/WM (DAM). Artificial tank, Ardsallagh, Navan (N896635), 11 June 2000, DAM/WM (Murray, 2005).

Dicrotendipes pallidicornis (Goetghebuer, 1934)

MAYO: HA 32 - L. Furnace, Burrishoole, Newport (L975965), 7 July 1997, DAM (Murray and Murray, 2006).

Dicrotendipes pulsus (Walker, 1856)

ANTRIM: HA 3 - L. Neagh, Lennymore Bay, north shore (J115745), March 1969 (Marks and Henderson, 1970). Killylane Reservoir, Magherabane, Larne (J292985), 8 May 1999 (PHL): **HA 5** - Three-mile-water, Mossley (J380892), 4 May 1999, SMCB (PHL). **CAVAN: HA 7** - L. Ramor, Virginia (N603871), 25 May 1967 (DAM); golf course shore, Virginia (N595870), 9 July 1968 (Murray, 1972), May 1971, DJD/DAM (Douglas, 1971) and 27 June 2005 (DAM). L. Cuilcagh, Virginia (N636895), 6 May 1968 (DAM). L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972) and 9 May 1974 (DAM): **HA 26** - L. Sheelin, Gore Point (N439817), 28

September 1983, PG (DAM): **HA 36** - L. Oughter, Killashandra (H349051), 17 July 2007, EPA (DAM). **CLARE: HA 25** - L. Derg, d/s Killaloe (M705715), 21 April 2009, EPA (DAM). L. Alewnaghta, Whitegate (R758908), 20 April 2009, EPA (DAM): **HA 27** - L. Bunny, Aughrim, south east shore (R377965): 25 May 2003 (PHL), 10 May 2005, 2 May and 7 June 2006 (EPA), 11 June and 14 July 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 7 June and 4 July 2006, EPA (PHL). L. Inchicronan, Crusheen (R391860), 9 July 2009, EPA (DAM). L. Inchiquin, Corrofin (R270895), 4 July 2006, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 2 May, 3 July and 5 September 2006, EPA (PHL/LPR); L. Muckanagh (R370922), 11 June 2009, EPA (DAM). L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009, EPA (DAM). L. Cullaunyheeda, Kilkishen (R484746), 12 June and 13 August 2009, EPA (DAM). L. Atedaun, Corrofin (R297884), 14 July 2009, EPA (DAM): **HA 28** - L. Naminna, Boolteagh (R179708), 11 June 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 3 April, 16 June, 14 August and 16 September 2008, EPA (DAM). L. Aderry, Castlemartyr (W935730), 13 August 1969, NH (Bracken and Murray, 1973): **HA 20** - L. Ballin, Leap (W199389), 17 June and 21 August 2008, EPA (DAM). L. Tooreen, Crookhaven (V790259), 17 September 2008, EPA (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 10 and 18 May 2001 also inflow to Upper Reservoir (C413171), 18 May 2001 (PHL): **HA 3** - pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). L. Neagh (H9080), no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990) also 7 May 2001 and 15 May 2002 (PHL). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM): **HA 36** - L. Unshin, Ballyshannon (G951637), 6 July 2009, EPA (DAM): **HA 37** - L. Eske, Donegal (G973844), 17 April 2009, EPA (DAM): **HA 38** - L. Altercan, The Rosses (B755158), 19 July 2000 (Langton, 2002). L. Anure, Loughanure, east shore (B818162), 17 June 2009, EPA (DAM). L. Veagh, north east shore, Glenveagh (C038236), 24 July 1985, POD (Heneghan, 1986). L. An tSeisigh, Portnablagh, Sheephaven (C043361), 28 July 2009, EPA (DAM). L. Greenan, Loughsalt, Kilmacrennan (C117262), 8 September 2009, EPA (DAM). L. Kiltoris, Dawros, Ardara (G675976), 30 July 2009, EPA (DAM). L. Voriskey, The Rosses (B762176), 19 July 2000 (Langton, 2002): **HA 39** - L. Fern, Millford (C180233), 23 July 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Erne, Lower: Black Bay (H072639), 27 April 2002 (PHL) and Brockagh Point, Boa Island (H108627), 17 August 2011 (PHL). R. Bannagh, Drummoney Falls, Pettigo (H168676), 17 August 2011 (PHL). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 25 May 2003 (PHL) and 14 June 2007, EPA (DAM): **HA 30** - L. Anillaun, Maam Cross (L980470), 19 April and 1 August 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007, EPA (DAM). L. Corrib, Knockferry (M230410), 29 April 1980, BC (DAM). L. Maumwee, Maam Cross (L977485), 19 April, 8

June and 12 July 2007, EPA (DAM). Stream at lay-by picnic site on road N59, Moycullen (M204326), 25 May 2003 (PHL): **HA 31** - L. Anaserd, Ballyconneely (L605443), 17 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 17 April and 6 June 2007, EPA (DAM). L. Ballynakill, Gorumna (L867236), 20 June 2006, EPA (DAM). L. Derryclare, Recess (L825485), 17 April and 6 June 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 20 June and 8 August 2006 also 19 April and 1 August 2007, EPA (DAM). L. Shindilla, Derreenacreeva, Maam Cross (L958460), 9 August 2006, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 11 July 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 17 July 2007, EPA (DAM). L. Tully, Tully Cross (L695618), 19 July 2007, EPA (DAM). L. Pollacappul, Kylemore (L754582), 5 June and 9 July 2007, EPA (DAM). **KERRY: HA 21** - L. Currane, Waterville (V535664), 9 May 2008, EPA (DAM). L. Inchiquin, Kenmare (V837629), 18 June 2008, EPA (DAM): **HA 22** - L. Cummernamuck, Killorglin (V745897), 20 June 2008, EPA (DAM). L. Kilbrean, Killarney (W005935), 24 July 1969, NH (Bracken and Murray, 1973). L. Leane, Killarney, mid lake (V930883), 14 July 1973 and Inishfallen (V933893), 11 June 1973 (Douglas and Murray, 1980). Muckcross Lake, Killarney: Coleen Bawn (V950857) and Dundag Bay (V964858), April and May 1973 (Douglas and Murray, 1980) also Muckcross Lake (V950853), 24 April 2008, EPA (DAM). Upper Lake, Killarney, Gortroe (V918818), May 1973 (Douglas and Murray, 1980): **HA 23** - L. Gill, Castlegregory (Q603139), 29 April, 25 June and 28 August 2008, EPA (DAM). **LEITRIM: HA 26** - L. Bofin, Dromod (N049894), 24 June 2008, EPA (DAM). L. Rinn, Mohill (N095943), 25 June 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June and 27 August 2008, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 28 July 2008, EPA (DAM). L. Mask, Toormakeady (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Doo, Delphi, north east shore (L834689), 6 June 2002, DAM/WM (Murray, 2005). Ballin L., Westport, south shore (L994878), 22 April 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 24 June and 23 July 2008, EPA (DAM): **HA 33** - L. Acorrymore, Achill Island (F578057), 17 June 2008, EPA (DAM). Bog pools, Glenamoy (F896345), 1973, CD (Dowling and Murray, 1981): **HA 34** - L. Mallard, Castlebar (M121902), 30 September 2004, DAM/WM (DAM). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 27 June 2006, EPA (DAM). L. Avagnon, Latton, Cotehill (H688133), 11 July 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). **SLIGO: HA 35** - L. Arrow, Ballinafad (G789123), 29 April 2008, EPA (DAM). **TYRONE: HA 1** - R. Glenelly, Leagh's Bridge, Mullaghsallagh (H695940), 17 August 2011 (PHL). **WATERFORD: HA 16** - L. Knockaderry, Knockaderry (S496062), 2 April 2009, EPA (DAM): **HA 17** - L. Carrigavantry, Tramore (S548022), 21 April 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 1981 (Forde, 1985): **HA**

26 - L. Derravaragh, Crookedwood (N468634), 30 August 2007, EPA (DAM). L. Coosan, Athlone (N055449), 24 April 2007, EPA (DAM): **HA 36** - L. Bane, Collinstown (N550712), 22 August 2006, EPA (EPA). **WEXFORD: HA 13** - Lady's Island Lake, Carnsore (T105077), July 1991, B. Healy (DAM). **WICKLOW: HA 10** - L. Dan, Roundwood (O157035), 15 June 2009, EPA (DAM). Vartry Reservoir, south east shore, Roundwood (O214002), 13 August 1983, HD (DAM) and north basin, Roundwood (O205050), 2 July 2009, EPA (DAM).

***Dicrotendipes tritonus* (Kieffer, 1916)**

CAVAN: HA 7 - L. Acurry, Baileborough (N584990), 5 July 2007, EPA (DAM). **CLARE: HA 28** - L. Naminna, Boolteagh (R179708), 11 June 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 14 August 2008, EPA (DAM): **HA 20** - L. Skeagh (Schull Reservoir), Schull (V937338), 17 June and 27 August 2008, EPA (DAM). L. Tooreen, Crookhaven (V790259), 17 June 2008, EPA (DAM). **DONEGAL: HA 36** - L. Golagh, Ballyshannon (G965655), 7 July 2009, EPA (DAM). L. Unshin, Ballyshannon (G951637), 8 June 2009, EPA (DAM): **HA 38** - L. Dungloe, The Rosses: south east shore (B783112), 12 August 1982, BPH (DAM); east shore (B787117), 19 July 2000 (Langton, 2002); west shore (B782119), 5 August 2009, EPA (DAM). L. Anure, Loughanure, east shore (B818162), 17 June 2009, EPA (DAM). R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000 (Langton, 2002). L. Veagh, north east shore, Glenveagh (C038233), 24 July, 22 and 27 August 1985 (Heneghan, 1986): **HA 39** - L. Gartan, north shore, Church Hill (C065173), 18 July 2000 (Langton, 2002). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 8 June and 1 August 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 6 June and 18 July 2007, EPA (DAM). L. Bofin, Maam Cross (M034441), 31 July 2007, EPA (DAM). L. Corrib Upper, Oughterard (M138486), 14 September 2007, EPA (DAM). L. Lettercraffroe, Oughterard (M056376), 31 July 2007, EPA (DAM). L. Maumwee, Maam Cross (L977485), 17 September 2007, EPA (DAM): **HA 31** - L. Ahalia, Maam Cross (L971402), 18 June 2009, EPA (DAM). L. Ardderry, Maam Cross (L982458), 1 August 2007, EPA (DAM). L. Ballynakill, Gorumna (L867236), 20 June 2006, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 20 June, 11 July, 8 August 2006 and 7 June 2007, EPA (DAM): **HA 32** - L. Fadda, Beaghcauneen (L668455), 17 July 2007, EPA (DAM). **KERRY: HA 21** - L. Currane, Waterville (V535664), 18 June 2008, EPA (DAM). L. Inchiquin, Kenmare (V837629), 18 June 2008, EPA (DAM): **HA 22** - L. Guitane, Crohane, Killarney (W025846), 26 June 2008, EPA (DAM). L. Leane, Killarney, Muckross Boathouse (V965866), 29 August 1987, NOM (Murray, 2005). Muckross Lake, Killarney (V950853), 16 July 2008, EPA (DAM): **HA 23** - L. Cam, Castlegregory (Q597079), 29 April and 25 June 2008, EPA (DAM). **MAYO: HA 32** - L. Fin, Delphi (L841657), 28 June 2006, EPA (DAM). **WESTMEATH: HA 25** - L. Ennell, Mullingar

(N378444), 29 April 1981, BPH (PJA/DAM). **WICKLOW: HA 10** - Vartry Reservoir, Roundwood, north basin (O205050), 2 July 2009, EPA (DAM).

***Einfeldia pagana* (Meigen, 1838)**

CLARE: HA 27 - L. Muckanagh, Tubber, Corrofin (R368926), 2 August 2006, EPA (PHL). **CORK: HA 19** - L. Allua, Ballingearry (W180652), 20 August 2008, EPA (DAM). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 14 June 2007, EPA (DAM); **HA 30** - L. Corrib: Knockferry (M236415), 8 May 1980, BC (DAM); Clonbur (M068525), 22 August 1995 (DAM); Moycullen (M271360), 11 June 2007, EPA (DAM); **HA 31** - L. Aunwillan, Carraroe (L936255), 7 June and 25 July 2007, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 28 July 2008, EPA (DAM). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 8 May 1974 (Murray, 2005). **MONAGHAN: HA 6** - L. Monalty, Carrickmacross (H866027), 14 September 2007, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), June 1973, NH (Hayes, 1980); **HA 25** - L. Ennell, Tudenham (N415466), 1981 (Forde, 1985); **HA 36** - L. Bane, Collinstown (N550712), 26 June and 22 August 2006, EPA (EPA).

***Endochironomus albipennis* (Meigen, 1830)**

ANTRIM: HA 3 - L. Neagh: Lennymore Bay (J115745), 1965 (Marks and Henderson, 1970); Antrim Bay (J135866) and Churchtown Point (J056852), 22 August 2001 (PHL). Pond, Templepatrick (J232856), 26 August 2008 (PHL); **HA 5** - L. Mourne, Copeland water, Carrickfergus (J415924), 4 and 8 May 1999 (PHL); **Rathlin Island** - Nature Reserve lough (D095505), 24 July 2000 (Langton, 2002), Ushet L. (D154485), 5 July 2004 (PHL). **CAVAN: HA 7** - L. Drumkeery, Baileborough (H663002), 1 May 2007, EPA (DAM). L. Acurry, Baileborough (N584990), 5 July 2007, EPA (DAM). L. Ramor: golf course shore, Virginia (N595870), 7 May 1967 (Murray, 1972); Virginia (N603871), May 1971, DJD/DAM (Douglas, 1971) and 27 June 2005, DAM/WM (DAM). L. Cuilcagh, Virginia (N636895), 30 April 1968 (Murray, 1972). L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972); **HA 26** - L. Sheelin: Kilnahard (N435860), 19 and 31 August 1971, NH (DAM); Gore Point (N439817), 21 March 1982, PG (DAM); **HA 36** - Glasshouse L., Killashandra (H270060), 7 June and 18 July 2007, EPA (DAM). L. Annagh, Butler's Bridge (H394125), 3 and 18 September 2007, EPA (DAM). L. Cuillaghan, Ballyconnell (H303183), 25 July 2007, EPA (DAM). L. Garty, Arvagh (N278978), 7 June and 18 July 2007, EPA (DAM). L. Gowna, north basin, Arnagahan (N285920), 24 July and 18 September 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 3 August 2006, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 20 April and 16 July 2009, EPA (DAM). L. Atorick, Feakle (R637964), 24

May 2003, EPA (PHL): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 21 April, 29 July and 17 September 2009, EPA (DAM). L. Bunny, Aughrim, south east shore (R377965), 7 June 2006, EPA (EPA). L. Dromore, Ruan, Corrofin (R345858), 4 May 2006, and mid lake (R352864), 16 June 2009, EPA (DAM). Gortglass L., Killadysert (R223599), 15 September 2009, EPA (DAM). L. Inchiquin, Corrofin (R270895), 4 July 2006, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R370922), 14 September 2009, EPA (DAM). L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009 and north east shore (R449697), 16 September 2009, EPA (DAM). L. Cullaunyheeda, Kilkishen (R488746), 13 August 2009, EPA (DAM): **HA 28** - L. Doo, Milltown Malbay (R123721), 8 July 2009, EPA (DAM) and (R114722), 15 September 2009, EPA (DAM). L. Keagh, Milltown Malbay, north shore (R100813), 11 June 2009 and south west shore (R100811), 8 July 2009, EPA (DAM). L. Lickeen, Kilfenora: mid lake (R175909), 6 June 2006; west shore 1 (R168909), 21 July 2009; west shore 2 (R164908), 15 September 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 16 June 2008, EPA (DAM). Iniscarra Reservoir, Coachford (W477717), 28 July 2008, EPA (DAM). L. Allua, Ballingearry (W180652), 17 June and 20 August 2008, EPA (DAM): **HA 20** - L. Ballin, Leap (W199389), 9 April, 21 August and 17 September 2008, EPA (DAM). L. Coolklure, Dunmanway (W177539), 11 August 2008, EPA (DAM). L. Curragalicky, Drinagh, Dunmanway (W234046), 17 June 2008, EPA (DAM). L. Skeagh (Schull Reservoir), Schull (V937338), 27 August and 17 September 2008, EPA (DAM): **HA 21** - L. Avaul, Glengarrif (V910553), 18 August 1969 and L. Reenydonegan, Bantry (W000515), 2 June 1969, NH (Bracken and Murray, 1973). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173) and inflow to Upper Reservoir (C413171), 18 May 2001 (PHL). Pool near Upper Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL). Lower Reservoir, Creggan, Derry (C422174), 10 May 2001 (PHL): **HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 21 April and 7 July 2002 (PHL). Downhill Forest lake, Coleraine (C757353), 21 August 2001 (PHL). Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May and 21 August 2001 (Langton, 2002). Balinrees Reservoir, Coleraine (C794300), 9 June 2000 (Langton, 2002). R. Bann, Coleraine (C854304): 3 May, 3 and 16 July 2000 (PHL). Coleraine (C855308), 28 August 2002 (PHL). Pond 3, Magherafelt Golf Course, Traad Point (H955874), 10 May 2000 (Langton, 2002). L. Neagh: (H9080), no date (McLarnon and Carter, 2000); Ballyronan (H948862), 27 April, 4 and 10 May, 4 July 2000 (Langton, 2002) also 7 May and 22 August 2001, 25 May 2002 (all PHL). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM): **HA 38** - L. Scalpachore, Cruit Island (B730216) and L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Anure, Loughanure, east shore (B818162), 17 June and 12 August 2009, EPA (DAM). L. Glen, Glen (C105292), 16 June 2009, EPA (DAM). L. Keel, Kilmacrennan (C158243), 16 July 2009, EPA (DAM). L.

Fallaneas, Kindrum (C173424), 30 April 2009, EPA (DAM). L. Kinny, Fanad (C204442), 9 September 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 23 April 2009, EPA (DAM). L. Fern, Milford (C182247), 18 August 2011 (PHL). **DOWN: HA 5** - L. Henney, Ballynahinch (J348586), 22 June 2000 (Langton, 2002). Bow L., Ballynahinch (J354577), 22 June 2000 (Langton, 2002). **DUBLIN: HA 9** - Royal Canal, Ashtown (O108378), 22 May 1968, DAM (Murray, 1972). **FERMANAGH: HA 36** - Dummys L., Magheraveely (H488276), 28 June 2000 (Langton, 2002). L. Erne, Upper, slipway (H362242) and Crom Castle, Newtownbutler (H357244), 27 June 2000 (Langton, 2002). L. Erne, Lower: Brockagh Point, Boa Island (H108626), 29 June 2000 (Langton, 2002) and 16 August 2011 (PHL); Black Bay (H072639), 27 April 2002 (PHL). L. Killyfole (Mill L.), Rosslea (H464314), 28 June 2000 (Langton, 2002). L. Kilturk, Newtownbutler (H374255), 27 June 2000 (Langton, 2002). L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). L. Nolughage, Crom Castle, Newtownbutler (H364243), 27 June 2000 (Langton, 2002). Toppedmountain L., Tempo, Enniskillen (H310453) and L. Eyes, Lisbellaw (H324434), 16 August 2011 (PHL). **GALWAY: HA 29** - L. Caherglassaun, Gort (M412061), 7 August 2007, EPA (DAM). L. Rea, Loughrea (M615154), 25 May 2003 (PHL): **HA 30** - L. Anillaun, Maam Cross (L980470), 19 April 2007, EPA (DAM). L. Corrib Upper, Oughterard (M138486), 14 September 2007, EPA (DAM). L. Corrib Lower, Hurney (M258310), 8 May 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Aunwillan, Carraroe (L936255), 16 April, 25 July and 13 September 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 13 September 2007, EPA (DAM). L. Derryclare, Recess (L825485), 16 July 2007, EPA (DAM). L. Loughanaure, Kilkieran (L828320), 24 July 2007, EPA (DAM): **HA 32** - L. Tully, Tully Cross (L695618), 19 July 2007, EPA (DAM). **KERRY: HA 21** - Erik L., Derrygarriff (V881777), 9 August 2005, JRB (DAM): **HA 22** - L. Kilbrean, Killarney (W005935), 11 August 1969, NH (Bracken and Murray, 1973). L. Leane, Killarney: Castlough Bay, north shore (V966866), 27 June 1973, JPOC (Douglas and Murray, 1980); Juniper Bay (V949863), 11 June 1973; Ross Bay (V945850), May to August 1973 (Douglas and Murray, 1980) and 27 August 1987 (DAM); Victoria Bay (V946900), May to August 1973, DJD/DAM (all Douglas and Murray, 1980); Killarney (V931886), 24 June and 10 July 2008, EPA (DAM). Muckcross Lake, Killarney, Goleen Bay (V963853), 26 June 1973 (Douglas and Murray, 1980): **HA 23** - L. Gill, Castlegregory (Q603139), 28 August 2008, EPA (DAM). **LEITRIM: HA 26** - L. Allen, Mountallen, Drumshanbo (G950145), 7 August 2008, EPA (DAM). L. Boderg, Derrycarne, north west shore (N013915), 29 July 2008, EPA (DAM): **HA 35** - L. Belhavel, Killarga, Dromahair (G878288), 10 June 2008, EPA (DAM). L. Glenade, Manorhamilton, south east shore (G831457), 22 July 2008, EPA (DAM). L. Glencar, Glencar (G757435), 10 June 2008,

EPA (DAM). **LEITRIM: HA 26** - L. Rinn, Shore at Lough Rynne Castle, (N100935), 25 September 2014, DAM. **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 16 September 2009, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June 2008, EPA (DAM). **WESTMEATH: HA 26** - L. Ree, Coosan (N050450), 15 August 2007, EPA (DAM). **LOUTH: HA 6** - L. Mentrim, Ardee (N913879), 27 June 2005, DAM/WM (DAM). **MAYO: HA 26** - Loughanboy turlough, Ballyhaunis (M433816), 24 May 1986, DAM/WM (DAM). L. Nanoge, Urlaur (M506903), 18 June and 27 August 2008, EPA (DAM): **HA 30** - L. Aille, Aille, Westport (M071807), 8 August 2008, EPA (DAM). L. Carra, Keel Bridge, Ballinrobe (M165680), 28 July 2008, EPA (DAM): **HA 32** - L. Ballin, Westport, south shore (L994878), 22 April and north shore (L996882), 18 September 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 33** - L. Keel, Achill Island, south east shore (F650051), 17 June 2008 and mid lake (F651059), 16 July 2008, EPA (DAM): **HA 34** - L. Castlebar, Castlebar (M106879), 7 May 2004, DAM/WM (DAM). L. Conn: Cloghans (G205133), 7 March 1965 (Murray, 1972); Brackwansha (G194098) and Massbrook (G168054), 1 August 1995, DAM/WM (Murray, 2005); Illannaglashy (G207070), 20 August 2008, EPA (DAM). L. Cullin, Drummon Wood, Pontoon (G235046), 20 August 2008, EPA (DAM). L. Mallard, Castlebar, Castlebar (M121902), 30 September 2004, DAM/WM (DAM). **MONAGHAN: HA 6** - L. Monalty, Carrickmacross (H866027), 14 September 2007, EPA (DAM): **HA 36** - L. Annaghmakerrig, Newbliss (H585205), 22 May 2006, EPA (DAM). L. Avagnon, Latton, Cotehill (H688133), 11 July 2007, EPA (DAM). Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **OFFALY: HA 25** - R. Shannon, Banagher (N005157), 3 September 1982; Shannon Bridge (M967254), 15 August 1981 (both Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 (Hayes, 1991). L. Annaghmore, Strokestown, Elphin (M902838), 15 July and 2 September 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June and 25 August 2008, EPA (DAM). Grange L., Greywood, Strokestown (M938857), 10 September 2008, EPA (DAM). L. Key, Boyle (G838057), 6 August 2008, EPA (DAM). **SLIGO: HA 26** - L. Gara, Cuppanagh, Cloonlough (G714013), 26 June 2008, EPA (DAM). **TYRONE: HA 1** - L a'Tirrive, Mulderg, Mountfield (H534778), 16 August 2011 (PHL): **HA 3** - L. Neagh, Washing Bay, Coalisland (H903662), 15 and 30 May 2002 (PHL). **WATERFORD: HA 16** - L. Ballyscanlan (Reservoir), Tramore (S540030), 19 August 2009, EPA (DAM). L. Ballyshunnock (Reservoir), Portlaw (S455095), 20 April and 2 September 2009, EPA (DAM). L. Knockaderry, Knockaderry (S496062), 2 April and 1 July 2009, EPA (DAM): **HA 17** - Belle Lake, Dunmore East (S665049), 22 April and 2 July 2009, EPA (DAM). L. Carrigavantry, Tramore (S548022), 21 April, 19 August and 1 September 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 14 June 1966 (Murray, 1972) and 29 June 1966 (DAM): **HA 26** - L.

Derravaragh, Crookedwood (N468634), 30 August 2007, EPA (DAM). L. Killinure: Ballaghkeernan Bay (N069445), 24 April and 11 September 2007; Wineport (N067458), 26 June 2007, all EPA (DAM). L. Coosan, Athlone (N055449), 16 August and 11 September 2007, EPA (DAM).

***Endochironomus tendens* (Fabricius, 1775)**

ANTRIM: Rathlin Island - pool 2, east of lighthouse (D164520), L. Nachiule (D160521) and long pool (D148521), 24 July 2000 (all Langton, 2002). *Menyanthes* pool (D123515), 6 July 2004 (PHL). **CLARE: HA 25** - L. Alewnaghta, Whitegate: west shore (R758908), 17 June and 16 July 2009; north east shore (R764914), 23 September 2009, all EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, north basin (R563803), 12 June 2009 and east shore, (R558797), 17 September 2009, EPA (DAM). L. Bunny, Aughrim, south east shore (R377965), 7 June 2006, EPA (EPA). Castle L., Kilmurry, Sixmilebridge (R481688), 12 June 2009, EPA (DAM). **CORK: HA 19** - College lake, Castlemartyr (W963722), 3 May 1965 (Murray, 1972): **HA 20** - L. Skeagh (Schull Reservoir), Schull (V937338), 27 August 2008, EPA (DAM): **HA 21** - L. Avaul, Glengarrif (V910553), 8 September 1969, NH (Bracken and Murray, 1973). **DERRY: HA 3** - pond, near R. Macquosin, Ballytinagh Road, Coleraine (C854255), 16 May 2004 and 20 August 2006 (PHL). R. Bann, Coleraine (C854304), 22 September 1999 (PHL). Pond 2, Magherafelt Golf Course, Traad Point (H954873), 10 May 2000 (Langton, 2002). L. Neagh (H9080), no date (McLarnon and Carter, 2000); Ballyronan (H948862), 1988 (Tokeshi, 1990) also 4 May 1999 and 22 May 2011 (PHL). **DONEGAL: HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002): **HA 38** - L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (DAM). **DOWN: HA 5** - L. Henney, Ballynahinch (J348586), 22 June 2000 (Langton, 2002). **GALWAY: HA 25** - L. Derg: Meelich Bay, Portumna (M860033), 16 August 1995, C. Moriarty (DAM); Woodford (M794964), 23 May 2003 (PHL): **HA 30** - L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Anaserd, Ballyconneely (L605443), 11 September 2007, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 6 June 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney: Ross Bay (V945850), July to September 1973, DJD/DAM (Douglas and Murray, 1980); Muckcross Boathouse (V965866), 1 September 1987, NOM (LJH). Muckcross Lake, Killarney, mid lake (V950850), 30 July 1973 (Douglas and Murray, 1980). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June and 10 September 2008, EPA (DAM). **MAYO: HA 32** - L. Fin, Delphi (L841657), 28 June 2006, EPA (DAM). L. Carrokeel, Murrisk (L924830), 5 August 2004, DAM/WM (DAM). L. Moher, Liscarney, Westport (L977766), 24 June 2008, EPA (DAM): **HA 33** - L. Keel, Achill Island, south east shore

(F650051), 17 June 2008 and mid lake (F651059), 16 July 2008, EPA (DAM): **HA 34** - L. Lannagh, Castlebar, west shore (M109883), 21 August 2008, EPA (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), 4 August 1998 and L. Poirtin Fuinch (L706857), 10 August 1998 (Fahy, 2002, NMI). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), 3 June 1999, DAM (DAM). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 15 July 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 25 August 2008, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 1981 (Forde, 1985). L. Ennell, Tudenham (N415466), 27 July 1979, DAM (Murray, 2005): **HA 36** - L. Bane, Collinstown (N550712), 26 June 2006, EPA (EPA). **WICKLOW: HA 10** - Vartry Reservoir, Roundwood, south east shore (O214002), 13 August 1983, HD (DAM).

***Glyptotendipes (Caulochironomus) foliicola* ?Kieffer, 1918 sensu Pinder 1978 (adult male) and Langton & Visser, 2003 (Pe)**

CAVAN: HA 7 - L. Drumkeery, Baileborough (H663002), 16 July 2007, EPA (DAM): **HA 36** - L. Ardan, Milltown, Belturbet (H354124), 26 July 2007, EPA (DAM). L. Gowna, south basin, Dring (N300856), 18 April 2007, EPA (DAM). L. Oughter, Killashandra (H349051), 17 July 2007, EPA (DAM). **CLARE: HA 25** - L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 21 April 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 22 July 2009, EPA (DAM). L. Dromore, Ruan, Corrofin (R345858), 4 May 2006 and 21 July 2009, EPA (DAM). L. Gortglass, Killadysert, south shore (R223596), 7 July 2009, EPA (DAM). **CORK: HA 20** - L. Abisdealy, Skibbereen (W136314), 17 September 2008, EPA (DAM). L. Ballin, Leap (W199389), 9 April and 17 June 2008, EPA (DAM). **DERRY: HA 3** - pond, near R. Macquosin, Ballytinagh Road, Coleraine (C854255), 16 May 2004 (PHL). **DONEGAL: HA 38** - L. Fallaneas, Kindrum (C173424), 30 April and 16 June 2009, EPA (DAM). L. Kiltoris, Dawros, Ardara (G675976), 30 July 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 23 April 2009, EPA (DAM). **DUBLIN: HA 9** - lake in Zoological Gardens, Dublin (O129353), 15 May 1987 MB/DAM (DAM). **FERMANAGH: HA 36** - Dummys L., Magheraveely (H488276), 28 June 2000 (Langton, 2002). L. Erne Upper, Newtownbutler slipway (H362242) and Crom Castle (H357244), 27 June 2000 (Langton, 2002). L. Inver, Rosslea (H518314), 28 June 2000 (Langton, 2002). L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). L. Nolughage, Crom Castle, Newtownbutler (H364243), 27 June 2000 (Langton, 2002). **GALWAY: HA 31** - L. Anaserd, Ballyconneely (L605443), 16 May and 20 June 2006, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 6 June 2007, EPA (DAM): **HA 32** - L. Nambrackmore, Ballinaboy, Toombeola (L716454), 6 June and 27 July 2007, EPA (DAM). **LEITRIM: HA 26** - L. Boderg, Derrycarne, north west shore (N013915),

29 July and 10 September 2008, EPA (DAM). L. Bofin, Rinnafarna, Dromod (N036891), 29 July 2008, EPA (DAM): **HA 35** - L. Glenade, south east shore, Glenade, Manorhamilton (G831457), 22 July 2008, EPA (DAM). **LONGFORD: HA 26** - L. Ree, Bleanavoher (N069445), 25 April 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Ree, Yew Point, Barley Harbour (N018485), 25 April 2007, EPA (DAM). **LOUTH: HA 6** - L. Mentrim, Ardee (N913879), 27 June 2005, DAM/WM (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 28 July 2008, EPA (DAM): **HA 32** - L. Moher, Lisearney, Westport (L977766), 21 April 2008, EPA (DAM). Clogher L., boat dock on north shore, Clogher, Westport (M032880), 30 September 2004, DAM/WM (DAM): **HA 34** - L. Lannagh, west shore, Castlebar (M109883), 23 April 2008, EPA (DAM) and west shore (M105880), 30 June 2008, EPA (DAM). L. More, Ballynagoraher (G115044), 8 May and 29 June 2006, EPA (DAM). **MONAGHAN: HA 36** - L. Drumlona, Rockcorry (H636176), 11 July 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 15 July 2008, EPA (DAM). Grange L., Greywood, Strokestown (M938857), 25 June and 28 July 2008, EPA (DAM). **WATERFORD: HA 17** - L. Carrigavantry, Tramore (S548022), 3 July 2009, EPA (DAM). **WESTMEATH: HA 26** - L. Killinure, Wineport (N067458), 24 April and 15 August 2007, EPA (DAM). L. Coosan, Athlone (N055449), 24 April and 16 August 2007, EPA (DAM).

***Glyptotendipes (Caulochironomus) scirpi* (Kieffer, 1915)**

CAVAN: HA 36 - L. Annagh, Butler's Bridge (H394125), 3 July 2007, EPA (DAM). L. Atrain, Gartbrattan, Cavan (H364051), 4 July 2009, EPA (DAM). L. Macnean, lower, Blacklion (H106378), 23 July 2007, EPA (DAM). **CLARE: HA 25** - L. Alewnaghta, Whitegate, west shore (R758908), 20 April and 16 July 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 29 July 2009, EPA (DAM). L. Bunny, Aughrim, south east shore (R377965), 2 May 2006, EPA (EPA). L. Inchicronan, Crusheen west basin (R391860), 9 July 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 2 May 2006, EPA (PHL). L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009, EPA (DAM). **CORK: HA 19** - L. Allua, Ballingearry (W180652), 17 June 2008, EPA (DAM): **HA 20** - L. Ballin, Leap (W199389), 9 April 2008, EPA (DAM). L. Curraghally, Drinagh, Dunmanway (W234046), 9 April 2008, EPA (DAM). L. Tooreen, Crookhaven (V790259), 10 April 2008, EPA (DAM). **DONEGAL: HA 37** - L. Shinvagh, Ballintra (H005675), 27 April 2002 (Langton, 2004). **FERMANAGH: HA 36** - L. Eyes, Lisbellaw (H324434), 16 August 2011 (PHL). **GALWAY: HA 30** - L. Ballyquirke, Moycullen (M232317), 13 April, 14 June and 8 August 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 6 June 2007, EPA (DAM). L. Ross, Moycullen (M188365), 13 April 2007, EPA (DAM): **HA 31** - L. Anaserd,

Ballyconneely (L605443), 6 June and 17 July 2007, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 3 April and 11 July 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 6 June 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 16 April 2008, EPA (DAM). **LIMERICK: HA 24** - L. Gur, Holycross (R646269), 28 July 2009, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 24 April 2008, EPA (DAM): **HA 30** - L. Aille, Aille, Westport (M071807), 24 June 2008, EPA (DAM). L. Carra, Keel Bridge, Ballinrobe (M165680), 28 April 2008, EPA (DAM): **HA 32** - L. Moher, Liscarney, Westport (L977766), 21 July 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 24 June and 23 July 2008, EPA (DAM). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). Grange L., Greywood, Strokestown (M938857), 8 April and 25 June 2008, EPA (DAM). **SLIGO: HA 35** - L. Arrow, Ballinafad (G789123), 11 June 2008, EPA (DAM). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 22 April, 2 July and 19 August 2009, EPA (DAM). **WESTMEATH: HA 26** - L. Killinure, Ballaghkeernan Bay (N069445), 24 April 2007, EPA (DAM). **WICKLOW: HA 9** - Pollaphuca Reservoir, Ballymore Eustace (N995080), 30 April 2009, EPA (DAM).

Glyptotendipes (Caulochironomus) viridis (Macquart, 1834)

[Including records under *Glyptotendipes (Caulochironomus) imbecilis* (Walker, 1856)]

CLARE: HA 27 - L. Bridget, Derrymore, Badyke, north basin (R563803), 12 June 2009, EPA (DAM). L. Bunny, Aughrim, south east shore (R377965), 25 May 2003 (PHL). Castle L., Kilmurry, Sixmilebridge, south west shore (R481688), 12 June 2009, EPA (DAM). **CORK: HA 21** - L. Avaul, Glengarrif (V910553), 1969, NH (Bracken and Murray, 1973). **GALWAY: HA 30** - L. Corrib, Knockferry (M230410), 18 May 1980, BC (DAM): **HA 31** - L. Illauntrasna, Glentrasna, Garomna (L888254), 25 July and 12 September 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney, Castlelough Bay (North) (V966866), 27 June 1973, JPOC (Douglas and Murray, 1980). **MAYO: HA 32** - Clogher L., Clogher, Westport (M035884), July 1911, PHG (Grimshaw, 1912).

Glyptotendipes (Glyptotendipes) barbipes (Staeger, 1839)

CAVAN: HA 7 - L. Acurry, Baileborough (N584990), 12 June 2007, EPA (DAM): **HA 36** - L. Annagh, Butler's Bridge (H394125), 3 July 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus (R557924), 11 August 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, north basin (R563803), 12 June 2009 and east shore (R558797), 29 July 2009, EPA (DAM). L. Dromore, Ruan, Corrofin (R345858), 8 June 2006, EPA (DAM). L. Rosroe, Newmarket on Fergus, north east shore (R449697), 16 September 2009, EPA (DAM). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 21 May 1969, NH (Bracken and Murray, 1973). L. Allua,

Ballingeary (W180652), 17 June and 20 August 2008, EPA (DAM): **HA 20** - L. Abisdealy, Skibbereen (W136314), 17 September 2008, EPA (DAM). L. Skeagh (Schull Reservoir), Schull (V937338), 17 June 2008, EPA (DAM). **DONEGAL: HA 38** - L. Fallaneas, Kindrum (C173424), 30 April and 16 June 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Nolughage, Crom Castle, Newtownbutler (H364243), 27 June 2000 and Dummys L., Magheraveely (H488276), 28 June 2000, both Langton (2002). **GALWAY: HA 30** - L. Beaghcauneen, Ballinaboy (L679470), 6 June 2007, EPA (DAM). L. Corrib Lower, Moycullen (M271360), 28 August 2007, EPA (DAM). L. Ross, Moycullen (M188365), 14 June 2007, EPA (DAM). **KERRY: HA 23** - L. Gill, Castlegregory (Q603139), 16 June 2002, GO (Murray, 2005). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Rinn, Shore at Lough Rynn Castle (N100935), 25 September 2014 (DAM). **MAYO: HA 32** - L. Ballin, north shore, Westport (L996882), 25 June 2008, EPA (DAM): **HA 33** - Cross L., Drumreagh, Belmullet: north east shore (F651299), 17 June 2008; west shore (F645293), 14 August 2008, both EPA (both DAM). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 15 July and 2 September 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June 2008, EPA (DAM).

***Glyptotendipes (Glyptotendipes) cauliginellus* (Kieffer, 1913)**

ANTRIM: Rathlin Island - pool 2, east of lighthouse (D164520), L. Craigmacagan (D154498), 24 July 2000 and Nature Reserve lough (D095505), all 24 July 2000 (Langton, 2002). *Menyanthes* pool (D123515), 6 July 2004 (PHL). **CAVAN: HA 36** - L. Ardan, Milltown, Belturbet (H354124), 6 June and 26 July 2007, EPA (DAM). L. Atrain, Gartbrattan, Cavan (H364051), 4 July 2009, EPA (DAM). L. Gowna, north basin, Arnagahan (N285920), 7 June 2006, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus (R556930), 24 May 2003 (PHL). L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 17 September 2009, EPA (DAM). L. Bunny, Aughrim, south east shore (R377965), 7 June 2006, 11 June and 14 July 2009, all EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 7 June, 22 July 2009, EPA (DAM). L. Dromore, Ruan, Corrofin, west basin (R345858), 21 July 2009, EPA (DAM). L. Gortglass, Killadysert, south shore (R223596), 7 July 2009, north shore (R223599), 15 September 2009, EPA (DAM). L. Inchicronan, east basin, Crusheen (R398866), 15 June 2009, EPA (DAM). L. Inchiquin, Corrofin (R270895), 4 July 2006, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 5 September 2006, EPA (LPR) and south east shore (R370922), 11 June 2009, EPA (DAM). L. Rosroe, Newmarket on Fergus, north east shore (R448697), 16 June 2009, south east shore (R442681), 12 August 2009, EPA (DAM) and north east shore (R449697), 16 September 2009, EPA (DAM). L. Cullaunyeeda, Kilkishen (R492748), 17 September 2009, EPA (DAM).

CORK: HA 19 - Carrigdroihid Reservoir, Ashton (W360703), 14 August 2008, EPA (DAM): **HA 20** - L. Ballin, Leap (W199389), 17 June and 21 August 2008, EPA (DAM). L. Curraghally, Drinagh, Dunmanway (W234046), 12 August 2008, EPA (DAM): **HA 21** - L. Avaul, Glengarrif (V910553), 1969, NH (Bracken and Murray, 1973). L. Reenydonegan, Bantry (W000515), 15 July 1969, NH (Bracken and Murray, 1973). **DERRY: HA 3** - Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May 2000 (Langton, 2002); Downhill Lake, Bishops Gate, Coleraine (C762361), 21 August 2001 (Langton, 2002). Pond, near R. Macquosin, Ballytinagh Road, Coleraine (C854255), 26 May 2004 (PHL). Pond 1 (H950873), pond 2 (H954873) and pond 3 (H955874), Magherafelt Golf Course, Traad Point, all 10 May 2000, all Langton (2002). **DONEGAL: HA 38** - L. Scalpachore, Cruit Island (B730216), 19 July 2000 (Langton, 2002). L. Greenan, Loughsalt, Kilmacrennan (C117262), 16 June 2009, EPA (DAM). L. Kindrum, Kindrum, Fanad (C186430), 16 June and 22 July 2009, EPA (DAM). L. Kinny, Fanad (C204442), 9 September 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Macnean lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). Toppedmountain L., Tempo, Enniskillen (H310453), 16 August 2011 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 23 May 2003 (PHL): **HA 29** - L. Coole, Gort (M432043), 15 June 2009, EPA (DAM). L. Rea, Loughrea (M615154), 14 September 2007, EPA (DAM): **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 June, 8 August and 14 September 2007, EPA (DAM). L. Corrib Lower, Moycullen (M271360), 11 June 2007, EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Anaserd, Ballyconneely (L605443), 17 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June 2007, EPA (DAM): **HA 32** - L. Enask, Beaghcauneen (L662468), 6 June 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June and 13 July 2008, EPA (DAM). L. Cloonaghlin, Waterville (V611708), 24 July 2008, EPA (DAM). L. Currane, Waterville (V535664), 18 June 2008, EPA (DAM): **HA 22** - L. Guitane, Crohane, Killarney (W025846), 26 June and 8 July 2008, EPA (DAM). L. Leane, Killarney, Juniper Bay (V949863), 11 June 1973 (Douglas and Murray, 1980) and Muckroos boathouse (V965866), 28 September 1987 (DAM). Muckcross Lake, Killarney, Dundag Bay (V964858), June and July 1973 (Douglas and Murray, 1980). Upper Lake, Killarney, Gallavalley, south west shore (V891817), June and July 1973 (Douglas and Murray, 1980): **HA 23** - L. Gill, Castlegregory (Q603139), 29 April 2008, EPA (DAM). **LEITRIM: HA 26** - L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). L. Bofin, Rinnafarna, Dromod (N036891), 29 July 2008, EPA (DAM): **HA 35** - L. Glenade, Glenade, Manorhamilton, south east shore (G831457), 22 July 2008, EPA (DAM). **LIMERICK: HA 24** - L. Gur, Holycross (R646269), 28 July 2009, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June, 27 August and 10 September 2008, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June 2008, EPA (DAM): **HA 30** -

L. Carra, Keel Bridge, Ballinrobe (M165680), 28 July 2008, EPA (DAM): **HA 32** - L. Fin, Delphi (L841657), 28 June 2006; L. Moher, Liscarney, Westport (L977766), 24 June and 21 July 2008 and L. Knappabeg, Westport (M010803), 23 July 2008, all EPA (DAM): **HA 34** - L. Lannagh, Castlebar, west shore (M109883), 21 August 2008, EPA (DAM). L. Washpool, Ballycarra (M219842), 15 August 2008, EPA (DAM): **Clare Island** - L. Leinapollbauty, Lecarrow (L691856), 5 June 2002 (Murray and Murray, 2003). **MONAGHAN: HA 36** - L. Avagnon, Latton, Cotehill (H688133), 11 July 2007, EPA (DAM). Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 15 July and 2 September 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 25 August 2008, EPA (DAM). Grange L., Greywood, Strokestown (M938857), 25 June and 28 July 2008, EPA (DAM). L. Key, Boyle, Hogs Island pier (G825054), 9 September 2008, EPA (DAM). **SLIGO: HA 35** - Templehouse Lake, Ballymote (G619182), 11 June 2008, EPA (DAM). **TIPPERARY: HA 25** - L. Derg, Dromineer, east shore (M809858), 17 June 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), August 1973, NH (Hayes, 1980). L. Ennell, Tudenham (N415466), 14 June 1966 (Murray, 1972) and 19 June 1966 (DAM): **HA 26** - L. Derravaragh, Crookedwood (N468634), 30 August 2007, EPA (DAM). L. Killinure, Wineport (N067458) and Ballaghkeernan Bay (N069445), 15 August 2007, EPA (DAM). L. Coosan, Athlone (N055449), 16 August and 11 September 2007, EPA (DAM). **WEXFORD: HA 13** - L. Ballyteige, Wexford (S936066), 14 July 1998, BH (Murray, 2005).

***Glyptotendipes (Glyptotendipes) glaucus* (Meigen, 1818)**

ANTRIM: HA 3 - L. Neagh: Lennymore Bay, north shore (J115745), 1966 (Marks and Henderson, 1970); Churchtown Point (J056852), 22 May 2011 (PHL): **Rathlin Island** - L. Ally (D153494), 5 July 2004 (PHL). **CAVAN: HA 7** - L. Ramor, Virginia (N603871), May 1971, DJD/DAM (Douglas, 1971). **DERRY: HA 3** - L. Neagh (H9080), May to September 1971-1974 (Carter, 1975); L. Neagh, Ballyronan (H948862), 4 July 2000 (Langton, 2002) and 22 May 2011 (PHL). **DOWN: HA 5** - Hillsborough Park Lake, Hillsborough (J246583), 22 May 2000 (Langton, 2002). **FERMANAGH: HA 36** - L. Erne Upper, Newtownbutler, slipway (H362242) and Crom Castle (H357244), 27 June 2000 (Langton, 2002). L. Inver, Rosslea (H518314), 28 June 2000 (Langton, 2002). L. Killyfole (Mill L.), Rosslea (H464314), 28 June 2000 (Langton, 2002). L. Macnean, upper, Belcoo (H042403) and L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). L. Nolughage, Crom Castle, Newtownbutler (H364243), 27 June 2000 (Langton, 2002). Toppedmountain L., Tempo, Enniskillen (H310453), 16 August 2011 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 23 May 2003 (PHL). **KERRY: HA 22** - L. Kilbrean, Killarney (W005935), 9 June 1969, NH (Bracken and Murray, 1973).

***Glyptotendipes (Glyptotendipes) pallens* (Meigen, 1804)**

ANTRIM: HA 3 - L. Neagh: Antrim Bay (J135866), 22 August 2001 (PHL); Churchtown Point (J056852), 22 August 2001, 22 and 31 May 2011 (PHL): **HA 4** - coastal impoundment, Murlough Bay (D198420), 27 March 2003 (PHL). **ARMAGH: HA 3** - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (PHL). **CAVAN: HA 7** - L. Drumkeery, Baileborough (H663002), 1 May, 12 June and 17 September 2007, EPA (DAM). L. Acurry, Baileborough (N584990), 12 June 2007, EPA (DAM). L. Ramor, Virginia (N603871), 27 June 2005, DAM/WM (DAM) and Virginia (N612860), 12 June 2007, EPA (DAM): **HA 36** - Glasshouse L., Killashandra (H270060), 7 June and 18 July 2007, EPA (DAM). L. Cuillaghan, Ballyconnell (H303183), 6 June and 25 July 2007, EPA (DAM). L. Garty, Arvagh (N278978), 7 June 2007, EPA (DAM). L. Macnean, lower, Blacklion (H106378), 2 May 2007, EPA (DAM). Mill Lake, Killashandra (H315060), 6 July 2007, EPA (DAM). L. Oughter, Killashandra (H349051), 6 June and 17 July 2007, EPA (DAM). L. Sillan, Shercock (H705067), 8 June 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 8 June, 6 July and 3 August 2006 also 11 August 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, north basin (R563803), 12 June 2009 and east shore (R558797), 29 July 2009, EPA (DAM). L. Dromore, Ruan, Corrofin, mid lake (R352864), 16 June 2009 and west shore (R345858), 21 July 2009, EPA (DAM): **HA 28** - L. Doo, Milltown Malbay (R123721), 8 July 2009, EPA (DAM). **CORK: HA 20** - L. Curragalicky, Drinagh, Dunmanway (W234046), 12 August 2008, EPA (DAM). L. Skeagh (Schull Reservoir), Schull (V937338), 27 August 2008, EPA (DAM). **DERRY: HA 1** - pool near Reservoir, Creggan, Derry (C414171), 18 May 2001 (PHL): **HA 3** - R. Bann, Coleraine (C854304), 20 May 1999 (PHL). Coleraine (C855308), 20 August 2002 (PHL). Pond 1 (H950873), Pond 2 (H954873) and Pond 3 (H955874), Magherafelt Golf Course, Traad Point, 10 May 2000, all Langton (2002). L. Neagh (H9080) no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 1988, (Tokeshi, 1990) also 4 May 1999 (PHL), 4 July 2000 (Langton, 2002), 22 August 2001, 15 May 2002 and 22 May 2011 (PHL). **DONEGAL: HA 39** - Inch Island impoundment, Inch (C346240), 18 August 2011 (PHL). **DOWN: HA 5** - Bow L., Ballynahinch (J354577), 22 June 2000 (Langton, 2002). **DUBLIN: HA 9** - lakes in Zoological Gardens, Dublin (O130350), 10 July 1987, DAM/RH (Murray *et al.*, 1987; Murray, 2005). **FERMANAGH: HA 36** - L. Erne Upper, Crom Castle, Newtownbutler (H357244), 27 June 2000 (Langton, 2002). L. Inver, Rosslea (H518314), 28 June 2000 (Langton, 2002). L. Kilturk, Newtownbutler, south shore (H374255), 27 June 2000 (Langton, 2002). R. Finn, Lisnanesnagh Bridge (H544337), 26 June 2000 (Langton, 2002). No name stream, Lisnaskea (H384306), 27 June 2000 (Langton, 2002). L. Eyes, Lisbellaw (H324434), 16 August 2011 (PHL). **KERRY: HA 22** - L. Leane, Killarney, Castlelough Bay, north (V966866), June 1973, DJD/DAM (Douglas and Murray, 1980). **LEITRIM: HA 26** - L. Acres,

Drumshanbo (G968099), 24 July 2008, EPA (DAM). **LIMERICK: HA 24** - L. Gur, Holycross (R646269), 16 September 2009, EPA (DAM). **ROSCOMMON: HA 26** - L. Ree, Yew Point, Barley Harbour (N018485), 13 June 2007, EPA (DAM). **LOUTH: HA 6** - L. Mentrim, Ardee (N913879), 27 June 2005, DAM/WM (DAM). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 8 August 2008, EPA (DAM): **HA 32** - L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 34** - L. Castlebar, Castlebar, north shore (M106879), 7 May 2004, DAM/WM (DAM). L. Lannagh, Castlebar (M105880), 30 June 2008, EPA (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), 21 August 2002 (Murray and Murray, 2003). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 22 May 2006, EPA (DAM). L. Avagnon, Latton, Cotehill (H688133), 6 June 2007, EPA (DAM). L. Corconnolly, Clones (H510247), 3 May 1967 (Murray, 1972). L. Drumore, Drum (H614164), 2 May and 18 July 2007, EPA (DAM). L. Inner, Dartery, Drum (H625173), 6 June and 10 July 2007, EPA (DAM). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 11 June and 17 July 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June 2008, EPA (DAM). **SLIGO: HA 35** - L. Arrow, Ballinafad (G789123), 11 June 2008, EPA (DAM). **TYRONE: HA 1** - L. a' Tirrive, Mulderg, Mountfield (H534778), 16 August 2011 (PHL). **WATERFORD: HA 16** - L. Ballyscanlan (Ballyscanlan Reservoir), Tramore (S540030), 19 August 2009, EPA (DAM). L. Knockaderry, Knockaderry (S496062), 1 July and 2 September 2009, EPA (DAM): **HA 17** - Belle Lake, Dunmore East (S665049), 1 September 2009, EPA (DAM). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 22 August 2006, EPA (EPA).

***Glyptotendipes (Glyptotendipes) paripes* (Edwards, 1929)**

ANTRIM: HA 3 - L. Neagh: Lennymore Bay, north shore (J115745), 1965 and March 1969, RJM (Marks and Henderson, 1970); Antrim Bay (J135866), 4 May 1999 and 22 August 2001 (PHL); Churchtown Point (J056852), 22 August 2001 and 22 May 2011 (PHL). Pond, Templepatrick (J232856), 26 August 2008 (PHL): **HA 4** - Fire Dam, Black Hill (D121297), 2 July 2000 (Langton, 2002): **Rathlin Island** - L. Ally (D154497), L. Craigmacagan (D154498) and Nature Reserve lough (D095505), 24 July 2000, all Langton (2002); L. Ally (D153494), 5 July 2004 (PHL). **CAVAN: HA 7** - L. Drumkeery, Baileborough (H663002), 1 May, 12 June and 16 July 2007, EPA (DAM). L. Acurry, Baileborough (N584990), 12 June and 5 July 2007, EPA (DAM). L. Ramor, Virginia (N603871), 27 June 2005, DAM/WM (DAM); L. Ramor, Virginia (N612860), 12 June 2007, EPA (DAM): **HA 26** - L. Sheelin, Kilnashard (N435860), June 1983 in trout (*Salmo gairdneri*) stomach (DAM): **HA 36** - Glasshouse L., Killashandra (H270060), 18 July 2007, EPA (DAM). L. Atrain, Gartbrattan, Cavan (H364051), 4 July 2009, EPA (DAM). L. Cuillaghan, Ballyconnell (H303183), 25 July 2007, EPA (DAM). L.

Derrybrick, Milltown, Belturbet (H346117), 3 September 2007, EPA (DAM). L. Garty, Arvagh (N278978), 18 July 2007, EPA (DAM). L. Gowna, north basin, Arnagahan (N285920), 7 June 2006 and 24 July 2007, EPA (DAM). L. Macnean, lower, Blacklion (H106378), 2 May 2007, EPA (DAM). L. Oughter, Killashandra (H349051), 6 June 2007, EPA (DAM). L. Sillan, Shercock (H705067), 8 June and 19 July 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus (R556930), 24 May 2003 (PHL), Doorus, west shore (R556930), 4 May, 8 June and 6 July 2006, EPA (DAM) and Drumandora, west shore (R553938), 15 June 2009, EPA (DAM). L. Derg, Mountshannon, (R718861), 18 September 2009, EPA (DAM): **HA 27** - L. Dromore, Ruan, Corrofin, west basin (R345858), 4 May 2006, EPA (DAM) and mid basin (R352864), 16 June 2009, EPA (DAM). L. Inchiquin, Corrofin (R270895), 6 June 2006, EPA (DAM). L. Atedaun, Corrofin (R294885), 16 June 2009, EPA (DAM): **HA 28** - L. Acrow, Lissycasey (R193687), 9 May 2005 and 8 June 2006, EPA (DAM). L. Doo, Milltown Malbay, north west shore (R113722), 11 June 2009, EPA (DAM) and mid lake (R123721), 8 July 2009, EPA (DAM). L. Keagh, Milltown Malbay, north shore (R100813), 11 June 2009, south west shore (R100811), 8 July 2009, EPA (DAM). L. Lickeen, Kilfenora, mid lake (R175909), 6 June, 4 July and 2 August 2006 also west shore (R168909), 21 July and 15 September 2009, EPA (DAM). **CORK: HA 19** - Iniscarra Reservoir, Coachford (W477717), 28 and 31 July 2008, EPA (DAM): **HA 20** - L. Curraghally, Drinagh, Dunmanway (W234046), 17 June and 12 August 2008, EPA (DAM): **HA 21** - L. Bofinna, Bantry (W041488), 18 June and 13 August 2008, EPA (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 18 May 2001 (PHL): **HA 2** - Binevenagh pond, Coleraine (C691305), 18 May 2000; fire dam 2, Binevenagh Forest, Coleraine (C704314), 18 May 2000; burn at Largantea picnic area, Formoyle, Coleraine (C738287), 9 June 2000, all Langton (2002): **HA 3** - Downhill Forest lake, Coleraine (C757353), 21 August 2001 (PHL). Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May and 21 August 2001 (Langton, 2002). Balinrees Reservoir, Coleraine (C794300), 9 June 2000 (Langton, 2002). Bog pool, Glenullin, Garvagh (C795132), 29 June 2008 (PHL). R. Macosquin, Black Bridge, Ballylintagh (C854256), 26 May 2000 (Langton, 2002). R. Bann, Newferry, d/s L. Beg (H990983), 13 October 2000 (Langton, 2002); R. Bann, Coleraine (C854304), 12 April to 1 November 1999, 17 May to 30 July and 8 October 2000 (all PHL). Coleraine (C855308), 13 July 2000 (PHL). Pond 1 (H950873), pond 2 (H954873) and pond 3 (H955874), Magherafelt Golf Course, Traad Point, 10 May 2000, all Langton (2002). L. Neagh (H9080), May to September 1971-1974 (Carter, 1975; McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 27 April and 4 May 1999 (PHL), 10 May and 4 July 2000 (Langton, 2002), also 7 May and 22 August 2001, 15 May 2002 and 22 May 2011 (PHL). L. Fea, Draperstown (H760868), 15 May 2002 (PHL). **DOWN: HA 5** - L. Henney, Ballynahinch (J348586), 22 June 2000 (Langton, 2002). **FERMANAGH: HA 36** - L. Atona, Cuilcagh

Mountain (H110294), 29 June 2000 (Langton, 2002). L. Erne Upper, Newtownbutler, slipway (H362242) and Crom Castle (H357244), 27 June 2000 (Langton, 2002). L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). L. Eyes, Lisbellaw (H324434), 16 August 2011 (PHL). **GALWAY: HA 29** - L. Coole, Gort (M432043), 15 June 2009, EPA (DAM): **HA 30** - L. Beaghcauneen, Ballinaboy (L679470), 6 June, 18 July and 12 September 2007, EPA (DAM). L. Corrib Upper, Oughterard (M138486), 11 June 2007, EPA (DAM): **HA 31** - L. Aunwillan, Carraroe (L936255), 7 June and 25 July 2007, EPA (DAM). L. Derryclare, Recess (L825485), 6 June 2007, EPA (DAM): **HA 32** - L. Tully, Tully Cross (L695618), 19 July 2007, EPA (DAM). **KERRY: HA 22** - R. Torc, u/s Torc waterfall, (V964835), 26 August 1987 (DAM). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Natire (G966340), 3 August 2005, JRB/MC (DAM): **HA 35** - L. Lackagh, Boleybrack (G920320), 3 August 2005, JRB (DAM). L. Sandy, Crocknagapple (G891448), 4 August 2005, JRB/MC (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June and 27 August 2008, EPA (DAM): **HA 30** - L. Aille, Aille, Westport (M071807), 8 August 2008, EPA (DAM). L. Mask, Toormakeady (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Ballin, Westport, south shore (L994878), 22 April 2008, EPA (DAM): **HA 33** - L. Carrowmore, Derreens, Bangor Erris (F833299), 28 July 2008, EPA (DAM): **HA 34** - L. Conn, Brackwansha (G191098), 18 June 2008, EPA (DAM): **Clare Island** - first order stream, west side of roadway to Maum (L711861), 5 June 2002 and humic pond, Bunnamohaun (L659846), 21 August 2002, DAM/WM (Murray and Murray, 2003). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 22 May 2006, EPA (DAM). L. Avagnon, Latton, Cotehill (H688133), 6 June and 11 July 2007, EPA (DAM). L. Drumlona, Rockcorry (H636176), 5 June and 11 July 2007, EPA (DAM). L. Drumore, Drum (H614164), 2 May and 18 July 2007, EPA (DAM). L. Inner, Dartery, Drum (H625173), 6 June and 10 July 2007, EPA (DAM). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), 3 June 1999 (DAM). **ROSCOMMON: HA 26** - L. Funshinagh, Brideswell (M933513), 11 September 2007, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June 2008, EPA (DAM). **TYRONE: HA 1** - L. Oak, Gortin, Newtownstewart (H498843), 16 August 2011 (PHL): **HA 3** - L. Neagh, Washing Bay, Coalisland (H903662), 15 and 30 May 2002 (PHL).

***Glyptotendipes (Heynotendipes) signatus* (Kieffer, 1909)**

GALWAY: HA 31 - L. Illauntrasna, Glentrasna, Garomna (L888254), 25 July and 12 September 2007, EPA (Murray, 2015b).

***Graceus ambiguus* Goetghebuer, 1928**

CORK: HA 21 - L. Avaul, Glengarrif (V910553), 16 June 1969, NH (Bracken and Murray,

1973). **GALWAY: HA 30** - L. Corrib (M150450), 12 August 1964, NH (Murray, 1972).

***Harnischia curtilamellata* (Malloch, 1915)**

CAVAN: HA 36 - L. Cuillaghan, Ballyconnell (H303183), 6 June, 25 July and, 13 September 2007, EPA (DAM). L. Gowna, north basin, Arnagahan (N285920), 24 July 2007, EPA (DAM). L. Macnean, lower, Blacklion (H106378), 7 June and 23 July 2007, EPA (DAM). **CLARE: HA 25** - L. Graney: Drumandora (R553938), 15 June 2009 and Doorus (R557924), 11 August 2009, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM): **HA 27** - Castle Lake, Kilmurry, Sixmilebridge, south west shore (R481688), 12 June 2009 and west shore (R482691), 17 September 2009, EPA (DAM). L. Cullaun, Corrofin, east shore (R317905), 16 June 2009, EPA (DAM). **CORK: HA 19** - Iniscarra Reservoir, Coachford (W477717), 28 July and 16 September 2008, EPA (DAM). L. Allua, Ballingearry (W180652), 17 June and 20 August 2008, EPA (DAM). **DONEGAL: HA 39** - L. Gartan, north shore, Church Hill (C065173), 18 July 2000 (Langton, 2002). L. Fern, Milford (C182247), 18 August 2011 (PHL): **HA 40** - L. Naminn, Coolmany (C400423), 18 August 2011 (PHL). **FERMANAGH: HA 36** - L. Erne Upper, slipway (H362242), 27 June 2000 (Langton, 2002). L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). L. Eyes, Lisbellaw (H324434), 16 August 2011 (PHL). **GALWAY: HA 29** - L. Caherglassaun, Gort (M412061), 13 June 2007, EPA (DAM): **HA 30** - L. Ballyquirke, Moycullen (M232317), 13 April and 14 September 2007, EPA (DAM). L. Corrib Upper, Dereenmeel, (M119465), 26 August 1980, BC (DAM). L. Corrib Upper, Oughterard (M138486), 14 September 2007, EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL) and L. Ross, Moycullen (M188365), 14 June and 5 September 2007, EPA (DAM): **HA 31** - L. Ardderry, Maam Cross (L982458), 25 March 2003 (PHL). L. Ballynakill, Gorumna (L867236), 15 May 2006, EPA (DAM): **HA 32** - L. Kylemore, Letterfrack (L771582), 30 July 2007, EPA (DAM). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Boderg: Dromod (N020910), 25 June 2008 and Derrycarne, north west shore (N013915), 10 September 2008, EPA (DAM). L. Bofin, Dromod (N049894), 24 June 2008 and Rinnafarna, Dromod (N036891), 29 July 2008, EPA (DAM). L. Rinn, Mohill (N095943), 25 June and 18 July 2008, EPA (DAM): **HA 35** - L. Belhavel, Killarga, Dromahair (G878288), 10 June and 26 August 2008, EPA (DAM). **LIMERICK: HA 25** - R. Mulkear, Dromkeen Bridge (R741480), 8 September 1981 (Hayes, 1991). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June and 10 September 2008, EPA (DAM). L. Ree, Bleanavoher (N069445), 25 April 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Ree, Yew Point, Barley Harbour (N018485), 13 June and 10 September 2007, EPA (DAM). **MAYO: HA 32** - L. Knappabeg, Westport (M010803), 24 June and 23 July 2008, EPA (DAM): **HA 34** - L. Conn, Brackwansha (G191098), 18 June 2008,

EPA (DAM) and Illannaglashy (G207070), 20 August 2008, EPA (DAM). L. Cullin, Drummon Wood, Pontoon (G235046), 18 June 2008, EPA (DAM). L. Lannagh, Castlebar, west shore (M109883), 21 August 2008, EPA (DAM). R. Moy, Bellanacurra (G403047), 29 August 1982 (Hayes, 1991). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981, BPH (Hayes, 1991; Murray, 2005). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 (Hayes, 1991). L. Meelagh, Keadew (G901117), 12 July 2008, EPA (DAM). L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). L. Key, Boyle (G838057), 6 August 2008, EPA (DAM), wharf at Forest Park, (G848040), 11 June 2008 and Hogs Island Pier, (G825054), 9 September 2008, EPA (DAM). L. O'Flynn, Ballinlough (M585786), 9 September 2008, EPA (DAM). **SLIGO: HA 26** - L. Gara, Monastredan (M708996), 5 September 2008, EPA (DAM): **HA 34** - L. Talt, Gleneask (G402151), 18 June 2008, EPA (DAM): **HA 35** - L. Arrow, Ballinacfad (G789123), 11 June 2008, EPA (DAM). L. Kilsallagh (Reservoir), Kilsallagh (G734393), 8 September 2008, EPA (DAM). L. Templehouse, Ballymote (G615171), 30 April 2008 and (G619182), 11 June EPA (DAM). L. Gill, Sligo (G782350), 11 June and 20 August 2008, EPA (DAM). **WESTMEATH: HA 26** - L. Killinure: Ballaghkeernan Bay (N069445), 24 April 2007, Wineport (N067458) and Ballaghkeernan Bay (N069445), 26 June 2007, all EPA (DAM). **WICKLOW: HA 10** - Vartry Reservoir, Roundwood, south east shore (O214002), 13 August 1983, HD (DAM).

***Harnischia fuscimanus* Kieffer, 1921**

MEATH: HA 7 - R. Boyne, Pedestrian Bridge, Bru na Boinne Centre, Newgrange, Donore (O023727), 28 June 2015 (Murray, 2015b).

***Kiefferulus tendipediformis* (Goetghebuer, 1921)**

ANTRIM: HA 3 - pond, Templepatrick (J232856), 26 August 2008 (PHL). **CLARE: HA 25** - L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM): **HA 27** - L. Inchicronan, Crusheen, west basin (R391860), 9 July 2009, EPA (DAM). L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 14 August 2008, EPA (DAM). L. Allua, Ballingearry (W180652), 20 August 2008, EPA (DAM): **HA 20** - L. Tooreen, Crookhaven (V790259), 17 September 2008, EPA (DAM). L. Oysterhaven, Clashroe, Kinsale (W699501), 20 August 2002, GO (Murray, 2005). **DERRY: HA 3** - Downhill Forest lake, Coleraine (C757353), 21 August 2001 (PHL). Pond 3, Magherafelt Golf Course, Traad Point (H955874), 10 May 2000 (Langton, 2002). **FERMANAGH: HA 36** - Kilturk to Derrymacrow channel, Newtownbutler (H375253), 27 June 2000 (Langton, 2002). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 23 May 2003 (PHL). **MAYO: HA 32** - L. Anillaun, Cleggan (L615583),

14 July 1998, BH (DAM). L. Furnace, Burrishoole, Newport (L975965), August 1974, DAM/WM (Murray and Ashe, 1983; Murray, 2005).

***Lauterborniella agrayloides* (Kieffer, 1911)**

CORK: HA 19 - L. Aderry, Castlemartyr (W935730), 4 June 1969, NH (Bracken and Murray, 1973). **DERRY: HA 3** - L. Neagh (H900800), no date (McLarnon and Carter, 2000). **DONEGAL: HA 36** - L. Unshin, Ballyshannon (G951637), 6 July 2009, EPA (DAM): **HA 38** - L. Dunglow, The Rosses, west shore (B782119), 5 August 2009, EPA (DAM). L. Anure, Loughanure, east shore (B818162), 12 August 2009, EPA (DAM). L. Nambraddan, Glenveagh (C022193), 31 July 1985 (Heneghan, 1986). L. Veagh, Glenveagh, north east shore (C038233), 24 July 1985 (Heneghan, 1986). L. Nadourcan, Glenveagh (C054228), 18 July 2000 (Langton, 2002). L. Greenan, Loughsalt, Kilmacrennan (C117262), 8 September 2009, EPA (DAM). L. Kiltoris, Dawros, Ardara (G675976), 30 July 2009, EPA (DAM). L. Voriskey, The Rosses (B762176), 19 July 2000 (Langton, 2002). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 1 August 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007, EPA (DAM). L. Maumwee, Maam Cross (L977485), 8 June and 12 July 2007, EPA (DAM): **HA 31** - L. Anaserd, Ballyconneely (L605443), 17 July 2007, EPA (DAM). L. Ardderry, Maam Cross (L982458), 1 August 2007, EPA (DAM). L. Aunwillan, Carraroe (L936255), 25 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June and 23 July 2007, EPA (DAM). L. Derryclare, Recess (L825485), 6 June 2007, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 6 June and 25 July 2007, EPA (DAM). L. Nahasleam, Maam Cross - South (L972440), 8 August 2006 and 1 August 2007, EPA (DAM). L. Shindilla, Derreenacreeva, Maam Cross (L958460), 26 July 2007, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 11 July 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 17 July 2007, EPA (DAM). L. Nambrackmore, Ballinaboy, Toombeola (L716454), 27 July 2007, EPA (DAM). L. Pollacappul, Kylemore (L754582), 9 July 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 13 July 2008, EPA (DAM). L. Clonee, Kenmare (V800639), August 1968, NH (DAM). L. Namona, Waterville (V596711), 10 September 2008, EPA (DAM): **HA 22** - L. Acoose, Slievanore, Killorglan (V755854), 9 July 2008, EPA (DAM). L. Caragh, Killorglin (V719904), 20 June and 15 July 2008, EPA (DAM). L. Cummernamuck, Killorglin (V745897), 20 June and 18 July 2008, EPA (DAM). Muckcross Lake, Killarney (V950853), 16 July 2008, EPA (DAM). Upper lake, Killarney (V909821), 24 June 2008, EPA (DAM). **LEITRIM: HA 35** - L. Annary, Dromahair (G817338), 10 June 2008, EPA (DAM). **MAYO: Clare Island** - Creggan L., Lecarrow (L689857), 21 August 2002, DAM/WM (Murray and Murray, 2003).

***Microchironomus deribae* (Freeman, 1957)**

DUBLIN: HA 9 - Baldonnell (O005275), 1 September 1979, found in fuel tank of a helicopter (Murray and O'Connor, 1982).

***Microchironomus tener* (Kieffer, 1918)**

CAVAN: HA 36 - L. Macnean, lower, Blacklion (H106378), 23 July 2007, EPA (DAM). L. Oughter, Killashandra (H349051), 17 July 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 6 July and 3 August 2006, EPA (DAM). **CORK: HA 19** - Iniscarra Reservoir, Coachford (W477717), 16 June, 28 and 31 July 2008, EPA (DAM). L. Allua, Ballingearry (W180652), 16 September 2008, EPA (DAM). **DONEGAL: HA 39** - L. Gartan, Church Hill (C055159), 9 September 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 30** - L. Ballyquirke, Moycullen (M232317), 8 August 2007, EPA (DAM). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM); **HA 35** - L. Belhavel, Killarga, Dromahair (G878288), 26 August 2008, EPA (DAM). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 27 June 2006, EPA (DAM). L. Inner, Dartery, Drum (H625173), 6 June 2007, EPA (DAM). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991 - as *Microchironomus* Pe1). **ROSCOMMON: HA 26** - L. Meelagh, Keadew (G901117), 12 July 2008, EPA (DAM). **SLIGO: HA 35** - L. Gill, Sligo (G782350), 20 August 2008, EPA (DAM). **WESTMEATH: HA 7** - L. Lene (N510685), 19 September 2006, EPA (DAM).

The first published Irish record was from L. Macnean, Co. Fermanagh by Langton (2002). An earlier record is available from recently re-examined (DAM) specimens collected by BPH on the R. Shannon at Shannon Bridge, Co. Offaly in August 1981 and determined (Hayes 1991) from Langton (1984) as *Microchironomus* Pe1.

***Microtendipes britteni* (Edwards, 1929)**

CAVAN: HA 36 - L. Gowna, Dring, south basin (N300856), 18 April 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 4 May 2006, EPA (DAM); **HA 25** - L. Alewnaghta, Whitegate, west shore (R758908), 20 April 2009, EPA (DAM); **HA 27** - L. Bunny, Aughrim, south east shore (R377965), 7 June 2006 and 14 July 2009, EPA (DAM). **DERRY: HA 3** - L. Neagh, Ballyronan (H948862), 27 April and 4 May 1999 (PHL), 10 May 2000 (Langton, 2002).

***Microtendipes chloris* (Meigen, 1818)**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 August 2001 (PHL) and Churchtown

Point (J056852), 22 August 2001, 22 and 31 May 2011 (PHL): **HA 4** - pond, Benvarden Garden (C946334), 15 May 2005 (PHL). **CAVAN: HA 7** - L. Cuilcagh, Virginia (N636895), 30 April 1968 (Murray, 1972): **HA 26** - L. Sheelin, Kilnahard (N435860): 23 March 1974, JPOC (DAM) and 27 March 1983, PG (Murray, 2005): **HA 36** - L. Garty, Arvagh (N278978), 7 June 2007, EPA (DAM). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 5 September 2006, EPA (EPA). L. Cullaun, Corrofin, east shore (R317905), 3 May and 7 June 2006, EPA (LPR/PHL). L. Dromore, Ruan, Corrofin, west basin (R345858), 11 April 2006, EPA (DAM). L. Inchiquin, Corrofin (R270895), 5 April and 4 July 2006, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 3 April and 2 May 2006, EPA (LPR/PHL). **CORK: HA 19** - L. Allua, Ballingeary (W180652), 4 April and 20 August 2008, EPA (DAM). L. Gouganebarra, Inchegeelagh (W009060), 18 June 1966 (Murray, 1972). **DERRY: HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 22 April 2001, 7 April and 21 April, 7 July 2002; Downhill Forest lake, Coleraine (C757353), 24 March 2002; Downhill Forest lake, Bishops Gate, Coleraine (C762361), 21 August 2001; R. Bann, Coleraine (C854304), 26 April 2001, 25 April and 2 May 2010 (all PHL). Pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). L. Neagh (H9080), April to August 1973-1974 (Carter, 1975; McLarnon and Carter, 2000). L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990) also 4 May 1999, 22 August 2001, 15 May 2002 and 22 May 2011 (PHL). **DONEGAL: HA 36** - L. Avehy, Pettigo (H043664), 27 April 2002 (PHL): **HA 37** - Carn L., Blue Stack Mountains (G871886), 10 May 2005, JRB/MC (DAM). L. Shinvagh, Ballintra (H005675), 28 March 2004 (PHL): **HA 38** - L. Nabuckan, Grogan More (B850184), 10 May 2005, JRB (DAM): **HA 39** - L. Fern, Milford (C182247), 18 August 2011 (PHL): **HA 40** - L. Naminn, Coolmany (C400423), 18 August 2011 (PHL). **DOWN: HA 3** - R. Muddock, Muddock Bridge, Rathfriland (J235342), 12 June 1997, LMcL (PHL). **DUBLIN: HA 9** - Upper Reservoir, Bohernabreena (O095219), 9 May 1947, CFH/AF (Fitzgerald, 1947). Bog pool, Featherbed (O120190), 1974, CD (Dowling and Murray, 1981). **FERMANAGH: HA 36** - L. Erne, Lower: Brockagh Point, Boa Island (H108627), 17 August 2011; Black Bay (H072639), 27 April 2002 and 28 March 2004 (PHL). L. Keenaghan, Beleek (G974600), 28 March 2004 (PHL). R. Bannagh, Drummoney Falls, Pettigo (H168676), 17 August 2011 (PHL). Toppedmountain L., Tempo, Enniskillen (H310453), 16 August 2011 (PHL). **GALWAY: HA 29** - L. Caherglassaun, Gort (M412061), 13 June 2007, EPA (DAM): **HA 30** - L. Corrib Lower, Hurney (M258310), 9 April 1980, BC (DAM). L. Maumwee, Maam Cross (L977485), 19 April 2007, EPA (DAM): **HA 31** - L. Ahalia, Maam Cross, north east shore (L971402), 22 April 2009, EPA (DAM). L. Aunwillan, Carraroe (L936255), 16 April 2007, EPA (DAM). L. Ballynakill, Gorumna (L867236), 19 September 2006, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 12 September 2006, EPA (DAM): **HA 32** - L. Aughrusbeg, Cleggan

(L557582), 11 September 2007, EPA (DAM). L. Tully, Tully Cross (L695618), 3 April 2007, EPA (DAM). L. Nambrackmore, Ballinaboy, Toombeola (L716454), 5 April 2007, EPA (DAM). **KILDARE: HA 9** - pond, Lyons Estate (N972285), 2 April 1984, CAD (DAM). **KERRY: HA 21** - Eagles L., Knocknagantee (V674728), 9 August 2005, JRB (DAM). Eirk L., Derrygarriff (V881777), 25 April and 9 August 2005, JRB (DAM): **HA 22** - L. Acoose, Slievanore, Killorglin (V755854), 9 July 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 16 May 2005, EPA (DAM). L. Leane, Killarney: Inishfallen (V933893), 11 June 1973 and Brickeen (V937850), 3 July 1973 (Douglas and Murray, 1980); Muckcross Boathouse (V965866), 28 September 1987, NOM (LJH). Upper Lake, Killarney, Gortroe (V918818), May 1973 (Douglas and Murray, 1980): **HA 23** - L. Gill, Castlegregory (Q603139), 29 April 2008, EPA (DAM). **LEITRIM: HA 26** - canal at L. Allen, Drumshanbo (G968110), 30 March 2000 (DAM): **HA 35** - L. Nabrack, Crocknagapple (G860477), 29 April 2005, JRB (DAM). L. Sandy, Crocknagapple (G891448), 28 April 2005, JRB/MC (DAM). **MAYO: HA 32** - L. Doo, Delphi: west shore (L835681), 3 April 2008, EPA (DAM); north east shore (L834689), 6 June and 22 August 2002, DAM/WM (DAM): **HA 33** - bog pools, Glenamoy (F896345), 1973, CD (Dowling and Murray, 1981): **HA 34** - L. Alone, Ox Mountains (G367157), 22 April 2005, JRB (DAM): **Clare Island** - Knockaveen hillside (L698858), 28 April 2000; Creggan L., Lecarrow (L689857) and humic pond, Bunnamohaun (L659846), 21 August 2002, all Murray and Murray (2003). **MEATH: HA 7** - Dalgan Park Stream, Navan (N898637), 23 May 2015 (Murray, 2015a): **HA 8** - Meadesbrook stream-pond area, Meadesbrook, Kilmoon (O038594), 24 May 2006, DAM (DAM). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 2 April 1981 (Hayes, 1991). L. Annaghmore, Strokestown, Elphin (M902838), 15 July 2008, EPA (DAM). L. Urlar, north east shore (at Abbey) (M508900), 10 March 2005, DAM/WM (DAM). **TYRONE: HA 1** - L. Moor, Altishane, Strabane (H446984), 17 August 2011 (PHL). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), April 1981 (Forde, 1985): **HA 26** - L. Ree, Quigleys Marina, Killenure (N051601), 25 March 1999, DAM (DAM). **WEXFORD: HA 12** - R. Sow tributary, Garylough Mill, Screen (T076302), 6 May 2006, DAM/WM (DAM).

***Microtendipes confinis* (Meigen, 1830)**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 August 2001 (PHL). **CARLOW: HA 12** - R. Derreen, Acann Bridge (S900781), 29 July 1981, BPH (DAM). **DERRY: HA 3** - L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990) and 4 May 1999 (PHL). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 18 August 1982, BPH (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 4 April 1974 (DAM). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 15 July 2008, EPA (DAM). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 29 July 1984, BPH (Murray, 2005).

***Microtendipes diffinis* (Edwards, 1929)**

CARLOW: HA 12 - R. Slaney, Motabower Bridge (S832778), 1 July 1981, BPH (DAM). **CAVAN: HA 36** - L. Garty, Arvagh (N278978), 12 April 2007, EPA (DAM). **DERRY: HA 3** - R. Bann, Coleraine (C855304), 25 May 2002, PHL (Langton, 2004). At window, Kylebeg, Coleraine (C856304), 6 August 2000, PHL (Langton, 2004). **MAYO: HA 32** - R. Burleemslough, Clapper Bridge Ford, u/s Roonagh L., Killeen, Cloonlaur (L754759), 5 August 2004, DAM/WM (DAM). R. Bunowen, u/s bridge, Louisburg (L807807), 7 May and 5 August 2004, DAM/WM (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), 11 June 1998, 7 July and 20 August 1999 (Fahy, 2002). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 13 August 1983, HD (DAM).

***Microtendipes nitidus* (Meigen, 1818)**

FERMANAGH: HA 36 - L. Erne, Lower, Black Bay (H072639), 27 April 2002 (PHL). **GALWAY: HA 30** - L. Corrib Lower, Hurney (M258310), 19 May 1980, BC (DAM). **MAYO: HA 33** - bog pools, Glenamoy (F896345), September 1973, CD (Dowling and Murray, 1981).

***Microtendipes pedellus* (De Geer, 1776)**

ANTRIM: HA 3 - L. Neagh: Lennymore Bay (J115745), March 1969 (Marks and Henderson, 1970); Antrim Bay (J135866) and Churchtown Point (J056852), 22 August 2001 (PHL). **ARMAGH: HA 3** - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (PHL). **CAVAN: HA 7** - L. Ramor, Virginia (N603871), May 1971, DJD/DAM (Douglas, 1971). R. Blackwater, L. Ramor outflow (N630833), 30 March 1968 (Murray, 1972): **HA 26** - L. Sheelin, Gore Point (N439817), 18 May 1982, PG (DAM). **CLARE: HA 25** - L. Atorick, Feakle (R637964), 24 May 2003, EPA (PHL). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 24 September 1969, NH (Bracken and Murray, 1973): **HA 20** - L. Ballin, Leap (W199389), 21 August 2008, EPA (DAM): **HA 21** - L. Reenydonegan, Bantry (W000515), 30 June 1969 and L. Avaul, Glengarrif (V910553), 10 August 1969, NH (Bracken and Murray, 1973). **DERRY: HA 3** - pond, near R. Macquosin, Ballytinagh Road, Coleraine (C854255), 16 May 2004 and 20 August 2006 (PHL). R. Bann, Coleraine (C855304), 11, 18 and 25 April, 2 May 2010 (PHL). Coleraine (C855308), 11 May and 4 December 2000, 17 July 2003 and 4 May 2008 (all PHL). L. Neagh, no data (H9080), May to September 1971-1974 (Carter, 1975; McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 27 April 1999 and 15 May 2002 (PHL). **DONEGAL: HA 37** - L. Shinvagh, Ballintra (H005675), 27 April 2002 (PHL): **HA 38** - L. Nadourcan, GNP, Glenveagh (C054228), 23 July 1985 (Heneghan, 1986): **HA 39** - L. Fern, Milford (C182247), 18 August 2011 (PHL). **DUBLIN: HA 9** - Royal Canal, Ashtown (O108378), 22 May 1968 (Murray, 1972). Lakes in Zoological Gardens, Dublin (O129353), 17 June and 30 July 1987,

MB/DAM (Murray *et al.*, 1987). **GALWAY: HA 29** - Turlough NaNean, Gort, (R430989), 10 May 1986, CAD (DAM): **HA 30** - L. Corrib, mid lake (M1545), 9 August 1964, NH (Murray, 1972) and at Knockferry (M230410), 8 May 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL). **KERRY: HA 22** - L. Kilbrean, Killarney (W005935), 11 August 1969, NH (Bracken and Murray, 1973). L. Leane, Killarney: Castlough Bay (V966866), May to August 1973 (Douglas and Murray, 1980); Inishfallen (V933893), 11 June 1973 (Douglas and Murray, 1980); Muckcross Boathouse (V965866), 1 September 1987, NOM (LJH). Muckcross Lake, Killarney, Dundag Bay (V964858), May to August 1973 (Douglas and Murray, 1980). R. Caragh, Blackstones Bridge, d/s R. Acoose confluence (V710864) and outflow from L. Caragh (V713924), 1975, CD (Dowling *et al.*, 1981). R. Flesk: White Bridge (V987904), May to August 1973 (Douglas and Murray, 1980). R. Flesk, d/s Whitebridge (V987900), d/s New Bridge (V963885) and u/s L. Leane (V964894), June to August 1978, all Ashe (1982). Upper Lake, Killarney, Gortroe (V918818), May, June and August 1973 (Douglas and Murray, 1980). **LEITRIM: HA 26** - water barrel, Cloone (H140000), 26 July 1968 (Murray, 1972). **MAYO: HA 30** - L. Mask, Cushlough Pier, Ballinrobe (M153650), 2 September 1964, NH (Murray, 1972): **HA 32** - Louisburg (L807807), 1910, JNH (Grimshaw, 1912). R. Bunowen, u/s bridge, Louisburg (L807807), 5 August 2004, DAM/WM (DAM). Belclare, Westport (L9682), July 1910, JNH and July 1911, PHG (Grimshaw, 1912). Knappagh, Westport (L9880), July 1911, PHG (Grimshaw, 1912). Westport (L990840), July 1910, JNH (Grimshaw, 1912): **HA 34** - Castlebar L., Castlebar (M100870), July 1911, PHG (Grimshaw, 1912): **Clare Island** - Creggan L., Lecarrow (L689857), June to November 1998 and June to September 1999 (Fahy, 2002). L. Poirtin Fuinch (L706857), July to September 1998 and April to August 1999 (Fahy, 2002). **MEATH: HA 7** - R. Boyne: Bellinter Bridge (N894625), July 1976 (DAM); Ardsallagh, at St Bridget's Well (N897635), April 1984 (DAM); Stackallen Bridge (N917713), Slane Bridge (N965737) and Knowth Weir (N995720), 19 July 1989, all DAM: **HA 8** - R. Nanny, first road bridge u/s Duleek (O035655), 6 June 2006, DAM/WM (DAM). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), June 1998 (DAM). **ROSCOMMON: HA 26** - Briarfield Turlough, Tulsk (M815760), 25 April 1986, CAD (DAM). L. Key, Boyle (G838057), 6 August 2008, EPA (DAM). **WATERFORD: HA 17** - L. Carrigavantry, Tramore (S548022), 19 August and 1 September 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 2 May 1966 (Murray, 1972): **HA 26** - L. Derravarragh, Crookedwood (N468634), 22 July 1967 (Murray, 1972). **WEXFORD: HA 12** - R. Slaney, Ederline Bridge (S977345), 29 July 1984, BPH (Murray, 2005).

***Microtendipes rydalensis* (Edwards, 1929)**

CARLOW: HA 12 - R. Slaney, Motabower Bridge (S832778), 28 July 1981 (Hayes, 1991).

CAVAN: HA 36 - R. Erne, Dingin's Bridge (N331948), 27 August 1982 (Hayes, 1991): **HA 36** - R. Erne, Kilsarin (N362910), 27 May 1982 (Hayes, 1991). **CLARE: HA 27** - Castle Lake, Kilmurry, Sixmilebridge (R482691), 17 September 2009, EPA (DAM). **CORK: HA 18** - R. Blackwater: Ballymacquirk Bridge, Banteer (W382989), Roskeen Bridge, Banteer (W444988) and Lombardstown (W463968), 1 September 1981, all BPH (Hayes, 1991); Duncannon (W180931), Shamrock Bridge, Millstreet (W221935), Charles Bridge, Millstreet (W248943) and Keale Bridge, Millstreet (W294936), all 2 September 1981, all BPH (Hayes, 1991): **HA 20** - R. Bandon: Long Bridge, Dunmanway (W242631), 30 June, 25 August and 25 September 1980; Bealabouty Bridge, Dunmanway (W257514), 25 August and 25 September 1980; u/s Ballineen (W331537), 25 August and 25 September 1980; Ballineen Bridge (W434538), 30 June, 25 August, 25 September and 31 October 1980; Castle Bernard, u/s Bandon (W472546), 30 June and 25 August 1980; 2.5km d/s Bandon (W516569), 30 June and 25 September 1980, all GM (Morgan, 1982). R. Ilen, Drimoleague (W098454) and Madore (W103419) also R. Ovane, Pierson's Bridge (W023454), all 24 August 1983 (Hayes, 1991). **DERRY: HA 3** - R. Bann, Coleraine (C855304), 3 May 1999 (PHL). **DONEGAL: HA 37** - R. Eany, d/s Eanybeg confluence (G842815); R. Eanymore, Letterbara Bridge (G883825) and Drumagraa Bridge (G863822), all 10 August 1982 (Hayes, 1991). R. Oily, Claggen (G751803), 8 August 1982 (Hayes, 1991). R. Stragar, Duninkeely (G727792), 10 August 1982 (Hayes, 1991): **HA 38** - R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000 (Langton, 2002): **HA 39** - R. Leannan, Claragh (C197210), 13 August 1982 (Hayes, 1991). **GALWAY: HA 30** - R. Grange, Grange Bridge (M428498), 16 August 1981 (Hayes, 1991): **HA 31** - L. Ahalia, Maam Cross, north east shore (L971402), 22 April and 23 September 2009, EPA (DAM). R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981 (Hayes, 1991): **HA 32** - R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). **KERRY: HA 21** - R. Inny, Scarriff Bridge (V504696) and u/s Waterville (V525704), 24 August 1983 (Hayes, 1991): **HA 22** - R. Annascaul, Annascaul (Q593017), 2 July 1981 (Hayes, 1991). R. Flesk, White Bridge (V987904), 23 August 1973 (Douglas and Murray, 1980) and d/s Whitebridge (V987900), 27 July 1976 (Ashe, 1982) also 25 September 1976, PJA (Murray, 2005). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, Cappamore (R775514) and d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - R. Burleemslough, Clapper Bridge Ford, Killeen, Cloonlaur (L754759), 5 August 2004, DAM/WM (DAM): **HA 33** - R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168) and Annagh (G466123), 30 August 1982 (Hayes, 1991). **TYRONE: HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002).

***Microtendipes tarsalis* (Walker, 1856)**

KERRY: HA 22 - L. Kilbreen, Killarney (W005935), 16 June 1969, NH (Bracken and Murray, 1973). L. Leane, Killarney, Castlelough Bay (V966866), 30 July 1973 (Douglas and Murray, 1980). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). **MAYO: HA 32** - R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 21 May 1968 (Murray, 1972).

***Nilothauma brayi* (Goetghebuer, 1921)**

DERRY: HA 3 - R. Bann, Mountsandel, Coleraine (C852305), 24 June 1999 (PHL). R. Bann, Coleraine (C855304), 30 June 2001 (PHL). **DONEGAL: HA 39** - L. Gartan, Church Hill (C065173), 18 July 2000 (Langton, 2002). **GALWAY: HA 31** - L. Shindilla, Derreenacreeva, Maam Cross (L958460), 13 September 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney: Castlelough Bay (V966866), 14 July 1973, DJD/DAM (Murray, 2005); Ross Bay (V945850), 14 July 1973 (Douglas and Murray, 1980). **MAYO: HA 32** - R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972).

***Nubensia nubens* (Edwards, 1929)**

= *Polypedilum (Pentapedilum) nubens* (Edwards, 1929), Spies and Dettinger-Klemm (2015). **CAVAN: HA 36** - L. Macnean, lower, Blacklion (H106378), 7 June 2007, EPA (DAM). **CLARE: HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 29 July 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 7 June 2006 (EPA) and 16 June 2009, EPA (DAM). L. Dromore, Ruan, Corrofin, west basin (R345858), 21 July 2009, EPA (DAM). L. Inchicronan, west basin, Crusheen (R391860), 9 July 2009, EPA (DAM): **HA 28** - L. Lickeen, Kilfenora (R175909), 6 June 2006, EPA (DAM). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 21 May 1969, NH (Bracken and Murray, 1973): **HA 20** - L. Curraghally, Drinagh, Dunmanway (W234046), 12 August 2008, EPA (DAM): **HA 21** - L. Avaul, Glengarrif (V910553), 1 September 1969 and L. Reenydonegan, Bantry (W000515), 26 May 1969, NH (Bracken and Murray, 1973). **DONEGAL: HA 38** - L. Keel, Kilmacrennan (C158243), 16 June 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Erne, Lower: Boa Island (H108626), 29 June 2000 (Langton, 2002); Black Bay (H072639), 27 April 2002 (PHL); Brockagh Point, Boa Island (H108627), 17 August 2011 (PHL). L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). L. Macnean, upper, Belcoo (H042403) and L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Cutra, Gort (R485986), 24 May 2003, EPA (PHL): **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 September 2007, EPA (DAM). L. Corrib Upper, Oughterard (M138486), 11 June and 14 August 2007, EPA (DAM): **HA 31** - L. Ballynahinch, Ballynahinch (L777478), 23

July 2007, EPA (DAM). L. Derryclare, Recess (L825485), 16 July 2007, EPA (DAM). **KERRY: HA 21** - L. Cloonaghlin, Waterville (V611708), 24 July 2008, EPA (DAM). L. Inchiquin, Kenmare (V837629), 18 June 2008, EPA (DAM): **HA 22** - L. Acoose, Slievanore, Killorglan (V755854), 9 September 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 9 September 2008, EPA (DAM). L. Kilbrean, Killarney (W005935), 9 June 1969, NH (Bracken and Murray, 1973). L. Leane: Killarney, Muckcross Boathouse (V965866), 1 September 1987, NOM (LJH): Killarney (V931886), 10 July and 18 September 2008, EPA (DAM). Muckcross Lake, Killarney: Dundag Bay (V964858), June and July 1973; Goleen Bay (V963853), 23 July 1973 (Douglas and Murray, 1980; Murray, 2005); mid lake (V950853), 16 July and 18 September 2008, EPA (DAM). Upper Lake, Killarney (V909821), 17 July 2008, EPA (DAM). **LEITRIM: HA 26** - L. Boderg, Derrycarne, north west shore (N013915), 14 May and 10 September 2008 also L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). L. Bofin, Dromod (N049894), 24 June and 10 September 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June and 10 September 2008, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June 2008, EPA (DAM): **HA 30** - L. Mask, Toormakeady (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Doo, Delphi, west shore (L835681), 12 July 2006, EPA (DAM). L. Fin, Delphi (L841657), 12 July 2006, EPA (DAM). L. Feeagh, Newport (L975983), 24 July and 17 September 2008, EPA (DAM). L. Moher, Lisarney, Westport (L977766), 24 June 2008, EPA (DAM): **HA 34** - L. Conn, Brackwansha (G191098), 18 June 2008, EPA (DAM). L. Lannagh, Castlebar, west shore (M109883), 21 August 2008, EPA (DAM). L. Levally, Massbrook (G146043), 25 June 2008, EPA (DAM). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 2 September 2008, EPA (DAM). **SLIGO: HA 35** - L. Arrow, Ballinafad (G789123), 30 July 2008, EPA (DAM). L. Gill, Sligo (G782350), 20 August 2008, EPA (DAM). Benbulbin (G680460), June 1931, Bailey, - slide mounted specimens in NMI (DAM). **WESTMEATH: HA 26** - L. Killinure, Wineport (N067458), 15 August and 11 September 2007, EPA (DAM).

***Omisus caledonicus* (Edwards, 1932)**

CORK: HA - L. Avaul, Glengarriff (V910553), 27 July 1968 (Murray, 1972 - sub *Microtendipes caledonicus*). **WICKLOW: HA 10** - R. Glenealo, Glendalough (T090962), 16 July 1996, EME/DAM (McEntee, 1997).

***Pagastiella orophila* (Edwards, 1929)**

ANTRIM: HA 4 - Dungonnell Dam, Newtown Crommelin (D193170), 20 June 2000 and R. Glenariff (Inver/Glenariff), Cushendall (D215205), 2 July 2000 (Langton, 2002). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 7 June 2006, EPA (EPA) and 14 July

2009, EPA (DAM). L. Cullaun, Corrofin, east shore (R317905), 7 June, 4 July, 1 August and 5 September 2006, EPA (LPR/PHL) also 16 June 2009, EPA (DAM). L. Dromore, Ruan, Corrofin (R352864), 16 June 2009, EPA (DAM). L. Gortglass, Killadysert, north shore (R223599), 11 June 2009 and south shore (R223596), 7 July 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 7 June, 3 July, 2 August and 5 September 2006, EPA (LPR/PHL): **HA 28** - L. Acrow, Lisscasey (R193687), 7 July 2006, EPA (DAM). L. Lickeen, Kilfenora, west shore (R163909), 11 June 2009, EPA (DAM). L. Naminna, Boolteagh (R179708), 11 June 2009, EPA (DAM). **CORK: HA 20** - L. Skeagh (Schull Reservoir), Schull (V937338), 27 August 2008, EPA (DAM): **HA 21** - L. Bofinna, Bantry (W041488), 18 June 2008, EPA (DAM). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM). L. Derg, Pettigo (H074743), 8 June 2009, EPA (DAM): **HA 36** - L. Golagh, Ballyshannon (G965655), 7 July 2009, EPA (DAM). L. Unshin, Ballyshannon (G951637), 8 June and 6 July 2009, EPA (DAM): **HA 38** - L. Mulladerg, The Rosses (B775199) and L. Dunglow, The Rosses, east shore (B787117), 19 July 2000 (Langton, 2002) also L. Dunglow, west shore, (B782119), 17 June 2009, EPA (DAM). L. Anure, Loughanure, east shore (B818162), 17 June 2009, EPA (DAM). R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000 (Langton, 2002). L. Keel, Crolly (B848162), 17 June 2009, EPA (DAM). L. Nasnahida, Doocharry, Dunglow (B852076), 17 June 2009, EPA (DAM). L. Nacung Upper, Dunlewy (B904191) and L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). L. An tSeisigh, Portnablagh, Sheephaven (C043361), 16 June 2009, EPA (DAM). L. Glen, Glen (C105292), 16 June and 29 July 2009, EPA (DAM). L. Greenan, Loughsalt, Kilmacrennan (C117262), 16 June and 8 September 2009, EPA (DAM). L. Reelan, Reelan (C131272), 6 June 2009, EPA (DAM). L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (DAM). L. Kinny, Fanad (C204442), 6 June 2009, EPA (DAM). L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 16 June and 21 July 2009, EPA (DAM): **HA 39** - L. Gartan, Church Hill (C055159), 10 June 2009, EPA (DAM). L. Akibbon, Church Hill (C068184), 23 April 2009, EPA (DAM). L. Fern, Millford (C180233), 16 June 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 14 June 2007, EPA (DAM): **HA 30** - L. Anillaun, Maam Cross (L980470), 8 June 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007, EPA (DAM). L. Corrib Upper, Oughterard (M138486), 14 September 2007, EPA (DAM). L. Lettercraffroe, Oughterard (M056376), 14 June and 5 September 2007, EPA (DAM). L. Maumwee, Maam Cross (L977485), 12 July and 17 September 2007, EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Ardderry, Maam Cross (L982458), 1 August 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June and 23 July 2007, EPA (DAM). L. Ballynakill, Gorumna

(L867236), 15 May and 20 June 2006, EPA (DAM). L. Derryclare, Recess (L825485), 6 June 2007, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 25 July 2007, EPA (DAM). L. Loughanaure, Kilkieran (L828320), 7 June 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 7 June and 1 August 2007, EPA (DAM). L. Shindilla, Derreennacreeva, Maam Cross (L958460), 7 June and 26 July 2007, EPA (DAM): **HA 32** - L. Aughrusbeg, Cleggan (L557582), 5 June 2007, EPA (DAM). L. Enask, Beaghcauneen (L662468), 6 June and 17 July 2007, EPA (DAM). L. Nambrackmore, Ballinaboy, Toombeola (L716454), 6 June 2007, EPA (DAM). L. Pollacappul, Kylemore (L754582), 5 June 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June 2008, EPA (DAM). L. Cloonaghlin, Waterville (V611708), 19 June 2008, EPA (DAM). L. Currane, Waterville (V535664), 22 July 2008, EPA (DAM). L. Inchiquin, Kenmare (V837629), 18 June 2008, EPA (DAM). L. Namona, Waterville (V596711), 19 June and 23 July 2008, EPA (DAM): **HA 22** - L. Caragh, Killorglin (V719904), 20 June 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 8 July 2008, EPA (DAM). L. Leane, Killarney (V931886), 10 July and 18 September 2008, EPA (DAM). Muckcross Lake, Killarney, Dundag Bay (V964858) and Camilan Bay (V943859) 23 July 1973 (Douglas and Murray, 1980); Muckcross Lake, Killarney (V950853), 16 July 2008, EPA (DAM). R. Loo, Aughnanus Bridge, Crohane (W045790), July 1978 (Ashe, 1982). Upper Lake, Killarney (V909821), 24 June 2008, EPA (DAM): **HA 23** - L. Cam, Castlegregory (Q597079), 25 June 2008, EPA (DAM). **LEITRIM: HA 26** - L. Bofin, Dromod (N049894), 24 June 2008, EPA (DAM): **HA 35** - L. Annary, Dromahair (G817338), 23 July 2008, EPA (DAM). L. Glenade, Manorhamilton, south east shore (G831457), 10 June 2008, EPA (DAM). L. Glencar, Glencar (G757435), 10 June 2008, EPA (DAM). **LIMERICK: HA 24** - Bleach Lough, Pallaskenry (R441569), 13 June 2009, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 19 June 2008, EPA (DAM). L. Glencullin, Delphi, north west shore (L815699), 26 June 2008, EPA (DAM). L. Fin, Delphi (L841657), 28 June 2006, EPA (DAM): **HA 33** - L. Keel, Keel, Achill Island, south east shore (F650051), 17 June 2008, EPA (DAM). L. Carrowmore, Derreens, Bangor Erris (F833299), 28 July 2008, EPA (DAM): **HA 34** - L. More, Ballynagoraher (G115044), 29 June 2006, EPA (DAM): **Clare Island** - L. Leinapollbauty, Lecarrow (L691856), 5 June 2002 (Murray and Murray, 2003). **ROSCOMMON: HA 26** - L. Meelagh, Keadew (G901117), 11 June 2008, EPA (DAM). L. Annaghmore, Strokestown, Elphin (M902838), 12 June 2008, EPA/GF (DAM). L. Key, Boyle, wharf in Forest Park (G848040), 11 June 2008, EPA (DAM). **SLIGO: HA 34** - L. Talt, Gleneask (G402151), 15 July 2008, EPA (DAM): **HA 35** - L. Arrow, Ballinafad (G789123), 11 June 2008, EPA (DAM). L. Easky, Ox Mountain (G446230), 18 June and 25 September 2008, EPA (DAM). **TIPPERARY: HA 18** - Black L., Arra Mountains (R738771), 10 August 2005, JRB (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), May 1973, NH (Hayes,

1980) also 24 July 1973, BPH (Murray, 2005): **HA 26** - L. Killinure, Wineport (N067458) and L. Coosan, Athlone (N055449), 26 June 2007, EPA (DAM).

***Parachironomus cinctellus* (Goetghebuer, 1921)**

[Including some records of pupal exuviae determined as *Parachironomus vitiosus* from Langton and Visser (2003). Spies and Bolton (2013) drew attention to the mis-association between the adult male and pupal exuviae of *P. cinctellus* in Langton and Visser (2003) and have shown that pupal exuviae recognized as *P. vitiosus* in Langton (1984, 1991) and Langton and Visser (2003) are *P. cinctellus*. See also comments on records of *Parachironomus vitiosus*.]

ANTRIM: HA 4 - Dungonnell Dam, Newtown Crommelin (D193170), 20 June 2000 (Langton, 2002). **CAVAN: HA 36** - L. Sillan, Shercock (H705067), 19 July 2007, EPA (DAM). **CLARE: HA 25** - L. Derg, d/s Killaloe (M705715), 18 September 2009, EPA (DAM): **HA 27** - L. Dromore, Ruan, Corrofin, west basin (R345858), 5 June 2006, EPA (DAM). L. Muckanagh, Tubber, Corrofin, south east shore (R370922), 11 June 2009, EPA (DAM): **HA 28** - L. Naminna, Boolteagh (R179708), 11 June 2009, EPA (DAM): **HA 29** - L. Skeardeen, Kilcorkan (R388991), 7 April and 17 June 2009, EPA (DAM). **CORK: HA 19** - Iniscarra Reservoir, Coachford (W477717), 28 and 31 July 2008, EPA (DAM). **DERRY: HA 3** - R. Bann, Coleraine (C855304), 18 June and 22 September 1999 (PHL). L. Neagh, Ballyronan (H948862), 4 July 2000 (Langton, 2002). **DONEGAL: HA 38** - L. Keel, Crolly (B848162), 13 August and 7 September 2009, EPA (DAM). L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (DAM). **GALWAY: HA 29** - L. Caherglassaun, Gort (M412061), 7 August 2007, EPA (DAM): **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 June 2007, EPA (DAM). L. Corrib, Lower, Moycullen (M271360), 11 June 2007, EPA (DAM): **HA 31** - L. Aunwillan, Carraroe (L936255), 25 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June 2007, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 5 June 2007, EPA (DAM). **LEITRIM: HA 35** - L. Glencar, Glencar (G757435), 10 June 2008, EPA (DAM). **MAYO: HA 32** - L. Moher, Lisarney, Westport (L977766), 18 September 2008, EPA (DAM): **HA 34** - L. Washpool, Ballycarra (M219842), 19 June 2008, EPA (DAM). **Clare Island** - Creggan L., Lecarrow (L689857), 21 August 2002, DAM/WM (DAM). **ROSCOMMON: HA 26** - L. O'Flynn, Ballinlough (M585786), 12 June 2008, EPA (DAM). **SLIGO: HA 34** - L. Talt, Gleneask (G402151), 24 September 2008, EPA (DAM): **HA 35** - L. Templehouse, Ballymote (G619182), 11 June and 9 September 2008, EPA (DAM). **TIPPERARY: HA 16** - R. Drish, Castletown (S217635), 22 May 1992 (Murray and Lynch, 1992).

Langton (2002) provided the first published record from Co. Antrim in collections from June 2000. An unpublished record from 1992 is documented here from specimens collected in the R. Drish, Co. Tipperary.

***Parachironomus danicus* Lehmann, 1970**

New to Ireland

DUBLIN: HA 9 - R. Dodder, Clonskeagh Bridge (O174306), June 1950, CFH (DAM).

Two slide-mounted, unidentified, pharate specimens (one male and one female) were recently discovered (DAM) in the C. F. Humphries collection labelled by CFH as “Chironomaria - hatched”. On examination (DAM/PJA) the presence of long sinuous setae on the gonocoxite of the pharate adult male, clearly visible through the transparent pupal exuviae, confirmed identification as *Parachironomus danicus* from Lehmann (1970, p. 139, Fig. 6) and Langton and Pinder (2007).

***Parachironomus digitalis* (Edwards, 1929)**

DERRY: HA 3 - water butt, Kylebeg, Coleraine (C856304), 20 August 2002 (Langton, 2004) and Coleraine (C855308), 20 August 2002 (PHL).

***Parachironomus frequens* (Johannsen, 1905)**

CAVAN: HA 7 - L. Ramor, Virginia (N612860), 24 July 2007, EPA (DAM). **CORK: HA 20** - L. Curragalicky, Drinagh, Dunmanway (W234046), 17 June 2008, EPA (DAM). L. Skeagh (Schull Reservoir), Schull (V937338), 27 August 2008, EPA (DAM). **DERRY: HA 3** - R. Bann, Mountsandel, Coleraine (C852305): 20 June, 20, 30-31 May, 10, 18 and 23 June, 3 July, 26 August, 22 September 1999, 17, 25 and 31 May, 7, 13 and 24 June 2000; R. Bann, Coleraine (C855304), 16 and 30 June 2001, 22 September 2002, all PHL. L. Neagh (H9080), no date (McLarnon and Carter, 2000). **DONEGAL: HA 39** - L. Fern, Milford (C182247), 2 June 2000 (Langton, 2002). **FERMANAGH: HA 36** - L. Erne Upper, Crom, (H362242), 27 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Caherglassaun, Gort (M412061), 7 August 2007, EPA (DAM): **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 June 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney, Castlelough Bay, east shore (V975873), July 1973 and north shore (V966866), 17 August 1973 (Douglas and Murray, 1980; Murray, 2005). **LEITRIM: HA 26** - L. Rinn, Mohill (N095943), 25 June 2008, EPA (DAM). **MAYO: HA 32** - L. Doo, Delphi, north east shore (L834686), 22 September 2008, EPA (DAM): **HA 33** - L. Keel, Achill Island, south east shore (F650051), 17 June 2008 and south west shore (F641055), 17 September 2008, EPA (DAM). R. Owenmore, Bangor Erris (F863228), 18 August 1983 (Hayes, 1991): **HA 34** - L. Conn, Brackwansha (G191098), 18 June 2008, EPA (DAM). R. Moy, Cloongullaun (G348016), 30 August 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 (Hayes, 1991) and 18 August 1983 (Hayes and Murray, 1989).

***Parachironomus gracilor* (Kieffer, 1918)**

Synonym *Parachironomus arcuatus* (Goetghebuer, 1919)

ANTRIM: HA 3 - L. Neagh: Antrim Bay (J135866) and Churchtown Point (J056852), 22 August 2001, 22 May 2011 (PHL). Pond, Templepatrick (J232856), 26 August 2008 (PHL). **ARMAGH: HA 3** - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (PHL). **CAVAN: HA 7** - L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972): **HA 36** - L. Garty, Arvagh (N278978), 7 June and 18 July 2007, EPA (DAM). L. Gowna, north basin, Arnagahan (N285920), 7 June 2006, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 4 May 2006 and 11 August 2009, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 20 April, 17 June and 16 July 2009, EPA (DAM). L. Atorick, Feakle (R637964), 24 May 2003, EPA (PHL): **HA 27** - L. Gortglass, Killadysert, north shore (R223599), 11 June 2009, EPA (DAM) and south shore (R223596), 7 July 2009, EPA (DAM). L. Inchiquin, Corrofin, west shore (R266896), 15 July 2009, EPA (DAM). L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009 and north east shore (R449697), 16 September 2009, EPA (DAM). L. Atedaun, Corrofin (R294885), 16 June 2009, EPA (DAM): **HA 28** - L. Keagh, Milltown Malbay, north shore (R100813), 11 June 2009, EPA (DAM). L. Lickeen, Kilfenora, mid lake (R175909), 6 June 2006 and west shore (R164908), 15 September 2009, EPA (DAM). L. Naminna, north west shore, Boolteagh (R178710), 7 July 2009, EPA (DAM). **CORK: HA 18** - R. Blackwater, Duncannon (W180931), 2 September 1981 (Hayes, 1991): **HA 19** - L. Allua, Ballingearry (W180652), 20 August 2008, EPA (DAM); Iniscarra Reservoir, Coachford (W477717), 28 and 31 July also 16 September 2008, EPA (DAM): **HA 20** - L. Abisdealy, Skibbereen (W136314), 17 June and 30 July 2008, EPA (DAM). L. Ballin, Leap (W199389), 17 June and 21 August 2008, EPA (DAM). L. Curraghally, Drinagh, Dunmanway (W234046), 17 June and 12 August 2008, EPA (DAM). L. Skeagh (Schull Reservoir), Schull (V937338), 17 September 2008, EPA (DAM): **HA 21** - L. Bofinna, Bantry (W041488), 18 June 2008, EPA (DAM). **DERRY: HA 1** - Lower Reservoir, Creggan, Derry (C422174), 10 May 2001 (PHL): **HA 3** - Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May 2000 (Langton, 2002). R. Bann, Mountsandel, Coleraine (C852305), 24 June, 20 May, 10, 18 and 23 June 1999, 3, 25 and 31 May, 7 and 13 June, 16 July 2000 (PHL). Coleraine (C855308), 6 and 20 August 2002 (PHL). L. Neagh (H9080), no data (McLarnon and Carter, 2000); L. Neagh: Ballyronan (H948862), 4 July 2000 (Langton, 2002) and 7 May 2001 (PHL). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM): **HA 38** - L. Anure, Loughanure, east shore (B818162), 17 June 2009, EPA (DAM). R. Owencarrow, Bridge House, Glenveagh (C041229), 3 June 1986 (Heneghan, 1986). L. Kindrum, Kindrum, Fanad (C186430), 22 July and 9 September 2009, EPA (DAM). L. Veagh, north east shore, sweep over vegetation, Glenveagh (C038236), 24 July 1985, POD

(DAM). L. Kinny, Fanad (C204442), 9 September 2009, EPA (DAM). L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 21 July 2009, EPA (DAM). L. Akibbon, Church Hill (C068184), 9 September 2009, EPA (DAM): **HA 40** - L. Naminn, Coolmany (C400423), 18 August 2011 (PHL). **DUBLIN: HA 9** - lake 1 (O129353), Zoological Gardens, Dublin, 15 May 1987, MB/DAM (DAM) and lake 2 (O130350), 17 July 1987, DAM/RH (Murray *et al.*, 1987; Murray, 2005). **FERMANAGH: HA 36** - Dummys L., Magheraveely (H488276) and L. Inver, Rosslea (H518314), 28 June 2000 (Langton, 2002). L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Caherglassaun, Gort (M412061), 7 August 2007, EPA (DAM). L. Rea, Loughrea (M615154), 25 May 2003, PHL (Langton/NMI Pe): **HA 30** - L. Anillaun, Maam Cross (L980470), 5 September 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007, EPA (DAM). L. Corrib Upper, Oughterard (M138486), 14 August 2007, EPA (DAM); L. Corrib, Lower, Moycullen (M271360), 28 August 2007, EPA (DAM); L. Corrib, Knockferry (M230410), 28 April 1980, BC (DAM). L. Lettercraffroe, Oughterard (M056376), 14 June 2007, EPA (DAM). L. Maumwee, Maam Cross (L977485), 19 April 2007, EPA (DAM): **HA 31** - L. Ahalia, Maam Cross, north east shore (L971402), 23 September 2009, EPA (DAM). L. Anaserd, Ballyconneely (L605443), 20 June 2006, 6 June and 17 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 13 September 2007, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 25 July 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 12 September 2006, EPA (DAM): **HA 32** - L. Aughrusbeg, Cleggan (coastal) (L557582), 11 September 2007, EPA (DAM). L. Ballynakill, Cleggan (L639581), 11 September 2007, EPA (DAM). **KERRY: HA 21** - Erik L., Derrygarriff (V881777), 9 August 2005, JRB (DAM): **HA 22** - L. Leane, Killarney (V931886), 24 June 2008, EPA (DAM). Muckcross Lake, Killarney, Dundag Bay (V964858), 23 July 1973 (Murray, 1974) and mid lake (V950853), 16 July 2008, EPA (DAM). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Rinn, Mohill (N095943), 18 July and 10 September 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 27 August and 10 September 2008, EPA (DAM). **ROSCOMMON: HA 26** - L. Ree, Yew Point, Barley Harbour (N018485), 10 September 2007, EPA (DAM). **LOUTH: HA 6** - L. Mentrin, Ardee (N913879), 27 June 2005, DAM/WM (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 28 April and 26 September 2008, EPA (DAM): **HA 32** - L. Moher, Liscarney, Westport (L977766), 18 September 2008, EPA (DAM). L. Ballin, Westport, north shore (L996882), 25 June 2008, EPA (DAM): **HA 33** - L. Keel, Achill Island, mid lake (F651059), 16 July 2008, EPA (DAM). L. Carrowmore, Bangor Erris: Gortmore (F833266), 29 September 2004, WAM (DAM); Derreens (F833299), 28 July 2008, EPA (DAM): **HA 34** - L. Conn, south

basin, Illannaglashy (G207070), 20 August 2008, EPA (DAM). L. Lannagh, Castlebar (M137899), 26 September 2008, EPA (DAM). L. More, Ballynagoraher (G115044), 29 June 2006, EPA (DAM). **MEATH: HA 7** - R. Boyne, Oldbridge (O045761) and d/s Oldbridge (O062753), 19 July 1989 (DAM). **MONAGHAN: HA 36** - L. Avagnon, Latton, Cotehill (H688133), 6 June 2007, EPA (DAM). L. Inner, Dartery, Drum (H625173), 6 June and 10 July 2007, EPA (DAM). Kilroosky L., Clones (H494274) and Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 (Hayes, 1991). L. Meelagh, Keadew (G901117), 12 July 2008, EPA (DAM). L. Annaghmore, Strokestown, Elphin (M902838), 15 July 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June 2008, EPA (DAM). Grange L., Greywood, Strokestown (M938857), 25 June 2008, EPA (DAM). L. O'Flynn, Ballinlough (M585786), 12 June 2008, EPA (DAM). **SLIGO: HA 26** - L. Gara, Cuppanagh, Cloonlough (G714013), 26 June 2008, EPA (DAM): **HA 35** - L. Easky, Ox Mountain (G446230), 17 July 2008, EPA (DAM). **WATERFORD: HA 16** - L. Ballyscanlan (Ballyscanlan Reservoir), Tramore (S540030), 22 April 2009, EPA (DAM): **HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM). L. Carriganvantry, Tramore (S548022), 19 August 2009, EPA (DAM): **HA 18** - R. Blackwater, Lismore (X047988), 31 August 1981 (Hayes, 1991). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), May to September 1973, NH (Hayes, 1980): **HA 26** - L. Killinure, Ballaghkeernan Bay (N069445), 26 June 2007, EPA (DAM): **HA 36** - L. Bane, Collinstown (N550712), 26 June 2006 (EPA).

***Parachironomus mauricii* (Kruseman, 1933)**

MAYO - Clare Island - Creggan L., Lecarrow (L689857), June to October 1998, Fahy (2002), misidentified as *Parachironomus parilis*. Voucher adult male specimen in NMI examined (PJA/DAM) and identification confirmed as *P. mauricii*.

Parachironomus* sp. cf *mauricii (pupal exuviae sensu Langton and Visser (2003) and Langton (1991) as “? *Parachironomus* sp Pe”).

According to Spies and Bolton (2013) pupal exuviae of *Parachironomus* with a medial gap in the hook row of tergite II which run to *P. mauricii* in Langton and Visser (2003) may also be linked with other adult *Parachironomus* species - including *P. biannulatus* Goetghebuer and *P. kuzini* Shilova. The first record of *P. mauricii* in Ireland (Langton, 2002) was based on pupal exuviae from L. Mulladerg, Co. Donegal but, following Spies and Bolton (2013), that record may now be uncertain - although possible. The following records, based on pupal exuviae identified from Langton and Visser (2003) may reflect occurrences of *P. mauricii*, *P. biannulatus* or another species of *Parachironomus*.

CAVAN: HA 7 - L. Ramor, Virginia (N612860), 24 July 2007, EPA (DAM). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 11 June and 14 September 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 16 June and 14 September 2009, EPA (DAM). L. Dromore, Ruan, Corrofin (R345858), 21 July 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R370922), 14 September 2009, EPA (DAM). L. Rosroe, Newmarket on Fergus, north east shore (R449697), 16 September 2009, EPA (DAM): **HA 29** - L. Skeardeen, Kilcorkan (R388991), 7 April 2009, EPA (DAM). **CORK: HA 19** - Iniscarra Reservoir, Coachford (W477717), 28 July 2008, EPA (DAM): **HA 20** - L. Coolkillure, Dunmanway (W177539), 11 August 2008, EPA (DAM). **DONEGAL: HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Anure, Loughanure, east shore (B818162), 7 September 2009, EPA (DAM). L. Glen, Glen (C105292), 29 July 2009, EPA (DAM). L. Fallaneas, Kindrum (C173424), 9 September 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 9 September 2009, EPA (DAM). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 18 September 2007, EPA (DAM). L. Cutra, Gort (R485986), 24 May 2003, EPA (PHL): **HA 30** - L. Anillaun, Maam Cross (L980470), 8 June and 5 September 2007, EPA (DAM): **HA 31** - L. Anaserd, Ballyconneely (L605443), 20 June 2006 and 11 September 2007, EPA (DAM). L. Aunwillan, Carraroe (L936255), 25 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June and 13 September 2007, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 12 September 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 12 September 2006, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 11 September 2007, EPA (DAM). L. Enask, Beaghcauneen (L662468), 6 June 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 11 September 2007, EPA (DAM). L. Nambrackmore, Ballinaboy, Toombeola (L716454), 6 June and 12 September 2007, EPA (DAM). **KERRY: HA 22** - Muckcross Lake, Killarney (V950853), 18 September 2008, EPA (DAM). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 28 July 2009, EPA (DAM). L. Gur, Holycross (R646269), 28 July and 13 June 2009, EPA (DAM). **MAYO: HA 32** - R. Bunowen, u/s of bridge, Louisburg (L807807), 5 August 2004, DAM/WM (Murray, 2005): **HA 33** - L. Keel, Achill Island, south west shore (F641055), 17 September 2008, EPA (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), 21 August 2002, Murray and Murray (2003) as *P. vitiosus*, misidentified. **MONAGHAN: HA 6** - L. Monalty, Carrickmacross (H866027), 14 September 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Funshinagh, Brideswell (M933513), 23 April 2007, EPA (DAM).

***Parachironomus monochromus* (van der Wulp, 1875)**

CORK: HA 19 - L. Aderry, Castlemartyr (W935730), 13 August 1989, NH (Bracken and Murray, 1973). **DONEGAL: HA 38** - L. Altercan, The Rosses (B755158), 19 July 2000

(Langton, 2002). **GALWAY: HA 31** - L. Anaserd, Ballyconneely (L605443), 17 July 2007, EPA (DAM). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **WATERFORD: HA 16** - L. Ballyshunnock (Reservoir), Portlaw (S455095), 1 July 2009, EPA (DAM).

***Parachironomus parilis* (Walker, 1856)**

CLARE: HA 27 - L. Atedaun, Corrofin, east shore (R300886), 22 September 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 4 July 2006, EPA (PHL). L. Dromore, Ruan, Corrofin, mid lake (R352864), 16 June and west basin (R345858), 21 July 2009, EPA (DAM). L. Inchiquin, Corrofin (R270895), 4 July 2006, EPA (DAM). L. Muckanagh, Tubber, Corrofin, south east shore (R370922), 14 September 2009, EPA (DAM). **DERRY: HA 1** - inflow to Upper Reservoir, Creggan, Derry (C413171), 29 May 2002, PHL (Langton/NMI Pe). Pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL): **HA 3** - Downhill Forest lake, Coleraine (C757353), 28 July 1999 and 21 August 2001 (PHL). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 18 September 2007, EPA (DAM): **HA 32** - L. Enask, Beaghcauneen (L662468), 17 July 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 6 June 2007, EPA (DAM). L. Pollacappul, Kylemore (L754582), 9 July 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney, Juniper Bay (V949863), 11 June 1973 (Douglas and Murray, 1980; Murray, 2005). **LIMERICK: HA 24** - L. Gur, Holycross (R646269), 28 July 2009, EPA (DAM). **MAYO: Clare Island** - Creggan L., Lecarrow (L689857), June to November 1998 and June to November 1999 (Fahy, 2002). L. Poirtin Fuinch (L706857), 11 June 1998 (Fahy, 2002) [A single adult male voucher specimen in the NMI Fahy Clare Island collection labeled as *P. parilis* was misidentified, see *P. mauricii* above]. **MONAGHAN: HA 6** - L. Naglack, Carrickmacross (H853026), 3 May 2007, EPA (DAM).

***Parachironomus subalpinus* (Goetghebuer, 1932)**

KERRY: HA 22 - L. Leane, Killarney, Castlelough Bay, north shore (V966866), 27 June 1973, JPOC and 14 July 1973, DJD/DAM (Douglas and Murray, 1980).

***Parachironomus tenuicaudatus* (Malloch, 1915)**

CAVAN: HA 36 - L. Annagh, Butler's Bridge (H394125), 3 July and 18 September 2007, EPA (DAM). **CLARE: HA 27** - L. Rosroe, Newmarket on Fergus, north east shore (R448697), 16 June 2009, EPA (DAM). L. Atedaun, Corrofin (R297884), 21 April 2009, EPA (DAM): **HA 28** - L. Naminna, north west shore, Boolteagh (R178710), 7 July 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 14 August 2008, EPA (DAM). L. Allua, Ballingearry (W180652), 20 August 2008, EPA (DAM). **DONEGAL: HA 38** - L. Dunglow,

The Rosses, east shore (B787117), 19 July 2000 (Langton, 2002): **HA 39** - L. Fern, Millford (C180233), 23 July 2009, EPA (DAM). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 25 May 2003, PHL (Langton/NMI Pe): **HA 30** - L. Corrib Upper, Oughterard (M138486), 11 June and 14 August 2007, EPA (DAM). L. Corrib (M1545), 1980, BC (DAM). Stream, at lay-by picnic site on road N59, Moycullen (M204326), 25 May 2003 (PHL). R. Owenriff, Oughterard (M112426), 25 May 2003 (PHL): **HA 32** - L. Aughrusbeg, Cleggan (L557582), 5 June 2007, EPA (DAM). **KERRY: HA 22** - L. Acoose, Slievanore, Killorglan (V755854), 9 July 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 8 July 2008, EPA (DAM). L. Kilbrean, Killarney (W005935), 16 June 1969, NH (Bracken and Murray, 1973). L. Leane, Killarney: Castlough Bay, north shore (V966866), 27 June 1973; Ross Bay (V945850), 29 August 1997, DAM (Murray, 2005); Muckross Boathouse (V965866), 29 August 1987, NOM (DAM). **LEITRIM: HA 35** - L. Belhavel, Killarga, Dromahair (G878288), 10 June 2008, EPA (DAM). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 13 June 2009, EPA (DAM). **MAYO: Clare Island** - L. Poirin Fuinch (L706857), 1 September 1998 and 2 August 1999 (Fahy, 2002). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 27 June 2006, EPA (DAM). Kilroosky L., Clones (H494274), 28 June 2000 (Langton, 2002). Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **OFFALY: HA 25** - bog lake 2, Turraun (N150230), 3 June 1999 (DAM). **WATERFORD: HA 16** - L. Ballyshunnock (Reservoir), Portlaw (S455095), 2 September 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), June 1973, NH (Hayes, 1980). L. Ennell, Tudenham (N415466), 1981 (Forde, 1985).

***Parachironomus vitiosus* (Goetghebuer, 1921)**

[Including pupal exuviae records determined as *Parachironomus biannulatus* (Staeger, 1839), sensu Langton and Visser (2003). Spies and Bolton (2013) drew attention to the mistaken association between the adult male and pupal exuviae of *P. biannulatus* in Langton and Visser (2003) and have shown that such exuviae identified from Langton (1984, 1991) and Langton and Visser (2003) actually belong to *P. vitiosus*. See also comments on *P. cinctellus* above].

ANTRIM: Rathlin Island - Ushet L. (D154485), 5 July 2004 (PHL). **CAVAN: HA 36** - L. Cuillaghan, Ballyconnell (H303183), 6 June 2007, EPA (DAM). L. Garty, Arvagh (N278978), 7 June 2007, EPA (DAM). **CLARE: HA 25** - L. Derg, d/s Killaloe (M705715), 18 September 2009, EPA (DAM). L. Atorick, Feakle (R637964), 24 May 2003, EPA (PHL): **HA 27** - Castle L., Kilmurry, Sixmilebridge, south west shore (R481688), 12 June and west shore (R484690), 17 July 2009, EPA (DAM). L. Dromore, Ruan, Corrofin, mid lake (R352864), 16 June 2009 and west basin (R345858), 21 July 2009, EPA (DAM). L. Gortglass, Killadysert, north shore (R223599), 11 June 2009 and south shore (R223596), 7 July 2009, EPA (DAM). L.

Cullaunyheda, Kilkishen (R488746), 13 August 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 16 September 2008, EPA (DAM): **HA 21** - L. Bofinna, Bantry (W041488), 18 June 2008, EPA (DAM). **DERRY: HA 3** - pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). **DONEGAL: HA 36** - L. Unshin, Ballyshannon (G951637), 8 June 2009, EPA (DAM): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Fallaneas, Kindrum (C173424), 16 June 2009, EPA (DAM): **HA 39** - L. Fern, Millford (C180233), 16 June 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). **LEITRIM: HA 35** - L. Belhavel, Killarga, Dromahair (G878288), 10 June and 26 August 2008, EPA (DAM). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 13 June 2009, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June and 10 September 2008, EPA (DAM). **MAYO: HA 30** - L. Mask, Toormakeady (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Glencullin, Delphi, south west shore (L819696), 25 August 2008, EPA (DAM). L. Moher, Lisearney, Westport (L977766), 18 September 2008, EPA (DAM): **HA 34** - L. Conn, Illannaglashy (G207070), 20 August 2008, EPA (DAM). **Clare Island** – Creggan L., Lecarrow (L689857), 21 August 2002, DAM/WM (DAM). **MEATH: HA 6** - R. Dee, Drumconrath (N910894), 7 July 1983, BPH (Hayes, 1991; Murray, 1996, 2005). **MONAGHAN: HA 36** - L. Drumlona, Rockcorry (H636176), 5 June and 11 July 2007, EPA (DAM). **OFFALY: HA 25** - bog lake 2, Turraun (N150230), 3 June 1999 (DAM). **SLIGO: HA 26** - L. Gara: Cuppanagh, Cloonlough (G714013), 26 June 2008 and Monastredan (M708996), 5 September 2008, EPA (DAM). **WESTMEATH: HA 26** - L. Killinure, Ballaghkeernan Bay (N069445), 26 June 2007, EPA (DAM).

***Parachironomus* sp. Pe2 sensu Langton (1984, 1991), Langton and Visser, 2003**

Langton and Visser (2003) recognised two morphotypes in *Parachironomus* Pe2 sensu Langton (1984, 1991). The following records from collections prior to the year 2003 derive from exuviae identified from Langton (1984, 1991) and thus may include one or other of the morphotypes recognised in Langton and Visser (2003).

CARLOW: HA 12 - R. Derreen, Acann Bridge (S900781), 29 July 1981 (Hayes, 1991). **DONEGAL: HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). **FERMANAGH: HA 36** - L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 31** - L. Nahasleam, Maam Cross South (L972440), 12 September 2007, EPA (DAM). **KERRY: HA 21** - L. Currane, Waterville (V535664), 9 May 2008, EPA (DAM). **KILDARE: HA 9** - R. Liffey, Straffan Bridge (N924293) 17 July 1983 (Hayes, 1991). **SLIGO: HA 35** - L. Templehouse, Ballymote (G619182), 11 June and 4 September 2008, EPA

(DAM).

***Parachironomus* sp. Pe2a sensu Langton and Viser, 2003**

CLARE: HA 28 - L. Doo, Milltown Malbay (R123721), 8 July 2009 and north west shore (R114722), 15 September 2009, EPA (DAM). L. Keagh, Milltown Malbay, south west shore (R100811), 8 July 2009, EPA (DAM). **LEITRIM: HA 26** - L. Boderg, Derrycarne, north west shore (N013915), 29 July 2008, EPA (DAM): **HA 35** - L. Glenade, south east shore, Glenade, Manorhamilton (G831457), 22 July 2008, EPA (DAM). **MAYO: HA 33** - L. Keel, Achill Island, south east shore (F650051), 17 June and mid lake (F651059), 16 July 2008, EPA (DAM).

***Parachironomus* sp. Pe3 sensu Langton and Viser, 2003**

CLARE: HA 27 - L. Atedaun, Corrofin (R297884), 21 April 2009, EPA (DAM): **HA 28** - R. Doonbeg, Derryard (Q979644), 31 July 1982, BPH (DAM). **CORK: HA 20** - R. Illen, Hollybrook (W117363), 24 August 1983, BPH (DAM). **DONEGAL: HA 39** - L. Fern, Millford (C180233), 9 September 2009, EPA (DAM). **GALWAY: HA 30** - L. Ballyquirk, Moycullen (M232317), 13 April 2007, EPA (DAM); L. Corrib Lower, Moycullen (M271360), 18 September 2007, EPA (DAM). **WICKLOW: HA 10** - L. Tay, Luggala (O163008), 28 July 2009, EPA (DAM). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 29 July 1981 BPH as *P. arcuatus*, misidentified (DAM).

***Parachironomus* sp. Pe4 sensu Langton 1991 not *P. varus* (Goetghebuer, 1921) sensu Langton and Visser (2003)**

A record of *Parachironomus varus* as new to Ireland was given by Murray (2010) based on pupal exuviae from L. Carra, Co Mayo and identified from Langton and Visser (2003). However, Spies and Bolton (2013) have since shown that more than one species will key to '*P. varus*' in Langton and Visser (2003) and thus questioned the validity of the association of *Parachironomus* Pe4, sensu Langton (1991) with *P. varus* (Goetghebuer) in Langton and Visser (2003). Examination of associated adult male and pupa of *P. varus*, collected and determined by Goetghebuer in the Netherlands and housed at Zoologische Staatssammlung, Munich reported by Spies and Bolton (2013), revealed that the pupae are "around 5mm long and lack transverse bands on sternite II". In contrast exuviae cited as *P. varus* in Langton and Visser (2003) were "7 and 10mm long, with both anterior and posterior point bands indicated on sternite II". Consequently Spies and Bolton (2013) recommended that *P. varus* (Goetghebuer) and *P. Pe4* sensu Langton (1991) be treated separately. Since the record of *P. varus* in Murray (2010) was incorrect, that morphotype is included here as *Parachironomus* sp. Pe4.

CLARE: HA 27 - L. Rosroe, Newmarket on Fergus, north east shore (R449697), 16 September 2009, EPA (DAM). **DONEGAL: HA 37** - L. Eske, Donegal (G973844), 14 July 2009, EPA (DAM): **HA 39** - L. Fern, Millford (C180233), 16 June, 23 July and 9 September 2009, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 19 June 2008, EPA (Murray, 2010, as *P. varus*). **SLIGO: HA 35** - L. Arrow, Ballinafad (G789123), 9 September 2008, EPA (DAM). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 1 September 2009, EPA (DAM).

***Paracladopelma camptolabis* (Kieffer, 1913)**

ANTRIM: HA 3 - Killylane Reservoir, Magherabane, Larne (J292985), 4 and 8 May 1999 (PHL): **HA 4** - R. Bush, Seneirl Bridge (C943362), 16 July 2000 (Langton, 2002). **CARLOW: HA 12** - R. Derreen, Acann Bridge (S900781), 29 July 1981, BPH (Murray, 1996). **CAVAN: HA 36** - L. Macnean, lower, Blacklion (H106378), 7 June 2007, EPA (DAM). L. Gowna, north basin, Arnagahan (N285920), 18 September 2007, EPA (DAM). R. Erne, Drumbarry (N462951), 17 August 1982, BPH (Murray, 1996). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 10 May 2005, EPA (DAM). **CORK: HA 18** - R. Blackwater, Knocknagree (W159975), 2 September 1981, BPH (Murray, 1996): **HA 19** - L. Allua, Ballingearry (W180652), 4 April 2008, EPA (DAM): **HA 20** - R. Ovane, Pierson's Bridge (W023454), 24 August 1983, BPH (Murray, 1996): **HA 21** - L. Avaul, Glengarrif (V910553), 1969, NH (Bracken and Murray, 1973). L. Glenbeg, Ardgroom (V706530), 3 September 2008, EPA (DAM). **DERRY: HA 1** - Upper Reservoir (C417173) and Lower Reservoir (C422174), Creggan, Derry, 26 April and 10 May 2001 (PHL): **HA 3** - R. Bann, Coleraine (C855304), 6 April 2000, 27 April 2002 and 18 April 2010 (PHL). **DONEGAL: HA 1** - L. Mourne, Ballybofey (H069900), 9 June 2009, EPA (DAM): **HA 37** - R. Eany, d/s Eanybeg confluence (G842815), 10 August 1982, BPH (Murray, 1996): **HA 38** - Misty L., Glenveagh (C014228), 3 June 1986 (Heneghan, 1986): **HA 39** - L. Gartan, Church Hill (C055159), 10 June, 22 July and 9 September 2009, EPA (DAM). L. Akibbon, Church Hill (C068184), 23 April, 11 June and 9 September 2009, EPA (DAM). R. Leannan, Drumaboden (C165218), 12 August 1982, BPH (Murray, 1996). L. Fern, Milford (C182247), 18 August 2011 (PHL). **DUBLIN: HA 9** - Upper Bohernabreena Reservoir (O095219), 9 May 1947, AF and CFH (Fitzgerald, 1947). **GALWAY: HA 29** - L. Rea, Loughrea (M615154), 14 June and 14 September 2007, EPA (DAM): **HA 30** - L. Beaghcauneen, Ballinaboy (L679470), 5 April 2007, EPA (DAM). L. Maumwee, Maam Cross (L977485), 19 May 2005, EPA (DAM). R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981, BPH (Murray, 1996): **HA 31** - L. Ardderry, Maam Cross (L982458), 17 September 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 19 April 2007, EPA (DAM). L. Shindilla, Derreennacreeva, Maam Cross (L958460), 13

September 2007 and 26 July 2009, EPA (DAM). R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981, BPH (Murray, 1996): **HA 32** - L. Aughrusbeg, Cleggan (L557582), 3 April 2007, EPA (DAM). L. Kylemore, Letterfrack (L771582), 5 June and 30 July 2007, EPA (DAM). **KERRY: HA 22** - L. Acoose, Slievanore, Killorglan (V755854), 9 September 2008, EPA (DAM). L. Leane, Killarney (V931886), 18 September 2008, EPA (DAM). R. Loo, Crohane (W045790), 24 July 1978, PJA (as *Paracladopelma* sp 1 in Ashe 1982). **KILDARE: HA 9** - R. Liffey, Sallins (N881245), 17 July 1983, BPH (Murray, 1996). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930) and Shanahoe Bridge (S407858), 27 August 1981 also at Athanagh (S423763), 28 August 1981, all BPH (Murray, 1996). **LEITRIM: HA 35** - L. Glencar, Glencar (G748434), 1 April and 21 July 2008, EPA (DAM). **ROSCOMMON: HA 26** - L. Ree, Yew Point, Barley Harbour (N018485), 11 September 2007, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 24 April 2008, EPA (DAM): **HA 32** - L. Doo, Delphi: west shore (L835681), 9 May 2006, EPA (DAM); north east shore (L834689), 22 August 2002, DAM/WM (DAM). L. Fin, Delphi (L841657), 5 April 2006, EPA (DAM). R. Owenwee, u/s Aghamore Bridge, Westport (L972817), 8 May 2003, DAM/WM (Murray, 2005). Westport L., Westport Woods Hotel, Westport (L985843), 7 May 2004, DAM/WM (DAM). L. Knappabeg, Westport (M010803), 21 April and 23 July 2008, EPA (DAM): **HA 33** - L. Carrowmore, Bangor Erris, Derreens (F833299), 9 April 2008, EPA (DAM): **HA 34** - L. Lannagh, Castlebar, west shore (M109883), 21 August 2008, EPA (DAM). R. Moy, Bellanacurra (G403047) and Ballylahan (M277992), 29 August 1982, BPH (Murray, 1996). **MONAGHAN: HA 36** - L. Avagnon, Latton, Cotehill (H688133), 6 June 2007, EPA (DAM). **OFFALY: HA 25** - R. Little Brosna, Milltown Park (S068907) and Brosna Bridge (S077938), 2 September 1982, BPH (Murray, 1996). **ROSCOMMON: HA 26** - R. Suck: Castlecoote (M809627) and Ballyforan (M817464), 16 July 1981; Newtown (M844346), 15 August 1981, all BPH (Murray, 1996). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168) and Metal Bridge, Tobercurry (G464138), 30 August 1982 (Hayes, 1991): **HA 35** - L. Kilsallagh (Reservoir), Kilsallagh (G734393), 23 July and 8 September 2008, EPA (DAM). L. Gill, Sligo (G753335), 3 April 2008, EPA (DAM). **TIPPERARY: HA 15** - R. Nore, Quaker Bridge (S211868), 27 August 1981, BPH (Murray, 1996). **WATERFORD: HA 16** - L. Ballyshunnock (Reservoir), Portlaw (S455095), 20 April 2009, EPA (DAM). **WICKLOW: HA 12** - R. Derry, Balisland (S978645) and R. Slaney, Stratford Bridge (S895930), 28 July 1981, BPH (Murray, 1996).

***Paracladopelma laminatum* (Kieffer, 1921)**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 4 May 1999 and 22 August 2001 (PHL). **CAVAN: HA 36** - L. Annagh, Butler's Bridge (H394125), 3 April 2007, EPA (DAM).

CLARE: HA 25 - L. Graney, Doorus, west shore (R556930), 10 April and 4 May 2006, EPA (DAM). L. Derg, Terryglass (M861008), 20 April 2009, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 20 April 2009, EPA (DAM). L. Atorick, Feakle (R637964), 24 May 2003, EPA (PHL): **HA 27** - L. Bunny, Aughrim, south east shore (R377965), 2 May 2006 EPA (PHL). Castle L., Kilmurry, Sixmilebridge, west shore (R482691), 17 September 2009, EPA (DAM). L. Cullaunyheda, Kilkishen (R484746), 12 June and 17 September 2009, EPA (DAM). **DERRY: HA 3** - L. Neagh (H9080), no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 27 May 1999 (PHL), 10 May 2000 (Langton, 2002), 15 May 2002 (PHL). L. Fea, Draperstown (H760868), 15 May 2002 (PHL). **DONEGAL: HA 38** - L. Anure, Loughanure, east shore (B818162), 7 September 2009, EPA (DAM). L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). Stream near Administration Centre, GNP, Glenveagh (C041227), 21 August 1985, LJH (Heneghan, 1986; Murray, 2005). L. Salt, Milford (C121256), 16 June 2009, EPA (DAM): **HA 40** - L. Fad, Rowantree Hill, Moville (C539397), 18 August 2011 (PHL). **FERMANAGH: HA 36** - L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Cutra, Gort (R485986), 24 May 2003, EPA (PHL): **HA 30** - L. Anillaun, Maam Cross (L980470), 5 September 2007, EPA (DAM): **HA 31** - L. Nahasleam, Maam Cross (L972440), 12 September 2006, EPA (DAM). L. Shindilla, Derreennacreeva, Maam Cross (L958460), 16 May 2006, EPA (DAM). **KERRY: HA 22** - Muckcross Lake, Killarney (V950853), 18 September 2008, EPA (DAM): **HA 23** - L. Gill, Castlegregory (Q603139), 28 August and 18 September 2008, EPA (DAM). **ROSCOMMON: HA 26** - L. Ree, Yew Point, Barley Harbour (N018485), 11 September 2007, EPA (DAM). **MAYO: HA 30** - L. Mask, Toormakeady (M113702), 22 September 2008, EPA (DAM): **HA 32** - L. Doo, Delphi, north east shore (L834689), 22 August 2002, DAM/WM (DAM); west shore (L833680), 25 August 2008, EPA (DAM): **HA 33** - L. Keel, Achill Island, north shore (F650058), 7 April 2008 and south east shore (F650051), 17 June 2008, EPA (DAM). Cross L., Drumreagh, Belmullet: west shore (F645293), 9 April 2008 and north east shore (F651299), 17 September 2008, EPA (DAM). L. Bunacurry, Achill Island (F695048), 29 September 2004, DAM/WM (DAM). **SLIGO: HA 35** - L. Easky, Ox Mountain (G446230), 18 June 2008, EPA (DAM). **WESTMEATH: HA 7** - L. Lene (N510685), 26 April 2006, EPA (DAM). **WICKLOW: HA 9** - Pollaphuca Reservoir, Ballymore Eustace (N995080), 30 April 2009, EPA (DAM).

Paracladopelma nigrifulum (Goetghebuer, 1942)

CLARE: HA 27 - L. Muckanagh, Tubber, Corrofin (R368926), 22 July 2009, EPA (DAM). **DONEGAL: HA 37** - L. Eske, Donegal (G973844), 17 April 2009, EPA (DAM): **HA 38** - L. Veagh, boat house near Castle, Glenveagh (C022211), 21 July 1985 (Heneghan, 1986) and 22

May 1986, LJH (Heneghan, 1986; Murray, 2005), 7 May and 9 September 2009, EPA (DAM). Duck Pond, Glenveagh (C023214), 22 May 1986, LJH (Murray, 2005). **GALWAY: HA 31** - L. Anaserd, Ballyconneely (L605443), 17 July 2007, EPA (DAM): **HA 32** - L. Kylemore, Letterfrack (L771582), 2 April 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June 2008, EPA (DAM). **LAOIS: HA 15** - R. Nore, Shanahoe Bridge (S407858), 27 August 1981 (Hayes, 1991). R. Nore, u/s Durrow (S416787), 27 August 1981 (Hayes, 1991). **LEITRIM: HA 26** - L. Allen, Mountallen, Drumshanbo (G950145), 28 April 2008, EPA (DAM). **MAYO: HA 32** - L. Doo, Delphi, west shore, (L835681), 9 May 2006, and 25 August 2008, EPA (DAM). **MONAGHAN: HA 36** - Kilroosky L., Clones (H494274), 28 June 2000 (Langton, 2002). **SLIGO: HA 34** - R. Moy, Metal Bridge, Tobercurry (G464138) and Annagh (G466123), 30 August 1982 (Hayes, 1991): **HA 35** - L. Gill, Sligo (G753335), 3 April 2008, EPA (DAM). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 13 August 1983, HD (DAM).

***Paralauterborniella nigrohalteralis* (Malloch, 1915)**

CAVAN: HA 36 - L. Macnean, lower, Blacklion (H106378), 7 June 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus (R557924), 11 August 2009, EPA (DAM). L. Derg, Mountshannon (R718861), 18 September 2009, EPA (DAM): **HA 27** - L. Cullaunyeeda, Kilkishen (R484746), 12 June 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 14 August 2008, EPA (DAM). Connolly's Stream, Macroom (W400750), 13 April 1966, NH (Murray, 1972). Iniscarra Reservoir, Coachford (W477717), 16 June, 31 July and 16 September 2008, EPA (DAM). **FERMANAGH: HA 36** - L. Macnean, upper, Belcoo (H042403) and L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). R. Bannagh, Drummoney Falls, Pettigo (H168676), 17 August 2011 (PHL). **KERRY: HA 23** - L. Cam, Castlegregory (Q597079), 18 September 2008, EPA (DAM). **LEITRIM: HA 26** - R. Rinn, Annaveagh (N102897), 12 May 1965, NH (Murray, 1972). L. Boderg, Derrycarne, north west shore (N013915), 14 May 2008, EPA (DAM); L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). L. Rinn, Mohill (N095943), 18 July and 10 September 2008, EPA (DAM): **HA 35** - L. Belhavel, Killarga, Dromahair (G878288), 10 June, 26 August and 8 September 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 10 September 2008, EPA (DAM). **MAYO: HA 34** - L. Lannagh, Castlebar, west shore (M109883), 21 August 2008, EPA (DAM). **ROSCOMMON: HA 26** - L. Meelagh, Keadew (G901117), 11 June and 12 July 2008, EPA (DAM). L. Key, Boyle (G838057), 6 August 2008, EPA (DAM); L. Key, Boyle, wharf in Forest Park (G848040), 11 June 2008 and pier, Hogs Island (G825054), 9 September 2008, EPA (DAM). **SLIGO: HA 26** - L. Gara, Cuppanagh, Cloonlough (G714013), 26 June 2008 and Monastredan (M708996), 5 September 2008, EPA

(DAM): **HA 35** - L. Arrow, Ballinafad (G789123), 11 June 2008, EPA (DAM). Templehouse L., Ballymote (G619182), 11 June 2008, EPA (DAM). L. Gill, Sligo (G782350), 20 August 2008, EPA (DAM).

***Paratendipes albimanus* (Meigen, 1818)**

ANTRIM: HA 4 - R. Bush, Stranocum (D009307), 2 July 2000 and Seneirl Bridge (C943362), 16 July 2000 (Langton, 2002). Pond, Benvarden Garden (C946334), 15 May 2005 (PHL). **CAVAN: HA 36** - R. Erne: Kilsarin (N362910), 27 May 1982; Drumbarry (N462951), 17 August 1982; Dingin's Bridge (N331948) and Carrigan (N391935), 27 August 1982, all Hayes (1991). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 24 May 2003 (PHL) and mid lake (R557924), 11 August 2009, EPA (DAM): **HA 27** - L. Bunny, Aughrim, south east shore (R377965), 2 May, 7 June and 4 July 2006 also 14 July and 14 September 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 3 May and 7 June 2006, EPA (LPR/PHL) and 22 July 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 2 August 2006, EPA (PHL). L. Atedaun, Corrofin (R297884), 21 April 2009, EPA (DAM). **CORK: HA 18** - R. Blackwater, Killavullen (W648998), 31 August 1981 and Roskeen Bridge, Banteer (W444988), 1 September 1981 (Hayes, 1991): **HA 19** - L. Allua, Ballingearry (W180652), 20 August 2008, EPA (DAM): **HA 20** - R. Ilen, Madore (W103419) and Hollybrook (W117363), 24 August 1983 (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 17 and 18 May 2002 (PHL). Pool near Reservoir, Creggan, Derry (C414171), 18 May 2001 and 17 May 2002 (PHL): **HA 2** - burn at Largantea picnic area, Formoyle, Coleraine (C738287), 9 June 2000 (Langton, 2002): **HA 3** - R. Aghadowey, Ballybritain Bridge (C859212), 26 May 2000 (Langton, 2002). R. Bann, Coleraine (C855304): 20 and 31 May, 10, 18 and 23 June, 3 July and 26 August 1999, 17, 25 and 31 May, 7, 13 and 24 June 2000, 16 and 30 June 2001, 2 May 2010, all PHL. Coleraine (C855308), 20 August 2002, 28 June 2003 and 31 May 2007 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). **DONEGAL: HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 7 July 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 9 September 2009, EPA (DAM). R. Glashagh, Drumbologe, Letterkenny (C096153), 18 July 2000 (Langton, 2002). R. Leannan, Drumaboden (C165218), 12 August 1982 (Hayes, 1991). **DUBLIN: HA 9** - Upper Reservoir, Bohernabreena (O095219), 11 May 1949, CFH (DAM). **FERMANAGH: HA 35** - L. Melvin, Garrison (G938518), 29 June 2000 (Langton, 2002): **HA 36** - L. Erne, Lower, Boa Island (H108626) and L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). R. Colebrook tributary (1), Drumcleave, Brookeborough (H367427), 15 September 1997 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 23 May 2003 (PHL). R. Woodford, Woodford (M732000), 24 May 2003 (PHL): **HA 26** - R. Shiven, d/s

Ballinaglass (M788494), 29 July 1981 (Hayes, 1991). R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991): **HA 29** - L. Caherglassaun, Gort (M412061), 12 April and 7 August 2007, EPA (DAM): **HA 30** - L. Corrib Upper, Oughterard, west shore (M138486), 14 August 2007, EPA (DAM); L. Corrib, no data (M150450), 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL). R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 (Hayes, 1991). R. Cregg, Addergsole Bridge (M324350), 16 August 1981 (Hayes, 1991). R. Grange, Grange Bridge (M428498), 16 August 1981 (Hayes, 1991): **HA 31** - R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981 (Hayes, 1991): **HA 32** - R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). **KERRY: HA 22** - Killarney (V9080), 1929, FWE (Edwards, 1929; Murray, 2005). L. Leane, Killarney, Muckross Boathouse (V965866), 29 August and 6 September 1987, NOM (Murray, 2005). R. Flesk, White Bridge (V987904), July 1973 (Douglas and Murray, 1980) and d/s Whitebridge (V987900), July 1978 (Ashe, 1982). **KILDARE: HA 9** - R. Liffey, Straffan Bridge (N924293), 15 July 1983 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436) and Brownsbarn Bridge (S618391), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930), Shanahoe Bridge (S407858), u/s Durrow (S416787), 27 August 1981 and Athanagh (S423763), 28 August 1981, all Hayes (1991). **LEITRIM: HA 35** - L. Glencar, Glencar (G757435), 10 June 2008, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 28 April 2008, EPA (DAM): **HA 34** - L. Conn, Brackwansha (G191098), 1 April 1966, AJOS (Murray, 1972). L. Washpool, Ballycarra (M219842), 19 June 2008, EPA (DAM): **HA 34** - R. Moy, Bellanacurra (G403047), 29 August 1982 (Hayes, 1991). **MEATH: HA 7** - R. Boyne: Newtown, Trim (N815571), 9 July 1981 (Hayes, 1991); Bellinter Bridge (N894626), 21 August 1988; Ardsallagh at St Bridget's Well (N897635), 7 July 1988; New Bridge, Navan (N873679), 18 August 1988; Stackallen Bridge (N917713), 19 July 1989, all Murray (1988). R. Blackwater: Bloomsbury Bridge, Oristown (N793741), Donaghpatrick (N819723) and Poolboy Bridge, Navan (N871681), 18 August 1988 (Murray, 1988): **HA 8** - Meadesbrook, Kilmoon (O038594), 10 August 1999 (DAM). R. Nanny, Duleek (O050683), 6 June 2006, DAM/WM (DAM). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). R. Little Brosna, Brosna Bridge (S077938), 2 September 1982 (Hayes, 1991); R. Little Brosna, Sharavogue (S056953), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627) and Ballyforan (M817464), 16 July 1981 (Hayes, 1991) also Newtown (M844346), 15 August 1981 (Hayes, 1991). L. Key, Boyle (G848040), 11 June 2008, EPA (DAM): **HA 30** - R. Dalgan, Clonfad (M518712), 20 August 1981 (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168) and Annagh (G466123), 30 August 1982 (Hayes, 1991): **HA 35** - L. Gill, Sligo (G782350), 11 June 2008, EPA (DAM). **TIPPERARY: HA 15** - R. Nore, Nore Bridge (S133816) and Quaker Bridge

(S211868), 27 August 1981 (Hayes, 1991). **TYRONE: HA 1** - L. a'Tirrive, Mulderg, Mountfield (H534778), 16 August 2011 (PHL). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), June 1973, NH (Hayes, 1980). L. Ennell, Tudenham (N415466), 23 June 1966 (Murray, 1972): **HA 36** - L. Bane, Collinstown (N550712), 26 June and 24 July 2006, PHL (EPA). **WEXFORD: HA 13** - Estuary, Fethard (S794047), 13 June 2012 (DAM).

***Paratendipes nudisquama* (Edwards, 1929)**

GALWAY: HA 30 - R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 (Hayes, 1991). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Athleague (M825758), 14 August 1981 (Hayes, 1991).

***Paratendipes plebeius* (Meigen, 1818)**

DONEGAL: HA 37 - Carn L., Blue Stack Mountains (G871886), 27 July 2005, JRB (DAM): **HA 38** - L. Nabuckan, Grogan More (B850184), 27 July 2005, JRB (DAM). **DUBLIN: HA 9** - R. Dodder, Landsdown Road Bridge (O180327), 29 June and 18 August 1966 (Murray, 1972). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 31 July 1966 (Murray, 2005). **WICKLOW: HA 10** - L. Ouler, Tonelagee (O091023), 8 August 2005, JRB (DAM).

***Phaenopsectra flavipes* (Meigen, 1818)**

ANTRIM: HA 3 - L. Neagh, Lennymore Bay (J115745), March 1969 (Marks and Henderson, 1970). **CLARE: HA 27** - Castle Lake, Kilmurry, Sixmilebridge, west shore (R484690), 17 July 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 22 July 2009, EPA (DAM). L. Dromore, Ruan, Corrofin, west basin (R345858), 4 May 2006, EPA (DAM). L. Inchicronan, Crusheen, east basin (R398866), 15 June 2009, EPA (DAM). L. Cullaunheeda, Kilkishen (R484746), 16 April 2009, EPA (DAM). L. Atedaun, Corrofin, east shore (R300886), 22 September 2009, EPA (DAM): **HA 28** - L. Naminna, Boolteagh, west shore (R179708), 11 June 2009 and north west shore (R178710), 7 July 2009, EPA (DAM). **CORK: HA 18** - R. Blackwater, Killavullen (W648998), 31 August 1981 (Hayes, 1991): **HA 20** - L. Tooreen, Crookhaven (V790259), 17 September 2008, EPA (DAM). R. Ovane, Pierson's Bridge (W023454), 24 August 1983 (Hayes, 1991): **HA 21** - L. Glenbeg, Ardgroom (V706530), 3 September 2008, EPA (DAM). **DONEGAL: HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 7 September 2009, EPA (DAM): **HA 37** - R. Stragar, Killybegs (G730787), 23 August 1984 (DAM): **HA 38** - L. Anure, Loughanure, east shore (B818162), 12 August and 7

September 2009, EPA (DAM). Inflow stream to north east of L. Veagh, Glenveagh (C033222), 19 August 1985 (Heneghan, 1986). L. Greenan, Loughsalt, Kilmacrennan (C117262), 16 June 2009, EPA (DAM). L. Salt, Milford (C121256), 16 June 2009, EPA (DAM). L. Keel, Kilmacrennan (C158243), 16 June and 16 July 2009, EPA (DAM). L. Fallaneas, Kindrum (C173424), 9 September 2009, EPA (DAM). L. Kiltoris, Dawros, Ardara (G675976), 17 June 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 11 June 2009, EPA (DAM). **DUBLIN: HA 9** - Woodview Pond, University College Dublin (O186203), 24 June 1966 (Murray, 1972). R. Dodder, Fort Bridge, Bohernabreena (O009242), 28 March 1949, CFH/SR (Reilly, 1950). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 19 April, 1 August and 5 September 2007, EPA (DAM). L. Ballyquirke, Moycullen (M232317), 13 April, 14 June and 8 August 2007, EPA (DAM). R. Cregg, Addergole Bridge (M324350), 16 August 1981 (Hayes, 1991): **HA 31** - L. Anaserd, Ballyconneely (L605443), 6 June and 17 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June, 23 July and 13 September 2007, EPA (DAM). L. Derryclare, Recess (L825485), 13 September 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 12 September 2006, 19 April, 1 August and 13 September 2007, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 5 June 2007, EPA (DAM). L. Enask, Beaghcauneen (L662468), 17 September 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 6 June and 11 September 2007, EPA (DAM). Stream near Administration Centre, CNP, Letterfrack (L716574), 16 September 1986 (Heneghan, 1987). **KERRY: HA 21** - L. Inchiquin, Kenmare (V837629), 1 and 17 September 2008, EPA (DAM): **HA 22** - L. Guitane, Crohane, Killarney (W025846), 8 July and 9 September 2008, EPA (DAM). L. Leane, Killarney, Juniper Bay (V949863), 11 June 1973 (Douglas and Murray, 1980). Muckross Lake, Muckross, Killarney (V950853), 16 July 2008, EPA (DAM). R. Flesk: d/s R. Clydagh - R. Loo confluence (W084814), July to October 1978 (Ashe, 1982); Garries Bridge (W082835), September 1976, PJA (Murray, 2005); d/s New Bridge (V963885) and u/s L. Leane (V964894), July to October 1978 (Ashe, 1982). Upper Lake, Killarney (V909821), 9 September 2008, EPA (DAM): **HA 23** - L. Cam, Castlegregory (Q597079), 29 August and 18 September 2008, EPA (DAM). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 24 July and 9 September 2008, EPA (DAM). L. Boderg, Derrycarne, north west shore (N013915), 29 July and 10 September 2008, EPA (DAM). L. Bofin, Dromod (N049894), 10 September 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 10 September 2008, EPA (DAM). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 8 August 2008, EPA (DAM). L. Mask, Toormakeady (M113702), 22 September 2008, EPA (DAM): **HA 32** - L. Doo, Delphi, north east shore (L834689), 22 August 2002, DAM/WM (Murray, 2005); south east shore (L844677), 25 June 2008, EPA (DAM); west shore (L833680), 25 August 2008, EPA (DAM). L. Glencullin, south west shore, Delphi (L819696), 25 August

2008, EPA (DAM). L. Feeagh, Newport (L975983), 24 July 2008, EPA (DAM). Westport L., Westport Woods Hotel, Westport (L985843), 7 May 2004, DAM/WM (DAM). Demesne garden, Westport (L990845), July 1911, PHG (Grimshaw, 1912). L. Knappabeg, Westport (M010803), 24 June 2008, EPA (DAM): **HA 32** - L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 33** - L. Carrowmore, Bangor Erris, Knocknascollop (F830282), 17 September 2008, EPA (DAM). Bog pools, Glenamoy (F896345), 1973, CD (Dowling and Murray, 1981): **HA 34** - L. More, Ballynagoraher (G115044), 29 June 2006, EPA (DAM). L. Washpool, Ballycarra (M219842), 19 June 2008, EPA (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), 21 August 2002 (Murray and Murray, 2003). **MEATH: HA 7** - R. Boyne: Bellinter Bridge (N894625), 18 August 1968 (Murray, 1972); d/s Bellinter Bridge (N895628), 3 May 1982 (DAM); Ardsallagh, eel weir (N897630), 11 May 1982 (DAM); Stackallen Bridge (N917713), 17 August 1988, DAM (Murray, 1988). **MONAGHAN: HA 36** - L. Summerhill, Clones (H490279), 26 April 2007, EPA (DAM). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). Grange L., Greywood, Strokestown (M938857), 28 July 2008, EPA (DAM). **WICKLOW: HA 10** - L. Tay, Luggala (O163008), 28 July 2009, EPA (DAM).

***Phaenopsectra punctipes* (Wiedemann, 1817)**

CAVAN: HA 7 - L. Ramor, Virginia (N603871), May 1971 (Douglas, 1971). **KERRY: HA 22** - Muckcross Lake, Dundag Bay (V964858), August 1973 (Douglas and Murray, 1980). **LEITRIM: HA 35** - L. Nabrack, Crocknagapple (G860477), 4 August 2005, JRB/MC (Murray, 2005). **MAYO: HA 32** - “Lough near Westport” (Ballin Lough?), Westport (L990840), July 1911, PHG (Grimshaw, 1912): **Clare Island** - Creggan L., Lecarrow (L689857), June to November 1998 and June to November 1999 (Fahy, 2002). L. Poirtin Fuinch (L706857), July and August 1999 (Fahy, 2002).

***Phaenopsectra* sp. Pe “Bala” sensu Langton and Visser, 2003 (? *punctipes*)**

CLARE: HA 25 - L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM). **CORK: HA 20** - R. Ilen, Hollybrook (W117363), 24 August 1983, BPH (Murray, 1996). R. Ovane, Pierson’s Bridge (W023454), 24 August 1983, BPH (Murray, 1996). **DONEGAL: HA 38** - L. Veagh, Boathouse near Castle, Glenveagh (C022211), 21 July 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 9 September 2009, EPA (DAM). R. Leannan, Drumaboden (C165218), 12 August 1982 and Claragh (C197210), 13 August 1982, BPH (Murray, 1996). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 5 September 2007, EPA (DAM): **HA 32** - L. Pollacappul, Kylemore (L754582), 9 July 2007, EPA (DAM).

KERRY: HA 21 - L. Brin, Derreeny (V780775), 13 July and 10 September 2008, EPA (DAM): **HA 22** - Muckcross Lake, Muckcross, Killarney (V950853), 24 April 2008, EPA (DAM): **HA 23** - L. Cam, Castlegregory (Q597079), 25 June 2008, EPA (DAM). **MAYO: HA 34** - L. Washpool, Ballycarra (M219842), 25 September 2008, EPA (DAM).

Polypedilum (Pentapedilum) sordens (van der Wulp, 1875)

ANTRIM: HA 3 - L. Neagh, Churchtown Point (J056852), 22 May 2011, PHL (PHL) **ANTRIM: HA 4** - fire dam, Black Hill (D121297), 2 July 2000 (Langton, 2002): **Rathlin Island** - L. Nachiule (D160521), 24 July 2000 (Langton, 2002). **ARMAGH: HA 6** - L. Camlough, Camlough, Newry (J024258), 16 August 2011 (PHL). **CAVAN: HA 7** - L. Drumkeery, Baileborough (H663002), 16 July 2007, EPA (DAM): **HA 36** - Glasshouse L., Killashandra (H270060), 18 July 2007, EPA (DAM). L. Garty, Arvagh (N278978), 18 July 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 8 June 2006, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM): **HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 7 June 2006, EPA (PHL). L. Dromore, Ruan, Corrofin, mid basin (R352864), 16 June 2009 and west basin (R345858), 21 July 2009, EPA (DAM). L. Gortglass, Killadysert, south shore (R223596), 7 July 2009, EPA (DAM). L. Inchicronan, West Basin, Crusheen (R391860), 9 July 2009, EPA (DAM). L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August and 16 September 2009, EPA (DAM): **HA 28** - L. Acrow, Lisscasey (R193687), 8 June and 7 July 2006, EPA (DAM). L. Doo, Milltown Malbay, north west shore (R113722), 11 June and 15 September 2009, EPA (DAM). L. Keagh, Milltown Malbay, north shore (R100813), 11 June and 15 September 2009 also south west shore (R100811), 8 July 2009, EPA (DAM). L. Lickeen, west shore, Kilfenora (R164908), 15 September 2009, EPA (DAM). L. Naminna, Boolteagh (R179708), 11 June and 15 September 2009, EPA (DAM): **HA 29** - L. Skeardeen, Kilcorkan (R388991), 17 June 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 16 September 2008, EPA (DAM). Iniscarra Reservoir, Coachford (W477717), 28 and 31 July and 16 September 2008, EPA (DAM). L. Aderry, Castlemartyr (W935730), 3 September 1969, NH (Bracken and Murray, 1973): **HA 20** - L. Abisdealy, Skibbereen (W136314), 30 July and 17 September 2008, EPA (DAM). L. Ballin, Leap (W199389), 21 August and 17 September 2008, EPA (DAM). L. Coolkllure, Dunmanway (W177539), 11 August and 16 September 2008, EPA (DAM). L. Skeagh (Schull Reservoir), Schull (V937338), 27 August and 17 September 2008, EPA (DAM). L. Tooreen, Crookhaven (V790259), 17 September 2008, EPA (DAM): **HA 21** - L. Avaul, Glengarrif (V910553), 16 September 1969 and L. Reenydonegan, Bantry (W000515), 17 July 1969, NH (Bracken and Murray, 1973). **DERRY: HA 1** - inflow to Upper Reservoir, Creggan, Derry (C413171), 10 May 2001 (PHL): **HA 2** - Binevenagh pond, Coleraine

(C691305), 18 May 2000 (Langton, 2002): **HA 3** - R. Bann, Coleraine (C855304), 25 May 2000 (PHL). Coleraine (C855308), 4 May 2008 (PHL). Pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). **DONEGAL: HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 7 September 2009, EPA (DAM): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Nasnahida, Doocharry, Dunglow (B852076), 6 August 2009, EPA (DAM). L. Veagh, north east shore, Glenveagh (C039231), 24 July 1985 (Heneghan, 1986). L. Glen, Glen (C105292), 16 June 2009, EPA (DAM). L. Greenan, Loughsalt, Kilmacrennan (C117262), 8 September 2009, EPA (DAM). L. Keel, Kilmacrennan (C158243), 16 July 2009, EPA (DAM). L. Kinny, Fanad (C204442), 9 September 2009, EPA (DAM). L. Voriskey, The Rosses (B762176), 19 July 2000 (Langton, 2002): **HA 39** - R. Leannan, Drumaboden (C165218), 12 August 1982 (Hayes, 1991). L. Fern, Milford (C182247), 18 August 2011 (PHL). Inch Island impoundment, Inch (C346240), 18 August 2011 (PHL). **DUBLIN: HA 9** - lake in Zoological Gardens, Dublin (O130350), 17 July 1987, DAM/RH (Murray *et al.*, 1987). **FERMANAGH: HA 36** - L. Erne Upper, Crom Castle, Newtownbutler (H357244) and slipway (H362242), 27 June 2000; L. Inver, Rosslea (H518314), 28 June 2000; L. Macnean, upper, Belcoo (H042403), 29 June 2000; L. Nolughage, Crom Castle, Newtownbutler (H364243), 27 June 2000, all PHL (Langton, 2002). Toppedmountain L., Tempo, Enniskillen (H310453), 16 August 2011 (PHL). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 8 June and 1 August 2007, EPA (DAM). L. Ballyquirke, Moycullen (M232317), 8 August 2007, EPA (DAM). L. Bofin, Maam Cross (M034441), 7 June and 31 July 2007, EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Anaserd, Ballyconneely (L605443), 20 June and 10 July 2006, EPA (DAM). L. Ballynakill, Gorumna (L867236), 8 August 2006, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 6 June, 25 July and 12 September 2007, EPA (DAM). L. Nahasleam, Maam Cross South (L972440), 12 September 2006, EPA (DAM). **KERRY: HA 21** - L. Cloonaghlin, Waterville (V611708), 24 July 2008, EPA (DAM). L. Inchiquin, Kenmare (V837629), 18 June and 1 September 2008, EPA (DAM): **HA 22** - L. Acoose, Slievanore, Killorglan (V755854), 9 September 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 14 October 1973, (Douglas and Murray, 1980). L. Kilbrean, Killarney (W005935), 16 September 1969, NH (Bracken and Murray, 1973). L. Leane, Killarney: Juniper Bay (V949863), 11 June 1973; Brickeen (V937850), 3 July 1973, Castlough Bay, north shore (V966866), 27 June and 30 July 1973, all Douglas and Murray (1980); Muckcross Boathouse (V965866), 29 September 1987, NOM (Murray, 2005). Muckcross Lake, Coleen Bawn (V950857) and Dundag Bay (V964858), May to July 1973 (Douglas and Murray, 1980). Upper Lake, Killarney (V909821), 17 July 2008, EPA (DAM). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707), 28 August 1981 (Hayes, 1991). **LONGFORD: HA 26** - L. Ree, Bleanavoher (N069445), 25 April and 13 June

2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Ree, Yew Point, Barley Harbour (N018485), 13 June and 10 September 2007, EPA (DAM). **LOUTH: HA 6** - L. Mentrim, Ardee (N913879), 27 June 2005, DAM/WM (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June 2008, EPA (DAM): **HA 30** - L. Aille, Aille, Westport (M071807), 24 June and 8 August 2008, EPA (DAM). L. Mask, Toormakeady (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Doo, Delphi, west shore (L833680), 25 August 2008, EPA (DAM). L. Glencullin, Delphi, north west shore (L815699), 26 June 2008 and south west shore (L819696), 25 August 2008, EPA (DAM). R. Owenwee, Belclare, Westport (L960820), July 1911, PHG (Grimshaw, 1912). “Lough near Westport” (Ballin L.?), Westport (L990840), July 1911, PHG (Grimshaw, 1912). L. Ballin, Westport, north shore (L996882), 25 June and 18 September 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 34** - L. Lannagh, Castlebar (M105880), 30 June 2008, EPA (DAM). L. Levally, Massbrook (G146043), 23 July 2008, EPA (DAM). L. Washpool, Ballycarra (M219842), 15 August 2008, EPA (DAM): **Clare Island** - L. Leinapollbauty, Lecarrow (L691856), 5 June 2002 and Creggan L., Lecarrow (L689857), 21 August 2002 (Murray and Murray, 2003). **MONAGHAN: HA 36** - L. Inner, Dartery, Drum (H625173), 6 June 2007, EPA (DAM). Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Ballyforan (M817464), 16 July 1981 (Hayes, 1991). L. Cavetown, Boyle (M832974), 11 June 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June and 9 September 2008, EPA (DAM). L. O’Flynn, Ballinlough (M585786), 12 June 2008, EPA (DAM). **TIPPERARY: HA 18** - Black L., Arra Mountains (R738771), 10 August 2005, JRB (DAM). **TYRONE: HA 1** - L. Moor, Altishane, Strabane (H446984) and R. Glenelly, Crannagh Bridge, Crannagh (H594926), 17 August 2011 (PHL): **HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002). **WATERFORD: HA 16** - L. Ballyscanlan (Reservoir), Tramore (S540030), 1 September 2009, EPA (DAM). L. Ballyshunock (Reservoir), Portlaw (S455095), 2 September 2009, EPA (DAM): **HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 14 August 1973, NH (DAM). L. Ennell, Tudenham (N415466), 1981 (Forde, 1985). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 29 July 1981 (Hayes, 1991). **WICKLOW: HA 10** - R. Glencullen, Glencullen Bridge (O195193), Clabby and Bracken (1976) - as *Pentapedilum* sp. (DAM).

Polypedilum (Pentapedilum) sp. tritum/uncinatum (Pe)

ANTRIM: Rathlin Island - pool 1 (D163521) and pool 2 (D164520), east of lighthouse; L. Craigmacagan (D154498); long pool (D148521) and Nature Reserve lough (D095505), 24 July 2000, Langton (2002). **MAYO: Clare Island** - first order stream, west of Maum road,

(L711861), 5 June 2002 (Murray and Murray, 2003).

***Polypedilum (Pentapedilum) tritum* (Walker, 1856)**

CLARE: HA 25 - L. Graney, Doorus (R557924), 11 August 2009, EPA (DAM). **CORK: HA 19** - L. Gouganebarra, Inchegeelagh (W009060), 18 August 1966 and 27 July 1968 (Murray, 1972): **HA 21** - L. Avaul, Glengarriff (V910553), 27 July 1968 (Murray, 1972). **DUBLIN: HA 9** - lake 1 (O129353), 15 May 1987 and lake 2 (O130350), 17 July 1983 in Zoological Gardens, Dublin (Murray *et al.*, 1987; Murray, 2005). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 8 June 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August 1987, NOM (DAM). Muckcross Lake, Killarney, Coleen Bawn (V950857), July 1973 (Douglas and Murray, 1980). **LEITRIM: HA 26** - L. Natire, north of L. Allen (G966340), 14 April 2005, JRB (DAM). **MAYO: HA 32** - R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972): **HA 33** - bog pool, Achill Island (F712008), 5 August 2004, DAM/WM (DAM): **Clare Island** - wetland, Ballytouhy (L696882) and pond east of Maum road (L710863), 20 August 2002 also Creggan L., Lecarrow (L689857), pond east of Signal Tower (L658859) and humic pond, Bunnamohaun (L659846), 21 August 2002, all Murray and Murray (2003). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), July 1973, NH (Hayes, 1980). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 13 August 1983, HD (DAM).

***Polypedilum (Pentapedilum) uncinatum* (Goetghebuer, 1921)**

DONEGAL: HA 1 - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM). **GALWAY: HA 32** - L. Fadda, Beaghcauneen (L668455), 17 July 2007, EPA (DAM). **KERRY: HA 21** - L. Namona, Waterville (V596711), 19 June 2008, EPA (DAM).

***Polypedilum (Polypedilum) acutum* Kieffer, 1915**

DUBLIN: HA 9 - R. Dodder, Fort Bridge, Bohernabreena (O009242), 1 May 1967 (Murray, 1972). **KERRY: HA 22** - Doo L., Muckross Peninsula (V949860), 3 July 1973 (Douglas and Murray, 1980). L. Leane, Killarney, Castlelough Bay, north shore (V966866), 14 July 1973 (Douglas and Murray, 1980). Muckcross Lake, Killarney, Dundag Bay (V964858), July and August 1973 (Douglas and Murray, 1980). **MAYO: HA 32** - R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972): **Clare Island** - Creggan L., Lecarrow (L689857), June to September 1998 and June to September 1999 (Fahy, 2002). L. Poirtin Fuinch (L706857), 6 July 1998, SF (Fahy, 2002). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), June 1973, NH (Hayes, 1980).

***Polypedilum (Polypedilum) albicorne* (Meigen, 1838)**

ANTRIM: HA 3 - R. Sixmilewater, Templepatrick (J227867), 4 May 1999 (PHL): **HA 4** - R. Bush, Conogher Bridge (C963305), 10 September 2000 (Langton, 2002). R. Glendun, Drumfresky, Cushendun (D193308), 2 July 2000 and R. Glenariff (Inver/Glenariff), Cushendall (D215205), 2 July 2000 (Langton, 2002). R. Glanaan, Cushendall (D218288), 17 September 2011 (PHL): **HA 5** - Raloo Water, Glenoe, Larne (J394967), 8 May 1999 (PHL). **CAVAN: HA 36** - R. Erne, Dingin's Bridge (N331948), 27 August 1982 (Hayes, 1991); R. Erne, Kilsarin (N362910) and Carrigan (N391935), 27 August 1982 (Hayes, 1991). **CORK: HA 18** - R. Blackwater: Ballymacquirk Bridge, Banteer (W382989) and Roskeen Bridge, Banteer (W444988), 1 September 1981; Knocknagree (W159975), Duncannon (W180931), Charles Bridge, Millstreet (W248943) and Keale Bridge, Millstreet (W294936), 2 September 1981 all BPH (Hayes, 1991): **HA 20** - R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363), 24 August 1983, all BPH (Hayes, 1991). R. Ovane, Pierson's Bridge (W023454), 24 August 1983 (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 10 May 2001 (PHL). Pool near Reservoir, Creggan, Derry (C414171), 18 May 2001 and 17 May 2002 (PHL). Inflow to Upper Reservoir, Creggan, Derry (C413171), 10 and 18 May 2001 (PHL): **HA 2** - R. Ballykelly, Clagan (C628209) and Ballykelly (C623211), 9 June 2000; R. Owenbeg, Feeny picnic area, Feeny (C645058), 26 June 2000 and R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000, all PHL (Langton, 2002): **HA 3** - R. Agivey, Garvagh (C838154), 30 May 2002 (PHL). Garvagh House Wood, Garvagh (C837154), 21 July 2002 (PHL). R. Bann, Coleraine (C855304): 20 May, 18 and 23 June, 3 July 1999 also 3 July 2000, all PHL. R. Agivey, Glascort Bridge (C907226), 16 July 2000 (Langton, 2002). R. Moyola, New Bridge, Magherafelt (H955905), 7 May 2001 (PHL). **DONEGAL: HA 1** - R. Deele, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002): **HA 37** - R. Eanymore, Letterbara Bridge (G883825) and Drumagraa Bridge (G863822), 10 August 1982 (Hayes, 1991). R. Oily, Claggen (G751803), 8 August 1982 (Hayes, 1991). R. Stragar, Duninkeely (G727792), 10 August 1982 (Hayes, 1991): **HA 38** - R. Devlin, Dunlewy (B927190), 19 July 2000 (Langton, 2002). Owennacally stream, Glenveagh (C043226), 19 July 2000 (Langton, 2002): **HA 39** - R. Swilly, Newmills, Letterkenny (C125092), 18 July 2000 (Langton, 2002). R. Leannan, Claragh (C197210), 13 August 1982 (Hayes, 1991): **HA 40** - R. Keenagh: Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991); Keenagh Bridge, Malin Head (C435555), 18 August 2011 (PHL). **DUBLIN: HA 9** - R. Dodder, Bohernabreena aqueduct 1 (O101208), 3 July 1968 (Murray, 1972). **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36** - R. Colebrook, Mullaghfad (H510408), 4 June 1997 (PHL). **GALWAY: HA 30** - L. Ross, Moycullen (M200363), 25 May 2003 (PHL). Stream at lay-by picnic site on road N59, Moycullen (M204326), 25 May 2003 (PHL). R.

Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 (Hayes, 1991). R. Owenriff, Oughterard (M112426), 25 May 2003 (PHL). **KERRY: HA 21** - R. Inny, u/s Waterville (V525704), 24 August 1983 (Hayes, 1991): **HA 22** - L. Leane, Killarney, Brickeen (V937850), 3 July 1973 (Douglas and Murray, 1980) and Muckcross Boathouse (V965866), 6 September 1987, NOM (Murray, 2005). R. Annascaul, Annascaul (Q593017), 2 July 1981, BPH (Hayes, 1991; Murray, 2005). R. Flesk, d/s Whitebridge (V987900), July 1978 (Ashe, 1982). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore: Castletown Bridge (S326930), Kilbricken (S362898) and Shanahoe Bridge (S407858), 27 August 1981, BPH (all Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, Cappamore (R775514) and d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 30** - L. Mask, Toormakeady, west shore (M097647), 14 April 2008, EPA (DAM): **HA 33** - R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - R. Moy, Bellanacurra (G403047), 29 August 1982 (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Carrowheden (G530205), Cloonacool (G493168), Metal Bridge, Tobercurry (G464138) and Annagh (G466123), 30 August 1982, all BPH (Hayes, 1991). **TYRONE: HA 1** - Denet Stream, Essbeg Bridge, Lisnaskee (H384306), 27 June 2000 (Langton, 2002): **HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002). **WICKLOW: HA 10** - R. Glencullen, Knocksink (O218180), 18 May 1987, DEM/DAM (Morgan, 1989). R. Avonmore, Castlehoward (T190833) and R. Avoca, Whitebridge, Tigroney (T198821), 4 August 1983 (Hayes, 1991): **HA 12** - R. Slaney, Knockgarrigan, Glen of Imaal (S936937), 28 July 1981 (Hayes, 1991).

***Polypedilum (Polypedilum) arundineti* (Goetghebuer, 1921)**

ANTRIM: Rathlin Island - pool 2, east of lighthouse (D164520), 24 July 2000 (Langton, 2002). Outflow stream from L. Craigmacagan (D153496), 5 July 2004 (PHL). **CORK: HA 20** - L. Ballin, Leap (W199389), 21 August 2008, EPA (DAM). **DERRY: HA 3** - bog pool, Glenuillin, Garvagh (C795132), 29 June 2008 (PHL). **KERRY: HA 22** - L. Leane, Killarney, Juniper Bay (V949863), 27 July 1973 (Douglas and Murray, 1980). **MAYO: HA 33** - bog pool, Achill Island (F712008), 5 August 2004, DAM/WM (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), June to September 1998 and June to September 1999 (Fahy, 2002).

***Polypedilum (Polypedilum) laetum* (Meigen, 1818)**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 August 2001 (PHL). Pond, Templepatrick (J232856), 26 August 2008 (PHL). Reservoir, Killylane, Magherabane, Larne (J292985), 8 May 1999 (PHL). **CARLOW: HA 12** - R. Slaney, Motabower Bridge (S832778), 28 July 1981 (Hayes, 1991). **CORK: HA 20** - R. Ilen, Drimoleague (W098454), 24 August

1983 (Hayes, 1991). **DERRY: HA 1** - pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL): **HA 3** - Downhill Lake, Bishops Gate, Coleraine (C762361), 21 August 2001 (PHL). R. Macosquin, Black Bridge, Ballylintagh (C854256), 26 May 2000 (Langton, 2002). R. Bann, Coleraine (C855304): 5 May and 7 September 1999 also 31 May 2000 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). **DONEGAL: HA 37** - R. Eany, d/s Eanybeg confluence (G842815), 10 August 1982 (Hayes, 1991): **HA 38** - L. Nacung Upper, Dunlewy (B904191), 19 July 2000 (Langton, 2002). L. An tSeisigh, Portnablagh, Sheephaven (C043361), 16 June 2009, EPA (DAM). **DOWN: HA 3** - R. Leitrim, Leitrim Bridge, Hilltown (J217285), 13 August 1998, LMcl (PHL). Upper R. Bann, Katesbridge (J210407), 27 August 1998, LMcl (PHL). **DUBLIN: HA 9** - R. Dodder, Clonskeagh Bridge (O174306), 8 March 1967 (Murray, 1972). **GALWAY: HA 25** - R. Woodford, Woodford (M732000), 24 May 2003 (PHL). **TYRONE: HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002). **WEXFORD: HA 12** - R. Boro, Dunamore Bridge, Enniscorthy (S963366), 29 July 1981, BPH (Hayes, 1991; Murray, 2005). **WICKLOW: HA 10** - R. Glencullen, Knocksink (O218180), 18 May 1987, DEM/DAM (Morgan, 1989).

***Polypedilum (Polypedilum) nubeculosum* (Meigen, 1804)**

ANTRIM: HA 3 - L. Neagh, Churchtown Point (J056852), 22 May 2011 (PHL). Reservoir, Killylane, Magherabane, Larne (J292985), 8 May 1999 (PHL): **HA 4** - pond, Benvarden Garden (C946334), 15 May 2005 (PHL): **HA 5** - L. Mourne, Copeland water, Carrickfergus (J415924), 8 May 1999 (PHL). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 3 April and 14 August 2008, EPA (DAM). Iniscarra Reservoir, Coachford (W477717), 16 September 2008, EPA (DAM). L. Aderry, Castlemartyr (W935730), 21 May 1969, NH (Bracken and Murray, 1973): **HA 20** - L. Abisdealy, Skibbereen (W136314), 9 April 2008, EPA (DAM). L. Curragalicky, Drinagh, Dunmanway (W234046), 9 April, 17 June and 12 August 2008, EPA (DAM). L. Skeagh (Schull Reservoir), Schull (V937338), 27 August 2008, EPA (DAM). R. Ovane, Pierson's Bridge (W023454), 24 August 1983 (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 10 June 2000 and 17 May 2002 (PHL). Pool near Reservoir, Creggan, Derry (C414171), 18 May 2001 (PHL): **HA 2** - pool at Roe Valley Park, Limavady (C679201), 14 July 2000 (Langton, 2002): **HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 7 and 21 April 2002 (PHL). Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May 2000 (PHL). R. Bann, Coleraine (C855304): 5 and 31 May, 23 June, 3 July 1999; 3 and 25 May, 24 June and 3 July 2000 also 25 April 2010, all PHL. L. Neagh (H9080): no date (McLarnon and Carter, 2000); Ballyronan (H948862), 17 May 2001 and 22 May 2011 (PHL). **DONEGAL: HA 38** - L. Fallaneas, Kindrum (C173424), 16 June 2009, EPA (DAM). L. Voriskey, The Rosses (B762176), 19 July 2000 (Langton, 2002): **HA 39** - L. Akibbon,

Church Hill (C068184), 11 June 2009, EPA (DAM). L. Swilly, Newtown Cunningham, stagnant drain (C311197), 21 June 2000 (Langton, 2002). Inch Island impoundment, Inch (C346240), 18 August 2011 (PHL): **HA 40** - bog pool, Rowantree Hill, Moville (C551401), 18 August 2011 (PHL). **DUBLIN: HA 9** - Royal Canal, Ashtown (O108378), 15 July 1968 (Murray, 1972). Bog pool, Featherbed (O120190), 1974, CD (Dowling and Murray, 1981). **FERMANAGH: HA 36** - Dummys L., Magheraveely (H488276), 28 June 2000; L. Erne Upper, Crom Castle, Newtownbutler (H357244), 27 June 2000; L. Macnean, lower, Belcoo (H085384), 29 June 2000, all PHL (Langton, 2002). Toppedmountain L., Tempo, Enniskillen (H310453), 16 August 2011 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 23 May 2003 (PHL): **HA 26** - R. Shiven, d/s Ballinaglass (M788494), 29 July 1981 (Hayes, 1991). R. Tirur, Newbridge (M492699), 16 August 1981, BPH (Hayes, 1991; Murray, 2005): **HA 29** - L. Caherglassaun, Gort (M412061), 12 April 2007, EPA (DAM). L. Coole, Gort (M425037), 27 July 2009, EPA (DAM): **HA 30** - L. Corrib (M1545), 1980, BC (DAM): **HA 31** - L. Ahalia, Maam Cross, north east shore (L971402), 22 April and 23 September 2009, EPA (DAM). L. Ballynakill, Gorumna (L867236), 15 May 2006, EPA (DAM): **HA 32** - R. Owenglin, Clifden (L677506), 18 August 1981 (Hayes, 1991). **KERRY: HA 22** - L. Leane, Killarney, Juniper Bay (V949863), 27 July 1973 (Douglas and Murray, 1980). R. Flesk: Garries Bridge (W082835), July to October 1978; u/s L. Leane (V964894), July to October 1978; R. Flesk, d/s New Bridge (V963885), July to October 1978 all PJA (Ashe, 1982). R. Loo, Aughnanus Bridge, Crohane (W045790), July to October 1978 (Ashe, 1982). Upper Lake, Killarney, Gortroe (V918818), 31 July 1973 (Murray, 2005). **KILDARE: HA 9** - R. Liffey, Sallins (N881245), 17 July 1983 and Straffan Bridge (N924293), 15 July 1983 (Hayes, 1991). **LEITRIM: HA 26** - L. Rinn, Mohill (N095943), 10 September 2008, EPA (DAM). **MAYO: HA 32** - L. Glencullin, Delphi, south west shore (L819696), 25 August 2008, EPA (DAM). R. Carrobeg, Westport Demesne riverside (L990845), July 1911, PHG (Grimshaw, 1912). L. Knappabeg, Westport (M010803), 21 April, 23 July and 18 September 2008, EPA (DAM): **HA 33** - bog pools, Glenamoy (F896345), 1973, CD (Dowling and Murray, 1981): **HA 34** - R. Moy, Bellanacurra (G403047), 29 August 1982 (Hayes, 1991). **MEATH: HA 7** - R. Boyne: Scarrif Bridge (N733527) and Newtown, Trim (N815571), 9 July 1981 (Hayes, 1991); Ardsallagh, at St Bridget's Well (N897635), 7 July 1988 (Murray, 1988); Stackallen Bridge (N917713); Slane Bridge (N965737); Knowth Weir (N995720) and d/s Oldbridge (O062753), all 19 July 1989, all DAM. **MONAGHAN: HA 36** - Kilroosky L., Clones (H494274) and Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **OFFALY: HA 25** - R. Little Brosna, Sharavogue (S056953), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Newtown (M844346), 15 August 1981 (Hayes, 1991). L. Cavetown, Boyle (M832974), 11 June 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June 2008, EPA (DAM). **TIPPERARY: HA 16** -

Brownstown R., Kilclonagh (S167655); R. Drish, Castletown (S207634) and R. Suir, Cabragh (S124562), all 6 July 1992, all Murray and Lynch (1992): **HA 25** - L. Derg, Dromineer (M809858), 17 June 2009, EPA (DAM). **WATERFORD: HA 16** - Ballyscanlan Reservoir, Tramore (S540030), 22 April 2009, EPA (DAM): **HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM). L. Carrigavantry, Tramore (S548022), 21 April 2009, EPA (DAM). **WICKLOW: HA 12** - R. Derry, Balisland (S978645) and R. Slaney, Kilmurray (S889856), 28 July 1981 (Hayes, 1991).

***Polypedilum (Polypedilum) pedestre* (Meigen, 1830)**

ANTRIM: HA 4 - R. Bush, Ballyhoe Bridge (D077294) and R. Glenariff (Inver/Glenariff), Cushendall (D215205), 2 July 2000 (Langton, 2002). **CORK: HA 19** - L. Gouganebarra, Inchegeela (W009060), 6 June 1966 (Murray, 1972 as *Microtendipes fuscipennis* Meigen): **HA 20** - R. Ilen, Drimoleague (W098454), 28 April 1983, BPH (Hayes, 1991; Murray, 2005). **DERRY: HA 3** - Downhill beach stream, Coleraine (C754326), 9 June 2000 (Langton, 2002). Downhill Forest lake, Coleraine (C757353), 24 March 2002 (PHL). R. Macosquin, Black Bridge, Ballylintagh (C854256), 26 May 2000 (Langton, 2002). R. Bann, Coleraine (C855304), 7, 16 and 24 June 2000 (PHL). L. Neagh (H9080), no date (McLarnon and Carter, 2000). R. Moyola, New Bridge, Magherafelt (H955905), 7 May 2001 (PHL). **DONEGAL: HA 37** - R. Eany, d/s Eanybeg confluence (G842815), 10 August 1982 (Hayes, 1991). **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36** - L. Erne, Lower, Black Bay (H072639), 27 April 2002 (PHL). R. Hollybrook, Lisnaskea (H373310), 27 June 2000 (Langton, 2002). **GALWAY: HA 30** - L. Corrib, Derrenmeel (M150450), 27 June 1980, BC (DAM): **HA 32** - R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991); CNP, Stream near Park Centre (L716573), LJH (DAM). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 22** - R. Flesk, u/s Newbridge (V978900), 4 May 1973 (Douglas and Murray, 1980). R. Flesk, u/s New Bridge (Bridgeview), Killarney (V973895), August 1974 DJD/DAM (Ashe, 1982). **KILDARE: HA 9** - R. Liffey, Sallins (N881245), 17 July 1983 (Hayes, 1991). **MAYO: HA 34** - L. Conn, West shore, Errew (G167118), April 1966, AJOS (Murray, 1972 as *Microtendipes fuscipennis* Meigen): **Clare Island** - Creggan L., Lecarrow (L689857), July to September 1998 and July to September 1999 (Fahy, 2002). L. Poirтин Fuinch (L706857), July and August 1999 (Fahy, 2002). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 16 June 1974 (Murray, 2005) and Ardsallagh, at St Bridget's Well (N897635), 7 July 1988 (Murray, 1988). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168) and Metal Bridge, Tobercurry (G464138), 30 August 1982 (Hayes, 1991). **TIPPERARY: HA 16** - Brownstown R., Kilclonagh (S167655) and R. Drish,

Castletown (S207634), 6 July 1992 (Murray and Lynch, 1992). **TYRONE: HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WICKLOW: HA 10** - R. Glencullen, Knocksink (O218180), 18 May 1987, DEM/DAM (Morgan, 1989). R. Avonbeg, Meetings Bridge (T188831), 11 July and 27 October 1997 (Curran, 2001). R. Avonmore, Lion Arch Bridge (T194833), 11 July 1997, FC (Curran, 2001). R. Avoca, Whitebridge, Tigroney (T198821) 11 July 1997; Avoca Village (T203802), 11 July 1997, FC (all Curran and Murray, 2001) and October 1997, FC (Curran, 2001).

***Polypedilum (Tripodura) aegyptium* Kieffer, 1925**

CLARE: HA 27 - L. Bridget, Derrymore, Badyke, north basin (R563803), 12 June 2009, EPA (DAM). **FERMANAGH: HA 35** - L. Melvin, Garrison (G938518), 29 June 2000 (Langton, 2002). **KERRY: HA 22** - Muckcross Lake, Muckcross, Killarney (V950853), 16 July 2008, EPA (DAM).

***Polypedilum (Tripodura) bicrenatum* Kieffer, 1921**

ANTRIM: Rathlin Island - L. Ally (D154497), 24 July 2000 (Langton, 2002). **CLARE: HA 27** - L. Muckanagh, Tubber, Corrofin (R368926), 3 July and 2 August 2006, EPA (PHL). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 14 August and 16 September 2008, EPA (DAM). **DONEGAL: HA 39** - L. Akibbon, Church Hill (C068184), 11 June 2009, EPA (DAM). **DOWN: HA 5** - L. Henney, Ballynahinch (J348586), 22 June 2000 (Langton, 2002). **DUBLIN: HA 9** - R. Dodder, Landsdown Road Bridge (O180327), 5 April 1966 (Murray, 1972, 2005). **FERMANAGH: HA 36** - L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **KERRY: HA 22** - L. Leane, Killarney, Castlelough Bay, north shore (V966866), 27 June 1973, JPOC (Douglas and Murray, 1980). **MEATH: HA 7** - R. Boyne, New Bridge, Navan (N873679), 18 August 1988 (Murray, 1988) and Ardsallagh at St Bridget's Well (N897635), 30 May 1999 (DAM). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 5 April 1966 (Murray, 1972).

***Polypedilum (Tripodura) pullum* (Zetterstedt, 1838)**

ANTRIM: HA 3 - Glenravel Water, Gartnageeragh, Newtown Crommelin (D147154), 2 July 2000 (Langton, 2002). Killylane Reservoir, Magherabane, Larne (J292985), 8 May 1999 (PHL): **HA 4** - Dungonnell Dam, Newtown Crommelin (D193170), 20 June 2000 (Langton, 2002). **CAVAN: HA 36** - R. Erne, Kilsarin (N362910), 27 May 1982 (Hayes, 1991). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 8 June 2006, EPA (DAM). L. Atorick, Feakle

(R637964), 24 May 2003, EPA (PHL): **HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 3 May 2006, EPA (LPR). L. Inchiquin, Corrofin, south east shore (R272894), 16 June 2009, EPA (DAM). **DERRY: HA 2** - Binevenagh pond, Coleraine (C691305), 18 May and 16 September 2000 also 25 August 2001 (Langton, 2002). Fire dam 1, Binevenagh Forest, Coleraine (C699304), 18 May 2000 (Langton, 2002): **HA 3** - L. Neagh (H9080), no date (McLarnon and Carter, 2000). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM). **DONEGAL: HA 38** - L. Scalpachore, Cruit Island (B730216), L. Altercan, The Rosses (B755158) and L. Anure, Loughanure (B817166), all 19 July 2000, all PHL (Langton, 2002). L. Anure, Loughanure, east shore (B818162), 17 June 2009, EPA (DAM). R. Gweedore, outflow from L. Anure, Crolley (B827184) and L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (DAM): **HA 39** - L. Inshagh, Glenveagh (C037200), 20 May 1986, LJH (Heneghan, 1986; Murray, 2005). L. Gartan, Church Hill, north shore (C065173), 18 July 2000 (Langton, 2002): **HA 40** - L. Fad, Coolmany (C398428), 15 June 2009, EPA (DAM). **DUBLIN: HA 9** - R. Dodder, Bohernabreena aqueduct (O101208), 10 June 1968 (Murray, 1972). **FERMANAGH: HA 36** - L. Atona, Cuilcagh Mountain (H110294), 29 June 2000 (Langton, 2002). L. Erne Upper, Crom slipway (H362242), 27 June 2000 (Langton, 2002). **GALWAY: HA 30** - R. Cregg, Addergsole Bridge (M324350), 16 August 1981 (Hayes, 1991): **HA 32** - R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June 2008, EPA (DAM). L. Cloonaghlin, Waterville (V611708), 24 July 2008, EPA (DAM): **HA 22** - Muckcross Lake, Killarney, Dundag Bay (V964858), June 1973 (Douglas and Murray, 1980): **HA 23** - L. Gill, Castlegregory (Q603139), 25 June 2008, EPA (DAM). **KILDARE: HA 9** - R. Liffey, Sallins (N881245), 17 July 1983 and Straffan Bridge (N924293), 15 July 1983 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436) and Brownsbarn Bridge (S618391), 28 August 1981 (Hayes, 1991). **LEITRIM: HA 26** - L. Natire, north of L. Allen (G966340), 3 August 2005, JRB/MC (DAM): **HA 35** - L. Nabrack, Crocknagapple (G860477), 4 August 2005, JRB/MC (DAM). **MAYO: HA 32** - L. Doo, Delphi, west shore (L835681), 12 July 2006, EPA (DAM). L. Feeagh, Newport (L975983), 24 July 2008, EPA (DAM): **HA 34** - L. Cullin, Drummon Wood, Pontoon (G235046), 18 June 2008, EPA (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), 13 July 1998 (Fahy, 2002). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894626), 21 August 1988 also Stackallen Bridge (N917713), 17 August 1988 (Murray, 1988) and 19 July 1989 (DAM). **ROSCOMMON: HA 26** - R. Suck, Ballyforan (M817464), 16 July 1981 and Athleague (M825758), 14 August 1981 (Hayes, 1991). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 26 June 2006, EPA (EPA). **WICKLOW: HA 10** - Vartry Reservoir, Roundwood, south east shore (O214002), 14 August 1983, HD (DAM). L.

Glendalough Upper, Laragh, WMNP (T100960), 29 July 2009, EPA (DAM).

***Polypedilum (Tripodura) quadriguttatum* Kieffer, 1921**

MEATH: HA 7 - R. Boyne, Bellinter Bridge (N894625), 18 August 1968 (Murray, 1972, 2005).

***Polypedilum (Tripodura) scalaenum* (Schrank, 1803)**

DERRY: HA 2 - burn at Largantea picnic area, Formoyle, Coleraine (C738287), 9 June 2000 (Langton, 2002); **HA 3** - R. Bann, Coleraine (C855304), 20 and 31 May, 10 June 1999, also 25 May and 24 June 2000 (PHL). **DONEGAL: HA 38** - L. Veagh, Glenveagh, north east shore (C039231), 24 July and north east shore (C038230), 27 August 1985 (Heneghan, 1986; Murray, 2005). Administration Centre, GNP (at light), Glenveagh (C041228), 27 August 1985 (Heneghan, 1986). **GALWAY: HA 30** - L. Corrib Lower, Hurney, west shore (M258310), 9 April 1980, BC (DAM). **KERRY: HA 22** - L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August 1987, NOM (LJH). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 24 May 1968 (Murray, 1972) and New Bridge, Navan (N873679), 18 August 1988 (Murray, 1988). R. Blackwater, Donaghpatrick (N819723), 19 August 1988 (Murray, 1988). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 15 July 2008, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), July and 14 August 1973, NH (Hayes, 1980). L. Ennell, Tudenham (N415466), 5 April 1966 (Murray, 1972). **WICKLOW: HA 9** - Pollaphuca Reservoir, Blessington Bridge (N990144), 17 June 2000, DAM/WM (DAM).

Polypedilum (Tripodura) sp. (Pe - scalaenum/quadriguttatum)

CLARE: HA 28 - L. Acrow, Lisscasey (R193687), 8 June 2006, EPA (DAM). **MONAGHAN: HA 36** - L. Inner, Dartery, Drum (H625173), 6 June 2007, EPA (DAM).

***Polypedilum (Uresipedilum) convictum* (Walker, 1856)**

ANTRIM: HA 3 - Clogh R., Clough Mills (D105109), 2 July 2000 (Langton, 2002). L. Neagh, Antrim Bay (J135866), 4 May 1999 (PHL); **HA 4** - R. Bush, Stranocum (D009307), 2 July 2000, Seneirl Bridge (C943362), 16 July 2000 and Conogher Bridge (C963305), 10 September 2000 (Langton, 2002). R. Glendun, Drumfresky, Cushendun (D193308) and R. Glenariff (Inver/Glenariff), Cushendall (D215205), 2 July 2000 (Langton, 2002). R. Glanaan, Cushendall (D218288), 17 September 2011 (PHL). **CARLOW: HA 12** - R. Slaney, Motabower Bridge (S832778), Kilcarrig Bridge (S893624) and Kildavin (S899597), 28 July 1981 (Hayes, 1991). R. Derreen, Acann Bridge (S900781), 29 July 1981 (Hayes, 1991). **CAVAN: HA 7** - R. Barora

tributary, Relaghbeg (N679907), 5 April 1968 (Murray, 1972): **HA 36** - R. Erne, Kilsarin (N362910), 27 May 1982 and Drumbarry (N462951), 17 August 1982 (Hayes, 1991). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 8 June 2006, EPA (DAM). **CORK: HA 18** - R. Blackwater: Killavullen (W648998), 31 August 1981; Ballymacquirk Bridge, Banteer (W382989), Roskeen Bridge, Banteer (W444988) and Lombardstown (W463968), 1 September 1981; Duncannon (W180931), Shamrock Bridge, Millstreet (W221935), Charles Bridge, Millstreet (W248943) and Keale Bridge, Millstreet (W294936), 2 September 1981, all BPH (Hayes, 1991): **HA 20** - R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363), 24 August 1983 (Hayes, 1991). **DERRY: HA 2** - R. Roe, Limavaddy, Deerpark Wood (C682203), 9 June 2000 and Largy Bridge (C681202), 14 July 2000 (Langton, 2002). Castle R., Limavady, Ardmore Bridge (C706207), 9 June 2000 (Langton, 2002): **HA 3** - inlet stream, Downhill Forest Lake, Coleraine (C759348), 21 August 2001 (PHL). Inflow to Balinrees Reservoir, Coleraine (C793307), 9 June 2000 (Langton, 2002). R. Aghadowey, Ballybritain Bridge (C859212), 26 May 2000 (Langton, 2002). R. Macosquin, Black Bridge, Ballylintagh (C854256), 5 May 1999 (Langton, 2002). R. Bann, Coleraine (C855304): 13 May 1999, 17 May and 24 June 2000 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 4 July and New Bridge, Magherafelt (H955905), 13 October 2000 (Langton, 2002). **DONEGAL: HA 1** - R. Deelee, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002): **HA 37** - R. Oily, Claggen (G751803), 8 August 1982; R. Eanymore, Drumagraa Bridge (G863822) and R. Stragar, Duninkeely (G727792), 10 August 1982, all BPH (Hayes, 1991): **HA 38** - R. Tullaghobeg, Millmount (B933304), 12 August 1982 (Hayes, 1991): **HA 39** - R. Crana, Buncrana (C347328) and Ballymagan (C379344), 15 August 1982 (Hayes, 1991): **HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991). **DOWN: HA 3** - Upper R. Bann, Roughan Bridge, Rathfriland (J225363), 28 August 1997 and 13 August 1998 (PHL). **DUBLIN: HA 9** - R. Dodder, Fort Bridge, Bohernabreena (O009242), 5 June 1968 (Murray, 1972). **FERMANAGH: HA 36** - R. Colebrook Killabarn Bridge, Killarbran (H416441), 24 June 1997 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 26** - R. Shiven, d/s Ballinaglass (M788494), 29 July 1981 (Hayes, 1991). R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991): **HA 30** - stream at lay-by picnic site on road N59, Moycullen (M204326), 25 May 2003 (PHL). R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 (Hayes, 1991): **HA 32** - R. Owenglin, Clifden (L677506), and R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 21** - L. Derriana, Waterville (V621740), 13 July 1979, JPOC (DAM): **HA 22** - L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August 1987, NOM (Murray, 2005). R. Annascaul, Annascaul (Q593017), 2 July 1981 (Hayes, 1991). R. Flesk: d/s Clydagh/Loo

confluence (W084814); d/s Whitebridge (V987900); d/s New Bridge (V963885) and u/s L. Leane (V964894), all June to August 1978, PJA (Ashe, 1982). R. Torc, above Torc waterfall, Killarney (V964835), 26 August 1987 (DAM). **KILDARE: HA 9** - R. Liffey, Sallins (N881245), 17 July 1983 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore: Threecastles (S458626), 27 August 1981; Ballyragget (S445707), Norelands Bridge (S547436) and Brownsbarn Bridge (S618391), 28 August 1981, all BPH (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Athanagh (S423763), 28 August 1981 (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - L. Doo, Delphi, west shore (L835681), 9 May 2006, EPA (DAM). R. Burleemslough, Clapper Bridge Ford, Killeen, Cloonlaur (L754759), 5 August 2004, DAM/WM (DAM). R. Bunowen u/s of bridge, Louisburg (L807807), 5 August 2004, DAM/WM (DAM). R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972). R. Erriff, Ashleigh Falls (L895645), 18 August 1981 (Hayes, 1991): **HA 33** - R. Owenmore, Bangor Erris (F863228), 18 August 1983 (Hayes, 1991). R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - R. Moy, Bellanacurra (G403047), 29 August 1982 (Hayes, 1991). **MEATH: HA 6** - R. Dee, Drumconrath (N910894), 27 July 1983 (Hayes, 1991): **HA 7** - R. Skane, Dalgan Park, Navan (N901626), 23 May 2015 (Murray, 2015a). R. Boyne: Bellinter Bridge (N894626), 21 August 1988, DAM (Murray, 1988); Ardsallagh, at St Bridget's Well (N897635), 7 July 1988 (Murray, 1988) and 30 May 1999 (DAM); Kilcarn Bridge, Navan (N884657), 21 August 1988 (Murray, 1988); Stackallen Bridge (N917713), 19 July 1989 and Slane Bridge (N965737), 19 July 1989, all DAM. R. Blackwater, Poolboy Bridge, Navan (N871681), 18 August 1988 and Bloomsbury Bridge, Oristown (N793741), 19 August 1988 (all Murray, 1988). **OFFALY: HA 25** - R. Little Brosna, Brosna Bridge (S077938), Sharavogue (S056953), New Bridge (N016088) and Cloghan (M046209), 2 September 1982, all BPH (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck: Castlecoote (M809627), 16 July 1981 and Ballyforan (M817464), 16 July 1981; Athleague (M825758) and Mount Talbot (M813531), 14 August 1981 all BPH (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Annagh (G466123), 30 August 1982 (Hayes, 1991): **HA 35** - R. Drumcliff, Glencar (G734430) and R. Easky, Easky (G377378), 19 August 1983 (Hayes, 1991). **TYRONE: HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WEXFORD: HA 12** - Movilla stream, Screen (T082311), 6 May 2006, DAM/WM (DAM). R. Boro, Dunamore Bridge, Enniscorthy (S963366), 29 July 1981 (Hayes, 1991). R. Slaney, Clomahon (S933534) and Ballycarney (S967488), 29 July 1981 (Hayes, 1991). R. Sow tributary, Garylough Mill, Screen (T076302), 6 May 2006, DAM/WM (DAM). R. Derry, Balisland (S978645), 28 July 1981 and Bridgeland (T021744), 29 July 1981 (Hayes, 1991). R. Slaney, Stratford Bridge (S895930) and Kilmurray

(S889856), 28 July 1981 (Hayes, 1991).

***Polypedilum (Uresipedilum) cultellatum* Goetghebuer, 1931**

CAVAN: HA 36 - Glasshouse L., Killashandra (H270060), 7 June 2007, EPA (DAM). R. Erne: Kilsarin (N362910), 27 May 1982; Dingin's Bridge (N331948) and Carrigan (N391935), 27 August 1982, all BPH (Hayes, 1991). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 3 August 2006, EPA (DAM). L. Graney, Drumandora, west shore (R553938), 15 June 2009, EPA (DAM). **CORK: HA 18** - R. Blackwater, Killavullen (W648998), 31 August 1981, Duncannon (W180931) and Keale Bridge, Millstreet (W294936), 2 September 1981 (Hayes, 1991): **HA 20** - R. Ilen, Madore (W103419) and Hollybrook (W117363), 24 August 1983 (Hayes, 1991): **HA 21** - L. Glenbeg, Ardgroom (V706530), 3 September 2008, EPA (DAM). **DERRY: HA 3** - R. Bann, Coleraine (C854304), 16 July 2000 (PHL). **DONEGAL: HA 39** - R. Leannan, Drumaboden (C165218), 12 August 1982 (Hayes, 1991). **FERMANAGH: HA 36** - R. Colebrook, Killarbran Bridge, Killarbran (H416441), 24 June 1997 (PHL). **GALWAY: HA 30** - L. Ballyquirke, Moycullen (M232317), 14 June 2007, EPA (DAM). R. Cregg, Addergsole Bridge (M324350), 16 August 1981 (Hayes, 1991). R. Owenriff, Oughterard (M112426), 25 May 2003 (PHL). **KERRY: HA 22** - Muckcross Lake, Killarney (V950853), 16 July and 18 September 2008, EPA (DAM). R. Flesk, d/s New Bridge (V963885), 22 July 1976, PJA (DAM). **KILDARE: HA 9** - R. Liffey, Straffan Bridge (N924293), 15 July 1983 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore: Norelands Bridge (S547436), 28 August 1981 and 19 August 1982 also Brownsbarn Bridge (S618391), 28 August 1981 (Hayes, 1991). **LAOIS: R. Nore: Kilbricken (S362898) and u/s Durrow (S416787), 27 August 1981 and Athanagh (S423763), 28 August 1981, all BPH (Hayes, 1991). LEITRIM: HA 26** - L. Rinn, Mohill (N095943), 18 July 2008, EPA (DAM). **MAYO: HA 34** - L. Lannagh, Castlebar (M105880), 30 June 2008, EPA (DAM). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 28 August 1981 (Murray, 2005); Stackallen Bridge (N917713), Oldbridge (O045761) and d/s Oldbridge (O062753), 19 July 1989, all DAM. R. Blackwater, Bloomsbury Bridge, Oristown (N793741), 19 August 1988 (Murray, 1988). **MONAGHAN: HA 36** - L. Drumlona, Rockcorry (H636176), 5 June 2007, EPA (DAM). **OFFALY: HA 25** - R. Brosna, Cloghan (M046209), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627) and Ballyforan (M817464), 16 July 1981 (Hayes, 1991). **SLIGO: HA 35** - L. Kilsallagh (Reservoir), Kilsallagh (G734393), 23 July and 8 September 2008, EPA (DAM). L. Gill, Sligo (G782350), 20 August 2008, EPA (DAM). **WESTMEATH: HA 26** - L. Killinure, Wineport (N067458), 26 June 2007, EPA (DAM). **WEXFORD: HA 12** - R. Slaney, Clomahon (S933534), 29 July 1981 (Hayes, 1991). **WICKLOW: HA 10** - R. Glencullen, Knocksink (O218180), 18 May 1987, DEM/DAM (Morgan, 1989; Murray, 2005). R. Avonbeg,

Drumgoft Bridge, Glenmalure (T105905) and R. Avoca, Whitebridge, Tigroney (T198821), 4 August 1983 (Hayes, 1991).

***Saetheria reissi* Jackson, 1977**

LAOIS: HA 15 - R. Nore, Shanahoe Bridge (S407858), 27 August 1981, BPH (Murray, 1996).

***Sergentia coracina* (Zetterstedt, 1850)**

CLARE: HA 27 - L. Bridget, Derrymore, Badyke, north basin (R563803), 12 June 2009, EPA (DAM). **CORK: HA 20** - L. Ballin, Leap (W199389), 9 April and 21 August 2008, EPA (DAM). **DONEGAL: HA 38** - L. Veagh, GNP, Glenveagh Castle shore (C038230), 30 March 1989 (DAM). **GALWAY: HA 30** - L. Corrib (M1545), 1980, BC (DAM). **KERRY: HA 22** - L. Leane, Killarney: Glena Bay (V930858), 27 July 1973; O'Sullivan's Cascade (V916886), March 1973 and Peninsula Bay (V940860), March 1973, all Douglas and Murray (1980). Muckcross Lake, Killarney, Goleen Bay (V963853) and Camilan Bay (V943859), March 1973, (Douglas and Murray, 1980). R. Flesk, d/s New Bridge (V963885), 21 March 1978, DAM (Ashe, 1982; Murray, 2005). Upper Lake, Killarney, west basin (V909821), March 1973 (Douglas and Murray, 1980). **MAYO: HA 30** - L. Mask, Toormakeady (M097647), 14 April 2008, EPA (DAM): **HA 32** - L. Feeagh, Newport (L975983), 11 April 2008, EPA (DAM): **HA 34** - L. Alone, Ox Mountains (G367157), 22 April 2005, JRB (DAM). **ROSCOMMON: HA 26** - Grange L., Greywood, Strokestown (M938857), 28 July 2008, EPA (DAM). **WICKLOW: HA 10** - outflow from L. Bray Lower, Glenree (O141163), 14 October 1996, MKQ (DAM). L. Dan, Roundwood (O157035), 30 March 2009, EPA (DAM). Upper Glendalough Lake, Laragh, WMNP (T100960), 29 July 2009, EPA (DAM).

***Stenochironomus (Stenochironomus) gibbus* (Fabricius, 1794)**

CAVAN: HA 36 - Glasshouse L., Killashandra (H270060), 7 June 2007, EPA (DAM). **CORK: HA 20** - R. Ilen, Hollybrook (W117363), 24 August 1983 (Hayes, 1991). **DERRY: HA 3** - R. Bann, Coleraine (C854304), 31 May 1999 (PHL). **DONEGAL: HA 39** - R. Leannan, Drumaboden (C165218), 12 August 1982 (Hayes, 1991). **KERRY: HA 22** - Killarney (V9486), no data (Edwards, 1929). L. Leane, Killarney, Juniper Bay (V949863), 27 July 1973 (Douglas and Murray, 1980). Muckcross Lake, Killarney, Camilan Bay (V943859), 20 June 1973 (Douglas and Murray, 1980). R. Flesk, d/s Whitebridge (V987900), 27 July 1976, DJD/DAM (Ashe, 1982). R. Flesk, d/s New Bridge (V963885), 28 July 1977 (Ashe, 1982). **MEATH: HA 7** - R. Boyne, Ardsallagh, Magazine weir (N894640), 8 June 1980 (Murray, 2005). **SLIGO: HA 35** - L. Arrow, Ballinafad (G789123), 11 June 2008, EPA (DAM).

***Stenochironomus (Stenochironomus) hibernicus* (Edwards, 1929)**

KERRY: HA 22 - Killarney (V950890), 25-27 May 1929 (Edwards, 1929 - sub *Chironomus (Microtendipes) hibernicus*).

Stenochironomus (Stenochironomus) pe2 sensu Langton and Visser, 2003

Langton and Visser (2003) consider the possibility that this pupal morphotype is *Stenochironomus hibernicus*.

CLARE: HA 25 - L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM). **MAYO: HA 34** - L. Washpool, Ballycarra (M219842), 15 August 2008, EPA (DAM).

***Stictochironomus maculipennis* (Meigen, 1818)**

ANTRIM: HA 3 - L. Neagh, Lennymore Bay, north shore (J115745), March 1969 (Marks and Henderson, 1970). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 11 June 2009, EPA (DAM). **DERRY: HA 3** - Balinrees Reservoir, Coleraine (C794300), 9 June 2000 (Langton, 2002). R. Bann, Coleraine (C854304), 31 and 16 May 2001 (PHL). L. Neagh (H9080), no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 10 May 2000 (Langton, 2002). **FERMANAGH: HA 36** - L. Erne, Lower, Black Bay (H072639), 27 April 2002 (PHL). **MEATH: HA 7** - R. Boyne, Ardsallagh, eel weir - opposite R. Skane inflow (N897630), 9 May 1982 (DAM).

***Stictochironomus pictulus* (Meigen, 1830)**

ANTRIM: HA 3 - L. Neagh, Lennymore Bay, north shore (J115745), March 1969 (Marks and Henderson, 1970); L. Neagh, Antrim Bay (J135866), 4 May 1999 (PHL). **CAVAN: HA 36** - Glasshouse L., Killashandra (H270060), 12 April and 7 June 2007, EPA (DAM). L. Garty, Arvagh (N278978), 12 April 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Drumandora, west shore (R553938), 6 April 2009, EPA (DAM). **CORK: HA 19** - L. Gouganebarra, Inchegeelagh (W009060), 7 April 1966 (Murray, 1972, 2005), 8 May 1966 (Murray, 1972) and 25 May 1966 (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 26 April, 10 and 18 May 2001 (PHL): **HA 2** - R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000 (Langton, 2002): **HA 3** - R. Macosquin, Black Bridge, Ballylintagh (C854256), 26 May 2000 (Langton, 2002). Pond, near R. Macquosin, Ballytinagh Road, Coleraine (C854255), 16 May 2004 (PHL). R. Bann, Coleraine (C854304): 12 April to 3 July 1999, 3 May to 24 June 2000, 26 April 2001, 25 April and 2 May 2010, all records by PHL. L. Neagh: (H9080), May and June, 1971-1974 (Carter, 1975); no date (McLarnon and Carter, 2000); Ballyronan (H948862), 4 May 1999 (PHL), 10 May 2000 (Langton, 2002), 15 May 2002 and 22 May 2011 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 7 May 2001 (PHL). **DONEGAL: HA 38** - L. Anure,

Loughanure, east shore (B818162), 17 June 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 23 April and 11 June 2009, EPA (DAM). **GALWAY: HA 30** - L. Ross, Moycullen (M200363), 25 May 2003 (PHL). **KERRY: HA 22** - L. Leane, Killarney, Glena Bay (V930858), 27 July 1973 (Douglas and Murray, 1980). Muckcross Lake, Killarney, Camilan Bay (V943859), May 1973 (Douglas and Murray, 1980); Dundag Bay (V964858), June and July 1973 (Murray, 1974): **HA 23** - L. Gill, Castlegregory (Q603139), 29 April and 25 June 2008, EPA (DAM). **MAYO: HA 32** - L. Doo Delphi, west shore (L835681), 9 May 2006, EPA (DAM). R. Bunowen, u/s of bridge at Louisburg (L807807), 5 August 2004, DAM/WM (DAM). L. Fin, Delphi (L841657), 9 May 2006, EPA (DAM). R. Owenwee, u/s Aghamore Bridge, Westport (L972817), 8 May 2003, DAM/WM (Murray, 2005); R. Owenwee, Belclare, Westport (L968826), July 1910, JNH (Grimshaw, 1912): **HA 33** - L. Keel, Achill Island, south east shore (F650051), 17 June 2008, EPA (DAM): **HA 34** - L. Conn, Brackwansha (G191098), 15 May 1966, AJOS (Murray, 1972). **ROSCOMMON: HA 26** - L. Meelagh, Keadew (G901117), 15 April 2008, EPA (DAM). L. Cavetown, Boyle (M832974), 9 April 2008, EPA (DAM). **SLIGO: HA 26** - L. Gara, Monastredan (M708996), 28 April 2008, EPA (DAM): **HA 34** - L. Talt, Gleneask (G402151), 10 April 2008, EPA (DAM). **TYRONE: HA 3** - L. Neagh, Washing Bay, Coalisland (H903662), 30 May 2002 (PHL). R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 14 June 1966, DAM (Murray, 1972).

***Stictochironomus rosensholdi* (Zetterstedt, 1838)**

CORK: HA 19 - L. Gouganebarra, Inchegeelagh (W009060), 21 August and 27 September 1966 (Murray, 1972). **KERRY: HA 22** - Killarney (V9080), 1929, FWE (Edwards, 1929). L. Leane, Killarney, Juniper Bay (V949863), 27 July 1973 (Douglas and Murray, 1980). Muckcross Lake, mid lake (V950850), May 1973 (Douglas and Murray, 1980).

***Stictochironomus sticticus* (Fabricius, 1781)**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 4 May 1999 (PHL). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 10 April and 4 May 2006, EPA (DAM). L. Derg, Terryglass (M861008), 20 April 2009, EPA (DAM). **DERRY: HA 3** - R. Agivey, Garvagh (C838154), 30 May 2002 (PHL). R. Bann, Coleraine (C854304), 26 April 1999 and 18 April 2010 (PHL). L. Neagh: no data (H900800), May and June 1971-1974 (Carter, 1975); Ballyronan (H948862), 4 May 1999 (PHL), 10 May 2000 (Langton, 2002), 15 May 2002 and 22 May 2011 (PHL). **DONEGAL: HA 38** - Glenveagh, GNP: L. Veagh: south shore, (C003188), 25 May 1986, LJH (DAM); roadside near castle, Glenveagh (C025214), 22 May 1986, LJH (Heneghan, 1986; Murray, 2005). **FERMANAGH: HA 36** - L. Erne, Lower, Black Bay

(H072639), 4 May 1999 (PHL). **GALWAY: HA 29** - L. Coole, Gort (M432043), 15 June 2009, EPA (DAM): **HA 30** - L. Corrib lower, Hurney, west shore (M258310), 9 April 1980, BC (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775) and L. Inchiquin, Kenmare (V837629), 18 June 2008, EPA (DAM). **LEITRIM: HA 35** - L. Sandy, Crocknagapple (G891448), 4 August 2005, JRB/MC (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 24 April 2008, EPA (DAM): **HA 30** - L. Mask, Toormakeady (M097647), 14 April 2008, EPA (DAM): **HA 32** - L. Doo, Delphi, west shore (L835681), 5 April and 9 May 2006, EPA (DAM). L. Ballin, Westport, south shore (L994878), 22 April 2008, EPA (DAM): **HA 33** - L. Acorrymore, Achill Island (F578057), 29 September 2004, DAM/WM (Murray, 2005) and 17 September 2008, EPA (DAM): **HA 34** - L. Cullin, Drummon Wood, Pontoon (G229028), 15 April 2008, EPA (DAM). **MEATH: HA 7** - R. Boyne, Newtown, Trim (N815571), 9 July 1981 (Hayes, 1991). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 2 May and 21 May 1966 (Murray, 1972 as *Stictochironomus histrio*). **WICKLOW: HA 10** - L. Tay, Luggala (O163008), 28 July 2009, EPA (DAM). Upper Glendalough Lake, Laragh, WMNP (T100960), 29 July 2009, EPA (DAM).

***Synendotendipes dispar* (Meigen, 1830)**

ANTRIM: HA 3 - L. Neagh, Lennymore Bay, north shore (J115745), 1966, RJM (Marks and Henderson, 1970). **DERRY: HA 1** - pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 (PHL): **HA 3** - L. Neagh (H9080), no date (McLarnon and Carter, 2000). **DONEGAL: HA 37** - L. Shinvagh, Carricode (H005675), 27 April 2002 (PHL): **HA 38** - R. Owenveagh, u/s L. Veagh, Glenveagh (C000187), 15 May 1985, LJH (Heneghan, 1986; Murray, 2005). L. Veagh, south shore, Glenveagh (C002187) and south east shore, Glenveagh (C007190), 15 May 1985 (Heneghan, 1986). Inflow stream to north east shore of L. Veagh, 50m from lake, Glenveagh (C030218), 15 May 1985 (Heneghan, 1986). **KERRY: HA 22** - L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August 1987, NOM (DAM). **MAYO: HA 32** - Knappagh, Westport (L980805), July 1911, PHG and Demesne, Westport (L990845), July 1911, PHG (Grimshaw, 1912 - sub *Tendipes dispar*).

***Synendotendipes impar* (Walker, 1856)**

CAVAN: HA 7 - L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972, 2005). **GALWAY: HA 30** - L. Corrib Lower, Hurney (M258310), 8 May and 7 August 1980, BC (DAM); L. Corrib Upper, Clonbur, north shore (M068525), 23 August 1984 (DAM).

***Tribelos intextum* (Walker, 1856)**

ANTRIM: HA 4 - fire dam, Black Hill (D121297), 2 July 2000 (Langton, 2002). **CAVAN: HA**

7 - L. Drumkeery, Baileborough (H663002), 1 May 2007, EPA (DAM). **DERRY: HA 1** - inflow to Upper Reservoir, Creggan, Derry (C413171), 26 June 2001 (PHL). Upper Reservoir, Creggan, Derry (C417173), 17 and 18 May 2002 (PHL) also pool near Reservoir (C414171), 17 May 2002 (PHL): **HA 3** - pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). **DUBLIN: HA 9** - Upper Bohernabreena Reservoir (O095219), 7 May 1946, CFH (DAM). **FERMANAGH: HA 36** - L. Killyfole (Mill L.), Rosslea (H464314), 28 June 2000 (Langton, 2002). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 30** - L. Corrib Lower, Hurney (M258310), 28 May 1980, BC (DAM). Stream at lay-by picnic site on road N59, Moycullen (M204326), 25 May 2003 (PHL). **LEITRIM: HA 35** - L. Sandy, Crocknagapple (G891448), 4 August 2005, JRB/MC (DAM).

The first published record from Ireland of *Tribelos intextum* was by Langton (2002) in collections from June 2000 from L. Kilfoyle, Co. Fermanagh. The senior author discovered an earlier record in the collections of C. F. Humphries from Bohernabreena Reservoir, Co. Dublin taken in May 1946.

***Xenochironomus xenolabis* (Kieffer, 1916)**

ANTRIM: HA 3 - R. Kells, Shank Bridge, Kells (J126982), 20 June 2000 (Langton, 2002). **CLARE: HA 28** - L. Keagh, Milltown Malbay, north shore (R100813), 11 June 2009 and south west shore (R100811), 8 July 2009, EPA (DAM). L. Naminna, Boolteagh, north west shore (R178710), 7 July 2009, EPA (DAM). **CORK: HA 20** - R. Bandon: u/s Ballineen (W331537), 25 August 1980; Ballineen Bridge (W434538), 27 May, 25 August and 25 September 1980; Castle Bernard (W472546), 27 May, 25 August and 25 September 1980; 2.5km d/s Bandon (W516569), 27 May 1980, all GM (Morgan, 1982). **DERRY: HA 2** - R. Roe, Deerpark Wood, Limavaddy (C682203), 9 June 2000 (Langton, 2002): **HA 3** - R. Bann, Coleraine (C854304), 28 September 2012 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). **DONEGAL: HA 37** - R. Oily, Claggen (G751803), 8 August 1982 (Hayes, 1991). R. Stragar, Killybegs (G730787), 23 August 1984, DAM (DAM): **HA 38** - L. Anure, Loughanure, east shore (B818162), 17 June 2009, EPA (DAM). R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000 (Langton, 2002). L. Nasnahida, Doocharry, Dunglow (B852076), 6 August 2009, EPA (DAM). L. Veagh, north east shore (C038230), 22 August 1985, LJH (DAM). R. Owencarrow, GNP Administration Centre (C041229), 3 June 1986 (Heneghan, 1986). R. Ray, Muckish Gap (B993268), 12 August 1982 (Hayes, 1991). L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (DAM): **HA 39** - L. Gartan, Church Hill (C065173), 18 July 2000 (Langton, 2002). R. Leannan, Kilnacrenan (C145200), 12 August 1982 and Claragh (C197210), 13 August 1982 (Hayes, 1991). **GALWAY: HA 30** - L. Beaghcauneen, Ballinaboy (L679470), 12 September 2007, EPA (DAM). L. Corrib (M1545),

1980, BC (DAM). L. Maumwee, Maam Cross (L977485), 8 June 2007, EPA (DAM). R. Cregg, Addergsole Bridge (M324350), 16 August 1981 (Hayes, 1991): **HA 31** - L. Ahalia, Maam Cross, north east shore (L971402), 18 June and 23 September 2009, EPA (DAM). L. Anaserd, Ballyconneely (L605443), 6 June 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 13 September 2007, EPA (DAM). L. Ballynakill, Gorumna (L867236), 20 June 2006, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 12 September 2007, EPA (DAM). L. Loughanaure, Kilkieran (L828320), 7 June and 24 July 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 8 August 2006, 7 June, 1 August and 13 September 2007, EPA (DAM). L. Shindilla, Derreenacreeva, south shore (L958460), 13 September 2007, EPA (DAM). R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981 (Hayes, 1991): **HA 32** - L. Aughrusbeg, Cleggan (L557582), 3 April and 5 June 2007, EPA (DAM). R. Owenglin, Clifden (L677506), 18 August 1981 (Hayes, 1991). L. Tully, Tully Cross (L695618), 5 June 2007, EPA (DAM). R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). L. Pollacappul, Kylemore (L754582), 9 July 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June and 13 July 2008, EPA (DAM). Eagles L., Knocknagantee (V674728), 9 August 2005, JRB (DAM): **HA 22** - L. Leane, Killarney: Castlough Bay, north shore (V966866), 4 September 1973, DAM (Douglas and Murray, 1980); Muckross Boathouse (V965866), 29 August 1987, NOM (LJH); Killarney (V931886), 18 September 2008, EPA (DAM). Muckross Lake, Killarney (V950853), 16 July 2008, EPA (DAM). R. Flesk, d/s New Bridge (V963885), 28 July 1977 (Ashe, 1982). R. Loo, Aughnanus Bridge, Crohane (W045790), August 1981 (Ashe, 1982). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 13 June 2009, EPA (DAM). **WESTMEATH: HA 26** - L. Ree, Coosan (N050450), 15 August 2007, EPA (DAM). **MAYO: HA 32** - L. Doo, Delphi, west shore (L833680), 25 August 2008, EPA (DAM). L. Furnace, Burrishoole, Newport (L975965), August 1974 (Murray, 2005). L. Feeagh, Newport (L975983), 24 July 2008, EPA (DAM): **HA 33** - L. Acorrymore, Achill Island (F578057), 5 August 2004, DAM/WM (DAM), 29 September 2004, DAM/WM (Murray, 2005), 17 June and 17 September 2008, EPA (DAM). **MEATH: HA 7** - R. Boyne: Ardsallagh, at St Bridget's Well (N897635), 15 June 1980 (DAM); New Bridge, Navan (N873679), 18 August 1988 (Murray, 1988); Stackallen Bridge (N917713), 17 August 1988 (Murray, 1988); Slane Bridge (N965737) and Knowth Weir (N995720), 19 July 1989 (DAM). **MONAGHAN: HA 6** - L. Naglack, Carrickmacross (H853026), 3 May 2007, EPA (DAM). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). R. Little Brosna, Myrtle Grove (S051852), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck,

Castlecoote (M809627) and Ballyforan (M817464), 16 July 1981 also Athleague (M825758), 14 August 1981 (Hayes, 1991). **SLIGO: HA 35** - L. Gill, Sligo (G782350), 11 June 2008, EPA (DAM). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WICKLOW: HA 10** - L. Dan, Roundwood (O157035), 2 September 2009, EPA (DAM).

***Pseudochironomus prasinatus* (Staeger, 1839)**

ANTRIM: Rathlin Island - L. Ally (D154497), 24 July 2000 (Langton, 2002). **CAVAN: HA 7** - L. Ramor, Virginia (N603871), May 1971, DJD/DAM (Douglas, 1971): **HA 36** - Glasshouse L., Killashandra (H270060), 7 June 2007, EPA (DAM). L. Garty, Arvagh (N278978), 7 June 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 8 June 2006, EPA (DAM). L. Derg, d/s Killaloe (M705715), 17 June 2009, EPA (DAM). L. Graney, Drumandora, west shore (R553938), 15 June 2009, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 17 June and 16 July 2009, EPA (DAM): **HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 16 June, 22 July and 14 September 2009, EPA (DAM). L. Dromore, Ruan, Corrofin (R352864), 16 June 2009, EPA (DAM). L. Gortglass, Killadysert, south shore (R223596), 7 July 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin (R368926), 3 July and 2 August 2006, EPA (PHL) also 22 July 2009 and south east shore (R370922) 11 June 2009, EPA (DAM): **HA 28** - L. Acrow, Lisscasey (R193687), 8 June, 7 July and 2 August 2006, EPA (DAM). L. Doo, Milltown Malbay (R123721), 8 July 2009, EPA (DAM). L. Keagh, Milltown Malbay, north shore (R100813), 11 June 2009, EPA (DAM): **HA 29** - L. Skeardeen, Kilcorkan (R388991), 17 June 2009, EPA (DAM). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 27 August 1969, NH (Bracken and Murray, 1973). L. Gouganebarra, Inchegeelagh (W009060), 27 July 1968, DAM (Murray, 1972): **HA 20** - L. Curraghally, Drinagh, Dunmanway (W234046), 17 June 2008, EPA (DAM). L. Avaul, Glengarrif (V910553), 15 July 1969, NH (Bracken and Murray, 1973). L. Bofinna, Bantry (W041488), 18 June and 13 August 2008, EPA (DAM). L. Glenbeg, Ardgroom (V706530), 18 June 2008, EPA (DAM). **DERRY: HA 3** - L. Neagh, Ballyronan (H948862), 22 May 2011 (PHL). **DONEGAL: HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 7 July 2009, EPA (DAM). L. Unshin, Ballyshannon (G951637), 15 April, 8 June and 6 July 2009, EPA (DAM): **HA 37** - L. Eske, Donegal (G973844), 8 June and 14 July 2009, EPA (DAM): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Dunglow, Dunglow, The Rosses: east shore (B787117), 19 July 2000 (Langton, 2002); west shore (B782119), 17 June and 5 August 2009, EPA (DAM). L. Anure, Loughanure, east shore (B818162), 17 June 2009, EPA (DAM). L. Nasnahida, Doocharry, Dunglow (B852076), 17 June 2009, EPA (DAM). L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). L. Veagh, near Castle, Glenveagh (C022211), 31 July 1984 (Reynolds,

1986); L. Veagh, north east shore, Glenveagh (C038252), 24 July 1985, LJH (Heneghan, 1986; Murray, 2005). L. Nadourcan, GNP, Glenveagh (C054228), 23 July 1985 (Heneghan, 1986). L. An tSeisigh, Portnablagh, Sheephaven (C043361), 16 June and 28 July 2009, EPA (DAM). L. Glen, Glen (C105292), 16 June 2009, EPA (DAM). L. Keel, Kilmacrennan (C158243), 16 July 2009, EPA (DAM). L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 21 July 2009, EPA (DAM). L. Kiltoris, Dawros, Ardara (G675976), 17 June and 30 July 2009, EPA (DAM). L. Voriskey, The Rosses (B762176), 19 July 2000 (Langton, 2002): **HA 39** - L. Gartan, Church Hill (C055159), 22 July 2009, EPA (DAM). L. Fern, Millford (C180233), 16 June 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Erne, Lower, Boa Island (H108626), L. Lattone, Kiltyclogher (H003456), L. Macnean, upper, Belcoo (H042403) and lower, Belcoo (H085384), all 29 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Cutra, Gort (R485986), 8 June 2007, EPA (PHL): **HA 30** - L. Anillaun, Maam Cross (L980470), 8 June and 1 August 2007, EPA (DAM). L. Ballyquirke, Moycullen (M232317), 14 June 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 6 June and 18 July 2007, EPA (DAM). L. Bofin, Maam Cross (M034441), 7 June 2007, EPA (DAM). L. Corrib (M1545), 1980, BC (DAM). L. Ross, Moycullen (M200363), 18 June 2009 (PHL): **HA 31** - L. Ahalia, Maam Cross, north east shore (L971402), 18 June 2009, EPA (DAM). L. Anaserd, Ballyconneely (L605443), 20 June, 10 July and 9 August 2006 also 17 July and 11 September 2007, EPA (DAM). L. Ardderry, Maam Cross (L982458), 25 May 2003 (PHL). L. Aunwillan, Carraroe (L936255), 7 June and 25 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June 2007, EPA (DAM). L. Derryclare, Recess (L825485), 6 June 2007, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 6 June and 25 July 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 20 June and 8 August 2006, 7 June and 1 August 2007, EPA (DAM). L. Shindilla, Derreenacreeva, south shore (L958460), 20 June and 9 August 2006, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 5 June 2007, EPA (DAM). L. Enask, Beaghcauneen (L662468), 6 June and 17 July 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 6 June and 17 July 2007, EPA (DAM). L. Tully, Tully Cross (L695618) and L. Pollacappul, Kylemore (L754582), 5 June 2007, EPA (DAM). **KERRY: HA 21** - L. Cloonaghlin, Waterville (V611708), 19 June and 24 July 2008, EPA (DAM). L. Currane, Waterville (V535664), 18 June and 10 September 2008, EPA (DAM). L. Inchiquin, Kenmare (V837629), 18 June and 10 September 2008, EPA (DAM): **HA 22** - L. Acoose, Slievanore, Killorglin (V755854), 19 June and 9 July 2008, EPA (DAM). L. Caragh, Killorglin (V719904), 15 July 2008, EPA (DAM). L. Cummernamuck, Killorglin (V745897), 20 June and 18 July 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 8 July 2008, EPA (DAM). L. Leane, Killarney: Victoria Bay (V946900), July 1972 (DAM); Castlough Bay, north shore (V966866) and east shore (V975873), 27 June 1973; Brickeen (V937850), 3 July 1973; Fossa (V907913), 27 July 1973,

all DJD/DAM (Douglas and Murray, 1980); L. Leane, Killarney (V931886), 24 June 2008, EPA (DAM). R. Laune, outflow from L. Leane (V900910), June and July 1973 (Douglas and Murray, 1980). Muckcross Lake, Killarney: Dundag Bay (V964858), June and July 1973 (Murray, 1974); Goleen Bay (V963853), 20 June 1973 (Douglas and Murray, 1980); mid lake, 24 June and 16 July 2008, EPA (DAM). L. Slat, Doon, east shore (Q613080), 7 July 1973, JPOC (DAM). R. Flesk, u/s Newbridge (V978900), 4 May 1973 (Douglas and Murray, 1980) and u/s Newbridge (V973895), June and July 1973, DJD/DAM (Ashe, 1982). Upper Lake, Killarney, Gortroe (V918818), August 1972 (Douglas and Murray, 1980) and mid lake (V909821), 24 June and 17 July 2008, EPA (DAM): **HA 23** - L. Gill, Castlegregory (Q603139), 25 June 2008, EPA (DAM). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). L. Bofin, Dromod (N049894), 24 June 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June 2008, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June 2008, EPA (DAM): **HA 30** - L. Aille, Aille, Westport (M071807), 24 June and 8 August 2008, EPA (DAM). L. Carra, Keel Bridge, Ballinrobe (M165680), 19 June 2008, EPA (DAM). L. Mask, Toormakeady (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Feagh, Newport (L975983), 25 June and 24 July 2008, EPA (DAM). L. Moher, Liscarney, Westport (L977766), 24 June 2008, EPA (DAM). Lough near Westport - Ballin Lough? (L9984), July 1911, PHG (Grimshaw, 1912). Ballin L., Westport, north shore (L996882), 25 June 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 24 June and 23 July 2008, EPA (DAM): **HA 33** - L. Keel, Achill Island, south east shore (F650051), 17 June 2008, EPA (DAM). Glendarary, Achill Island (L723997), July 1911, JNH (Grimshaw, 1912). L. Carrowmore, Bangor Erris, Cloontakilla Bay (F851253), 17 June 2008, EPA (DAM): **HA 34** - L. Conn, Poulwansha (G160096) and Errew (G167118), 3 September 1965, AJOS (Murray, 1972); L. Conn, Brackwansha (G191098), 18 June 2008, EPA (DAM). L. Cullin, Drummon Wood, Pontoon (G235046), 18 June 2008, EPA (DAM). L. Washpool, Ballycarra (M219842), 19 June 2008, EPA (DAM): **Clare Island** - L. Leinapollbauty, Lecarrow (L691856), 5 June 2002, DAM/WM (Murray and Murray, 2003). **MONAGHAN: HA 36** - L. Avagnon, Latton, Cotehill (H688133), 6 June and 11 July 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Meelagh, Keadew (G901117), 11 June 2008, EPA (DAM). L. Key, Boyle, wharf in Forest Park (G848040), 11 June 2008, EPA (DAM). **SLIGO: HA 26** - L. Gara, Cuppanagh, Cloonlough (G714013), 26 June 2008, EPA (DAM): **HA 35** - L. Arrow, Ballinafad (G789123), 11 June 2008, EPA (DAM). L. Templehouse, Ballymote (G619182), 11 June 2008, EPA (DAM). **TIPPERARY: HA 25** - L. Derg, Dromineer, east shore (M809858), 17 June 2009, EPA (DAM). **TYRONE: HA 1** - L. Moor, Altishane, Strabane (H446984), 17 August 2011 (PHL). **WATERFORD: HA 16** - L. Knockaderry, Knockaderry (S496062), 19 August 2009, EPA

(DAM). **WESTMEATH: HA 26** - L. Derravaragh, Crookedwood (N468634), 25 June 2007, EPA (DAM). L. Killinure, Wineport (N067458), 26 June 2007, EPA (DAM). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), July 1987, HD (Murray, 2005).

Tribe Tanytarsini Zavřel, 1917

***Cladotanytarsus (Cladotanytarsus) atridorsum* Kieffer, 1924**

ANTRIM: HA 5 - L. Mourne, Carrickfergus (J415924), 8 May 1999 (PHL). R. Ravernet, Baileysmill, Hillsborough (J324587), 22 June 2000 (Langton, 2002): **Rathlin Island** - lough in Nature Reserve (D095505), 24 July 2000 (Langton, 2002) and L. Ally (D154497), 5 July 2004 (PHL). **ARMAGH: HA 3** - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (PHL). **CAVAN: HA 36** - L. Annagh, Butler's Bridge (H394125), 3 July 2007, EPA (DAM). L. Garty, Arvagh (N278978), 12 April 2007, EPA (DAM). L. Lavey, Stradone (H503025), 11 April 1997 (Murray, 2005). R. Erne, Dingin's Bridge (N331948), 27 August 1982 (Hayes, 1991): **HA 7** - L. Ramor, Virginia (N603871), 27 June 2005, DAM/WM (DAM). **CLARE: HA 25** - L. Graney, Doorus (R557924), 11 August 2009, EPA (DAM). L. Derg: d/s Killaloe (M705715), 21 April 2009 and Mountshannon, west shore (R718861), 18 September 2009, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 20 April 2009, EPA (DAM): **HA 27** - L. Bunny, Aughrim, south east shore (R377965), 2 May, 4 July, 1 August and 5 September 2006 (EPA) also 14 July and 14 September 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 7 June, 4 July, 1 August and 5 September 2006, EPA (LPR/PHL) also 16 June and 14 September 2009, EPA (DAM). L. Inchiquin, Corrofin, south east shore (R272894), 16 June 2009 and west shore (R266896), 15 July 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 2 May, 3 July, 2 August and 5 September 2006, EPA (LPR/PHL). L. Cullaunheeda, Kilkishen (R488746), 13 August 2009, EPA (DAM). L. Atedaun, Corrofin (R297884), 21 April and 16 June 2009, EPA (DAM): **HA 28** - L. Lickeen, Kilfenora, mid lake (R175909), 6 June 2006, EPA (DAM), west shore (R168909), 11 June and 21 July 2009, EPA (DAM): **HA 29** - L. Skeardeen, Kilcorkan (R388991), 7 April 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 3 April, 16 June and 14 August 2008, EPA (DAM). Iniscarra Reservoir, Coachford (W477717), 31 July 2008, EPA (DAM). L. Allua, Ballingearry (W180652), 17 June 2008, EPA (DAM): **HA 20** - L. Coolkllure, Dunmanway (W177539), 17 June 2008, EPA (DAM). L. Curragalicky, Drinagh, Dunmanway (W234046), 17 June 2008, EPA (DAM): **HA 21** - L. Bofinna, Bantry (W041488), 18 June and 13 August 2008, EPA (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan (C417173), 18 May 2001 and 17 May 2002, PHL (PHL): **HA 3** - Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May 2000 (Langton, 2002). L. Neagh: (H9080), no date (McLarnon and Carter, 2000); Ballyronan (H948862), 1988 (Tokeshi, 1990) also 10 May and 4

August 2000 (Langton, 2002) and 22 May 2011 (PHL). **DONEGAL: HA 36** - L. Golagh, Ballyshannon (G965655), 8 June and 7 July 2009, EPA (DAM). L. Tullynasiddagh, Ballyshannon (G983656), 7 July 2009, EPA (DAM): **HA 37** - L. Eske, Donegal (G973844), 8 June 2009, EPA (DAM). L. Shinvagh, Carricode (H005675) and stream inflow to L. Shinvagh, Carricode (H005673), 27 April 2002 (PHL): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Dunglow, The Rosses, south east shore (B783112), 12 August 1982 (BPH). L. Anure, Loughanure, east shore (B818162), 17 June and 12 August 2009, EPA (DAM). L. AntSeisigh, Portnablagh (Sheephaven) (C043361), 16 June and 28 July 2009, EPA (DAM). L. Glen, Glen (C105292), 16 June 2009, EPA (DAM). L. Greenan, Loughsalt, Kilmacrennan (C117262), 16 June 2009, EPA (DAM). L. Keel, Kilmacrennan (C158243), 16 July 2009, EPA (DAM). L. Fallaneas, Kindrum (C173424), 30 April, 16 June and 9 September 2009, EPA (DAM). L. Kindrum, Kindrum, Fanad (C186430), 16 June, 22 July and 9 September 2009, EPA (DAM). L. Kinny, Fanad (C204442), 16 June and 9 September 2009, EPA (DAM). L. Kiltoris, Dawros, Ardara (G675976), 17 June, 30 July and 7 September 2009, EPA (DAM): **HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982, BPH (Murray, 2005). **DOWN: HA 5** - L. Henney, Ballynahinch (J348586), 22 June 2000 (Langton, 2002). **FERMANAGH: HA 36** - L. Erne, Lower: Brocagh Point, Boa Island (H108626), 29 June 2000 (Langton, 2002) and 17 August 2011 (PHL); Black Bay (H072639), 27 April 2002 (PHL). L. Lattone, Kiltyclogher (H003456) and L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 29** - L. Caherglassaun, Gort (M412061), 13 June and 18 September 2007, EPA (DAM). L. Coole, Gort (M425037), 27 July 2009, EPA (DAM). L. Rea, Loughrea, east shore (M624153), 25 May 2003 (PHL): **HA 30** - L. Anillaun, Maam Cross (L980470), 5 September 2007, EPA (DAM). L. Ballyquirke, Moycullen (M232317), 8 August 2007, EPA (DAM). L. Bofin, Maam Cross (M034441), 7 June 2007, EPA (DAM). L. Corrib Upper, Oughterard (M138486), 14 August 2007, EPA (DAM); L. Corrib, Knockferry (M236415), 28 April 1980, BC (DAM). L. Maumwee, Maam Cross (L977485), 8 June 2007, EPA (DAM). Stream and pool at layby on road N59, Moycullen (M204326), 25 May 2003 (PHL): **HA 31** - L. Anaserd, Ballyconneely (L605443), 6 June 2007, EPA (DAM). L. Aunwillan, Carraroe (L936255), 25 July 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June 2007, EPA (DAM). L. Ballynakill, Gorumna (L867236), 15 May 2006, EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 5 June and 1 July 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 17 July 2007, EPA (DAM). L. Tully, Tully Cross (L695618), 19 July 2007, EPA (DAM). **KERRY: HA 22** - Caragh, Killorglin (V719904), 15 July 2008, EPA (DAM). L. Leane, Killarney, Muckross Boathouse (V965866), 29 August 1987, NOM (LJH). Muckross Lake, Muckross, Killarney (V950853), 24 April 2008, EPA (DAM): **HA 23** - L. Gill, Castlegregory (Q603139), 29 April and 25 June 2008, EPA (DAM). **LAOIS: HA 15** - R. Nore, u/s Durrow (S416787), 27 August 1981

(Hayes, 1991). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). L. Bofin, Rinnafarna, Dromod (N036891), 29 July 2008, EPA (DAM). L. Rinn, Mohill (N095943), 25 June and 10 September 2008, EPA (DAM): **HA 35** - L. Glenade, Glenade, Manorhamilton (G831457), 10 June 2008, EPA (DAM). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 28 July and 16 September 2009, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 14 May, 27 August and 10 September 2008, EPA (DAM). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 22 April and 24 June 2008, EPA (DAM). L. Carra, Keel Bridge, Ballinrobe (M165680), 28 April and 19 June 2008, EPA (DAM). L. Mask, Toormakeady, west shore (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Glencullin, Delphi, north west shore (L815699), 26 June 2008, EPA (DAM). L. Feeagh, Newport (L975983), 25 June 2008, EPA (DAM). L. Ballin, Westport: south shore (L994878), 22 April; north shore (L996882), 25 June and 18 September 2008, EPA (DAM): **HA 33** - L. Keel, Keel, Achill Island (F651059), 16 July 2008, EPA (DAM). L. Carrowmore, Bangor Erris: Cloontakilla Bay (F851253), 17 June 2008; Derreens, north shore (F833299), 28 July 2008, EPA (DAM): **HA 34** - L. Conn, Brackwansha (G191098), 18 June 2008, EPA (DAM). L. Cullin, Drummin Wood, north shore (G235046), 20 August 2008, EPA (DAM). L. Lannagh, Castlebar, west shore (M109883), 21 August 2008, EPA (DAM). L. More, Ballynagoraher (G115044), 12 September 2006, EPA (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), 11 June and 1 September 1998 also 10 June and 6 October 1999 (Fahy, 2002). L. Poirin Fuinch (L706857), 2 June, 7 and 13 July, 13 August and 7 September 1999 (Fahy, 2002). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), 3 June 1999 (DAM) and 16 July 1996, WT (DAM). **ROSCOMMON: HA 26** - R. Suck, Ballyforan (M817464), 28 July 1982 (Hayes, 1991). L. Meelagh, Keadew (G901117), 11 June 2008; L. Annaghmore, Strokestown, Elphin (M902838), 12 June 2008; L. Cavetown, Boyle (M832974), 11 June and 17 July 2008; L. Glinn, Loughglinn, Castlerea (M634865), 14 May and 12 June 2008; L. Key, Boyle (G838057), 14 April and 6 August 2008; L. O'Flynn, Ballinlough, south east shore (M585786), 9 September 2008, all EPA (DAM). **SLIGO: HA 26** - L. Gara, Cuppanagh, Cloonlough (G714013), 26 June 2008, EPA (DAM): **HA 34** - L. Talt, Gleneask (G402151), 18 June 2008, EPA (DAM). **TIPPERARY: HA 25** - L. Derg, Dromineer, east shore (M809858), 17 June 2009, EPA (DAM). **WATERFORD: HA 16** - Ballyscanlan Reservoir, Tramore (S540030), 22 April and 3 July 2009; L. Ballyshunnock (Reservoir), Portlaw (S455095), 20 April and 2 September 2009 and L. Knockaderry, Knockaderry (S496062), 2 April 2009, all EPA (DAM): **HA 17** - Belle Lake, Dunmore East (S665049), 22 April and 2 July 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), May 1973, NH (Hayes, 1980). L. Ennell, Tudenham (N415466), 27 June 1966 (Murray, 1972): **HA 36** - L. Bane, Collinstown (N550712), 26 June, 24 July and 22 August 2006 (EPA).

***Cladotanytarsus (Cladotanytarsus) difficilis* Brundin, 1947**

CAVAN: HA 7 - L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972). **CLARE: HA 25** - L. Graney, Caher, south shore (R568907), 24 May 2003 (PHL).

***Cladotanytarsus (Cladotanytarsus) iucundus* Hirvenoja, 1962**

CLARE: HA 27 - L. Bridget, Derrymore, Badyke, east shore (R558797), 29 July 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 7 June 2006, EPA (PHL). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 3 April, 7 June, 3 July, 2 August and 5 September 2006, EPA (PHL/LPR): **HA 28** - L. Naminna, Boolteagh, mid lake (R179708), 11 June 2009, EPA (DAM). **CORK: HA 20** - L. Ballin, Leap (W199389), 21 August 2008, EPA (Murray, 2010). **DONEGAL: HA 1** - L. Mourne, Ballybofey (H069900), 9 June 2009, EPA (DAM): **HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 7 September 2009 and L. Unshin, Ballyshannon (G951637), 8 June and 6 July 2009, EPA (DAM): **HA 38** - L. Anure, Loughanure, east shore (B818162), 12 August 2009 and L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (DAM). **KERRY: HA 23** - L. Gill, Castlegregory (Q603139), 18 September 2008, EPA (Murray, 2010). **MAYO: HA 32** - L. Moher, Liscarney, Westport (L977766), 24 June 2008, EPA (Murray, 2010). **SLIGO: HA 35** - L. Easky, Ox Mountain (G446230), 18 June 2008, EPA (Murray, 2010).

***Cladotanytarsus (Cladotanytarsus) lepidocalcar* Krüger, 1938**

CLARE: HA 27 - Castle Lake, Kilmurry, Sixmilebridge, west shore (R484690), 17 July 2009; Gortglass L., Killadysert, north shore (R223599), 15 September 2009; L. Cullaunheeda, Kilkishen (R484746), 12 June and 17 September 2009, all EPA (DAM). **DONEGAL: HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 8 June 2009, EPA (DAM): **HA 38** - L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009 and L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 9 September 2009, EPA (DAM): **HA 39** - L. Gartan, Church Hill, mid lake (C055159), 22 July 2009 and L. Akibbon, Church Hill (C068184), 11 June 2009, EPA (DAM). **GALWAY: HA 30** - L. Ballyquirke, Moycullen (M232317), 8 August 2007, EPA (Murray, 2010). L. Corrib Upper, Oughterard (M138486), 11 June 2007, EPA (Murray, 2010). **KERRY: HA 22** - L. Leane, Killarney (V931886), 24 June 2008, EPA (DAM). **LEITRIM: HA 26** - L. Rinn, Mohill (N095943), 25 June and 10 September 2008, EPA (DAM). **LOUTH: HA 6** - L. Mentrim, south west Ardee (N913879), 27 June 2005, DAM/WM (DAM). **MAYO: HA 33** - L. Keel, Keel, Achill Island (F651059), 16 July 2008; L. Cross, Drumreagh, Belmullet, north east shore (F651299), 17 June 2008 and west shore (F645293), 14 August 2008, EPA (DAM). **MONAGHAN: HA 36** - L. Inner, Dartery, Drum (H625173), 6 June and 10 July 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008 and L.

Glinn, Loughglinn, Castlerea (M629870), 12 June 2008, EPA (DAM). **SLIGO: HA 26** - L. Gara, Monastredan (M708996), 5 September 2008, EPA (DAM). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM). **WESTMEATH: HA 7** - L. Lene (N510685), 22 August 2006, EPA (DAM). **WICKLOW: HA 10** - Vartry Reservoir, north basin, Roundwood (O205050), 3 September 2009, EPA (DAM).

***Cladotanytarsus mancus* (Walker, 1856)**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 May 2011 (PHL): **Rathlin Island** - L. Ally (D154497), 5 July 2004 (PHL). **CAVAN: HA 36** - Glasshouse L., Killashandra (H270060), 7 June and 18 July 2007, EPA (DAM). L. Annagh, Butler's Bridge (H394125), 3 July 2007, EPA (DAM): **HA 7** - L. Ramor, Virginia (N595870), 4 July 1967 (Murray, 1972). L. Mullagh, Mullagh (N680856), 6 June 1968 (Murray, 1972). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 4 May, 8 June, 3 August and 6 September 2006; L. Alewnaghta, Whitegate, west shore (R758908), 20 April 2009 and L. Derg, Terryglass (M861008), 20 April 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R563803), 12 June 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 7 June 2006, EPA (PHL). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 7 June and 14 September 2009 and L. Cullaunyeeda, Kilkishen (R492748), 17 September 2009, EPA (DAM): **HA 28** - L. Keagh, Milltown Malbay, north shore (R100813), 15 September 2009, EPA (DAM). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 4 June 1969, NH (Bracken and Murray, 1973). L. Gouganebarra, Inchegeelagh (W009060), 5 June 1966, 27 July 1967 and L. Allua, Inchegeelagh (W201661), 27 July 1968 (Murray, 1972). **DERRY: HA 1** - Upper Reservoir, Creggan (C417173) and pool near Reservoir, Creggan (C414171), 18 May 2001 (PHL): **HA 3** - R. Bann, Coleraine (C854304), 25 May 2000 and 30 June 2001 (PHL). Pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 (Langton, 2002). L. Neagh, Ballyronan (H948862), 10 May 2000 (Langton, 2002) and 22 May 2011 (PHL). **DONEGAL: HA 36** - L. Golagh, Ballyshannon (G965655), 7 July 2009, EPA (DAM): **HA 37** - L. Eske, Donegal (G973844), 14 July 2009, EPA (DAM): **HA 38** - L. Nasnahida, Doocharry, Dunglow (B852076), 6 August 2009, EPA (DAM). L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). L. AntSeisigh, Portnablagh (Sheephaven) (C043361), 16 June 2009, EPA (DAM). L. Keel, Kilmacrennan (C158243), 16 June and 16 July 2009 and L. Kindrum, Kindrum, Fanad (C186430), 22 July 2009, EPA (DAM): **HA 39** - L. Fern, Millford (C180233), 16 June 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Erne, Lower, Brocagh Point, Boa Island (H108626), 29 June 2000; L. Lattone, Kiltyclogher (H003456), 29 June 2000 and L. Macnean, lower, Belcoo (H085384), 29 June 2000, all Langton (2002). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 30** - L. Ballyquirke, Moycullen (M232317), 8 August

2007, EPA (DAM). **KERRY: HA 22** - L. Acoose, Slievanore, Killorglin (V755854), 9 July 2008, EPA (DAM). L. Caragh, Killorglin (V719904), 20 June 2008, EPA (DAM). L. Leane, Killarney, Castletlough Bay, north shore (V966866), 1973 and Muckcross Lake, Killarney, Dundag Bay (V964858), July 1973 (Douglas and Murray, 1980). **LEITRIM: HA 26** - L. Allen, Mountallen, Drumshanbo (G950145), 10 June 2008; L. Boderg, Derrycarne, north west shore (N013915), 10 September 2008; L. Bofin, Dromod (N049894), 24 June 2008 and Rinnafarna (N036891), 29 July 2008 and L. Rinn, Mohill (N095943), 10 September 2008, all EPA (DAM). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 16 September 2009, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 24 April 2008, EPA (DAM): **HA 30** - L. Mask, Toormakeady, west shore (M113702), 24 June 2008, EPA (DAM): **HA 32** - L. Doo, Delphi, north east shore (L834689), 22 August 2004, DAM/WM (Murray, 2005). L. Feeagh, Newport (L975983), 25 June 2008 and L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 33** - L. Carrowmore, Bangor Erris: Cloontakilla Bay (F851253), 17 June and Derreens, north shore (F833299), 28 July 2008, EPA (DAM): **HA 34** - L. Conn, Gillaroo Bay, Massbrook (G175051), 29 August 1964 and Brackwansha (G191098), 10 April 1965, AJOS (Murray, 1972) also Illannaglashy (G207070), 20 August 2008, EPA (DAM). L. Cullin, Drummin Wood, north east shore (G235048), 22 August 1995, DAM/WM (DAM); Drummin Wood, north shore (G235046), 20 August 2008, EPA (DAM). L. Lannagh, Castlebar, west shore (M109883), 21 August 2008; north east basin (M137899), 26 September 2008, EPA (DAM) and L. Levally, Massbrook (G146043), 23 July 2008, EPA (DAM). **MONAGHAN: HA 36** - Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **ROSCOMMON: HA 26** - L. Glinn, Loughglinn, Castlerea (M634865), 14 May 2008; L. Key, Boyle, wharf in Forest Park (G848040), 11 June 2008 and mid lake 6 August 2008 also L. O'Flynn, Ballinlough, south east shore (M585786), 12 June 2008, all EPA (DAM). L. Ree, Yew Point, Barley Harbour (N018485), 13 June 2007, EPA (DAM). **SLIGO: HA 26** - L. Gara, Monastredan (M708996), 5 September 2008, EPA (DAM). **WATERFORD: HA 16** - Ballyscanlan Reservoir, Tramore (S540030), 19 August and 1 September 2009 and L. Ballyshunnock (Reservoir), Portlaw (S455095), 19 August 2009, EPA (DAM). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 26 June 2006 (EPA).

***Cladotanytarsus nigrovittatus* (Goetghebuer, 1922)**

ANTRIM: Rathlin Island - pool 3, east of lighthouse (D156516), 24 July 2000 (Langton, 2002). **CAVAN: HA 36** - L. Sillan, Shercock, north east shore (H708071), 20 May 1974 (DAM). **CLARE: HA 27** - L. Muckanagh, Tubber, Corrofin, south east shore (R370922), 14 September 2009, EPA (DAM): **HA 28** - L. Naminna, Boolteagh, mid lake (R179708), 11 June and north west shore (R178710), 7 July 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid

Reservoir, Ashton (W360703), 14 August 2008, EPA (DAM): **HA 20** - L. Tooreen, Crookhaven (V790259), 17 September 2008, EPA (DAM). **DONEGAL: HA 38** - L. Veagh, north east shore-1, Glenveagh (C034223), 19 July and north east shore-2 (C039231), 24 July 1985 (Heneghan, 1986): **HA 39** - L. Gartan, Church Hill, mid lake (C055159), 10 June 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). L. Macnean, upper, Belcoo (H042403), 29 June 2000 (Langton, 2002). **MAYO: HA 32** - L. Glencullin, Delphi, north west shore (L815699), 26 June 2008, EPA (DAM): **HA 34** - R. Moy, Bellanacurra (G403047), 29 August 1982 (Hayes, 1991). **MEATH: HA 7** - R. Boyne, Ardsallagh, eel weir (N896632), 25 September 1983 (DAM). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 (Hayes, 1991). L. Annaghmore, Strokestown, Elphin (M902838), 8 April 2008 and L. O'Flynn, Ballinlough, south east shore (M585786), 12 June 2008, EPA (DAM). **WICKLOW: HA 9** - Pollaphuca Reservoir, Blessington Bridge (N990144), 17 June 2002, DAM/WM (Murray, 2005).

***Cladotanytarsus pallidus* Kieffer, 1922**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 August 2001 (PHL). **CLARE: HA 25** - L. Alewnaghta, Whitegate, west shore (R758908), 17 June 2009, EPA (DAM): **HA 27** - L. Bunny, Aughrim, south east shore (R377965), 14 July 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 3 July and 2 August 2006, EPA (PHL). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 18 May 2001 and 17 May 2002 (PHL): **HA 2** - Roe Valley Park, pool, Limavady (C679201), 9 June 2000 (Langton, 2002): **HA 3** - Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May 2000 (Langton, 2002). R. Bann, Coleraine (C854304), 17 May 2002 (PHL). L. Neagh, Ballyronan (H948862), 4 July 2000 (Langton, 2002) and 22 May 2011 (PHL). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM): **HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 8 June 2009, EPA (DAM): **HA 38** - L. Dunglow, The Rosses, east shore (B787117), 19 July 2000 (Langton, 2002) and west shore (B782119), 5 August 2009, EPA (DAM). L. Anure, Loughanure, east shore (B818162), 17 June 2009, EPA (DAM). L. Nacung Upper, Dunlewy (B904191) and L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). L. Kiltoris, Dawros, Ardara (G675976), 30 July 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 22 July and 9 September 2009, EPA (DAM). **GALWAY: HA 29** - L. Rea, Loughrea, east shore (M624153), 25 May 2003 and L. Cutra, Gort (R485986), 24 May 2003 (PHL): **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 September 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007, EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Ballynakill, Gorumna (L867236), 20 June 2006 and L. Nahasleam, Maam Cross (L972440), 8 August 2006, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny

(V780775), 18 June 2008; L. Cloonaghlin, Waterville (V611708), 19 June 2008 and L. Currane, Waterville (V535664), 18 June and 22 July 2008, all EPA (DAM): **HA 22** - L. Cummernamuck, Killorglin (V745897), 18 July 2008; Muckcross Lake, Muckcross, Killarney (V950853), 18 September 2008 and Upper Lake, Killarney (V909821), 9 September 2008, all EPA (DAM). **LEITRIM: HA 26** - L. Boderg, Derrycarne, north west shore (N013915), 29 July 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June 2008, EPA (DAM). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 8 August 2008 and L. Moher, Lisearney, Westport (L977766), 18 September 2008, EPA (DAM). L. Doo, Delphi, north east shore (L834689), 22 August 2002, DAM/WM (DAM): **HA 34** - L. Levally, Massbrook (G146043), 25 June 2008, EPA (DAM). **MONAGHAN: HA 36** - Summerhill L., 2, Magheraveely (H490280), 28 June 2000 (Langton, 2002). **ROSCOMMON: HA 26** - L. Key, wharf in Forest Park, Boyle (G848040), 11 June 2008, EPA (DAM). **WATERFORD: HA 16** - L. Knockaderry, Knockaderry (S496062), 2 April 2009 and Ballyscanlan Reservoir, Tramore (S540030), 3 July 2009, EPA (DAM): **HA 17** - L. Carrigavantry, Tramore (S548022), 3 July and 1 September 2009, EPA (DAM). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 26 June 2006 (EPA): **HA 7** - L. Lene (N510685), 22 August 2006, EPA (DAM).

***Cladotanytarsus vanderwulpi* (Edwards, 1929)**

ANTRIM: HA 4 - R. Bush, Seneirl Bridge (C943362), 16 July 2000 (Langton, 2002). **CARLOW: HA 12** - R. Slaney, Motabower Bridge (S832778) and Kildavin (S899597), 28 July 1981 also R. Derreen, Acann Bridge (S900781), 29 July 1981 (Hayes, 1991). **CLARE: HA 25** - L. Derg, Terryglass (M861008), 20 April 2009, EPA (DAM). **CORK: HA 20** - R. Ovane, Pierson's Bridge (W023454), 24 August 1983, BPH (Hayes, 1991). **DERRY: HA 2** - R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000 (Langton, 2002): **HA 3** - R. Bann, Coleraine (C854304), 25 May 2000 and L. Neagh, Ballyronan (H948862), 27 April 1999 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). **DONEGAL: HA 1** - R. Deelee, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002): **HA 39** - L. Akibbon, Church Hill (C068184), 23 April 2009, EPA (DAM). L. Gartan, Church Hill, north shore (C065173), R. Glashagh, Drumbologe, Letterkenny (C096153) and R. Swilly, Newmills, Letterkenny (C125092), 18 July 2000 (Langton, 2002): **HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991). **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002). **GALWAY: HA 26** - R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991): **HA 31** - L. Nahasleam, Maam Cross (L972440), 12 September 2006, EPA (DAM). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 21** - L. Currane, Waterville (V535664), 9 May 2008, EPA (DAM). R. Inny, Scarriff Bridge (V504696) and u/s Waterville (V525704), 24

August 1983 (Hayes, 1991): **HA 22** - L. Cummernamuck, Killorglin (V745897), 18 July 2008, EPA (DAM). R. Caragh, Blackstones Bridge, ds R. Acoose confluence (V710864), May 1976, JPOC (DAM). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707), Norelands Bridge (S547436) and Brownsbarn Bridge (S618391), 28 August 1981, BPH (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Kilbricken (S362898), Shanahoe Bridge (S407858) and u/s Durrow (S416787), 27 August 1981; also Athanagh (S423763), 28 August 1981 (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, Cappamore (R775514), d/s Cappamore (R779504) and Dromkeen Bridge (R741480), 8 September 1981, BPH (Hayes, 1991). **MAYO: HA 32** - R. Bunowen, Louisburg, u/s of bridge (L807807), 5 August 2004, DAM/WM (DAM): **HA 34** - R. Moy, Bellanacurra (G403047), and Ballylahan (M277992), 29 August 1982 also Cloongullaun (G348016), 30 August 1982, BPH (Hayes, 1991). **MEATH: HA 6** - R. Dee, Drumconrath (N910894), 27 July 1983 (Hayes, 1991): **HA 7** - R. Boyne: Bellinter Bridge (N894625), 18 June 1968 (Murray, 1972), 21 August 1988 (Murray, 1988) and 11 August 1999, DAM/WM (DAM); R. Boyne, Oldbridge (O045761) and d/s Oldbridge (O062753), 19 July 1989 (DAM). R. Blackwater: Poolboy Bridge, Navan (N871681), 18 August 1988; Bloomsbury Bridge, Oristown (N793741) and Donaghpatrick (N819723), 19 August 1988 (Murray, 1988). Tailings, interceptor ditch, Randalstown, Navan (N845712), 10 May 1995 (Murray, 2005). **OFFALY: HA 25** - R. Little Brosna, Milltown Park (S068907), Sharavogue (S056953) and New Bridge (N016088), 2 September 1982, all BPH (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July and Newtown (M844346), 15 August 1981 (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168), Metal Bridge, Tobercurry (G464138) and Annagh (G466123), 30 August 1982 (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore, Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991). **WEXFORD: HA 11** - R. Ounvarra, Ballycanew (T153519), 6 May 2006, DAM/WM (DAM): **HA 12** - R. Slaney, Clomahon (S933534) and Ederline Bridge (S977345), 29 July 1981 (Hayes, 1991). **WICKLOW: HA 12** - R. Slaney, Stratford Bridge (S895930) and Kilmurray (S889856), 28 July 1981 (Hayes, 1991).

Corynocera ambigua Zetterstedt, 1837

DERRY: HA 3 - L. Neagh, unspecified (H900800), no date (McLarnon and Carter, 2000). **GALWAY: HA 30** - L. Corrib Upper, Derreneel, west shore (M119453), 18 April 1980, BC (Murray and Ashe, 1983). L. Mask, Inishard Point (M130605), 1997, SF (Ashe *et al.*, 2000).

Micropsectra apposita (Walker, 1856)

Synonym *Micropsectra contracta* Reiss, 1965 (from Sæther and Spies, 2013).

The following data also includes records as pupal exuviae determined from Langton (1991)

or Langton and Visser (2003) as “*Micropsectra apposita* (Walker, 1856) / *contracta* Reiss, 1965”.

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 17 March 2000 (PHL). Pond, Templepatrick (J232856), 26 July 2008 (PHL): **HA 4** - R. Bush, Seneirl Bridge (C943362), 16 July 2000 and Conogher Bridge (C963305), 10 September 2000 (Langton, 2002). R. Glendun (Glendun R.), Drumfresky, Cushendun (D193308), 2 July 2000 (Langton, 2002). **CAVAN: HA 36** - R. Erne, Drumbarry (N462951), 17 August 1982 (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 23 March, 26 April and 10 May 2001 (PHL): **HA 3** - Howell’s Tarn, Ballywildrick, Coleraine (C766325), 7 April 2002; Downhill Forest, Coleraine (C760353) 17 March 1999 and 24 March 2002; Downhill Forest stream, Coleraine (C759348), 17 March 1999; Downhill Lake, Bishops Gate, Coleraine (C762361), 18 March 2006; Balinrees Reservoir, Coleraine (C794300), 9 June 2000; R. Agivey, Garvagh (C838154), 30 May 2002; R. Bann, Coleraine (C854304), 25 July 1999, 17 March 2000, 24 March 2002, 11 and 18 April 2010; Water Butt, Kylebeg, Coleraine (C856304), 2 April 2000; L. Neagh, Ballyronan (H948862), 31 May 2011, all PHL. **DONEGAL: HA 37** - R. Eany, d/s Eanybeg confluence (G842815), 10 August 1982 (Hayes, 1991): **HA 38** - Glenlack, near L. Veagh, Glenveagh (C008190), 19 July 1985 (Heneghan, 1986): **HA 39** - R. Leannan, Drumaboden (C165218), 12 August 1982 (Hayes, 1991). **DOWN: HA 3** - R. Kinnahalla, Hilltown (J239292), 26 July 2008 (PHL). **DUBLIN: HA 9** - bog pool, Featherbed Mountain (O120190), 1 June 1974 (Dowling, 1975). **FERMANAGH: HA 36** - L. Erne Lower, Black Bay (H072639), 22 March 2003 (PHL). R. Finn, Lisnanesnagh Bridge (H544337), 26 June 2000 (Langton, 2002) and 28 June 2000 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 26** - R. Shiven, d/s Ballinaglass (M788494), 29 July 1981 (Hayes, 1991). R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991): **HA 30** - L. Corrib, Derrenmeel, west shore (M150450), 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL). Pool at lay by on road N59, Moycullen (M204336), 25 May 2003 (PHL). R. Cregg, Addergoole Bridge, Addergoole (M324350), 16 August 1981 (Hayes, 1991). **KERRY: HA 22** - R. Flesk, d/s Whitebridge (V987900), July 1976 (Ashe, 1982). **KILDARE: HA 7** - R. Boyne, Ballyboggan (N639402), 9 July 1981 (Hayes, 1991). **KILKENNY: HA 15** - R. Clogh, Clogh (S565790), 10 March 1976, CD (DAM). R. Nore, Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930) and Kilbricken (S362898), 27 August 1981 (Hayes, 1991). **LEITRIM: HA 35** - L. Glenade, south east shore, Glenade, Manorhamilton (G831457), 10 June 2008, EPA (DAM). **LIMERICK: HA 25** - R. Mulkear, Cappamore (R775514) and d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - L. Ballin, Westport, north shore (L996882), 18 September 2008, EPA (DAM): **HA 33** - bog pools, R. Glenamoy, Glenamoy (F896345), February to June 1973

(Dowling, 1975). **MEATH: HA 7** - bog ditch, Ballivor (N659548), 6 April 1984 (DAM): **HA 8** - Meadesbrook Stream, Meadesbrook, Kilmoon (O038594), 2 April 1973 and 3 March 1996 (DAM). R. Nanny, road bridge u/s Duleek (O035655), 6 June 2006, DAM/WM (DAM). **ROSCOMMON: HA 26** - R. Suck, Ballyforan (M817464), 2 April and 16 July 1981; Mount Talbot (M813531), 14 August 1981 (Hayes, 1991). L. Key, wharf in Forest Park, Boyle (G848040), 11 June 2008, EPA (DAM). **SLIGO: HA 34** - L. Talt, Gleneask (G402151), 10 April 2008, EPA (DAM). R. Moy, Metal Bridge, Tobercurry (G464138), 30 August 1982 (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore, Clonakenny (S116805), Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991): **HA 25** - R. Kilmastulla, Kilmastulla Bridge (R728698), 3 September 1981 (Hayes, 1991): **HA 16** - R. Suir, Cabragh (S124562), 6 July 1992 (Murray and Lynch, 1992). **WEXFORD: HA 12** - R. Sow tributary, Garylough Mill, Screen (T076302), 6 May 2006, DAM/WM (DAM).

***Micropsectra aristata* Pinder, 1976**

CARLOW: HA 12 - R. Slaney, Motabower Bridge (S832778), 28 July 1981 (Hayes, 1991). **CLARE: HA 28** - R. Annageeragh, Moyglass Bridge, d/s L. Doo (R078725), 30 July 1982 (Hayes, 1991). **CORK: HA 20** - R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363), 24 August 1983 (Hayes, 1991). **DONEGAL: HA 37** - R. Eany, d/s Eanybeg confluence (G842815), 10 August 1982 (Hayes, 1991): **HA 39** - R. Crana, Buncrana (C347328), 15 August 1982 (Hayes, 1991). **MAYO: HA 33** - R. Owenmore, Bangor Bridge, Bangor Erris (F863228), 18 August 1983 (Hayes, 1991). R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991). **OFFALY: HA 25** - R. Little Brosna, Brosna Bridge (S077938) and Sharavogue (S056953), 2 September 1982 (Hayes, 1991). **SLIGO: HA 35** - R. Easky, Easky (G377378), 19 August 1983 (Hayes, 1991). **WEXFORD: HA 12** - R. Slaney, Ballycarney (S967488), 29 July 1981 (Hayes, 1991). **WICKLOW: HA 10** - R. Glencullen, Knocksink (O218180), 18 May 1987, DEM/DAM (Morgan and Murray, 1988; Morgan, 1989): **HA 12** - R. Derry, Balisland (S978645) and R. Slaney, Stratford Bridge (S895930), 28 July 1981 (Hayes, 1991).

***Micropsectra atrofasciata* (Kieffer, 1911)**

ANTRIM: HA 3 - Glenravel Water, Gartnageeragh, Newtown Crommelin (D147154), 2 July 2000 (Langton, 2002). L. Neagh, Antrim Bay (J135866), 13 October 2000 (PHL) and Churchtown Point (J056852), 13 October 2000 (Langton, 2002). Kells R., Shank Bridge, Kells (J126982), 20 June 2000 (Langton, 2002). R. Sixmilewater, Templepatrick (J227867), 4 May 1999 (PHL): **HA 4** - R. Bush: Seneirl Bridge (C943362), 16 July 2000; Stranocum (D009307) and Ballyhoe Bridge (D077294), 2 July 2000, all PHL (Langton, 2002). R. Glendun (Glendun

R.), Drumfresky, Cushendun (D193308) and R. Glenariff (Inver/Glenariff), Cushendall (D215205), 2 July 2000 (Langton, 2002). R. Glennaan, Cushendall (D218288) and R. Glenarm, Glenarm (D310148), 17 September 2011 (PHL): **HA 5** - R. Ravernet, Baileysmill, Hillsborough (J324587), 22 June 2000 (Langton, 2002). Raloo Water, tributary of R. Glenoe, Glenoe, Larne (J394967), 8 May 1999 (PHL). **CARLOW: HA 12** - R. Slaney, Motabower Bridge (S832778), 28 July 1981 and R. Derreen, Acann Bridge (S900781), 29 July 1981 (Hayes, 1991). **CAVAN: HA 36** - R. Erne: Kilsarin (N362910), 27 May 1982; Drumbarry (N462951), 17 August 1982; Dingin's Bridge (N331948) and Carrigan (N391935), 27 August 1982, all BPH (Hayes, 1991): **HA 7** - R. Barora tributary, Relaghbeg (N679907), 5 April 1968 and L. Mullagh, Mullagh (N680856), 23 May 1968 (Murray, 1972). **CLARE: HA 25** - L. Derg, d/s Killaloe (M705715), 18 September 2009, EPA (DAM): **HA 28** - R. Caher: Holywell, 2.5km from source (M173069) and Murroogh, 5km from source (M153089), 27 October 1999 and 29 April 2000, all CB (Kelly-Quinn *et al.*, 2003). **CORK: HA 18** - R. Blackwater, Roskeen Bridge, Banteer (W444988), 1 September 1981 and Keale Bridge, Millstreet (W294936), 2 September 1981 (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 23 March, 26 April and 10 May 2001 and 17 May 2002 (PHL). Lower Reservoir, Creggan, Derry (C422174), 26 April 2001 (PHL). Inflow to Upper Reservoir, Creggan, Derry (C413171), 26 April 2001 and 17 May 2002 (PHL): **HA 2** - R. Ballykelly, Clagan (C628209), 9 June 2000 and R. Owenbeg, Feeny picnic area, Feeny (C645058), 26 June 2000 (Langton, 2002). R. Bessbrook, Limavady (C655212) 9 June 2000 and Roe Valley Park pool, Limavady (C679201), 9 June and 14 July 2000 (Langton, 2002). R. Roe, Deerpark Wood, Limavaddy (C682203); R. Curly, Artikelly Bridge, Limavady (C684247); Castle R., Ardmore Bridge, Limavady (C706207) and burn at Largantea picnic area, Formoyle, Coleraine (C738287), 9 June 2000, all PHL (Langton, 2002): **HA 3** - R. Bann, Mountsandel, Coleraine (C852305), 18 March 1999 and 27 January 2000, PHL (Stur and Ekrem, 2006). Downhill beach stream, Coleraine (C754326), 9 June 2000 (Langton, 2002). Howell's Tarn, Ballywildrick, Coleraine (C766325), 7 April and 7 July 2002 (PHL). Downhill Forest, Coleraine (C760353), 7 July 2002 (PHL). Downhill Forest stream, Coleraine (C759348), 17 March and 25 July 1999 also 21 August 2001 and 24 March 2002 (PHL). Downhill Lake, Bishop's Gate, Coleraine (C762361), 18 May 2000 (Langton, 2002). R. Agivey, Garvagh (C838154) and pond, McFadyen's Garden, Coleraine (C848316), 18 May 2000 (PHL). R. Aghadowey, Ballybritain Bridge and R. Macosquin, Black Bridge, Ballylintagh (C854256), 26 May 2000 (Langton, 2002). R. Bann, Coleraine (C854304): 18 and 29 March, 12 April, 20, 30 and 31 May, 10 June, 22 September, 13 October and 1 November 1999, 1, 17 and 27 January, 19 and 28 February, 10 March, 6 April, 3, 17 and 31 May, 7 June, 16 and 25 July, 8 October and 11 December 2000, 6 and 18 February, 26 April, 30 June 2001, 6 and 20 January, 3 February, 3 March, 7 April 2002, 23 January 2005, 11 and 18 April and 2 May 2010, all PHL

(PHL). R. Moyola, New Bridge, Magherafelt (H955905), 20 January 2002 (PHL). **DONEGAL: HA 1** - R. Deelee, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002): **HA 38** - R. Gweedore, L. Anure outflow, Crolly (B827184) and R. Devlin, Dunlewy (B927190), 19 July 2000 (Langton, 2002). L. Barra, Commeen (B935119), 22 April 2009, EPA (DAM). Tributary stream to R. Owenveagh, Glenveagh Cottage, GNP (B998175), 4 June and R. Owenveagh near Glenveagh Cottage (B990178), 30 July 1985; Glenlack Stream, near L. Veagh, GNP (C003183), 15 May 1986 and stream near GNP Administration Centre (C041227), 14 May 1986, all LJH (Heneghan, 1986). Owennacally stream, Glenveagh (C043226), 19 July 2000 (Langton, 2002). R. Ray, Crocnalaragh (B989272), 12 August 1982 (Hayes, 1991): **HA 39** - L. Akibbon, Church Hill (C068184), 9 September 2009, EPA (DAM). L. Fern, Millford (C180233), 23 July 2009, EPA (DAM). Stream, Ranny House (Kerrykeel, "burn"), Carrokeel (C208322), 2 June 2000 (Langton, 2002): **HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991). **DOWN: HA 3** - Upper R. Bann tributary, Hilltown (J210294), 27 March 1998, Poland's Bridge, Banbridge (J193428), 26 March 1998 and Corbally (J214435), 27 August 1998, all PHL. Upper R. Bann, Banbridge (J168443), 27 August 1998 (PHL). R. Kinnahalla, Hilltown (J239292), 26 September 1997 (PHL). **DUBLIN: HA 9** - bog pool, Featherbed Mountain (O120190), April 1974, CD (Dowling, 1975; Dowling and Murray, 1981). **FERMANAGH: HA 36** - R. Belbarrinagh, Belcoo (H112309), 29 June 2000 and R. Hollybrook, Lisnaskea (H373310), 27 June 2000 (Langton, 2002). R. Colebrook tributary, Tullyweel, Fivemiletown (H416474), 17 September 1997 and R. Colebrook tributary Drumcleave, Brookeborough (H367427), 24 September 1998 (PHL). **GALWAY: HA 26** - R. Shiven, d/s Ballinaglass (M788494), 29 July 1981 and R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991): **HA 30** - L. Ballyquirke, Moycullen (M232317), 8 August 2007, EPA (DAM). R. Cregg, Addergoole Bridge, Addergoole (M324350), 16 August 1981 and R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 (Hayes, 1991). **KERRY: HA 22** - R. Annascaul, Annascaul (Q593017), 2 July 1981 (Hayes, 1991) and 21 July 1981, BPH (Murray, 2005). R. Clydagh, Caherbarnagh (W202842), 21 April 1978 and Knocknagowan (W187837), May 1978 (Ashe, 1982). **KILDARE: HA 7** - R. Boyne, Ballyboggan (N639402), 9 July 1981 (Hayes, 1991): **HA 9** - R. Liffey, Sallins (N881245), 17 July 1983 and R. Rye, Kildare Bridge, Carton (N948387), 13 July 1983 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707) and Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930) and Kilbricken (S362898), 27 August 1981 (Hayes, 1991). **LEITRIM: HA 35** - L. Glencar, Glencar (G748434), 1 April, 21 July and 2 September 2008, EPA (DAM). **LIMERICK: HA 25** - Mulkear, d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 33** - Keem Stream 1 (F560043) and Keem Stream 2 (F561045), Keem Bay, Achill Island, 5 August 2004, DAM/WM (DAM). L. Cross,

Drumreagh, Belmullet, north east shore (F651299), 17 September 2008, EPA (DAM). R. Owenmore, Bangor Bridge, Bangor Erris (F863228), 18 August 1983 (Hayes, 1991). Bog pools, R. Glenamoy basin, Glenamoy (F896345), April to September 1972, CD (Dowling, 1975; Dowling and Murray, 1981). R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - R. Moy, Ballylahan (M277992), 29 August 1982 (Hayes, 1991). **MAYO: Clare Island** - R. Dorree, Maum, 100m from sea (L708865), 28 April 2000; near Bayview Hotel (L716856), 20 and 22 August 2002; small tank on north slope of Knockaveen (L705856), 21 August 2002; Loughnapucar stream 1, south east of Signal Tower (L657850), 21 August 2002, all DAM/WM (Murray and Murray, 2003). **MEATH: HA 6** - R. Dee, Drumconrath (N910894), 27 July 1983 (Hayes, 1991): **HA 7** - R. Boyne: Scarrif Bridge (N733527), 9 July 1981 (Hayes, 1991); opposite R. Skane, d/s Bellinter Bridge (N895628), 15 March 1981 and 2 May 1982 (DAM); Ardsallagh, at St Bridget's Well (N897635), 3 March 1996 (Murray, 2005); Stackallen Bridge (N918713), 12 July 1981 (Hayes, 1991) and 19 July 1989 (DAM); Slane Bridge (N965737), Knowth Weir (N995720), Oldbridge (O045761) and d/s Oldbridge (O062753), 19 July 1989, all DAM. Headford Pond, Kells (N752763), 5 March 1968 (Murray, 1972). Mine Tailings, interceptor ditch, Randalstown, Navan (N845712), 29 March 1996 (DAM): **HA 8** - Meadesbrook Stream, Meadesbrook, Kilmoon (O038594), 6 June 1968 (Murray, 1972) also 21 April 1982, 5 May and 7 May 2005 and 9 June 2006 (DAM); Meadesbrook, Kilmoon, lawn (O040594), 1 January 2001 (DAM). **MONAGHAN: HA 6** - L. Naglack, Carrickmacross (H853026), 3 May 2007 (DAM). **OFFALY: HA 25** - R. Little Brosna, Ryan's Cross (S053882), Milltown Park (S068907) and Brosna Bridge (S077938), 2 September 1982, all BPH (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 1 April and 16 July 1981 (Hayes, 1991): **HA 30** - R. Dalgan, Clonfad (M518712), 20 August 1981 (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168) and Metal Bridge, Tobercurry (G464138), 30 August 1982 (Hayes, 1991): **HA 35** - L. Gill, Sligo (G753335), 3 April 2008 and (G782350), 11 June 2008, EPA (DAM). **TIPPERARY: HA 15** - R. Nore, Clonakenny (S116805), Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981, all BPH (Hayes, 1991): **HA 25** - R. Kilmastulla, Kilmastulla Bridge (R728698), 3 September 1981 (Hayes, 1991). **WEXFORD: HA 12** - Movilla stream, Movilla House, Screen (T082311) and Crossabeg stream, Crossabeg, Castletown (T023270), 6 May 2006, DAM/WM (DAM). R. Boro, Dunamore Bridge, Enniscorthy (S963366) and R. Slaney, Ballycarney (S967488) and Ederline Bridge (S977345), 29 July 1981 (Hayes, 1991): **HA 13** - R. Tintern, Tintern (S792100), 13 June 2012 (DAM). **WICKLOW: HA 10** - R. Glenealo, Glendalough (T090962), 16 July 1996 (McEntee, 1997). R. Avonbeg, Meetings Bridge (T188831) and R. Avonmore, Lion Arch Bridge (T194833), 11 July 1997 (Curran, 2001). R. Avoca: Whitebridge, Tigroney (T198821), July and October 1997; Avoca Village (T203802), July 1997 (all Curran, 2001): **HA**

12 - R. Slaney, Stratford Bridge (S895930) and Kilmurray (S889856), 28 July 1981 (Hayes, 1991).

***Micropsectra attenuata* Reiss, 1969**

MAYO: HA 32 - first order stream, Knappagh, Westport (L958814), 8 May 2003 (Murray, 2005; Murray and Murray, 2006). **MEATH: HA 7** - tailings pond, stage 2, Randalstown, Navan (N845714), 29 March 1996 (DAM).

***Micropsectra junci* (Meigen, 1818)**

Synonyms *Micropsectra subviridis* (Goetghebuer, 1921), *M. brunripes* (Zetterstedt, 1850), *M. gmundensis* (Egger, 1863)

ANTRIM: HA 3 - R. Sixmilewater, Templepatrick (J227867), 4 May 1999 (PHL): **HA 4** - feeder stream to L. na Cranagh, Fair Head (D183427), 21 March 1999 (PHL). **CAVAN: HA 7** - L. Cuilcagh, Virginia (N636895), 30 April 1968 (Murray, 1972 - sub *M. brunripes*). **CORK: HA 21** - L. Avaul, Glengarrif (V910553), 19 May 1969, NH (Bracken and Murray, 1973 - sub *M. subviridis*). **DERRY: HA 3** - Inflow to Balinrees Reservoir, Coleraine (C793307), 20 March 1999 and Pond in McFadyen's Garden, Coleraine (C848316), 14 April 2002 (PHL): **HA 3** - R. Bann, Coleraine (C854304), 3 July 1999 (PHL). **DONEGAL: HA 38** - stream to R. Owenveagh, Glenveagh Cottage, Glenveagh (B998175), 4 June 1986 (Heneghan, 1986); Bog pool, Slieve Snaght, Bingorm Mountain, Glenveagh (B937152), 4 July 1986, LJH (DAM). R. Ray, Muckish Gap (B993268), 12 August 1982, BPH (Hayes, 1991; Murray, 2005). L. Salt, Milford (C121256), 24 May 1986 (Heneghan, 1986): **HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153) and R. Swilly, Newmills, Letterkenny (C125092), 18 July 2000 (Langton, 2002). **DOWN: HA 3** - Upper R. Bann tributary, Corbally (J214435), 19 September 1997 (PHL). **DUBLIN: HA 9** - R. Dodder, Fort Bridge, Bohernabreena (O009242), 31 May 1967 (Murray, 1972 - as *M. subviridis*). **FERMANAGH: HA 36** - L. Atona, Cuilcagh Mountain (H110294), 29 June 2000 (Langton, 2002). R. Colebrook tributary, Corlough (H416416), 27 July 1997 and R. Colebrook, Killarbran Bridge, Killarbran (H416441), 24 September 1998 (PHL). **GALWAY: HA 32** - pond, CNP, Letterfrack (L714573), 17 September 1986 (Heneghan, 1987). **KERRY: HA 21** - Erik L., Derrygarriff (V881777), 9 August 2005, JRB (DAM): **HA 22** - R. Flesk: d/s Whitebridge (V987900), d/s New Bridge (V963885) and u/s L. Leane (V964894) June to August 1978, all PJA (Ashe, 1982). Seepage, Derrycunihy Wood, Killarney (V909806), 21 August 1988 (Murray, 2005). R. Annascaul, Annascaul (Q593017), 18 April 1981, BPH (DAM). **MAYO: Clare Island** - a tentative record by Grimshaw (1912) as "*Tanytarsus gmundensis*", no site collection data (L6885), 1911. Roadside at Bayview Hotel (L716856), 4 June and 20 August 2002 also by stream on Lighthouse road (L699874), 20

August 2002 (Murray and Murray, 2003). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 17 April 1968 (Murray, 1972 - sub *M. brunripes*): **HA 8** - Meadesbrook Stream, Meadesbrook, Kilmoon (O038594), 27 July 1968 (Murray, 1972 - sub *M. subviridis*) also 5 and 7 May 2005, 24 May, 3 June and 9 June 2006 and 10 November 2012 (DAM). Meadesbrook, Garden (O040594), 8 November 2014 (DAM).

***Micropsectra lindebergi* Säwedal, 1976**

DONEGAL: HA 36 - L. Vearty, Ballyshannon (G995658), 7 September 2009 (DAM). L. Keenaghan, Beleek (G974600), 28 March 2004 (PHL): **HA 38** - L. Salt, Milford (C121256), 7 April 2009, EPA (DAM). **KERRY: HA 22** - L. Coomloughra, Caher Mountain, Carrauntoohil (V783849), 26 April 2005, JRB/MC (Murray and Baars, 2006). **MAYO: HA 32** - L. Doo, Delphi, west shore (L835681), 5 April 2006 and 3 April 2008, EPA (DAM): **HA 33** - L. Carrowmore, Bangor Erris, Gortmore, south east shore (F833266), 29 September 2004, WAM (DAM). **ROSCOMMON: HA 26** - L. Urlar, Abbey, north east shore (M508900), 10 March 2005, DAM/WM (DAM). **TIPPERARY: HA 18** - L. Curra, Galtymore Mountain (R867242), 26 May 2005, JRB (Murray and Baars, 2006). **WICKLOW: HA 10** - L. Ouler, Tonelagee (O091023), 19 May 2005, JRB (Murray, 2005; Murray and Baars, 2006).

***Micropsectra lindebergi* Säwedal, 1976 (Pe) or *M. insignibilis* Kieffer, 1924 (Pe)**

DONEGAL: HA 38 - L. Keel, Kilmacrennan (C158243), 16 June 2009 (DAM): **HA 37** - L. Eske, Donegal (G973844), 17 April 2009 (DAM). **KERRY: HA 22** - L. Guitane, Crohane (W025846), 21 April 2008, EPA (DAM). **MAYO: HA 32** - L. Feeagh, Newport (L975983), 11 April 2008, EPA (DAM).

***Micropsectra lindrothi* Goetghebuer, 1931**

ANTRIM: HA 3 - Killylane Reservoir, Magherabane, Larne (J292985), 18 May 1999 (PHL): **HA 4** - pool at Ballyhoe Bridge (D077294), 2 July 2000 and R. Bush, Seneirl Bridge (C943362), 16 July 2000 (Langton, 2002). **CARLOW: HA 12** - R. Slaney, Kildavin (S899597), 28 July 1981 (Hayes, 1991). **CAVAN: HA 36** - L. Atrain, Gartbrattan, Cavan (H364051), 12 April 2007, EPA (DAM). **CORK: HA 18** - R. Blackwater: Roskeen Bridge, Banteer (W444988), 1 September 1981; Duncannon (W180931) and Shamrock Bridge, Millstreet (W221935), 2 September 1981 (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173) and pool near Reservoir, Creggan (C414171), 17 May 2002 (PHL); Lower Reservoir, Creggan, Derry (C422174), 21 February, 23 March, 26 April and 10 May 2001 (PHL): **HA 2** - R. Ballykelly, Clagan (C628209), 9 June 2000; R. Owenbeg, Feeny picnic area, Feeny (C645058), 26 June 2000; Roe Valley Park pool, Limavady (C679201), 9 June and 14

July 2000; R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000, all PHL (Langton, 2002): **HA 3** - R. Aghadowey, Ballybritain Bridge (C859212), 26 May 2000 (Langton, 2002). Howell's Tarn, Ballywildrick, Coleraine (C766325), 7 July 2002; Inflow to Balinrees Reservoir, Coleraine (C793307), 20 March 1999; R. Agivey, Garvagh (C838154), 30 May 2002; R. Bann, Coleraine (C854304), 7 June 2000, all PHL (PHL). **DONEGAL: HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153) and R. Swilly, Newmills, Letterkenny (C125092), 18 July 2000 (Langton, 2002). **DUBLIN: HA 9** - artificial pond, University College Dublin, Belfield (O185300), 12 May 1996 (Murray, 2005). **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36** - R. Hollybrook, Lisnaskea (H373310), 27 June 2000 (Langton, 2002). **GALWAY: HA 26** - R. Castlegar, Mountbellew Bridge (M674477), 31 March 1981, BPH (DAM): **HA 30** - pool at layby on road N59, Moycullen (M204336), 25 May 2003 (PHL). **KERRY: HA 21** - L. Currane, Waterville (V535664), 9 May 2008, EPA (DAM): **HA 22** - R. Annascaul, Annascaul (Q593017), 19 April 1981 (Hayes, 1991). R. Flesk, d/s Whitebridge (V987900), June, July and August 1978 (Ashe, 1982; Murray and Ashe, 1983). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930) and Kilbricken (S362898), 27 August 1981 also Athanagh (S423763), 28 August 1981, all BPH (Hayes, 1991). **LEITRIM: HA 26** - pond in walled garden, Lough Rynn Castle (N098936), 25 September 2014 (DAM). **LIMERICK: HA 25** - R. Mulkear, Cappamore and d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 26** - turlough, Loughanboy, Ballyhaunis (M433816), 24 May 1986, DAM/WM (DAM): **Clare Island** - pond east of Signal Tower (L658859) and humic pond, Bunnamohaun (L659846), 21 August 2002 (Murray and Murray, 2003). **MEATH: HA 7** - ditch, Ardsallagh, Navan (N894636), 3 May 1982 (DAM) and artificial tank (N896635), 12 June 2000 (Murray, 2005). Tailings pond, Randalstown, Navan (N845714), 29 August 1995 (Finnegan, 1998). Rainwater accumulation in discarded motor tyre, Mullaghboy Industrial Estate, Navan (N853668), 20 October 2012 (DAM): **HA 8** - Meadesbrook Stream, Meadesbrook, Kilmoon (O038594), 10 October 1981, 21 April 1982 and 4 April 2006 (DAM). Puddenhill Activity Centre, Moorepark (O038612), 23 April 2014 (DAM). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), 3 June 1999 (DAM). **ROSCOMMON: HA 26** - Coolgarry Lough, Brideswell (M900475), 9 May 1986, CAD (DAM). **TIPPERARY: HA 15** - R. Nore: Clonakenny (S116805), Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991): **HA 18** - L. Curra, Galtymore Mountain (R867242), 10 August 2005, JRB (DAM). **TYRONE: HA 1** - Denet Stream, Essbeg Bridge, Lisnaskee (H384306), 27 June 2000 (Langton, 2002). Pool by R. Glenelly, Upper Barnes (H553904), 17 August 2011 (PHL). **WEXFORD: HA 13** - animal drinking trough, Horetown House (S870188), 12 June 2012 (DAM).

***Micropsectra logani* (Johannsen, 1928)**

Synonym *Micropsectra groenlandica* Andersen, 1937

MEATH: HA 8 - Meadesbrook, Kilmoon, Ashbourne (O038594), 3 March 1996 (DAM).

DUBLIN: HA 9 - R. Dodder, Fort Bridge, Bohernabreena (O009242), 5 April 1949, CFH/SR (Reilly, 1950 - sub *Micropsectra groenlandica*).

***Micropsectra nana* (Meigen, 1818)**

DONEGAL: HA 38 - waterfall, west of L. Veagh, Glenveagh (B995189), 21 July 1985, LJH (Heneghan, 1986). Glenveagh National Park, Stream near Park Centre (C031217), 14 May 1986, LJH (DAM). **MAYO: HA 32** - R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972 - sub *Parapsectra nana*).

***Micropsectra notescens* (Walker, 1856)**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 28 March 2001 (PHL): **HA 4** - R. Bush, Seneirl Bridge (C943362), 16 July 2000 (Langton, 2002). Benvardeen Pond, Derrykeegan (C946334), 15 May 2005 (PHL). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 10 April 2006, EPA (DAM). **DERRY: HA 1** - inflow to Upper Reservoir, Creggan, Derry (C413171), 10 May 2001 and pool near Reservoir, Creggan, Derry (C414171), 18 May 2001 (PHL): **HA 2** - fire dam, Binevenagh Forest, Coleraine (C699304), 18 May 2000 and Roe Valley Park-pool, Limavady (C679201), 14 July 2000 (Langton, 2002): **HA 3** - Downhill beach stream, Coleraine (C754326), 9 June 2000 (Langton, 2002). Howell's Tarn, Ballywildrick, Coleraine (C766325), 21 April and 7 July 2002; Downhill Forest, Coleraine (C760353), 17 March 2000 and 24 March 2002; Downhill Forest stream, Coleraine (C759348), 25 July 1999 and 24 March 2002; Pond, McFadyen's Garden, Coleraine (C848316), 14 April 2002; Pond, near R. Macquosin, Ballytinagh Road, Coleraine (C854255), 18 April 2004; R. Bann, Coleraine (C854304), 18 March, 10 and 18 June, 3 July and 26 August 1999, 28 February 2000, 6 February and 27 April 2001, 11 and 18 April 2010, all PHL (PHL). R. Agivey, Glascort Bridge (C907226), 16 July 2000 (Langton, 2002). **DONEGAL: HA 1** - R. Deelee, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002): **HA 38** - L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 2 April 2009, EPA (DAM): **HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153), 18 July 2000 (Langton, 2002). R. Leannan, Drumaboden (C165218), 12 August 1982 (Hayes, 1991). **DOWN: HA 3** - Drumadonnell R., Ballyward (J273383), 28 August 1997; Upper R. Bann tributary, Tullyconnaught (J166451), Shanrod (J215453) and Killinamurry (J228441), 19 September 1997 also Eel Burn, Shanrod House, Shanrod (J223477) and R. Muddock, Muddock Bridge, Rathfriland (J235342), 19 September 1997, all PHL. **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36**

- R. Hollybrook, Lisnaskea (H373310), 27 June 2000 (Langton, 2002). R. Colebrook tributary, Beagh (H483480), 23 April 1998; R. Colebrook tributary, Ardmore, Breandrum (H377415), 22 September 1998 and R. Colebrook tributary, Raw (H424426), 3 October 1997, all PHL (PHL). **GALWAY: HA 30** - stream at layby on road N59, Moycullen (M204326), 25 May 2003 (PHL). **KERRY: HA 22** - R. Clydagh: Caherbarnagh (W202842), u/s Clydagh Bridge (W114826) and Knocknagowan (W187837), January to December 1978 (Ashe, 1982). R. Flesk: d/s Whitebridge (V987900) 27 July 1976 (Ashe, 1977; Murray and Ashe, 1983), d/s Clydagh/Loo confluence (W084814), Garries Bridge (W082835), Flesk Bridge (W034876), d/s Whitebridge (V987900), d/s New Bridge (V963885) and u/s L. Leane (V964894), January to December 1978, all PJA (Ashe, 1982). R. Loo, Aughnanus Bridge, Crohane (W045790), January to December 1978 (Ashe, 1982). **MAYO: HA 32** - L. Knappabeg, Westport (M010803), 21 April 2008, EPA (DAM). **MEATH: HA 7** - R. Boyne - Knowth Weir, (N995720), 14 June 1968 (DAM) and opposite R. Skane, d/s Bellinter Bridge (N895628), 8 May 1982 (DAM): **HA 8** - Meadesbrook Lawn, Meadesbrook, Kilmoon (O040594), 3 March and 25 December 1996, 18 March 2015 (DAM). **OFFALY: HA 25** - R. Little Brosna, Milltown Park (S068907) and Brosna Bridge (S077938), 2 September 1982 (Hayes, 1991). **WICKLOW: HA 10** - L. Bray Lower, Glencree (O140164), 4 June 1986 (DAM) and 16 June 2009 EPA (DAM). Upper Glendalough Lake, Laragh, WMNP (T109964), 23 March 1994 (DAM).

***Micropsectra pallidula* (Meigen, 1830)**

Included here are records of *Micropsectra bidentata* (adult male) based on Pinder (1978) and of pupal exuviae from Langton (1991) and Langton and Visser (2003) which are considered to be *M. pallidula* following Stur and Ekrem (2005). The concept of *M. bidentata* sensu Langton and Pinder (2007) is unchanged from Pinder (1972).

ANTRIM: HA 3 - Glenravel Water, Gartnageeragh, Newtown Crommelin (D147154), 2 July 2000 (Langton, 2002). Killylane Reservoir, Magherabane, Larne (J292985), 8 May 1999 (PHL): **HA 4** - R. Bush, Ballyhoe Bridge (D077294), R. Brymore, Brymore Bridge (D162275) and R. Glendun, Drumfresky, Cushendun (D193308), 2 July 2000 (all Langton, 2002). R. Glanaan, Cushendall (D218288), 17 September 2011 (PHL). Inflow stream to L. na Cranagh, Fair Head (D183427), 21 March 1999 (PHL): **HA 5** - Raloo Water - tributary to R. Glenoe, Glenoe, Larne (J394967), 8 May 1999 (PHL). **CARLOW: HA 12** - R. Slaney, Motabower Bridge (S832778), 28 July 1981 (Hayes, 1991). R. Derreen, Acann Bridge (S900781), 29 July 1981 (Hayes, 1991). **CAVAN: HA 36** - R. Erne, Drumbarry (N462951), 17 August 1982 (Hayes, 1991): **HA 7** - L. Cuilcagh, Mullagh (N636895), 21 November 1967 (Murray, 1972 - sub *M. bidentata*). **CLARE: HA 27** - L. Dromore, Ruan, Corrofin, west basin (R345858), 8 April 2009, EPA (DAM). **CORK: HA 18** - R. Blackwater: Duncannon (W180931), Shamrock Bridge, Millstreet

(W221935), Charles Bridge, Millstreet (W248943) and Keale Bridge, Millstreet (W294936), 2 September 1981, all BPH (Hayes, 1991): **HA 20** - R. Ilen, Drimoleague (W098454), 24 August 1983 (Hayes, 1991). **DERRY: HA 1** - Lower Reservoir, Creggan, Derry (C422174), 21 February 2001 (PHL). Inflow to Upper Reservoir, Creggan, Derry (C413171), 26 April, 10 and 18 May 2001 (PHL): **HA 2** - R. Owenbeg, Feeny picnic area, Feeny (C645058), 26 June 2000; R. Bessbrook, Limavady (C655212), 9 June 2000; fire dam 1, Binevenagh Forest, Coleraine (C699304), 18 May 2000 and Castle R., Ardmore Bridge, Limavady (C706207), 9 June 2000, all PHL (Langton, 2002): **HA 3** - inflow to Balinrees Reservoir, Coleraine (C793307), 20 March 1999 (PHL). R. Agivey, ford at Ballynameen (C827148), 14 June 2008 (PHL). R. Bann, Coleraine (C854304): 20 May and 18 June 1999, 27 January, 5, 19 and 28 February 2000, all PHL. Water butt, Kylebeg, Coleraine (C856304), 24 March 2004 and 6 January 2006 (PHL). L. Neagh, Ballyronan (H948862), 22 May 2011 (PHL). **DONEGAL: HA 1** - R. Deelee, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002). R. Reelan tributary, Clogher North (G931962), 23 April 2004, JRB (DAM): **HA 37** - R. Stragar, Duninkeely (G727792), 10 August 1982 (Hayes, 1991): **HA 38** - R. Devlin, Dunlewy (B927190), 19 July 2000 (Langton, 2002). Stream near Administration Centre, GNP, Glenveagh (C041227), 14 May 1986 (Heneghan, 1986). R. Ray, Muckish Gap (B993268) and Crocnalaragh (B989272), 12 August 1982 (Hayes, 1991). L. Kinny, Fanad (C204442), 2 April 2009, EPA (DAM): **HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153) and R. Swilly, Newmills, Letterkenny (C125092), 18 July 2000 (Langton, 2002). R. Crana, Buncrana (C347328) and Ballymagan (C379344), 15 August 1982 (Hayes, 1991): **HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991). **DOWN: HA 3** - Eel Burn, Shanrod House, Shanrod (J223477), 19 September 1997 (PHL). **DUBLIN: HA 9** - R. Dodder, Fort Bridge, Bohernabreena (O009242), 14 July 1968 (Murray, 1972 - sub *M. bidentata*). **FERMANAGH: HA 35** - L. Melvin, Garrison (G938518), 29 June 2000 (Langton, 2002): **HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36** - R. Belbarrinagh, Belcoo (H112309), 29 June 2000 and R. Sruh Croppa, Cuilcagh Mountain (H111329), 29 June 2000 (Langton, 2002). R. Bannagh, Drummoney Falls, Pettigo (H168676), 17 August 2011 (PHL). **GALWAY: HA 26** - R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991): **HA 30** - stream at layby on road N59, Moycullen (M204326), 25 May 2003 (PHL). R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 and Cregg, Addergoole Bridge, Addergoole (M324350), 16 August 1981 (Hayes, 1991): **HA 32** - R. Owenglin, Clifden (L677506) and R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). Mountain stream, Diamond Hill, CNP, Letterfrack (L718564), 18 September 1986 (Heneghan, 1987). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 22** - R. Annascaul, Annascaul (Q593017), 19 April 1981 (DAM) and 2 July 1981 (Hayes, 1991).

Stream to R. Loo, d/s Aughnaunas Br., Crohane (W048790), 15 January 1979, PJA (DAM). **KILDARE: HA 9** - R. Liffey, Straffan Bridge (N924293), 15 July 1983 and Sallins (N881245), 17 July 1983 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707) and Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930), Kilbricken (S362898), Shanahoe Bridge (S407858) and u/s Durrow (S416787), 27 August 1981, all BPH (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, Cappamore (R775514) and d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - L. Fin, Delphi (L841657), 5 April 2006 (DAM). R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972). R. Owenwee, u/s Aghamore Bridge, Westport (L972817), 5 August 2004, DAM/WM (DAM). R. Erriff, Ashleigh Falls (L895645), 18 August 1981 (Hayes, 1991): **HA 33** - stream 2, Keem Bay, Keem, Achill Island (F561045), 5 August 2004, DAM/WM (DAM). L. Bunacurry, Achill Island (F695048) and pool at Campport, Achill Island (L677982), 29 September 2004, DAM/WM (DAM). R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **Clare Island** - Kinnawoneen stream, Fawnglass (L713852), 6 June 2002 (Murray and Murray, 2003 - sub *M. bidentata*). **MEATH: HA 7** - R. Boyne: Scarrif Bridge (N733527), 9 July 1981 (Hayes, 1991); Ardsallagh, at St Bridget's Well (N897635), 3 March 1996 and 10 April 2005, Stackallen Bridge (N917713), 19 July 1989 and Knowth Weir (N995720), 16 June 1968, all DAM. Ditch, Ardsallagh, Navan (N894636), 23 March 1996 and 2 May 1982 (DAM). Ditch, Ardagh, Tullyallen (O020773), 23 July 1968 (Murray, 1972): **HA 8** - Meadesbrook, Kilmoon; stream (O038594), 27 July 1968 (Murray, 1972) and 22 October 1981 (DAM); Lawn (O040594), 3 March 1996, 22 October 1981 and 3 April 1999 (DAM). **OFFALY: HA 25** - R. Little Brosna, Bridge, Ryan's Cross (S053882) and New Bridge (N016088), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Ballyforan (M817464) and Castlecoote (M809627), 16 July 1981 also at Athleague (M825758), 14 August 1981 (Hayes, 1991). **SLIGO: HA 34** - R. Moy: Carrowneden (G530205), Cloonacool (G493168), Metal Bridge, Tobercurry (G464138) and Annagh (G466123), 30 August 1982, all BPH (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore: Clonakenny (S116805), Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991). **TYRONE: HA 1** - Dennet Stream, Essbeg Bridge, Lisnaskee (H384306), 27 June 2000 (Langton, 2002). Pool, by R. Glenelly, Upper Barnes (H553904), 17 August 2011 (PHL). **WEXFORD: HA 12** - R. Boro, Dunamore Bridge, Enniscorthy (S963366), 29 July 1981 (Hayes, 1991). R. Slaney, Clomahon (S933534) and Ederline Bridge (S977345), 29 July 1981 (Hayes, 1991). R. Sow tributary, Garylough Mill, Screen (T076302), 6 May 2006, DAM/WM (DAM). **WICKLOW: HA 10** - R. Avonbeg, Drumgoft Bridge, Glenmalure (T105905), 4 August 1983 (Hayes, 1991): **HA 12** - R. Derry, Balisland (S978645), 28 July 1981 and Bridgeland (T021744), 29 July 1981 (Hayes, 1991). R. Slaney, Glen of Imaal, Knickeen

(S987948), Knockgarrigan (S936937), Stratford Bridge (S895930) and Kilmurray (S889856), all 28 July 1981, all BPH (Hayes, 1991).

***Micropsectra roseiventris* (Kieffer, 1909)**

[= *Micropsectra fusca* (Meigen, 1804) following Stur and Ekrem, (2006)]

DERRY: HA 2 - pond, Binevenagh, Coleraine (C691305), 18 May and 16 September 2000 (PHL): **HA 3** - R. Agivey, ford at Ballynameen (C827148), 14 June 2008 (PHL). Bog pool, Glenullin, Garvagh (C795132), 18 August 2007 (PHL). **CLARE: HA 28** - L. Acrow, Lisscasey (R193687), 4 April 2006, EPA (Murray, 2010). L. Naminna, Boolteagh, north west shore (R178710), 1 April 2009, EPA (DAM). **DONEGAL: HA 38** - L. Nabuckan, Grogan More (B850184), 10 May 2005, JRB (DAM). R. Devlin, Dunlewy (B927190), 19 July 2000 (Langton, 2002). L. Veagh, GNP, boathouse near Castle (C022211), 23 May 1986; Inflow stream to L. Veagh, north east shore (C033222), 19 August 1985 and stream near Administration Centre (C041227), 16 July 1985, all LJH (Heneghan, 1986); L. Keel, Kilmacrennan (C158243), 16 June 2009, EPA (DAM): **HA 39** - L. Inshagh road, Glenveagh (C031188), 20 May 1986 (Heneghan, 1986). **DUBLIN: HA 9** - bog pool, Featherbed Mountain (O120190), March, April, May and July 1974, CD (Dowling, 1975; Dowling and Murray, 1981); bog pool, Featherbed Mountain (O123184), 3 April 1981, PJA (Murray, 2005). **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36** - L. Atona, Cuilcagh Mountain (H110294), 29 June 2000 (Langton, 2002). **GALWAY: HA 32** - CNP, Letterfrack, stream near Administration Centre (L716573), 16 September 1986 and pond at Administration Centre (L715575), 17 September 1986 (Heneghan, 1987). R. Dawros, d/s Tullywee Bridge, Letterfrack (L725585) and on Kylemore Road, Letterfrack (L745582), 19 September 1986 (Heneghan, 1987). **KERRY: HA 22** - L. Leane, Killarney, O'Sullivan's Cascade (V916886), 17 April 1973, DAM (Douglas and Murray, 1980). R. Caragh, Blackstones Bridge, d/s R. Acoose confluence (V710864), 3 November 1974, CD (Dowling *et al.*, 1981). Bog pool at R. Owenreagh, Gearrhameen (V875798), 27 August 1987 (Murray, 2005). R. Loo, Aughnanus Bridge, Crohane (W045790), September 1978 (Ashe, 1982) and 20 March 1979, PJA (Ashe, 1982; Murray, 2005, 2010). **LEITRIM: HA 26** - L. Allen, Drumshanbo Lock (G968110), 30 March 2000 (DAM) and Mountallen, Drumshanbo (G950145), 28 April 2008, EPA (Murray, 2010). L. Natire, north of L. Allen (G966340), 3 August 2005, JRB/MC (DAM): **HA 35** - L. Lackagh, Boleybrack (G920320), 21 April 2005, JRB (DAM). **MAYO: HA 32** - L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 33** - pool, Campport, Achill Island (L677982), 29 September 2004, DAM/WM (DAM). L. Carrowmore, Gortmore, Bangor Erris, south east shore (F833266), 4 April 2002, WAM (DAM). Bog pools, Glenamoy (F896345), April and September 1972, CD (Dowling, 1975; Dowling and Murray, 1981): **Clare Island** -

Kinnawoneen stream, Fawnglass (L713852), 28 April 2000 and Fawnglass Stream, Fawnglass (L713854), 28 April 2000 and 4 June 2002 also bog pool, Knockmore (L683857), 21 August 2002, all DAM/WM (Murray and Murray, 2003). L. Poirtin Fuinch (L706857), 10 August and 1 September 1998 also 2 June and 3 August 1999 (Fahy, 2002). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 31 March 1968 (Murray, 1972). Bog ditch, Ballivor (N659548), 6 April 1984 (DAM): **HA 8** - Meadesbrook stream-pond area, Meadesbrook, Kilmoon (O038594), 15 November 2005 (DAM). **MONAGHAN: HA 36** - L. Drumlona, Rockcorry (H636176), 4 April 2007, EPA (Murray, 2010). **ROSCOMMON: HA 26** - Briarfield Turlough, Tulsk (M815760), 25 April 1986, CAD (DAM). **TIPPERARY: HA 18** - L. Curra, Galtymore Mountain (R867242), 10 August 2005, JRB (DAM). **WICKLOW: HA 9** - bog pool, Featherbed Mountain (O130113), 27 August 1981 (DAM): **HA 10** - Upper Glendalough Lake, Laragh, WMNP (T109964), 23 March 1994 (DAM).

***Micropsectra uliginosa* (Reiss, 1969)**

LEITRIM: HA 35 - L. Nabrack, Crocknagapple (G860477), 29 April 2005, JRB (Murray, 2005; Murray and Baars, 2007 - as *Parapsectra uliginosa*; Baars *et al.*, 2014).

***Neozavrelia cuneipennis* (Edwards 1929)**

DONEGAL: HA 36 - L. Vearty, Ballyshannon (G995658), 7 September 2009, EPA (DAM): **HA 38** - L. Glen, Glen (C105292), 29 July 2009, EPA (DAM). **GALWAY: HA 30** - L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007, EPA (Murray, 2010): **HA 31** - L. Ahalia, Gortmore, north east shore (L971402), 23 September 2009, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 6 June 2007, EPA (Murray, 2010). L. Nahasleam, Maam Cross (L972440) and L. Shindilla, Derreenacreeva, south shore (L958460), 16 May 2006, EPA (Murray, 2010) also L. Shindilla 20 June 2006, EPA (DAM): **HA 32** - L. Enask, Beaghcauneen (L662468), 17 July 2007, EPA (Murray, 2010). **KERRY: HA 22** - R. Caragh, Blackstones Bridge, d/s R. Acoose confluence (V710864), May 1976, JPOC (DAM). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 18 September 2008, EPA (DAM): **HA 32** - L. Feeagh, Newport (L975983), 17 September 2008, EPA (Murray, 2010): **HA 34** - L. Levally, Massbrook (G146043), 23 September 2008, EPA (Murray, 2010). **WICKLOW: HA 10** - L. Tay, Luggala (O163008), 28 July 2009, EPA (DAM).

***Neozavrelia luteola* Goetghebuer and Thienemann, 1941**

DONEGAL: HA 38 - R. Ray, Muckish Gap (B993268), 12 August 1982 (Hayes, 1991; Murray, 2005). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 10 September 2008, EPA (DAM): **HA 22** - R. Flesk, d/s Clydagh/Loo confluence (W084814), May 1978 (Ashe, 1982). R.

Caragh, Upper Brida Valley (V785810), 1975, CD (cited in Ashe, 1982). **MAYO: HA 32** - L. Doo, Delphi, west shore (L835681), 12 July 2006, EPA (DAM). R. Bunowen, Louisburg, u/s of bridge (L807807), 7 May 2004, DAM/WM (DAM). L. Feeagh, Newport (L975983), 24 July and 17 September 2008, EPA (DAM). **TIPPERARY: HA 18** - L. Curra, Galtymore Mountain (R867242), 10 August 2005, JRB (DAM).

***Paratanytarsus austriacus* (Kieffer, 1924)**

CAVAN: HA 36 - R. Erne, Drumbarry (N462951), 17 August 1982, BPH (Hayes, 1991; Murray, 2005). **DERRY: HA 2** - Roe Valley Park - pool, Limavady (C679201), 9 June 2000 (Langton, 2002): **HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 21 April 2002 (PHL). Water butt, Kylebeg, Coleraine (C856304), 19 February and 29 March 2002 (PHL). **DONEGAL: HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153), 18 July 2000 (Langton, 2002). **LONGFORD: HA 26** - L. Ree, Bleanavoher (N069445) 10 September 2007, EPA (DAM). **MEATH: HA 7** - R. Boyne - opposite R. Skane, d/s Bellinter Bridge (N895628), 3 May 1982 (Murray and Ashe, 1983; Murray, 2005): **HA 8** - Meadesbrook, Kilmoon, lawn (O040594), 7 October 2012 and rainwater barrel (O040594), 23 October 2012 (DAM). **ROSCOMMON: HA 26** - Briarfield Turlough, Tulsk (M815760), 25 April 1986, CAD (DAM). L. Ree, Yew Point, Barley Harbour (N018485), 10 September 2007, EPA (DAM) **TYRONE: HA 1** - pool, by R. Glenelly, Upper Barnes (H553904), 17 August 2011 (PHL).

***Paratanytarsus bituberculatus* (Edwards, 1929)**

CLARE: HA 25 - L. Derg, d/s Killaloe (M705715), 18 September 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 21 April 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 7 June and 5 September 2006 (EPA) and 16 June 2009, EPA (PHL). L. Muckanagh, Tubber, Corrofin, south east shore (R370922), 11 June and 14 September 2009, EPA (DAM). **DONEGAL: HA 38** - L. Barra, Commeen (B935119), 22 April 2009, EPA (DAM). **GALWAY: HA 30** - L. Corrib Lower, Moycullen (M271360), 11 June 2007, EPA (DAM). L. Ross, Moycullen (M188365), 5 September 2007, EPA (DAM): **HA 31** - L. Shindilla, Derreennacreeva, south shore (L958460), 19 April 2007, EPA (DAM): **HA 32** - L. Tully, Tully Cross (L695618), 10 September 2007, EPA (DAM). **KERRY: HA 22** - Muckcross Lake, Muckcross, Killarney (V950853), 18 September 2008, EPA (DAM). **MAYO: HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 28 July 2008, EPA (DAM). L. Corrib Upper, Kitten's Bay (M110463), 25 June 2010, JRB (DAM). L. Mask, Toormakeady (M113702), 22 September 2008, EPA (DAM): **HA 32** - R. Burleemslough, Clapper Bridge Ford, Killeen, Cloonlaur (L754759), 5 August 2004, DAM/WM (DAM). **MEATH: HA 7** - tailings pond, stage 2, Randalstown, Navan (N845714), 14 May 1996 (Murray, 2005). **ROSCOMMON: HA**

26 - L. Funshinagh, Brideswell (M933513), 11 September 2007, EPA (DAM). Grange L., 25 June and 28 July 2008, EPA (DAM). **SLIGO: HA 34** - L. Talt, Gleneask (G402151), 24 September 2008, EPA (DAM). **WATERFORD: HA 16** - Ballyscanlan Reservoir, Tramore (S540030), 3 July and 19 August 2009, EPA (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 1981, GPF (Forde, 1985). L. Owel, Mullingar (N421566), 24 July 1973, NH (Murray and Ashe, 1983): **HA 36** - L. Bane, Collinstown (N550712), 23 May 2006 (EPA).

***Paratanytarsus brevicar* (Kieffer, 1909)**

Synonym *Paratanytarsus intricatus* (Goetghebuer, 1921)

CORK: HA 20 - L. Skeagh (Schull Reservoir), Schull (V937338), 27 August 2008, EPA (DAM). **MAYO: HA 32** - R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972): **Clare Island** - pond east of Maum road (L710863), 20 August 2002 (Murray and Murray, 2003). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM).

***Paratanytarsus dimorphis* Reiss, 1965**

GALWAY: HA 30 - L. Corrib Lower, Hurney, west shore (M258310), 9 and 18 April 1980, BC (Murray and Ashe, 1983). L. Corrib Upper, Oughterard, (M138486), 14 August 2007, EPA (DAM). **KILDARE: HA 9** - pond, Lyons Estate, Celbridge (N972285), 29 March 1982 (Murray, 2005). **WESTMEATH: HA 26** - L. Derravaragh, Crookedwood (N468634), 30 August 2007, EPA (DAM).

***Paratanytarsus dissimilis* (Johannsen, 1905)**

Synonym *Paratanytarsus confusus* Palmen, 1960

ANTRIM: HA 3 - R. Clogh, Clough Mills (D105109), 2 July 2000 and Kells R., Shank Bridge, Kells (J126982), 20 June 2000 (Langton, 2002): **HA 4** - R. Bush, Conogher Bridge (C963305), 10 September 2000 and R. Glenariff (Inver/Glenariff), Cushendall (D215205), 2 July 2000 (Langton, 2002). **CAVAN: HA 36** - Glasshouse L., Killashandra (H270060), 7 June 2007; L. Oughter, Killashandra (H349051), 17 July 2007 and L. Sillan, Shercock, north east shore (H705067), 19 April 2007, EPA (DAM). **CLARE: HA 27** - Castle Lake, Kilmurry, Sixmilebridge, south west shore (R481688), 12 June and 17 July 2009 also (R482691), 17 September 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 14 September 2009; L. Inchiquin, Corrofin, south east shore (R272894), 16 June and mid lake, 4 July 2006, also L. Atedaun, Corrofin (R297884), 21 April 2009, all EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 16 June 2008 and L. Allua, Ballingearry (W180652), 4 April and 20 August 2008, EPA (DAM). **DERRY: HA 2** - R. Roe, Largy Bridge,

Limavaddy (C681202), 14 July 2000 (Langton, 2002): **HA 3** - R. Bann, Coleraine (C854304): 12 and 26 April, 5 May, 26 August 1999, 25 May, 7 and 13 June, 3 July 2000, 26 April and 16 June 2001, 18 April and 2 May 2010, all PHL (PHL). Artificial paddling pool, Kylebeg, Coleraine (C856304), 6 August 2000 and R. Moyola, New Bridge, Magherafelt (H955905), 7 May 2001 (PHL). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 23 July 2009, EPA (DAM): **HA 38** - R. Gweedore, L. Anure outflow, Crolly (B827184), 19 July 2000 (Langton, 2002). L. Barra, Commeen (B935119), 10 June 2009, EPA (DAM): **HA 38** - L. Glen, Glen (C105292), 29 July 2009, EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 9 September 2009, EPA (DAM). R. Glashagh, Drumbologe, Letterkenny (C096153), 18 July 2000 (Langton, 2002). **DOWN: HA 3** - R. Rocky (d/s Shanky confluence), Hilltown (J233277), 26 September 1998 (PHL). **FERMANAGH: HA 36** - Dummys L., Magheraveely (H488276), 28 June 2000 (Langton, 2002): **HA 36** - R. Bannagh, Drummoney Falls, Pettigo (H168676), 17 August 2011 (PHL). **GALWAY: HA 30** - L. Ballyquirke, Moycullen (M232317), 13 April, 8 August and 14 September 2007, EPA (DAM): **HA 31** - L. Ahalia, Gortmore, north east shore (L971402), 23 September 2009; L. Ballynahinch, Ballynahinch (L777478), 17 April, 6 June and 13 September 2007 and L. Nahasleam, Maam Cross (L972440), 13 September 2007, EPA (DAM): **HA 32** - L. Kylemore, Kylemore (L771582), 30 July 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney, Castlelough Bay, north shore (V975873), 27 August 1987 (Murray, 2005). R. Flesk: d/s R. Clydagh/R. Loo confluence (W084814), Garries Bridge (W082835) and Flesk Bridge (W034876) also R. Loo, Aughnanus Bridge, Crohane (W045790), all April to August 1978 (Ashe, 1982; Murray and Ashe, 1983 - sub *P. confusus* Palmen). **LEITRIM: HA 26** - L. Boderg, Derrycarne, north west shore (N013915), 10 September 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 27 August and 10 September 2008, EPA (DAM). **MAYO: HA 32** - Westport L., Westport Woods Hotel, Westport (L985843), 30 September 2004, DAM/WM (DAM). L. Knappabeg, Westport (M010803), 21 April and 23 July 2008, EPA (DAM): **HA 34** - L. Conn, Illannaglashy (G207070), 20 August 2008, EPA (DAM). L. Levally, Massbrook (G146043), 23 September 2008, EPA (DAM). **MEATH: HA 7** - R. Skane, Dalgan Park, Navan (N901626), 23 May 2015 (Murray, 2015a). R. Blackwater, Bloomsbury Bridge, Oristown (N793741), 19 August 1988, DAM (Murray, 1988). **MONAGHAN: HA 6** - L. Monalty, Carrickmacross (H866027), 11 June 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). L. Funshinagh, Brideswell (M933513), 23 April 2007, EPA (DAM). L. Key, Boyle, wharf in Forest Park (G848040), 11 June 2008, EPA (DAM). **TIPPERARY: HA 16** - R. Drish, Athlummon Bridge (S177593), 6 September 1991 and 22 May 1992 (Murray and Lynch, 1992). **WESTMEATH: HA 26** - L. Ree, Quigleys Marina, Killenure (N051601), 18 September 1996 (DAM). **WEXFORD: HA 11** - R. Ounvarra, Ballycanew (T153519), 6 May 2006,

DAM/WM (DAM).

***Paratanytarsus grimmii* (Schneider, 1885)**

DERRY: HA 3 - paddling pool, Kylebeg, Coleraine (C856304), 21 April 2001 and 19 April 2002 (PHL). **DONEGAL: HA 39** - piped tap water, Letterkenny (C170115), 15 and 20 August 1990, PJA (Ashe and O'Connor, 1994). **ROSCOMMON: HA 26** - L. Funshinagh, Brideswell (M933513), 23 April 2007, EPA (Murray, 2005). **WESTMEATH: HA 26** - L. Killinure, Ballaghkeernan Bay (N069445), 11 September 2007, EPA (DAM).

***Paratanytarsus inopertus* (Walker, 1856)**

ANTRIM: HA 3 - R. Sixmilewater, Templepatrick (J227867), 4 May 1999 (PHL): **HA 4** - R. Bush, Seneirl Bridge (C943362), 16 July 2000 (Langton, 2002). **CAVAN: HA 36** - Glasshouse L., Killashandra (H270060), 7 June 2007; L. Annagh, Butler's Bridge (H394125), 3 and 18 September 2007; L. Ardan, Milltown, Belturbet (H354124), 26 July 2007; L. Gowna, north basin, Arnagahan (N285920), 7 June 2006 and 18 September 2007; L. Macnean, lower, Blacklion (H106378), 18 September 2007; Mill L., Killashandra (H315060), 3 September 2007; L. Oughter, Killashandra (H349051), 6 June, 17 July and 18 September 2007 and L. Sillan, Shercock, north east shore (H705067), 19 April and 19 September 2007, all EPA (DAM). R. Erne, Kilsarin (N362910) and Carrigan (N391935), 27 August 1982 (Hayes, 1991): **HA 7** - L. Drumkeery, Baileborough (H663002) and Nadreegeal, Ballyjamesduff (N537933), 12 June 2007, EPA (DAM). **CLARE: HA 25** - L. Derg, Mountshannon (R718861) and d/s Killaloe (M705715), 18 September 2009; L. Alewnaghta, Whitegate, west shore (R758908), 20 April and 16 July 2009 also north east shore (R764914), 23 September 2009 and L. Derg, Terryglass (M861008), 20 April 2009, all EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 21 April, 29 July and 17 September 2009; Castle Lake, Kilmurry, Sixmilebridge, south west shore (R481688), 12 June, 17 July and 17 September 2009; L. Inchicronan, Crusheen, west basin (R391860), 9 July 2009 and L. Cullaunyheeda, Kilkishen (R488746), 13 August and 17 September 2009, EPA (DAM): **HA 28** - L. Lickeen, Kilfenora, west shore (R168909), 21 July 2009, EPA (DAM). **CORK: HA 18** - R. Blackwater: Killavullen (W648998), 31 August 1981; Ballymacquirk Bridge, Banteer (W382989), Roskeen Bridge, Banteer (W444988) and Lombardstown (W463968), 1 September 1981; Duncannon (W180931), Shamrock Bridge, Millstreet (W221935), Charles Bridge, Millstreet (W248943), Keale Bridge, Millstreet (W294936), 2 September 1981, all BPH (Hayes, 1991): **HA 19** - Iniscarra Reservoir, Coachford (W477717), 28 and 31 July, 16 September 2008 and L. Allua, Ballingearry (W180652), 17 June 2008, EPA (DAM): **HA 20** - L. Abisdealy, Skibbereen (W136314), 17 September 2008, EPA (DAM). R. Ilen, Madore (W103419) and Hollybrook

(W117363) also R. Ovane, Pierson's Bridge (W023454), all 24 August 1983 (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 10 May 2001 and Lower Reservoir, Creggan, Derry (C422174), 26 April and 10 May 2001 (PHL): **HA 3** - R. Agivey, ford at Ballynameen (C827148), 14 April 2008; R. Bann, Coleraine (C854304), 3 May 2000, 30 June 2001 and 2 May 2010 all PHL (PHL); Pond 1, Magherafelt Golf Course, Traad Point (H950873), 10 May 2000 and R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). L. Neagh (H9080), no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990) and 31 May 2011 (PHL). **DONEGAL: HA 37** - R. Eany, d/s Eanybeg confluence (G842815), 10 August 1982 (Hayes, 1991): **HA 38** - foot path to L. Inshagh, GNP, Glenveagh (C035210), 13 May 1986 (Heneghan, 1986): **HA 39** - R. Leannan, Drumaboden (C165218), 12 August 1982 and R. Crana, Buncrana (C347328), 15 August 1982 (Hayes, 1991). **FERMANAGH: HA 36** - L. Erne, Lower: Black Bay (H072639), 27 April 2002 (PHL); Brocagh Point, Boa Island (H108626), 5 June 2007 (Langton, 2002) and 17 August 2011 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (Langton, 2004): **HA 26** - R. Shiven, d/s Ballinaglass (M788494), 29 July 1981 and R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991): **HA 30** - L. Ballyquirke, Moycullen (M232317), 13 April and 14 September 2007; L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007; L. Corrib Upper, Oughterard (M138486), 11 April and 14 August 2007; L. Corrib Lower, Moycullen (M271360), 28 August 2007 all EPA (DAM). L. Corrib, Derrenmeel, west shore (M150450), 9 April 1980, BC (DAM). R. Cregg, Addergoole Bridge, Addergoole (M324350), 16 August 1981 (Hayes, 1991): **HA 31** - L. Anaserd, Ballyconneely (L605443), 20 April 2006, EPA (DAM). R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981 (Hayes, 1991): **HA 32** - L. Aughrusbeg, Cleggan (L557582), 3 April 2007, EPA (DAM). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 22** - Muckross Lake, Killarney, Dundag Bay (V964858), June and July 1973 (Murray, 1974 - as *Monotanytarsus inopertus*). **KILDARE: HA 9** - pond, Lyons Estate, Celbridge (N972285), 29 March 1982, PJA (DAM). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707) and Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930), Kilbricken (S362898), Shanahoe Bridge (S407858) and u/s Durrow (S416787), 27 August 1981 also R. Nore, Athanagh (S423763), 28 August 1981, all BPH (Hayes, 1991). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Boderg, Derrycarne, north west shore (N013915) and L. Bofin, Dromod (N049894), 10 September 2008, EPA (DAM). L. Rinn, Mohill (N095943), 25 June, 18 July and 10 September 2008, EPA (DAM) also at Lough Rynn Castle (N100935), 25 September 2014 (DAM): **HA 35** - L. Belhavel, Killarga, Dromahair (G878288), 10 June and 26 August 2008, EPA (DAM). **LIMERICK: HA 25** - R. Mulkear, d/s Cappamore (R779504) and Dromkeen

Bridge (R741480), 8 September 1981 (Hayes, 1991). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June, 27 August and 10 September 2008, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 24 April and 23 September 2008, EPA (DAM): **HA 30** - L. Aille, Aille, Westport (M071807), 8 August 2008, EPA (DAM): **HA 32** - L. Roonagh, Roonagh (L749759), 30 September 2004, DAM/WM (Murray, 2005). L. Moher, Liscarney, Westport (L977766) and L. Knappabeg, Westport (M010803), 21 April 2008, L. Ballin, Westport, south shore (L994878), 22 April 2008, all EPA (DAM): **HA 34** - L. Conn, Illannaglashy (G207070), 20 August 2008, EPA (DAM). L. Cullin, Drummin Wood, north shore (G229028), 15 April, 18 June and August 2008, EPA (DAM). L. Lannagh, Castlebar, west shore (M109883), 21 August and north east basin (M137899), 26 September 2008, EPA (DAM). L. Levally, Massbrook (G146043), 22 April, 25 June and 23 September 2008, EPA (DAM). L. Washpool, Ballycarra (M219842), 25 September 2008, EPA (DAM). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 19 May 1968 (Murray, 1972, 2005); R. Boyne, Ardsallagh, eel weir (N897630), 11 May 1982 (DAM). **MONAGHAN: HA 36** - L. Avagnon, Latton, Cotehill (H688133), 6 June 2007, EPA (DAM). L. Drumlona, Rockcorry (H636176), 4 April and 5 June 2007, EPA (DAM). L. Inner, Dartery, Drum (H625173), 9 September 2007, EPA (DAM): **HA 6** - L. Monalty, Carrickmacross (H866027), 14 September 2007, EPA (DAM). **OFFALY: HA 25** - R. Little Brosna: Ryan's Cross (S053882); Milltown Park (S068907) and Sharavogue (S056953), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck: Castlecoote (M809627) and Ballyforan (M817464), 16 July 1981 (Hayes, 1991). L. Meelagh, Keadew (G901117), 15 April, 11 June and 12 July 2008, EPA (DAM). L. Cavetown, Boyle (M832974), 17 July 2008, EPA (DAM). L. Glinn, Loughglinn, Castlerea (M629870), 12 June 2008, EPA (DAM). L. Key, Boyle (G838057), 14 April and 6 August 2008 also wharf in Forest Park, Boyle (G848040), 11 June 2008 and Hogs Island Pier (G825054), 9 September 2008, EPA (DAM). L. O'Flynn, Ballinlough, south east shore (M585786), 9 April, 12 June and 9 September 2008, EPA (DAM). L. Ree, Yew Point, Barley Harbour (N018485), 25 April and 11 September 2007, EPA (DAM). **SLIGO: HA 34** - R. Moy, Annagh (G466123), 30 August 1982 (Hayes, 1991): **HA 35** - L. Arrow, Ballinafad (G789123), 29 April and 9 September 2008, EPA (DAM). L. Kilsallagh (Reservoir), Kilsallagh (G734393), 8 September 2008, EPA (DAM). L. Templehouse, Ballymote (G619182), 11 June 2008, EPA (DAM). **TIPPERARY: HA 15** - R. Nore, Clonakenny (S116805), Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM): **HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 21 August 1973, NH (BPH), 4 April 1980 (BPH) also 1981 (Forde, 1985): **HA 26** - L. Killinure, Wineport (N067458) 24 April 2007

and Ballaghkeernan Bay (N069445), 24 April and 11 September 2007; L. Ree, Coosan (N050450), 15 August 2007 and L. Coosan, Athlone (N055449), 11 September 2007, all EPA (DAM): **HA 7** - L. Lene, (N510685), 26 April 2006, EPA (DAM). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 29 July 1981 (Hayes, 1991). **WICKLOW: HA 9** - Pollaphuca Reservoir, Ballymore Eustace (N995080), 3 September 2009, EPA (DAM).

***Paratanytarsus laccophilus* (Edwards, 1929)**

CLARE: HA 25 - L. Alewnaghta, Whitegate, west shore (R758908), 17 June 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 21 April 2009; L. Cullaun, Corrofin, mid east shore (R317905), 16 June 2009; L. Dromore, Ruan, Corrofin, west basin (R345858), 4 May 2006 and mid lake (R352864), 16 June 2009; L. Rosroe, Newmarket on Fergus, south east shore (R442681), 12 August 2009; L. Cullaunyeeda, Kilkishen (R488746), 13 August 2009, all EPA (DAM). **CORK: HA 19** - L. Allua, Ballingearry (W180652), 17 June 2008, EPA (DAM): **HA 19** - L. Gouganebarra, Inchegeelagh (W009060), 7 April 1966 and 27 July 1968 (Murray, 1972): **HA 20** - L. Coolklure, Dunmanway (W177539), 17 June 2008 and L. Curragalicky, Drinagh, Dunmanway (W234046), 9 April 2008, EPA (DAM). **DERRY: HA 1** - pool near Reservoir, Creggan, Derry (C414171), 18 May 2001 and 17 May 2002 (PHL). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM): **HA 1** - L. Derg, Pettigo (H074743), 8 June 2009 and L. Mourne, Ballybofey (H069900), 9 June 2009, EPA (DAM): **HA 37** - L. Eske, Donegal (G973844), 14 July 2009, EPA (DAM): **HA 38** - L. Nadourcan, Glenveagh (C054228), 18 July 2000 and L. Altercan, The Rosses (B755158), 19 July 2000 (Langton, 2002). **GALWAY: HA 29** - L. Rea, Loughrea, east shore (M624153), 25 May 2003 (Langton, 2004): **HA 30** - L. Ballyquirke, Moycullen (M232317), 13 April 2007 and L. Corrib Lower, Moycullen (M271360), 28 August 2007, EPA (DAM): **HA 32** - L. Enask, Beaghcauneen (L662468), 6 June and 17 July 2007 also L. Tully, Tully Cross (L695618), 19 July 2007, EPA (DAM). **KERRY: HA 22** - L. Leane, Killarney, Castlelough Bay, north shore (V966866), 14 July 1973 (Douglas and Murray, 1980). **LIMERICK: HA 24** - L. Gur, Holycross (R646413), 13 June, 28 July and 16 September 2009, EPA (DAM). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 8 August 2008, EPA (DAM). L. Carra, Keel Bridge, Ballinrobe (M165680), 19 June 2008, EPA (DAM): **HA 33** - bog pool, Achill Island (F712008), 5 August 2004, DAM/WM (Murray, 2005): **HA 34** - L. Lannagh, Castlebar: west shore (M109883), 23 April and 21 August 2008; mid lake (M105880), 30 June 2008, EPA (DAM). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 2 September 2008; L. Cavetown, Boyle (M832974), 11 June, 17 July and 9 September 2008; L. O'Flynn, Ballinlough, south east shore (M585786), 12 June and 16 July 2008, all EPA (DAM). **SLIGO: HA 35** - L. Arrow, Ballinafad (G789123), 11 June 2008 and L.

Templehouse, Ballymote (G619182), 9 September 2008, EPA (DAM). **WATERFORD: HA 16** - Ballyscanlan Reservoir, Tramore (S540030), 22 April and 3 July 2009, EPA (DAM): **HA 17** - L. Carrigavantry, Tramore (S548022), 21 April 2009, EPA (DAM). **WESTMEATH: HA 26** - L. Coosan, Athlone (N055449), 24 April and 11 September 2007, EPA (DAM). **WICKLOW: HA 9** - Pollaphuca Reservoir, Ballymore Eustace (N995080), 22 June 2009, EPA (DAM).

Paratanytarsus laetipes (Zetterstedt, 1850)

CAVAN: HA 36 - Mill Lake, Killashandra (H315060), 3 September 2007, EPA (DAM). **CLARE: HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 17 September 2009, EPA (DAM): **HA 27** - Castle Lake, Kilmurry, Sixmilebridge, west shore (R482691), 17 September 2009, EPA (DAM). **DONEGAL: HA 38** - L. Veagh, north east shore, sweep over vegetation, Glenveagh (C038236), 24 July 1985 (Heneghan, 1986). **FERMANAGH: HA 36** - Dummys L., Magheraveely (H488276), 28 June 2000 (Langton, 2002). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 19 April 2007, EPA (DAM): **HA 31** - L. Ballynakill, Gorumna (L867236), 20 June 2006 and L. Nahasleam, Maam Cross (L972440), 20 June 2006 and 7 June 2007, EPA (DAM). **KERRY: HA 21** - L. Inchiquin, Kenmare (V837629), 1 and 17 September 2008, EPA (DAM): **HA 22** - L. Leane, Killarney (V931886), 22 April and 24 June 2008 and Muckross Lake, Muckross, Killarney (V950853), 24 April 2008, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June and 27 August 2008, EPA (DAM): **HA 32** - L. Glencullin, Delphi, south west shore (L819696), 25 August 2008, EPA (DAM). **MONAGHAN: HA 36** - L. Summerhill, Magheraveely (H490280), 28 June 2000 (Langton, 2002) and L. Summerhill, Clones (H490279), 19 September 2007, EPA (DAM): **HA 6** - L. Monalty, Carrickmacross (H866027), 14 September 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 17 July 2008 and L. Grange (Grange L.), Greywood, Strokestown (M938857), 28 July 2008, EPA (DAM).

Paratanytarsus lauterborni (Kieffer, 1909)

ANTRIM: HA 3 - pond, Templepatrick (J232856), 27 July 2008 (PHL): **Rathlin Island** - lough in Nature Reserve (D095505), 24 July 2000 (Langton, 2002). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965) and L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 7 June 2006, EPA (PHL). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 10 May 2001 (PHL). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 5 September 2007, EPA (DAM): **HA 31** - L. Nahasleam, Maam Cross (L972440), 16 May 2006, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 13 July and 10 September 2008, EPA (DAM): **HA 22** - L. Guitane, Crohane, Killarney (W025846), 16 May 2005, EPA (DAM). **KILKENNY: HA 15** - R. Clogh, Clogh (S565790), 10 March 1976, CD (DAM).

[First published Irish record by Langton (2002) from collections on Rathlin Island (Antrim) in 2000. Recent examination (DAM) of collections made by C. Dowling yielded a record from HA 15 in Kilkenny from March 1976.]

***Paratanytarsus penicillatus* (Goetghebuer, 1928)**

CLARE: HA 25 - L. Alewnaghta, Whitegate, west shore (R758908), 17 June 2009, EPA (DAM): **HA 29** - L. Skeardeen, Kilcorkan (R388991), 7 April 2009, EPA (DAM). **CORK: HA 19** - L. Gouganebarra, Inchegeelagh (W009060), 7 April 1966 (Murray, 1996, 2005): **HA 21** - L. Glenbeg, Ardgroom (V706530), 15 April, 18 June and 3 September 2008, EPA (DAM). **DERRY: HA 3** - L. Neagh, Ballyronan (H948862), 27 April 1999 (PHL). **DONEGAL: HA 1** - L. Mourne, Ballybofey (H069900), 20 April 2009, EPA (DAM): **HA 36** - L. Avehy, Belalt (H043664), 27 April 2002 (PHL). L. Tullynasiddagh, Ballyshannon (G983656), 7 September 2009, EPA (DAM): **HA 37** - Carn L., Blue Stack Mountains (G871886), 10 May 2005, JRB/MC (DAM): **HA 38** - L. Anure, Loughanure, east shore (B818162), 1 April 2010 and L. Barra, Commeen (B935119), 22 April and 9 September 2009, EPA (DAM): **HA 38** - L. Veagh, north east shore, sweep over vegetation, Glenveagh (C039231), 22 May 1985 (DAM). **GALWAY: HA 30** - L. Anillaun, Maam Cross (L980470), 19 April and 1 August 2007; L. Bofin, Maam Cross (M034441), 18 April 2007 and L. Maumwee, Maam Cross (L977485), 19 April 2007, all EPA (DAM): **HA 31** - L. Shindilla, Derreennacreeva, south shore (L958460), 12 September 2006 and 13 September 2007, EPA (DAM). **KERRY: HA 21** - L. Cloonaghlin, Waterville (V611708), 8 May and 10 September 2008, EPA (DAM). Eagles L., Knocknagantee (V674728), 9 August 2005 and Erik L., Derrygarriff (V881777), 25 April 2005, JRB (DAM). L. Inchiquin, Kenmare (V837629), 15 April 2008, EPA (DAM): **HA 22** - L. Acoose, Slievanore, Killorglin (V755854), 24 April 2008; L. Guitane, Crohane, Killarney (W025846), 16 May 2005, 21 April and 8 July 2008 and Muckcross Lake, Muckcross, Killarney (V950853), 24 April 2008, all EPA (DAM). **MAYO: HA 32** - L. Doo, Delphi: north east shore (L834689), 6 June and 22 August 2002, DAM/WM (DAM); west shore (L833680), 25 August 2008, EPA (DAM). L. Glencullin, Delphi, south west shore (L819696), 25 August 2008 and L. Moher, Liscarney, Westport (L977766), 21 April and 18 September 2008, EPA (DAM): **HA 33** - bog pool, Achill Island (F712008), 5 August 2004, DAM/WM (Murray, 2005): **HA 34** - L. Alone, Ox Mountains (G367157), 22 April 2005, JRB (DAM). L. Washpool, Ballycarra (M219842), 25 September 2008, EPA (DAM). **SLIGO: HA 35** - L. Easky, Ox Mountain (G446230), 18 June 2008, EPA (DAM). **WICKLOW: HA 10** - L. Dan, Roundwood (O157035), 30 March and 2 September 2009 and Upper Glendalough Lake, Laragh, WMNP (T100960), 29 July 2009, EPA (DAM).

***Paratanytarsus tenellulus* (Goetghebuer, 1921)**

CLARE: HA 25 - L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 29 July and 17 September 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 5 September 2006, L. Rosroe, Newmarket on Fergus, north east shore (R449697), 16 September 2009 and L. Atedaun, Corrofin (R297884), 21 April 2009, all EPA (DAM). **DERRY: HA 3** - L. Neagh, Ballyronan (H948862), 27 April 1999 (PHL). **DONEGAL: HA 38** - L. Veagh, north east shore (sweep), Glenveagh (C034223), 19 July 1985 (Heneghan, 1986). **DOWN: HA 5** - L. Henney, Ballynahinch (J348586), 22 June 2000 (Langton, 2002). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 27 August 2008, EPA (DAM).

***Paratanytarsus tenuis* (Meigen, 1830)**

CLARE: HA 25 - L. Derg, Mountshannon, west shore (R718861) and d/s Killaloe (M705715), 18 September 2009, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 20 April 2009, EPA (DAM): **HA 27** - L. Bridget, Derrymore, Badyke, east shore (R558797), 21 April and 17 September 2009, EPA (DAM). **CORK: HA 20** - L. Curraghally, Drinagh, Dunmanway (W234046), 9 April, 17 June and 12 August 2008, EPA (DAM). **DONEGAL: HA 36** - L. Unshin, Ballyshannon (G951637), 6 July and 8 September 2009, EPA (DAM): **HA 37** - L. Eske, Donegal (G973844), 17 April and 14 July 2009, EPA (DAM): **HA 38** - L. Barra, Commeen (B935119), 22 April 2009, EPA (DAM). L. Veagh, north east shore near Visitor Centre, Glenveagh (C033223), 19 July 2000 (Langton, 2002) and 9 May 2006 (PHL). **DUBLIN: HA 9** - Royal Canal, Ashtown (O108378), 22 May 1968 (Murray, 1972). **FERMANAGH: HA 36** - L. Erne, Lower, Black Bay (H072639), 27 April 2002 (PHL). **GALWAY: HA 30** - L. Maumwee, Maam Cross (L977485), 19 April and 19 May 2005 and L. Ballyquirke, Moycullen (M232317), 13 April 2007, EPA (DAM): **HA 31** - L. Anaserd, Ballyconneely (L605443), 20 April 2006 and 4 April 2007, L. Ballynahinch, Ballynahinch (L777478), 17 April, 23 July and 13 September 2007, L. Derryclare, Recess (L825485), 13 September 2007, L. Nahasleam, Maam Cross (L972440), 8 August 2006 and 19 April 2007 and L. Shindilla, Derreenacreeva, south shore (L958460), 16 May 2006 also 19 April and 13 September 2007, all EPA (DAM): **HA 32** - L. Enask, Beaghcauneen (L662468), 17 September 2007 and L. Pollacappul, Kylemore (L754582), 9 July and 10 September 2007, EPA (DAM). **KERRY: HA 21** - L. Currane, Waterville (V535664), 9 May, 18 June and 10 September 2008, EPA (DAM): **HA 22** - L. Acoose, Slievanore, Killorglin (V755854), 9 September 2008, L. Caragh, Killorglin (V719904), 20 June and 15 July 2008 and L. Cummernamuck, Killorglin (V745897), 16 April, 20 June, 18 July and 9 September 2008, all EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 14 October 1973 (Douglas and Murray, 1980) and 8 July 2008,

EPA (DAM). L. Leane, Killarney (V931886), 18 September 2008, EPA (DAM); L. Leane, Killarney, Muckcross Boathouse (V965866), 29 August and 6 September 1987, NOM (LJH). Muckcross Lake, Dundag Bay (V964858), 27 July 1973 (Douglas and Murray, 1980; Murray, 2005). Muckcross Lake (V950853), 24 April and 16 July 2008 and Upper Lake, Killarney (V909821), 9 September 2008, EPA (DAM). R. Caragh, Blackstones Bridge, d/s R. Acoose confluence (V710864), 1975, CD (Dowling *et al.*, 1981): **HA 23** - L. Cam, Castlegregory (Q597079), 18 September 2008, EPA (DAM). **LEITRIM: HA 26** - L. Bofin, Dromod (N049894), 24 June 2008, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 27 August 2008, EPA (DAM): **HA 32** - L. Doo, Delphi north east shore (L834689), 6 June and 22 August 2002, DAM/WM (DAM) also 22 September 2008, EPA (DAM): west shore (L835681), 9 May, 16 August 2006 and 25 August 2008, EPA (DAM). L. Fin, Delphi (L841657), 9 May 2006, EPA (DAM). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 11 June and 17 July 2008, Grange L., Greywood, Strokestown (M938857), 25 June 2008 and L. Key, Hogs Island Pier, Boyle (G825054), 9 September 2008, EPA (DAM). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 1981 (Forde, 1985): **HA 26** - L. Killinure, Wineport (N067458), 11 September 2007, EPA (DAM).

***Rheotanytarsus curtistylus* (Goetghebuer, 1921)**

CLARE: HA 28 - R. Caher, Holywell, 2.5km from source (M173069), 27 October 1999, CB (DAM in Kelly-Quinn *et al.*, 2003). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 10 May 2001 (PHL). **DONEGAL: HA 38** - R. Devlin, Dunlewy (B927190), 19 July 2000 (Langton, 2002). **GALWAY: HA 30** - R. Cregg, Addergoole Bridge, Addergoole (M324350), 18 August 1981 (Hayes, 1991; Murray, 1996). **KILDARE: HA 7** - R. Boyne, Ballyboggan (N639402), 9 July 1981 (Hayes, 1991; Murray, 1996). **LEITRIM: HA 26** - L. Boderg, Derrycarne, north west shore (N013915), 10 September 2008, EPA (DAM). **MAYO: Clare Island** - roadside, Bayview Hotel (L716856) and Knockaveen hillside (L698858), 28 April 2002 also Loughnapucar stream, south east of Signal Tower (L657850), 21 August 2002, all DAM/WM (Murray and Murray, 2003). **MEATH: HA 7** - R. Boyne, Scarrif Bridge (N733527) and Newtown, Trim (N815571), 9 July 1981 (Hayes, 1991; Murray, 1996); Bru na Boinne Centre, Newgrange (O023727), 21 June 2015 (Murray, 2015a). R. Skane, Dalgan Park, Navan (N901626), 15 May 2015 (DAM). **ROSCOMMON: HA 30** - R. Dalgan, Clonfad (M518712), 20 August 1981 (Hayes, 1991; Murray, 2005). **WEXFORD: HA 12** - R. Sow tributary, Garylough Mill, Screen (T076302), 6 May 2006, DAM/WM (Murray, 2015a).

***Rheotanytarsus muscicola* Thienemann, 1929**

DERRY: HA 1 - pool near Reservoir, Creggan, Derry (C414171), 17 May 2002 and inflow to

Upper Reservoir, Creggan, Derry (C413171), 10 and 18 May 2002 (Langton, 2004): **HA 3** - R. Bann, Coleraine (C855304), 17 and 25 May 2000 (Langton, 2004). **DOWN: HA 3** - Upper R. Bann tributary, Tullyconnaught (J166451), 19 September 1997 (PHL) and 27 August 1998, LMcL (Langton, 2004). **FERMANAGH: HA 36** - R. Bannagh, Drummoney Falls, Pettigo (H168676), 17 August 2011 (PHL).

***Rheotanytarsus nigricauda* Fittkau, 1960**

CARLOW: HA 12 - R. Slaney, Kildavin (S899597), 28 July 1981 (Hayes, 1991; Murray, 1996). **KILKENNY: HA 15** - R. Nore, Threecastles (S458626), 27 August 1981 (Hayes, 1991; Murray, 1996). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 29 July 1981 (Hayes, 1991; Murray, 1996). **WICKLOW: HA 12** - R. Slaney, Glen of Imaal: Knickeen (S987948) and Knockgarrigan (S936937), 28 July 1981 (Hayes, 1991; Murray, 2005).

***Rheotanytarsus pellucidus* (Walker, 1848)**

Synonym *Rheotanytarsus distinctissimus* (Brundin, 1947)

CLARE: HA 28 - R. Annageeragh, Moyglass Bridge, d/s L. Doo (R078725) and R. Doonbeg, Derryard (Q979644), 30 July 1982 (Hayes, 1991). **CORK: HA 18** - R. Blackwater: Ballymacquirk Bridge, Banteer (W382989) and Roskeen Bridge, Banteer (W444988), 1 September 1981 also Knocknagree (W159975), Duncannon (W180931), Shamrock Bridge, Millstreet (W221935), and Charles Bridge, Millstreet (W248943), 2 September 1981, all BPH (Hayes, 1991): **HA 20** - R. Bandon: Long Bridge, Dunmanway (W242631), 18 April, 27 May, 30 June, 25 August and 25 September 1980; Bealabouy Bridge, Dunmanway (W257514), 25 August and 25 September 1980; u/s Ballineen (W331537), 18 April and 25 August 1980, all GM (Morgan, 1982); Ballineen Bridge (W434538), 25 September 1980; Castle Bernard, u/s Bandon (W472546), 27 May and 25 September 1980; 2.5km d/s Bandon (W516569), 25 September 1980, all GM (Morgan, 1982). R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363), all 24 August 1983, all BPH (Hayes, 1991). **DONEGAL: HA 1** - R. Deelee, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002): **HA 37** - R. Eany, d/s Eanybeg confluence (G842815), R. Eanymore, Letterbara Bridge (G883825), R. Eanymore, Drumagraa Bridge (G863822) and R. Stragar, Duninkeely (G727792), all 10 August 1982, all BPH (Hayes, 1991). R. Oily, Claggen (G751803), 8 August 1982 (Hayes, 1991): **HA 38** - R. Owenveagh, Glenbeagh Cottage, Glenveagh (B990178), 30 July 1985 (Heneghan, 1986). Owennacally stream, Glenveagh (C043226), 19 July 2000 (Langton, 2002): **HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153) and R. Swilly, Newmills, Letterkenny (C125092), 18 July 2000 (Langton, 2002). R. Leannan: Kilnacrenan (C145200) and Drumaboden (C165218), 12 August 1982 also Claragh (C197210), 13 August 1982, all BPH

(Hayes, 1991). R. Crana, Buncrana (C347328) and Ballymagan (C379344), 15 August 1982 (Hayes, 1991): **HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991). **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Coole, Gort (M432043), 15 June 2009, EPA (DAM): **HA 30** - R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 (Hayes, 1991): **HA 31** - L. Ahalia, Gortmore, north east shore (L971402), 22 April and 23 September 2009, EPA (DAM): **HA 32** - R. Owenglin, Clifden (L677506) and R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 21** - L. Brin, Derreeny (V780775), 10 September 2008, EPA (DAM). R. Inny, Scarriff Bridge (V504696) and u/s Waterville (V525704), 24 August 1983 (Hayes, 1991): **HA 22** - L. Guitane, Crohane, Killarney (W025846), 16 May 2005, EPA (DAM). R. Annascaul, Annascaul (Q593017), 2 July 1981 (Hayes, 1991). R. Caragh, Lower Brida Valley (V740805) and Blackstones Bridge, d/s R. Acoose confluence (V710864), 1975, CD (Dowling *et al.*, 1981). R. Clydagh, u/s Clydagh Bridge (W114826), 6 June 1976, DAM (Douglas and Murray, 1980; Murray, 2005) and April to October 1978 (Ashe, 1982). R. Flesk: d/s Clydagh/Loo confluence (W084814), Garries Bridge (W082835), Flesk Bridge (W034876), d/s Whitebridge (V987900), d/s New Bridge (V963885) and u/s L. Leane (V964894), all April to October 1978, all PJA (Ashe, 1982). R. Loo, Aughnanus Bridge, Crohane (W045790), 19 August 1981 (Ashe, 1982). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930) and Kilbricken (S362898), 27 August 1981 (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, Cappamore (R775514) and d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - road bridge d/s L. Nahaltora, Derrygarve, Cregganbaun (L784744), 6 June 2004, DAM/WM (DAM): **HA 32** - R. Carrowinsky, u/s bridge, Killeen, Carrowinsky (L770773) and R. Burleemslough, Clapper Bridge Ford, u/s Roonagh L., Killeen (L754759), 5 August 2004, DAM/WM (DAM). R. Bunowen, Louisburg, upstream of bridge, Louisburg (L807807), 7 May and 5 August 2004 also upland tributary to R. Bunowen, Laghta Eighter (L867739), 7 May 2004 and R. Owengarve, Rosgalliv Bridge, Mulranny (L886962), 4 August 2004, all DAM/WM (DAM). R. Erriff, Ashleigh Falls (L895645), 18 August 1981 (Hayes, 1991): **HA 33** - R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - R. Moy, Bellanacurra (G403047), 29 August 1982 and Cloongullaun (G348016), 30 August 1982 (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Carroweden (G530205), Cloonacool (G493168) and Annagh (G466123), 30 August 1982, all BPH (Hayes, 1991).

***Rheotanytarsus pentapoda* (Kieffer, 1909)**

ANTRIM: HA 3 - R. Clogh, Clough Mills (D105109), 2 July 2000 (Langton, 2002): **HA 4** - R.

Bush, Stranocum (D009307), 2 July 2000 (Langton, 2002). R. Glendun (Glendun R.), Drumfresky, Cushendun (D193308), 2 July 2000 (Langton, 2002). **CARLOW: HA 12** - R. Slaney, Kildavin (S899597), 28 July 1981 (Hayes, 1991). R. Derreen, Acann Bridge (S900781), 29 July 1981 (Hayes, 1991). **CAVAN: HA 36** - R. Erne, Dingin's Bridge (N331948), 27 August 1982 (Hayes, 1991). **CLARE: HA 28** - R. Doonbeg, Derryard (Q979644), 30 July 1982 (Hayes, 1991). **CORK: HA 18** - R. Blackwater: Killavullen (W648998), 31 August 1981, Ballymacquirk Bridge, Banteer (W382989), Roskeen Bridge, Banteer (W444988) and Lombardstown (W463968), 1 September 1981; Knocknagree (W159975), Duncannon (W180931), Shamrock Bridge, Millstreet (W221935), Charles Bridge, Millstreet (W248943) and Keale Bridge, Millstreet (W294936), 2 September 1981, all BPH (Hayes, 1991): **HA 20** - R. Bandon: Long Bridge, Dunmanway (W242631), 27 May, 30 June, 25 August and 25 September 1980; Bealabouty Bridge, Dunmanway (W257514), 27 May, 30 June, 25 August and 25 September 1980; u/s Ballineen (W331537), 18 April, 27 May, 30 June, 25 August and 25 September 1980; Ballineen Bridge (W434538), 27 May, 30 June, 25 August and 25 September 1980; Castle Bernard (u/s Bandon) (W472546), 18 April, 27 May, 30 June, 25 August and 25 September 1980; 2.5km d/s Bandon (W516569), 18 April, 30 June, 25 August and 25 September 1980, all GM (Morgan, 1982). R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363) also R. Ovane, Pierson's Bridge (W023454), all 24 August 1983, all BPH (Hayes, 1991). **DERRY: HA 1** - inflow to Upper Reservoir, Creggan, Derry (C413171), 14 July 2000 (PHL): **HA 2** - R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000 (Langton, 2002): **HA 3** - R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 and 7 May 2001 (Langton, 2002). **DONEGAL: HA 37** - R. Oily, Claggen (G751803), 8 August 1982 and R. Stragar, Duninkeely (G727792), R. Eany, d/s Eanybeg confluence (G842815), R. Eanymore, Letterbara Bridge (G883825) and Drumagraa Bridge (G863822), all 10 August 1982, all BPH (Hayes, 1991): **HA 38** - R. Gweedore, L. Anure outflow, Crollly (B827184), R. Devlin, Dunlewy (B927190) and Owenacally stream, Glenveagh (C043226), 19 July 2000 (Langton, 2002) R. Tullaghobeg, Millmount (B933304), 12 August 1982 (Hayes, 1991). R. Owenveagh, Glenbeagh Cottage, Glenveagh (B990178), 30 July 1985 (Heneghan, 1986). R. Ray, Carrowcanon (B995325) and Crocnalaragh (B989272), 12 August 1982 (Hayes, 1991): **HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153) and R. Swilly, Newmills, Letterkenny (C125092), 18 July 2000 (Langton, 2002). R. Leannan, Drumaboden (C165218), 12 August 1982 and Claragh (C197210), 13 August 1982 (Hayes, 1991). R. Crana, Ballymagan (C379344), 15 August 1982 (Hayes, 1991): **HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991). **GALWAY: HA 26** - R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991) and 29 August 1982 (Hayes and Murray, 1989): **HA 30** - R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 and R. Grange, Grange

Bridge (M482498), 16 August 1981 (Hayes, 1991). R. Owenriff, Oughterard (M112426), 25 May 2003 (PHL): **HA 31** - L. Ahalia, Gortmore, north east shore (L971402), 22 April 2009 and L. Derryclare, Recess (L825485), 17 April and 16 July 2007, EPA (DAM). R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981 (Hayes, 1991): **HA 32** - R. Owenglin, Clifden (L677506) and R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 21** - L. Derriana, Waterville (V621740), 13 July 1979, JPOC (Murray, 2005). R. Inny, Scarriff Bridge (V504696) and u/s Waterville (V525704), 24 August 1983 (Hayes, 1991): **HA 22** - Muckcross Lake, Muckcross, Killarney (V950853), 24 June 2008, EPA (DAM). R. Annascaul, Annascaul (Q593017), 2 July 1981 (Hayes, 1991). R. Caragh, Blackstones Bridge, d/s R. Acoose confluence (V710864), 1975, CD (Dowling *et al.*, 1981). R. Clydagh, Caherbarnagh (W202842), u/s Clydagh Bridge (W114826) and Knocknagowan (W187837), April to September, 1978 (Ashe, 1982). R. Flesk: d/s R. Clydagh - R. Loo confluence (W084814) and Garries Bridge (W082835), April to September 1978 (Ashe, 1982); Flesk Bridge (W034876), July 1973 (Douglas and Murray, 1980) and April to September, 1978 (Ashe, 1982); White Bridge (V987904), July 1973 (Douglas and Murray, 1980); d/s Whitebridge (V987900), 27 July 1976 (Ashe, 1976) and April to September 1978 (Ashe, 1982); Newbridge, Muckcross Road (V968896), 28 August 1973 (Douglas and Murray, 1980); d/s New Bridge (V963885) and u/s L. Leane (V964894), April to September 1978 (Ashe, 1982). R. Loo, Aughnanus Bridge, Crohane (W045790), April to September, 1978 (Ashe, 1982). R. Torc upper, Torc Mountain, Killarney (V959830), 1973 (Douglas and Murray, 1980) and u/s Torc waterfall, (V964835), 26 August 1987 (DAM): **HA 23** - L. Cam, Castlegregory (Q597079), 29 August 2008, EPA (DAM). **KILDARE: HA 7** - R. Boyne, Edenderry (N636346), 9 July 1981 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707), Norelands Bridge (S547436) and Brownsbarn Bridge (S618391), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930), Kilbricken (S362898) and Shanahoe Bridge (S407858), all 27 August 1981 and R. Nore, Athanagh (S423763), 28 August 1981, all BPH (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, Cappamore (R775514) and d/s Cappamore (R779504), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - R. Carrowinsky, u/s bridge, Killeen (L770773) and Burleemslough at Clapper Bridge Ford, u/s Roonagh L., Killeen (L754759), 5 August 2004 also Bunowen, Louisburg, u/s bridge, Louisburg (L807807), 7 May and 5 August 2004, DAM/WM (DAM). L. Fin, Delphi (L841657), 19 May 2005, EPA (DAM). R. Erriff, Ashleigh Falls (L895645), 18 August 1981, BPH (Hayes, 1991). L. Knappabeg, Westport (M010803), 23 July 2008, EPA (DAM): **HA 33** - R. Owenmore, Bangor Bridge, Bangor Erris (F863228), 18 August 1983 and R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - R. Moy: Bellanacurra (G403047) and Ballylahan (M277992), 29

August 1982 also Cloongullaun (G348016), 30 August 1982, all BPH (Hayes, 1991). **MEATH: HA 7** - R. Boyne: Stackallen Bridge (N918713), 12 July 1981 (Hayes, 1991); Slane Bridge (N965737), Knowth Weir (N995720), Oldbridge (O045761), d/s Oldbridge (O062753), 19 July 1989 and Bru na Boinne Centre, Newgrange (O023727), 28 June 2015 (DAM). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981, R. Little Brosna, Sharavogue (S056953) and New Bridge (N016088), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Ballyforan (M817464), 16 July 1981 (Hayes and Murray, 1989; Hayes, 1991); Castlecoote (M809627) and Athleague (M825758), 14 August 1981, BPH (Hayes, 1991; Murray, 2005): **HA 30** - R. Dalgan, Clonfad (M518712), 20 August 1981 (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168) and Metal Bridge, Tobercurry (G464138), 30 August 1982 (Hayes, 1991): **HA 35** - R. Drumcliff, Glencar (G734430) and R. Easky, Easky (G377378), 19 August 1983 (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore, Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991). **TYRONE: HA 1** - Dennet Stream, Essbeg Bridge, Lisnaskee (H384306), 27 June 2000 (Langton, 2002): **HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WEXFORD: HA 11** - R. Ounvarra, Ballycanew (T153519), 6 May 2006, DAM/WM (DAM): **HA 12** - R. Boro, Dunamore Bridge, Enniscorthy (S963366) and R. Slaney, Edernline Bridge (S977345), 29 July 1981 (Hayes, 1991). **WICKLOW: HA 10** - R. Glencullen, Knocksink (O218180), 18 May 1987, DEM/DAM (Morgan, 1989). R. Avonbeg, Meetings Bridge (T188831), 11 July and 27 October 1997 (Curran, 2001). R. Avonmore, Castlehoward (T190833), 4 August 1983 (Hayes, 1991); R. Avonmore, Lion Arch Bridge (T194833), 11 July 1997 (Curran, 2001). R. Avoca, Whitebridge, Tigroney (T198821), 4 August 1983 (Hayes, 1991) and 11 July 97 (Curran, 2001); R. Avoca, Avoca Village (T203802), 11 July 1997, FC (Curran, 2001; Curran and Murray, 2001): **HA 12** - R. Derry, Balisland (S978645), 28 July 1981 and Bridgeland (T021744), 29 July 1981 (Hayes, 1991). R. Slaney, Knockgarrigan, Glen of Imaal (S936937), Stratford Bridge (S895930) and Kilmurray (S889856), 28 July 1981 (Hayes, 1991).

***Rheotanytarsus photophilus* (Goetghebuer, 1921)**

CLARE: HA 27 - Castle Lake, Kilmurry, Sixmilebridge, west shore (R482691), 17 September 2009, EPA (DAM). **KERRY: HA 22** - R. Annascaul, Annascaul (Q593017), 19 April 1981, BPH (Hayes, 1991; Murray, 2005). R. Caragh, L. Caragh outflow (V713924), 17 July 1975 (DAM). **OFFALY: HA 25** - R. Shannon, Banagher (N005157), 3 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 (Hayes, 1991; Murray, 2005); Ballyforan (M817464), 16 July 1981 (Hayes, 1991) and 20 August 1983 (Hayes and Murray, 1989). **TYRONE: HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May

2000 (Langton, 2002).

***Rheotanytarsus reissi* Lehmann, 1970**

MEATH: HA 7 - R. Skane, Dalgan Park, Navan (N9901626), 23 May 2015 (Murray, 2015a).

***Rheotanytarsus rhenanus* Klink, 1983**

FERMANAGH: HA 35 - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002).

GALWAY: HA 26 - R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991) and 29 August 1982, BPH (Murray, 1996). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707), 28 August 1981, BPH (Murray, 1996). **OFFALY: HA 25** - R. Little Brosna, Myrtle Grove (S051852), 2 September 1982, BPH (Murray, 1996).

***Rheotanytarsus rioensis* Langton and Armitage, 1995**

KERRY: HA 22 - R. Caragh, Blackstones Bridge, d/s R. Acoose confluence (V710864), 4 August 1975 and R. Flesk, Killarney, u/s New Bridge (V973895), 25 August 1973, JPOC (Murray and O'Connor, 2012).

***Stempellina almi* Brundin, 1947**

CAVAN: HA 36 - L. Macnean, lower, Blacklion (H106378), 7 June and 18 September 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus (R557924), 11 August 2009, EPA (DAM): **HA 27** - Castle Lake, Kilmurry, Sixmilebridge, west shore (R482691), 17 September 2009, EPA (DAM). **GALWAY: HA 30** - L. Ballyquirke, Moycullen (M232317), 8 August 2007, EPA (DAM): **HA 30** - L. Ross, Moycullen (M188365), 8 August and 5 September 2007, EPA (DAM). **LEITRIM: HA 26** - L. Bofin, Rinnafarna Dromod (N036891), 29 July 2008; L. Rinn, Mohill (N095943), 25 June and 18 July, 2008 and L. Belhavel, Killarga, Dromahair (G878288), 10 June and 26 August 2008, all EPA (DAM). **ROSCOMMON: HA 26** - L. Annaghmore, Strokestown, Elphin (M902838), 2 September 2008, EPA (DAM). **SLIGO: HA 35** - L. Gill, Sligo (G782350), 20 August 2008, EPA (DAM). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 22 April and 2 July 2009, EPA (DAM).

***Stempellina bausei* (Kieffer, 1911)**

ANTRIM: HA 4 - R. Brymore, Brymore Bridge (D162275), 2 July 2000 (Langton, 2002). **CAVAN: HA 36** - L. Annagh, Butler's Bridge (H394125), 3 July, 3 and 18 September 2007, L. Cuillaghan, Ballyconnell (H303183), 25 July 2007, L. Garty, Arvagh (N278978), 18 July and 18 September 2007, L. Macnean, lower, Blacklion (H106378), 7 June and 18 September 2007, and L. Sillan, Shercock, north east shore (H705067), 8 June 2007, all EPA (DAM): **HA 7** - L.

Drumkeery, Baileborough (H663002), 1 May and 12 June 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 8 June and 6 July 2006 also L. Graney (R557924), 11 August 2009, all EPA (DAM). L. Derg, Mountshannon (R718861), 18 September 2009, EPA (DAM). L. Graney, Caher, south shore (R568907), 24 May 2003 (PHL). L. Graney, Drumadora, west shore (R553938), 15 June 2009 and Flagmount, east shore (R563932), 16 September 2009 also L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, all EPA (DAM): **HA 27** - L. Inchiquin: Corrofin (R270895), 6 September 2006; west shore (R266896), 15 July 2009 and south east shore (R272894), 17 September 2009, all EPA (DAM). L. Cullaunyeeda, Kilkishen (R488746), 13 August and 17 September 2009, EPA (DAM): **HA 28** - L. Lickeen, Kilfenora, mid lake (R175909), 3 May and 6 September 2006, EPA (DAM). **CORK: HA 20** - L. Coolklure, Dunmanway (W177539), 16 September 2008, EPA (DAM): **HA 21** - L. Glenbeg, Ardgroom (V706530), 3 September 2008, EPA (DAM). **DONEGAL: HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 7 September 2009, EPA (DAM): **HA 38** - L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002): **HA 39** - L. Gartan, Church Hill, mid lake (C055159), 10 June and 22 July 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Erne, Lower, Black Bay (H072639), 27 April 2002 (PHL). L. Macnean, upper, Belcoo (H042403) and L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 29** - L. Caherglassaun, Gort (M412061), 12 April, 13 June and 7 August 2007, EPA (DAM). L. Coole, Gort (M425037), 27 July 2009, EPA (DAM): **HA 30** - L. Anillaun, Maam Cross (L980470), 19 April, 1 August and 5 September 2007, EPA (DAM). L. Corrib, Derrenmeel, west shore (M150450), 1980, BC (DAM) and L. Corrib Upper, Oughterard (M138486), 14 September 2007, EPA (DAM). L. Maumwee, Maam Cross (L977485), 19 April 2007 and L. Ross, Moycullen (M188365), 14 April and 5 September 2007, EPA (DAM): **HA 31** - L. Ahalia, Gortmore, north east shore (L971402), 22 April 2009, L. Anaserd, Ballyconneely (L605443), 20 April 2006 and L. Aunwillan, Carraroe (L936255), 25 July and 13 September 2007, L. Ballynahinch, Ballynahinch (L777478), 17 April, 23 July and 13 September 2007 and L. Ballynakill, Gorumna (L867236), 19 April, 8 August and 19 September 2006, all EPA (DAM). L. Derryclare, Recess (L825485), 6 June 2007, L. Illauntrasna, Glentrasna, Garomna (L888254), 16 April, 25 July, and 12 September 2007 and L. Nahasleam, Maam Cross (L972440), 8 August 2006 and 19 April 2007 and L. Shindilla, Derreennacreeva, south shore (L958460), 16 May and 26 July 2007, all EPA (DAM). R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981 (Hayes, 1991): **HA 32** - L. Ballynakill, Cleggan (L639581), 5 June and 11 July 2007 and L. Tully, Tully Cross (L695618), 19 July 2007, EPA (DAM). R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). L. Pollacappul, Kylemore (L754582), 10 September 2007 and L. Kylemore, Kylemore (L771582), 5 June 2007,

EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 13 July and 10 September 2008, L. Cloonaghlin, Waterville (V611708), 8 May and 10 September 2008 and L. Inchiquin, Kenmare (V837629), 1 and 17 September 2008, EPA (DAM): **HA 22** - L. Acoose, Slievanore, Killorglin (V755854), 9 September 2008 and L. Guitane, Crohane, Killarney (W025846), 26 June and 9 September 2008, EPA (DAM). L. Leane, Killarney, Castlough Bay, north shore (V975873), 23 August 1973 (Douglas and Murray, 1980); L. Leane, Killarney (V931886), 10 July and 18 September 2008, EPA (DAM). Muckcross Lake, Muckcross, Killarney (V950853), 18 September 2008, EPA (DAM). R. Flesk, d/s R. Clydagh - R. Loo confluence (W084814), 11 August 1978, PJA (Ashe, 1982; Murray, 2005); R. Loo, Aughnanus Bridge, Crohane (W045790), March to October 1978 (Ashe, 1982). Upper Lake, Killarney (V909821), 17 July and 9 September 2008, EPA (DAM): **HA 23** - L. Cam, Castlegregory (Q597079), 29 August 2008, EPA (DAM). **LEITRIM: HA 26** - L. Allen, Mountallen, Drumshanbo (G950145), 7 August and 9 September 2008, EPA (DAM). L. Boderg, Dromod (N020910), 25 June 2008 and Derrycarne (N013915), 10 September 2008, EPA (DAM). L. Bofin, Dromod (N049894), 24 June and 10 September 2008 also Rinnafarna, Dromod (N036891), 29 July 2008, EPA (DAM). L. Rinn, Mohill (N095943), 25 June 2008, EPA (DAM): **HA 35** - L. Belhavel, Killarga, Dromahair (G878288), 10 June 2008, EPA (DAM). L. Glenade, Glenade, Manorhamilton (G831457), 10 June and 22 July 2008, EPA (DAM). L. Glencar, Glencar (G757435), 10 June, 21 July and 2 September 2008, EPA (DAM). **LIMERICK: HA 25** - R. Mulkear, Dromkeen Bridge (R741480), 8 September 1981 (Hayes, 1991). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June and 10 September 2008, EPA (DAM). L. Ree, Bleanavoher (N069445), 25 April 2007, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 27 August 2008, EPA (DAM): **HA 32** - L. Doo, Delphi: north east shore (L834689), 22 August 2002, DAM/WM (DAM); west shore (L835681), 12 July and 16 August 2006 also west shore (L833680), 25 August 2008, all EPA (DAM). L. Fin, Delphi (L841657), 9 May, 28 June and 11 September 2006, EPA (DAM). L. Feeagh, Newport (L975983), 24 July and 17 September 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 23 July and 18 September 2008, EPA (DAM): **HA 33** - L. Carrowmore, Bangor Erris, Derreens, north shore (F833299), 28 July 2008, EPA (DAM): **HA 34** - L. Conn, Illannaglashy (G207070) and L. Cullin, Drummin Wood, north shore (G235046), 20 August 2008, EPA (DAM). L. Lannagh, Castlebar, west shore (M109883), 21 August 2008, EPA (DAM). L. Levally, Massbrook (G146043), 22 April, 23 July, 25 June and 23 September 2008, EPA (DAM). R. Moy, Bellanacurra (G403047), 29 August 1982 (Hayes, 1991). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 27 June 2006, EPA (DAM). L. Summerhill, 1, Clones (H490279), 26 April 2007, EPA (DAM): **HA 6** - L. Naglack, Carrickmacross (H853026), 11 June 2007, EPA (DAM). **OFFALY: HA 25** - R. Little Brosna, Milltown Park (S068907) and

Brosna Bridge (S077938), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - L. Meelagh, Keadew (G901117), 11 June and 12 July 2008, EPA (DAM). L. Cavetown, Boyle (M832974), 9 April and 17 July 2008, EPA (DAM). L. Key, Boyle (G838057), 6 August 2008 and L. Key, Hogs Island Pier (G825054), 9 September 2008, EPA (DAM). L. O'Flynn, Ballinlough, south east shore (M585786), 9 September 2008, EPA (DAM). L. Ree, Yew Point, Barley Harbour (N018485), 25 April 2007, EPA (DAM). **SLIGO: HA 26** - L. Gara: Monastredan (M708996), 28 April 2008; L. Gara, Cuppanagh, Cloonlough (G714013), 5 and 30 September 2008, EPA (DAM): **HA 34** - L. Talt, Gleneask (G402151), 18 June and 24 September 2008, EPA (DAM): **HA 35** - L. Arrow, Ballinafad (G789123), 9 September 2008, EPA (DAM). L. Kilsallagh (Reservoir), Kilsallagh (G734393), 23 July and 8 September 2008, EPA (DAM). L. Templehouse, Ballymote (G615171), 30 April and (G619182), 9 September 2008, EPA (DAM). L. Gill, Sligo (G782350), 20 August 2008, EPA (DAM). **TIPPERARY: HA 15** - R. Nore, Nore Bridge (S133816), 27 August 1981 (Hayes, 1991). **WESTMEATH: HA 26** - L. Killinure, Wineport (N067458) also Ballaghkeernan Bay (N069445), 24 April and 26 June 2007, EPA (DAM). L. Ree, Coosan (N050450), 15 August 2007, EPA (DAM). **WICKLOW: HA 10** - L. Tay, Luggala (O163008), 2 September 2009, EPA (DAM). Vartry Reservoir, north basin, Roundwood (O205050), 2 July and 3 September 2009, EPA (DAM): **HA 9** - Pollaphuca Reservoir, Ballymore Eustace (N995080), 30 April, 22 June and 3 September 2009, EPA (DAM).

***Stempellinella brevis* (Edwards, 1929)**

CAVAN: HA 36 - L. Garty, Arvagh (N278978), 12 April 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 10 April and 6 July 2006, EPA (DAM): **HA 27** - L. Dromore, Ruan, Corrofin, west basin (R345858), 11 April and 8 June 2006, EPA (DAM). Gortglass L., Killadysert, south shore (R223596), 2 April and 11 June 2009, EPA (DAM): **HA 28** - L. Keagh, Milltown Malbay, north shore (R100813), 15 September 2009, EPA (DAM) and 19 September 2012, DAM/WM (DAM). L. Lickeen, Kilfenora, mid lake (R175909), 3 May 2006 and west shore (R164908), 15 September 2009, EPA (DAM). R. Annageeragh, Moyglass Bridge, d/s L. Doo (R078725), 30 July 1982 (Hayes, 1991). **CORK: HA 19** - Iniscarra Reservoir, Coachford (W477717), 2 April 2008, EPA (DAM). L. Allua, Ballingearry (W180652), 4 April 2008, EPA (DAM): **HA 20** - R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363), 24 August 1983 (Hayes, 1991): **HA 21** - L. Glenbeg, Ardgroom (V706530), 15 April and 3 September 2008, EPA (DAM). **DONEGAL: HA 1** - L. Mourne, Ballybofey (H069900), 20 April and 8 September 2009, EPA (DAM): **HA 36** - L. Golagh, Ballyshannon (G965655), 7 July 2009, EPA (DAM). L. Unshin, Ballyshannon (G946634), 28 March 2004 (PHL). L. Unshin, Ballyshannon (G951637), 15 April, 8 June, 6

July and, 8 September 2009, EPA (DAM): **HA 37** - L. Eske, Donegal (G973844), 17 April 2009, EPA (DAM). R. Oily, Claggen (G751803), 8 August and R. Stragar, Duninkeely (G727792), 10 August 1982 (Hayes, 1991): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Dunglow, The Rosses, west shore (B782119), 31 March, 17 June and 5 August 2009, EPA (DAM). R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000 (Langton, 2002). L. Nasnahida, Doocharry, Dunglow (B852076), 6 August 2009, EPA (DAM). L. Nacung Upper, Dunlewy (B904191) and R. Devlin, Dunlewy (B927190), 19 July 2000 (Langton, 2002). R. Owenveagh, Glenveagh Cottage, GNP (B990178), 30 July 1985, L. Veagh, north east shore (C038233), 24 July 1985 and stream near Administration Centre, GNP (C041227), 14 May 1986, all LJH (Heneghan, 1986); L. Veagh, north east shore near Visitor Centre (C033223), 19 July 2000 (Langton, 2002) and boathouse near Castle, Glenveagh (C022211), 21 July 2009, EPA (DAM). R. Owencarrow, d/s road bridge, Glenveagh (C043235), 18 July 2000 (Langton, 2002). Small stream near L. Nadurcan, Glenveagh (C055225), 24 July 1985 (Heneghan, 1986). L. Glen, Glen (C105292), 16 June 2009, EPA (DAM). L. Greenan, Loughsalt, Kilmacrennan (C117262), 29 April 2009, EPA (DAM). L. Salt, Milford (C121256), 16 June and 15 July 2009, EPA (DAM). L. Reelan, Reelan (C131272), 6 June and 15 July 2009, EPA (DAM). L. Keel, Kilmacrennan (C158243), 16 July 2009, EPA (DAM). L. Fallaneas, Kindrum (C173424), 30 April 2009, EPA (DAM). L. Kiltoris, Dawros, Ardara (G675976), 30 March 2009, EPA (DAM): **HA 39** - L. Gartan, Church Hill, mid lake (C055159), 9 September 2009, EPA (DAM). L. Akibbon, Church Hill (C068184), 23 April 2009, EPA (DAM). R. Leannan, Drumaboden (C165218), 12 August 1982 and R. Crana, Bunrana (C347328), 15 August 1982 (Hayes, 1991). **GALWAY: HA 25** - R. Woodford, Woodford (M732000), 24 May 2003 (PHL): **HA 30** - L. Anillaun, Maam Cross (L980470), 19 April and 5 September 2007, EPA (DAM). L. Ballyquirke, Moycullen (M232317), 14 September 2007, EPA (DAM). L. Beaghcauneen, Ballinaboy (L679470), 18 July 2007, EPA (DAM). L. Bofin, Maam Cross (M034441), 18 April and 31 July 2007, EPA (DAM). L. Maumwee, Maam Cross (L977485), 12 July 2007 and 19 April 2009, EPA (DAM). L. Ross, Moycullen (M188365), 5 September 2007, EPA (DAM). Stream at layby on road N59, Moycullen (M204326), 25 May 2003 (PHL): **HA 31** - L. Ahalia, Gortmore, north east shore (L971402), 22 April and 23 September 2009, EPA (DAM). L. Aunwillan, Carraroe (L936255), 16 April, 25 July and 13 September 2007, EPA (DAM). L. Ballynahinch, Ballynahinch (L777478), 17 April, 23 July and 13 September 2007, EPA (DAM). L. Ballynakill, Gorumna (L867236), 19 April and 15 May 2006, EPA (DAM). L. Derryclare, Recess (L825485), 17 April 2007, EPA (DAM). L. Illauntrasna, Glentrasna, Garomna (L888254), 25 July and 12 September 2007, EPA (DAM). L. Loughanaure, Kilkieran (L828320), 12 September 2007, EPA (DAM). L. Nahasleam, Maam Cross (L972440), 16 May and 12 September 2006 also 19 April, 1 August and 13 September 2007, EPA (DAM). L.

Shindilla, Derreenacreeva, south shore (L958460), 16 May and 12 September 2006 also 19 April 2007, EPA (DAM): **HA 32** - L. Enask, Beaghcauneen (L662468), 4 April and 17 September 2007, EPA (DAM). L. Fadda, Beaghcauneen (L668455), 4 April, 17 July and 11 September 2007, EPA (DAM). L. Tully, Tully Cross (L695618), 3 April 2007, EPA (DAM). R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981, BPH (Hayes, 1991; Murray, 2005). L. Pollacappul, Kylemore (L754582), 2 April, 9 July and 10 September 2007, EPA (DAM). L. Kylemore, Kylemore (L771582), 2 April 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 16 April, 13 July and 10 September 2008, EPA (DAM). L. Cloonaghlin, Waterville (V611708), 8 May and 10 September 2008, EPA (DAM). Eagles L., Knocknagantee (V674728) and Erik L., Derrygarriff (V881777), 25 April 2005, JRB/MC (DAM). L. Inchiquin, Kenmare (V837629), 15 April, 1 and 17 September 2008, EPA (DAM). L. Namona, Waterville (V596711), 10 September 2008, EPA (DAM). R. Inny, Scarriff Bridge (V504696), 24 August 1983 (Hayes, 1991): **HA 22** - L. Acoose, Slievanore, Killorglin (V755854), 9 July 2008, EPA (DAM). L. Caragh, Killorglin (V719904), 20 June and 15 July 2008, EPA (DAM). L. Cummernamuck, Killorglin (V745897), 18 July and 9 September 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 16 May 2005, also 21 April and 9 September 2008, EPA (DAM). Killarney (V9589), 1928 (Edwards, 1929). L. Leane, Killarney (V931886), 22 April and 18 September 2008, EPA (DAM). Muckcross Lake, Muckcross, Killarney (V950853), 24 April and 18 September 2008, EPA (DAM). R. Annascaul, Annascaul (Q593017), 2 July 1981 (Hayes, 1991). R. Clydagh, u/s Clydagh Bridge (W114826), March to October 1978 (Ashe, 1982). R. Flesk: d/s Clydagh/Loo confluence (W084814), Flesk Bridge (W034876) and d/s Whitebridge (V987900), March to October 1978, all PJA (Ashe, 1982). R. Loo, Aughnanus Bridge, Crohane (W048790), 25 March 1979 (Ashe, 1982). Upper Lake, Killarney (V909821), 24 April and 9 September 2008, EPA (DAM): **HA 23** - L. Cam, Castlegregory (Q597079), 29 August 2008, EPA (DAM). L. Gill, Castlegregory (Q603139), 29 April 2008, EPA (DAM). **LEITRIM: HA 35** - L. Glencar, Glencar (G748434), 1 April 2008, EPA (DAM). **MAYO: HA 30** - L. Aille, Aille, Westport (M071807), 22 April and 18 September 2008, EPA (DAM): **HA 32** - L. Doo, Delphi: west shore (L835681), 9 May and 16 August 2006 also 3 April 2008, EPA (DAM) also west shore (L833680), 25 August and north east shore (L834686), 22 September 2008, EPA (DAM). L. Glencullin, Delphi: west shore (L818697), 3 April 2008; north west shore (L815699), 26 June 2008; south west shore (L819696), 25 August 2008 and north shore (L818711), 22 September 2008, EPA (DAM). R. Bunowen, u/s of bridge, Louisburg (L807807) and d/s of Laghta Bridge, Laghta Eighter (L852751), 30 September 2004, DAM/WM (DAM). L. Fin, Delphi (L841657), 12 July and 11 September 2006, EPA (DAM). L. Feagh, Newport (L975983), 24 July and 17 September 2008, EPA (DAM). R. Owenwee, u/s Aghamore Bridge, Westport (L972817), 8 May 2003 (Murray,

2005) and 5 August 2004, DAM/WM (DAM). L. Moher, Liscarney, Westport (L977766), 21 April 2008, EPA (DAM). L. Knappabeg, Westport (M010803), 21 April and 24 June 2008, EPA (DAM): **HA 33** - L. Acorrymore, Achill Island (F578057), 29 September 2004, DAM/WM (DAM) also 16 July, 17 June and 17 September 2008, EPA (DAM). R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - L. Alone, Ox Mountains (G367157), 5 August 2005, JRB/MC (DAM). L. Levally, Massbrook (G146043), 23 July 2008, EPA (DAM): **Clare Island** - R. Doree, Lecarrow (L692860), 5 June 2002 and Pollabrandy stream, Knocknaveen (L704858), 4 June 2002 (Murray and Murray, 2003). **ROSCOMMON: HA 26** - L. Cavetown, Boyle (M832974), 11 June 2008, EPA (DAM). L. Key, Hogs Island Pier, Boyle (G825054), 9 September 2008, EPA (DAM). **SLIGO: HA 35** - L. Easky, Ox Mountain (G446230), 18 June and 25 September 2008, EPA (DAM). **WEXFORD: HA 11** - R. Ounvarra, Ballycanew (T153519), 6 May 2006, DAM/WM (DAM): **HA 13** - R. Tintern, Tintern (S794099), 13 June 2012 (DAM). **WICKLOW: HA 10** - R. Glencullen, Knocksink (O218180), 18 May 1987 (Morgan, 1989). Upper Glendalough Lake, Laragh, WMNP (T100960), 29 July 2009, EPA (DAM). R. Glendasan, Laragh, WMNP (T100982), 24 June 1996 (DAM). R. Avonbeg, Drumgoft Bridge, Glenmalure (T105905), 4 August 1983 and Meetings Bridge (T188831), 11 July 1997 (Curran, 2001). R. Avonmore, Castlehoward (T190833), 4 August 1983 (Hayes, 1991) and Lion Arch Bridge (T194833), 11 July and 14 August 1997 (Curran, 2001). R. Avoca, Whitebridge, Tigroney (T198821), July 1997 (Curran, 2001) and Avoca Village (T203802), July 1997, FC (Curran and Murray, 2001).

***Stempellinella edwardsi* Spiess and Sæther, 2004**

CAVAN: HA 36 - Glasshouse, Killashandra (H270060), 7 June, 3 July and 18 September 2008, EPA (DAM). L. Annagh, Butler's Bridge (H394125), 5 June, 3 July and 18 September 2007, EPA (DAM). L. Ardan, Milltown, Belturbet (H354124), 6 June 2007, EPA (DAM). L. Atrain, Gartbrattan (H364051), 4 July 2007, EPA (DAM). L. Cuillaghan, Ballyconnell (H303183), 13 April, 6 June, 25 July and 13 September 2007, EPA (DAM). L. Derrybrick, Milltown, Belturbet (H346117), 5 June 2007, EPA (DAM). L. Garty, Arvagh (N278978), 18 July 2007, EPA (DAM). L. Gowna, north basin, Arnagahan (N285920), 24 July and 18 September 2007, EPA (DAM). L. Oughter, Killashandra (H349051), 17 July 2007, EPA (DAM): **HA 7** - L. Drumkeery, Baileborough (H663002), 1 May, 12 June and 16 July 2007, EPA (DAM). L. Nadreegeal, Ballyjamesduff (N537933), 18 July 2007, EPA (DAM). L. Acurry, Baileborough (N584990), 17 September 2007, EPA (DAM). L. Ramor, Virginia (N612860), 16 April 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Doorus, west shore (R556930), 6 July, 3 August and 6 September 2006 also Doorus (R557924), 11 August 2009, EPA (DAM). L. Derg, Mountshannon (R718861), 18 September 2009, EPA (DAM). L. Graney, Flagmount, east shore

(R563932), 16 September 2009, EPA (DAM). L. Alewnaghta, Whitegate, west shore (R758908), 20 April, 17 June and 16 July 2009 also north east shore (R764914), 23 September 2009, EPA (DAM). L. Bridget, Derrymore, Badyke, east shore (R558797), 21 April, 12 June and 29 July 2009, EPA (DAM): **HA 27** - L. Bunny, Aughrim, south east shore (R377965), 14 September 2009, EPA (DAM). Castle Lake, Kilmurry, Sixmilebridge, south west shore (R481688), 12 June and west shore (R482691), 17 September 2009, EPA (DAM). L. Cullaun, Corrofin, mid east shore (R317905), 3 May, 4 July and 14 September 2009, EPA (DAM). L. Dromore, Ruan, Corrofin, west basin (R345858), 8 April 2009, EPA (DAM). L. Inchicronan, Crusheen, west basin (R391860), 8 April and west shore (R266896), 15 July 2009, EPA (DAM). L. Muckanagh, Tubber, Corrofin, south east shore (R370922), 14 September 2009, EPA (DAM). L. Cullaunytheeda, Kilkishen (R492748), 17 September 2009, EPA (DAM): **HA 28** - L. Lickeen, Kilfenora, west shore (R168909), 21 July 2009, EPA (DAM), mid lake (R175909), 6 June and 4 July 2006 also west shore (R163909), 11 June 2009, EPA (DAM). L. Naminna, Boolteagh, mid lake (R180710), 15 September 2009, EPA (DAM). **CORK: HA 19** - Carrigdroihid Reservoir, Ashton (W360703), 3 April 2008, EPA (DAM). Iniscarra Reservoir, Coachford (W477717), 16 June, 28 and 31 July, 16 September 2008, EPA (DAM). L. Allua, Ballingearry (W180652), 17 June, 20 August and 16 September 2008, EPA (DAM): **HA 20** - L. Ballin, Leap (W199389), 17 June 2008, EPA (DAM). L. Curragalicky, Drinagh, Dunmanway (W234046), 9 April, 17 June, 12 August and 11 September 2008, EPA (DAM): **HA 21** - L. Bofinna, Bantry (W041488), 11 September 2008, EPA (DAM). **DONEGAL: HA 1** - L. Finn, Fintown, Glenties (B911018), 9 June 2009, EPA (DAM): **HA 36** - L. Tullynasiddagh, Ballyshannon (G983656), 7 July and 7 September 2009, EPA (DAM). L. Unshin, Ballyshannon (G951637), 8 June 2009, EPA (DAM): **HA 37** - L. Eske, Donegal (G973844), 8 June and 14 July 2009, EPA (DAM): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Dunglow, The Rosses, west shore (B782119), 5 August 2009; L. Anure, Loughanure, east shore (B818162), 17 June, 12 August and 7 September 2009; L. Keel, Crolly (B848162), 13 August 2009; L. Veagh, boathouse near Castle, GNP (C022211), 9 September 2009; L. Glen, Glen (C105292), 16 June 2009; L. Kindrum, Kindrum, Fanad (C186430), 16 June, 22 July and 9 September 2009; L. Kinny, Fanad (C204442), 6 June and 9 September 2009; L. Shannagh, Magheradrumman, Fanad Peninsula (C216450), 16 June, 21 July and 9 September 2009 and L. Kiltoris, Dawros, Ardara (G675976), 17 June 2009, all EPA (DAM): **HA 39** - L. Akibbon, Church Hill (C068184), 11 June, 22 July and 9 September 2009 and L. Fern, Millford (C180233), 16 June and 23 July 2009, EPA (DAM): **HA 40** - L. Fad, Coolmany (C398428), 15 June 2009, EPA (DAM). **DUBLIN: HA 9** - Upper Reservoir, Bohernabreena (O095219), 20 May 1947, CFH (DAM). **FERMANAGH: HA 36** - L. Macnean, upper, Belcoo (H042403) and L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 30** - L.

Anillaun, Maam Cross (L980470), 1 August 2007; L. Ballyquirke, Moycullen (M232317), 13 April, 14 June, 8 August and 14 September 2007; L. Bofin, Maam Cross (M034441), 7 June, 31 July and 17 September 2007; L. Corrib Upper, Oughterard (M138486), 14 September 2007 and L. Ross, Moycullen (M188365), 8 August and 5 September 2007, all EPA (DAM): **HA 31** - L. Anaserd, Ballyconneely (L605443), 16 May 2006, 17 July and 11 September 2007; L. Aunwillan, Carraroe (L936255), 7 June, 25 July and 13 September 2007; L. Ballynahinch, Ballynahinch (L777478), 6 June, 23 July and 13 September 2007; L. Ballynakill, Gorumna (L867236), 15 May, 8 August and 19 September 2006; L. Derryclare, Recess (L825485), 6 June 2007 and L. Nahasleam, Maam Cross (L972440), 19 April and 1 August 2007, all EPA (DAM): **HA 32** - L. Ballynakill, Cleggan (L639581), 5 June and 11 September 2007, L. Tully, Tully Cross (L695618), 19 July 2007 and L. Pollacappul, Kylemore (L754582), 5 June and 10 September 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June, 13 July and 10 September 2008, L. Currane, Waterville (V535664), 22 July and 10 September 2008 and L. Namona, Waterville (V596711), 23 July and 10 September 2008, all EPA (DAM): **HA 22** - L. Acoose, Slievanore, Killorglin (V755854), 19 June 2008, EPA (DAM). L. Guitane, Crohane, Killarney (W025846), 26 June and 8 July 2008, EPA (DAM). L. Leane, Killarney, Killarney (V931886), 10 July and 18 September 2008, EPA (DAM). Muckcross Lake, Muckcross, Killarney (V950853), 16 July 2008, EPA (DAM). R. Clydagh, u/s Clydagh Bridge (W114826), 16 May 1978, PJA (Murray, 2005). Upper Lake, Killarney (V909821), 24 June and 17 July 2008, EPA (DAM). **LEITRIM: HA 26** - L. Acres, Drumshanbo (G968099), 11 June 2008, EPA (DAM). L. Boderg, Derrycarne (N013915), 29 July and 10 September 2008 also L. Boderg, Dromod (N020910), 25 June 2008, EPA (DAM). L. Bofin, Rinnafarna, Dromod (N036891), 29 July 2008, EPA (DAM); L. Bofin, Dromod (N049894), 24 June 2008, EPA (DAM). L. Rinn, Mohill (N095943), 25 June, 18 July and 10 September 2008, EPA (DAM): **HA 35** - L. Annary, Dromahair (G817338), 23 July 2008, EPA (DAM). L. Belhavel, Killarga, Dromahair (G878288), 10 June and 26 August 2008, EPA (DAM). L. Glenade, Glenade, Manorhamilton (G831457), 10 June and 22 July 2008, EPA (DAM). L. Glencar, Glencar (G757435), 10 June and 2 September 2008, EPA (DAM): **HA 36** - L. Drumlaheen, Feenagh, Ballinamore (H091071), 18 September 2007, EPA (DAM). **LIMERICK: HA 24** - L. Gur, Holycross (R646413), 13 June 2009, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 25 June, 27 August and 10 September 2008, EPA (DAM). L. Ree, Bleanavoher (N069445), 25 April and 10 September 2007, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur (M506903), 18 June 2008, EPA (DAM): **HA 30** - L. Aille, Aille, Westport (M071807), 22 April, 24 June, 8 August and 18 September 2008 and L. Mask, Toormakeady (M113702), 22 September 2008, EPA (DAM): **HA 32** - L. Doo, Delphi, west shore (L835681), 12 July 2006 and west shore (L833680), 25 August 2008, L. Glencullin,

Delphi, south west shore (L819696), 25 August 2008, L. Fin, Delphi (L841657), 28 June 2006, L. Moher, Liscarney, Westport (L977766), 24 June and 21 July 2008 and L. Knappabeg, Westport (M010803), 21 April, 24 June, 23 July and 18 September 2008, all EPA (DAM): **HA 33** - L. Carrowmore, Bangor Erris, Cloontakilla Bay (F851253), 17 June 2008; Derreens, north shore (F833299), 28 July 2008 and Knocknascollop, west shore (F830282), 17 September 2008, all EPA (DAM): **HA 34** - L. Alone, Ox Mountains (G367157), 5 August 2005, JRB/MC (DAM). L. Conn, Illannaglashy (G207070), 20 August 2008, L. Lannagh, Castlebar (M137899), 26 September 2008, L. Levally, Massbrook (G146043), 25 June and 23 July 2008 and L. More, Ballynagoraher (G115044), 8 May, 29 June and 12 September 2006, all EPA (DAM). **MONAGHAN: HA 36** - L. Annaghmakerrig, Newbliss (H585205), 22 May and 27 June 2006 and L. Drumlona, Rockcorry (H636176), 5 June and 11 July 2007, EPA (DAM). **ROSCOMMON: HA 26** - L. Meelagh, Keadew (G901117), 11 June, 12 July and 9 September 2008, L. Cavetown, Boyle (M832974), 17 July 2008, L. Key, Boyle, wharf in Forest Park, Boyle (G848040), 11 June and Boyle (G838057), 6 August 2008, L. O'Flynn, Ballinlough, south east shore (M585786), 9 April, 12 June and 9 September 2008 and L. Ree, Yew Point, Barley Harbour (N018485), 10 and 11 September 2007, EPA (DAM). **SLIGO: HA 26** - L. Gara, Monastredan (M708996), 28 April 2008 also L. Gara, Cuppanagh, Cloonlough (G714013), 5 and 30 September 2008, EPA (DAM): **HA 34** - L. Talt, Gleneask (G402151), 24 September 2008, EPA (DAM): **HA 35** - L. Arrow, Ballinafad (G789123), 29 April and 9 September 2008, L. Kilsallagh (Reservoir), Kilsallagh (G734393), 23 July and 8 September 2008, L. Templehouse, Ballymote (G615171), 30 April 2008 also (G619182), 11 June and 9 September 2008 and L. Gill, Sligo (G782350), 11 June and 20 August 2008, all EPA (DAM). **WESTMEATH: HA 26** - L. Killinure, Wineport (N067458), 26 June and 11 September 2007 and Ballaghkeernan Bay (N069445), 24 April, 26 June and 11 September 2007 also L. Coosan, Athlone (N055449), 24 April and 11 September 2007, all EPA (DAM): **HA 7** - L. Lene (N510685), 19 September 2006, EPA (DAM). **WICKLOW: HA 10** - Vartry Reservoir, north basin, Roundwood (O205050), 2 July and 3 September 2009, and Upper Glendalough Lake, Laragh, WMNP (T100960), 2 July 2009 and 3 September 2010, EPA (DAM): **HA 9** - Pollaphuca Reservoir, Ballymore Eustace (N995080), 30 April and 3 September 2009, EPA (DAM).

***Stempellinella reissi* Casas and Vilchez-Quero, 1991**

ANTRIM: HA 4 - Altnahinch Reservoir Dam, Ballymoney (D119234), 22 August 2001 (PHL). **DONEGAL: HA 36** - L. Golagh, Ballyshannon (G965655), 29 June 2000 (Langton, 2002). L. Avehy, Belalt (H043664), 27 April 2002 (PHL): **HA 37** - L. Shinvagh, Carricode (H005675), 27 April 2002 (PHL): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (PHL): **HA**

39 - L. Fern, Milford (C182247), 18 August 2011 (PHL). **FERMANAGH: HA 36** - L. Erne, Lower: Brocagh Point, Boa Island (H108626), 17 August 2011 and Black Bay (H072639), 27 April 2002 (PHL). L. Macnean, upper, Belcoo (H042403), 29 June 2000 (Langton, 2002).

***Tanytarsus aberrans* Lindeberg, 1970**

CORK: HA 19 - Iniscarra Reservoir, Coachford (W477717), 2 April 2008, EPA (DAM). **TIPPERARY: HA 18** - L. Curra, Galtymore Mountain (R867242), 10 August 2005, JRB (Murray, 2005; Murray and Baars, 2006).

***Tanytarsus anderseni* Reiss and Fittkau, 1971**

ANTRIM: HA 5 - L. Mourne, Carrickfergus (J415924), 4 May 1999 (Langton, 2005).

***Tanytarsus bathophilus* Kieffer, 1911**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866) and Churchtown Point (J056852), 22 August 2001 (PHL). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 26 April, 10 and 18 May 2001 also Lower Reservoir, Creggan, Derry (C422174), 26 April and 10 May 2001 (PHL): **HA 3** - L. Neagh (H9080), no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990) also 4 July 2000 (Langton, 2002) and 22 August 2001 and 31 May 2011 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL). **KERRY: HA 21** - L. Derriana, north shore (V605735), 6 August 1973, JPOC (DAM): **HA 22** - L. Leane, Killarney, Brickeen (V937850), 3 July 1973, DAM (Douglas and Murray, 1980). **LEITRIM: HA 35** - L. Lackagh, Boleybrack (G920320), 3 August 2005, JRB (DAM). **MEATH: HA 7** - R. Boyne, Ardsallagh, at St Bridget's Well (N897635), 7 July 1988 (Murray, 1988). **ROSCOMMON: HA 26** - R. Suck, Athleague (M825758), 14 August 1981 (Hayes, 1991).

***Tanytarsus brundini* Lindeberg, 1963**

ANTRIM: HA 3 - R. Clough, Clough Mills (D105109) and Glenravel Water, Gartnageeragh, Newtown Crommelin (D147154), 2 July 2000 (Langton, 2002). L. Neagh: Antrim Bay (J135866), 4 May 1999 and 22 August 2001 (PHL); L. Neagh, Churchtown Point (J056852), 13 October 2000 (Langton, 2002) and 22 August 2001 (PHL). Kells R., Shank Bridge, Kells (J126982), 20 June 2000 (Langton, 2002): **HA 4** - R. Bush: Seneirl Bridge (C943362), 16 July 2000; Conogher Bridge (C963305), 10 September 2000; Stranocum (D009307), 2 July 2000; Ballyhoe Bridge (D077294) and pool at Ballyhoe Bridge (D077294), 2 July 2000, all PHL (Langton, 2002). R. Glendun, Drumfresky, Cushendun (D193308) and R. Glenariff Inver-Glenariff, Cushendall (D215205), 2 July 2000 (Langton, 2002). Altnahinch Reservoir,

Ballymoney (D119234), 22 August 2001 (PHL). **CAVAN: HA 36** - L. Garty, Arvagh (N278978), 7 June 2007, EPA (DAM). R. Erne: Kilsarin (N362910), 27 May 1982; Drumbarry (N462951), 17 August 1982; Dingin's Bridge (N331948) and Carrigan (N391935), 27 August 1982, all BPH (Hayes, 1991). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 6 April, 2 May, 7 June and 1 August 2006 (EPA). L. Cullaun, Corrofin, mid east shore (R317905), 7 June 2006, EPA (PHL). **CORK: HA 18** - R. Blackwater: Killavullen (W648998), 31 August 1981; Ballymacquirk Bridge, Banteer (W382989), Roskeen Bridge, Banteer (W444988) and Lombardstown (W463968), 1 September 1981; Knocknagree (W159975), Duncannon (W180931), Shamrock Bridge, Millstreet (W221935), Charles Bridge, Millstreet (W248943) and Keale Bridge, Millstreet (W294936), 2 September 1981, all BPH (Hayes, 1991): **HA 20** - R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363) also R. Ovane, Pierson's Bridge (W023454), all 24 August 1983, all BPH (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 18 May 2001 and 17 May 2002 (PHL); Lower Reservoir, Creggan, Derry (C422174), 26 April 2001 (PHL): **HA 2** - R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000 (PHL): **HA 3** - R. Bann, Coleraine (C854304): 12 to 13 October 1999 (PHL); 25 May to 8 October 2000; 26 April, 16 and 30 June 2001; 18 and 25 April, 2 May 2010, all PHL (PHL). Paddling pool, Kylebeg, Coleraine (C856304), 4 May 2008 (PHL). L. Neagh (H9080), no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990) also 27 April and 4 May 1999 (PHL) and 3 and 10 May 2000 (Langton, 2002), 7 May 2001, 15 May 2002, 22 and 31 May 2011 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002). L. Fea, Draperstown (H760868), 15 May 2002 (PHL). **DONEGAL: HA 1** - R. Deelee, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002): **HA 36** - L. Golagh, Ballyshannon (G965655), 21 April 2009, EPA (DAM): **HA 36** - L. Avehy, Belalt (H043664), 27 April 2002 (PHL): **HA 37** - R. Oily, Claggen (G751803), 8 August 1982 (Hayes, 1991). R. Eany, d/s Eanybeg confluence (G842815), R. Eanymore, Letterbara Bridge (G883825) and Drumagraa Bridge (G863822) and R. Stragar, Duninkeely (G727792), all 10 August 1982 all BPH (Hayes, 1991): **HA 38** - L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). R. Devlin, Dunlewy (B927190), 19 July 2000 (Langton, 2002). L. Veagh, north east shore near Visitor Centre, Glenveagh (C033223), 19 July 2000 (Langton, 2002) and foam along north east shore, Glenveagh (C039231), 22 May 1986 (Heneghan, 1986). R. Ray, Carrowcanon (B995325), 12 August 1982 (Hayes, 1991): **HA 39** - L. Akibbon, Church Hill (C068184), 23 April 2009, EPA (DAM). R. Glashagh, Drumbologe, Letterkenny (C096153) and R. Swilly, Newmills, Letterkenny (C125092), 18 July 2000 (Langton, 2002). R. Leannan, Drumaboden (C165218), 12 August 1982, R. Leannan, Claragh (C197210), 13 August 1982, R. Crana, Buncrana (C347328) and Ballymagan (C379344), 15 August 1982, all BPH (Hayes, 1991): **HA 40** - L. Naminn,

Cloonmany (C400423), 18 August 2011 (PHL). R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991). **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36** - L. Erne Upper (H362242), 27 June 2000, L. Erne, Lower, Brocagh Point, Boa Island (H108626), 29 June 2000, all PHL (Langton, 2002). L. Erne Upper, Crom Castle slipway (H357244), 27 June 2000 and L. Erne Lower, Black Bay (H072639), 27 April 2002 (PHL). L. Macnean, upper, Belcoo (H042403), 29 June 2000 (Langton, 2002). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 26** - R. Shiven, d/s Ballinaglass (M788494), 29 July 1981 (Hayes, 1991). R. Tirur, Newbridge (M492699), 16 August 1981 (Murray and Hayes, 1989): **HA 30** - L. Ross, Moycullen (M200363), 25 May 2003 (PHL). R. Cregg, Addergoole Bridge, Addergoole (M324350) and R. Grange, Grange Bridge (M482498), 16 August 1981 (Hayes, 1991). L. Adrehid, Oughterard (M055428), 25 May 2003 (PHL). L. Corrib lower, Moycullen (M271360), 28 August 2007, EPA (DAM): **HA 31** - R. Owentouey, Tullywee Bridge, Recess (L873474), 18 August 1981 (Hayes, 1991): **HA 32** - R. Owenglin, Clifden (L677506) and R. Dawros, Tullywee Bridge, Letterfrack (L730586), 18 August 1981 (Hayes, 1991). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 21** - Erik L., Derrygarriff (V881777), 25 April 2005, JRB (DAM). R. Inny, Scarriff Bridge (V504696) and u/s Waterville (V525704), 24 August 1983 (Hayes, 1991): **HA 22** - R. Annascaul, Annascaul (Q593017), 2 July 1981 (Hayes, 1991). R. Caragh, Lower Brida Valley (V740805), Bealalaw Bridge (V715832) and Blackstones Bridge d/s R. Acoose confluence (V710864), 1975, all CD (Dowling *et al.*, 1981). R. Clydagh, u/s Clydagh Bridge (W114826) and Knocknagowan (W187837), May to August 1978 (Ashe, 1982). R. Flesk, d/s Whitebridge (V987900) and d/s New Bridge (V963885), May to August 1978 (Ashe, 1982). **KILDARE: HA 7** - R. Boyne, Edenderry (N636346) and Ballyboggan (N639402), 9 July 1981 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore: Ballyragget (S445707), Norelands Bridge (S547436) and Brownsbarn Bridge (S618391), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore: Kilbricken (S362898), Shanahoe Bridge (S407858) and u/s Durrow (S416787), 27 August 1981 (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, Cappamore (R775514), d/s Cappamore (R779504) and Dromkeen Bridge (R741480), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - L. Doo, Delphi, north east shore (L834689), 6 June and 22 August 2002, DAM/WM (DAM). R. Altahoney, Newport (F950050), 21 July 1975, DAM (DAM). R. Owenwee, u/s Aghamore Bridge, Westport (L972817), 8 May 2003, DAM/WM (Hayes, 1991; Murray, 2005). R. Erriff, Ashleigh Falls (L895645), 18 August 1981 (Hayes, 1991): **HA 33** - L. Cross, Drumreagh, Belmullet, west shore (F645293), 9 April 2008, EPA (DAM). R. Owenmore, Bangor Bridge, Bangor Erris (F863228), 18 August 1983 and R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - R. Moy, Bellanacurra (G403047) and Ballylahan (M277992), 29

August 1982 also Cloongullaun (G348016), 30 August 1982 (Hayes, 1991). **MEATH: HA 7** - R. Boyne, Scarrif Bridge (N733527) and Newtown, Trim (N815571), 9 July 1981 (Hayes, 1991); R. Boyne: Bellinter Bridge (N894626), 21 August 1988 (Murray, 1988); Ardsallagh, at St Bridget's Well (N897635), 27 September 1981 and 9 May 1982 (DAM) also 7 July 1988 (Murray, 1988); Kilcarn Bridge, Navan (N884657), 21 August 1988, New Bridge, Navan (N873679), 18 August 1988, Stackallen Bridge (N917713), 17 August 1988, all DAM (Murray, 1988); Stackallen Bridge (N917713) and Slane Bridge (N965737), 19 July 1989 (DAM). R. Blackwater, Poolboy Bridge, Navan (N871681), 18 August 1988 also Bloomsbury Bridge, Oristown (N793741) and Donaghpatrick (N819723), 19 August 1988, all DAM (Murray, 1988). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991). R. Little Brosna, Ryan's Cross (S053882), Milltown Park (S068907), Brosna Bridge (S077938), Sharavogue (S056953), New Bridge (N016088) and Cloghan (M046209), all 2 September 1982, all BPH (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck: Castlecoote (M809627), 16 July 1981 (Hayes, 1991) and 29 July 1982 (Hayes and Murray, 1989); Ballyforan (M817464) and Castlecoote (M809627), 16 July 1981; Ballynoe (M693757), Athleague (M825758) and Mount Talbot (M813531), 14 August 1981; Newtown (M844346), 15 August 1981, all BPH (Hayes, 1991). L. Key, Boyle (G838057), 14 April and 6 August 2008, EPA (DAM). **SLIGO: HA 34** - R. Moy, Carrownden (G530205), 30 August 1982 (Hayes, 1991); R. Moy, Cloonacool (G493168), Metal Bridge, Tobercurry (G464138) and Annagh (G466123), 30 August 1982, all BPH (Hayes, 1991): **HA 35** - R. Easky, Easky (G377378), 19 August 1983 (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore, Clonakenny (S116805), Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 26 April, 26 June and 22 August 2006 (EPA). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 29 July 1981, BPH (Hayes, 1991; Murray, 2005). **WICKLOW: HA 12** - R. Slaney, Stratford Bridge (S895930), 28 July 1981 (Hayes, 1991): **HA 9** - Pollaphuca Reservoir, Blessington Bridge (N990144), 17 June 2000, DAM/WM (DAM).

***Tanytarsus buchonius* Reiss and Fittkau, 1971**

CLARE: HA 28 - quarry pond near L. Keagh, Milltown Malbay (R097809), 19 September 2012, DAM/WM (DAM). **CORK: HA 20** - L. Coolklure, Dunmanway (W177539), 11 August 2008, EPA (DAM). **DERRY: HA 3** - Glenullin bog pool, Glenullin, Garvagh (C795132), 29 June 2008 (PHL). **DONEGAL: HA 37** - Carn L., Blue Stack Mountains (G871886), 27 July 2005, JRB (DAM): **HA 38** - L. Nabuckan, Grogan More (B850184), 27 July 2005, JRB (DAM). Bog pool, Slieve Snaght, Bingorm Mountain, Glenveagh (B937152) and roadside near

castle, Glenveagh (C025213), 4 June 1986, LJH (DAM). **DUBLIN: HA 9** - bog pool, Featherbed Mountain (O120190), July and August 1974, CD (Dowling, 1975; Dowling and Murray, 1981). **KERRY: HA 22** - R. Caragh, Blackstones Bridge, d/s R. Acoose confluence (V710864) and at outflow from L. Caragh (V713924), 1975, CD (Dowling *et al.*, 1981). **LEITRIM: HA 26** - L. Natire (G966340), 3 August 2005, JRB/MC (DAM): **HA 35** - L. Lackagh, Boleybrack (G920320), 21 April 2005, JRB (DAM). **MAYO: HA 33** - pool, Campport, Achill Island (L677982), 29 September 2004, DAM/WM (Murray, 2005). Bog pools, R. Glenamoy basin, Glenamoy (F896345), August 1973, CD (Dowling, 1975; Dowling and Murray, 1981): **Clare Island** - stream at Fawnglass (L713854), 28 April 2000; roadside at Bayview Hotel (L716856), 20 August 2002 and pond east of Signal Tower (L658859), 21 August 2002 (all Murray and Murray, 2003). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), June 1983, HD (Murray, 2005).

***Tanytarsus chinyensis* Goetghebuer, 1934**

CLARE: HA 28 - L. Lickeen, Kilfenora, west shore (R168909), 6 April 2009, EPA (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 10 May 2001 (PHL). **DONEGAL: HA 38** - L. Veagh, north east shore, Glenveagh (C034223), June 1986 (Heneghan, 1986; Morgan and Murray, 1988). **KERRY: HA 21** - L. Namona, Waterville (V596711), 23 July 2008, EPA (DAM). **SLIGO: HA 34** - L. Talt, Gleneask (G402151), 15 July 2008, EPA (DAM). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 24 May and 1 July 1983, HD (Morgan and Murray, 1988, DAM).

***Tanytarsus curticornis* Kieffer, 1911**

CAVAN: HA 36 - L. Garty, Arvagh (N278978), 7 June 2007, EPA (DAM). **CLARE: HA 25** - L. Graney, Caher, south shore (R568907), 24 May 2003 (PHL) and at Doorus, west shore (R556930), 10 April 2006, EPA (DAM). **CORK: HA 20** - L. Coolkllure, Dunmanway (W177539), 16 September 2008, EPA (DAM). **DONEGAL: HA 38** - L. Nacung Upper, Dunlewy (B904191), 19 July 2000 (Langton, 2002): **HA 39** - L. Gartan, Church Hill, north shore (C065173), 18 July 2000 (Langton, 2002). L. Akibbon, Church Hill (C068184), 23 April 2009, EPA (DAM). **FERMANAGH: HA 36** - L. Keenaghan, Beleek (G974600), 28 March 2004 (PHL). **GALWAY: HA 31** - L. Nahasleam, Maam Cross (L972440), 17 May 2005, EPA (DAM). **KERRY: HA 22** - R. Loo, Aughnanus Bridge, Crohane (W045790), September 1978 (Ashe, 1982). R. Caragh, Blackstones Bridge, ds R. Acoose confluence (V710864), May 1976, JPOC (DAM). **LEITRIM: HA 26** - L. Allen, Mountallen, Drumshanbo (G950145), 28 April 2008, EPA (DAM). L. Bofin, Dromod (N049894), 24 June 2008, EPA (DAM). **LONGFORD: HA 26** - L. Forbes, Cloonard, Newtownforbes (N084821), 14 May 2008, EPA (DAM).

MEATH: HA 7 - R. Skane, Dalgan Park, Navan (N901626), 23 May 2015 (Murray, 2015a). **ROSCOMMON: HA 26** - L. Key, Boyle wharf in Forest Park (G848040), 11 June 2008, EPA (DAM). **WESTMEATH: HA 25** - L. Ennell, Lilliput (N378444), 29 June 1966 (DAM): **HA 26** - L. Ree, Quigleys Marina, Killinure (N051601), 25 March 1999 (Murray, 2005).

***Tanytarsus debilis* (Meigen, 1830)**

CAVAN: HA 36 - L. Garty, Arvagh (N278978), 18 July 2007, EPA (DAM): **HA 36** - L. Moyduff, Shercock (H690094), 20 May 1974 (Murray, 2005): **HA 7** - L. Ramor, Virginia (N603871), 27 June 2005, DAM/WM (Murray, 2005): **HA 7** - L. Cuilcagh, Virginia (N636895), 20 May 1974 (DAM). **CLARE: HA 25** - L. Alewnaghta, Whitegate, west shore (R758908), 16 July 2009, EPA (DAM). **DOWN: HA 5** - L. Henney, Ballynahinch (J348586), 22 June 2000 (Langton, 2002). **GALWAY: HA 30** - L. Bofin, Maam Cross (M034441), 7 June 2007, EPA (DAM): **HA 31** - L. Anaserd, Ballyconneely (L605443), 6 June 2007 and L. Aunwillan, Carraroe (L936255), 25 July 2007, EPA (DAM). **MAYO: HA 34** - L. Levally, Massbrook (G146043), 22 April 2008, EPA (DAM). **MONAGHAN: HA 6** - L. Muckno, Castleblaney (H837202), 22 April 1974, DJD (DAM). **SLIGO: HA 35** - L. Kilsallagh (Reservoir), Kilsallagh (G734393), 23 July 2008, EPA (DAM). **WATERFORD: HA 16** - L. Ballyshunnock (Reservoir), Portlaw (S455095), 19 August 2009, EPA (DAM). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 23 May 2006 (EPA). **WEXFORD: HA 13** - Lady's Island Lake, Carnsore (T105077), 12 July 1974, DJD (DAM).

***Tanytarsus dibranchi* Kieffer, 1926**

New to Ireland

Synonym *Tanytarsus separabilis* Brundin, 1947 in Spies (1998).

KERRY: HA 22 - R. Flesk, d/s New Bridge (V963885), 27 June 1976, PJA (DAM/PJA). [A specimen in the Ashe Collection, NMI – had been provisionally determined, from Lindeberg (1976) but queried (PJA) as *T. separabilis* Brundin. On re-examination the specimen has been identified from Ekrem (2004) as *T. dibranchi*]. **ROSCOMMON: HA 26** - R. Suck, Newtown (M844346), 15 August 1981, BPH (Hayes, 1991 - as *T. eminulus*, misidentified). **TIPPERARY: HA 15** - R. Nore, Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991 - unidentified, queried by BPH as "*T. eminulus*?").

***Tanytarsus ejuncidus* (Walker, 1856)**

ANTRIM: HA 4 - R. Bush, Seneirl Bridge (C943362), 16 July 2000 and R. Bush, Conogher Bridge (C963305), 10 September 2000 (Langton, 2002); R. Bush, Derrykeegan (C946334), 15 May 2005 (PHL). **DERRY: HA 3** - R. Bann, Coleraine (C854304), 2 May 2010 (PHL). **DONEGAL: HA 38** - L. Nacung Upper, Dunlewy (B904191), 19 July 2000 (Langton, 2002).

R. Ray, Carrowcanon (B995325), 12 August 1982 (Hayes, 1991): **HA 39** - R. Crana, Buncrana (C347328) and Ballymagan (C379344), 15 August 1982 (Hayes, 1991). Impoundment at L. Swilly, Newtown Cunningham (C306195), 21 June 2002 (Langton, 2002). **FERMANAGH: HA 36** - R. Bannagh, Drummoney Falls, Pettigo (H168676), 17 August 2011 (PHL). **GALWAY: HA 30** - L. Corrib, Derrenmeel, west shore (M150450), 18 May 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930), Shanahoe Bridge (S407858) and Kilbricken (S362898), 27 August 1981 (Hayes, 1991; Murray, 2005). **LEITRIM: HA 26** - L. Bofin, Dromod (N049894), 10 September 2008, EPA (DAM). **MAYO: HA 32** - Westport L., Westport Woods Hotel, Westport (L985843), 7 May 2004, DAM/WM (DAM). **MEATH: HA 7** - R. Boyne, Bellinter Bridge (N894625), 2 May 1982 (Murray, 2005), Ardsallagh, at St Bridget's Well (N897635), 7 July 1988 and New Bridge, Navan (N873679), 18 August 1988 (Murray, 1988). **MONAGHAN: HA 36** - Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **SLIGO: HA 35** - L. Gill, Sligo (G782350), 11 June and 20 August 2008, EPA (DAM). **TIPPERARY: HA 15** - R. Nore, Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991). **TYRONE: HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002).

Tanytarsus eminulus (Walker, 1856)

ANTRIM: HA 3 - Kells R., Shank Bridge, Kells (J126982), 20 June 2000 (Langton, 2002). Glenravel Water, Gartnageeragh, Newtown Crommelin (D147154), 2 July 2000 (PHL): **HA 4** - R. Bush, Seneirl Bridge (C943362), 16 July 2000 and Conogher Bridge (C963305), 10 September 2000 (Langton, 2002). **CARLOW: HA 12** - R. Slaney, Motabower Bridge (S832778), 28 July 1981 (Hayes, 1991). **CAVAN: HA 36** - Glasshouse L., Killashandra (H270060), 18 July 2007, EPA (DAM). R. Erne, Kilsarin (N362910), 27 May 1982; Drumbarry (N462951), 17 August 1982; Dingin's Bridge (N331948) and Carrigan (N391935), 27 August 1982, all BPH (Hayes, 1991). **CLARE: HA 28** - R. Doonbeg, Derryard (Q979644), 30 July 1982 (Hayes, 1991). **CORK: HA 18** - R. Blackwater: Killavullen (W648998), 31 August 1981; Ballymacquirk Bridge, Banteer (W382989), Roskeen Bridge, Banteer (W444988) and Lombardstown (W463968), 1 September 1981; Knocknagree (W159975), Duncannon (W180931), Shamrock Bridge, Millstreet (W221935), Charles Bridge, Millstreet (W248943) and Keale Bridge, Millstreet (W294936), 2 September 1981, all BPH (Hayes, 1991): **HA 20** - R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363) also R. Ovane, Pierson's Bridge (W023454), all 24 August 1983, all BPH (Hayes, 1991). **DERRY: HA 2** - R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000 (Langton, 2002). Fire dam,

Binevenagh Forest, Coleraine (C699304), 18 May 2000 (Langton, 2002): **HA 3** - R. Agivey, ford at Ballynameen (C827148), 14 June 2008 (PHL). R. Aghadowey, Ballybritain Bridge (C859212), 26 May 2000 (Langton, 2002). R. Bann, Coleraine (C854304), 18 April to 26 August 1999; 3 May to 16 July 2000; 26 April, 16 and 30 June 2001, 2 May 2010, all PHL (PHL). L. Neagh, Ballyronan (H948862), 4 May 1999 (PHL). R. Moyola, New Bridge, Magherafelt (H955905), 4 July 2000 (Langton, 2002) and 7 May 2001 (PHL). **DONEGAL: HA 1** - R. Deelee, Legland, Raphoe (C136028), 19 July 2000 (Langton, 2002): **HA 37** - R. Oily, Claggen (G751803), 8 August 1982 (Hayes, 1991). R. Eany, d/s Eanybeg confluence (G842815), R. Eanymore, Letterbara Bridge (G883825) and Drumagraa Bridge (G863822) also R. Stragar, Duninkeely (G727792), all 10 August 1982, all BPH (Hayes, 1991): **HA 38** - R. Owencarrow, d/s road bridge, Glenveagh (C043235), 18 July 2000 (Langton, 2002). R. Ray, Crocnalaragh (B989272), 12 August 1982 (Hayes, 1991): **HA 39** - R. Glashagh, Drumbologe, Letterkenny (C096153), 18 July 2000 (Langton, 2002). R. Leannan; Kilnacrenan (C145200) and Drumaboden (C165218), 12 August 1982 also Claragh (C197210), 13 August 1982 (Hayes, 1991): **HA 40** - R. Keenagh, Keenagh Bridge (C435555), 18 August 2003 (PHL). **DOWN: HA 3** - R. Rocky, d/s Shanky confluence, Hilltown (J233277), 26 September 1997 (PHL). **FERMANAGH: HA 35** - R. Glen, Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36** - L. Macnean, upper, Belcoo (H042403), 29 June 2000, R. Finn, Lisnanesnagh Bridge (H544337), 26 June 2000 and R. Hollybrook, Lisnaskea (H373310), 27 June 2000 (Langton, 2002). R. Bannagh, Drummoney Falls, Pettigo (H168676), 17 August 2011 (PHL). **GALWAY: HA 26** - R. Shiven, d/s Ballinaglass (M788494), 29 July 1981 (Hayes, 1991). R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991) and 29 July 1982 (Hayes and Murray, 1989): **HA 29** - L. Cutra, Gort (R485986), 24 May 2003 (PHL): **HA 30** - R. Loughkip, Ballyquirk, Moycullen (M224313), 17 August 1981 (Hayes, 1991). **KERRY: HA 18** - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 21** - R. Inny, Scarriff Bridge (V504696) and u/s Waterville (V525704), 24 August 1983 (Hayes, 1991): **HA 22** - L. Cummernamuck, Killorglin (V745897), 20 June 2008 (DAM). R. Clydagh, u/s Clydagh Bridge (W114826), May to October 1978 (Ashe, 1982). R. Flesk: d/s Clydagh/Loo confluence (W084814), May to October 1978 (Ashe, 1982); d/s Whitebridge (V987900), 27 June 1976 (Ashe collection, NMI also Ekrem, 2004) and May to October 1978 (Ashe, 1982). R. Loo, Aughnanus Bridge, Crohane (W045790), May to October 1978 (Ashe, 1982). **KILDARE: HA 7** - R. Boyne, Edenderry (N636346), 9 July 1981 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore: Threecastles (S458626), 27 August 1981; Ballyragget (S445707), Norelands Bridge (S547436) and Brownsbarn Bridge (S618391), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore: Castletown Bridge (S326930), Kilbricken (S362898), Shanahoe Bridge (S407858) and u/s Durrow (S416787), 27 August 1981 also Athanagh (S423763), 28 August 1981, all

BPH (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, d/s Cappamore (R779504) and Dromkeen Bridge (R741480), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - L. Doo, Delphi, north east shore (L834689), 22 August 2002, DAM/WM (DAM): **HA 32** - R. Bunowen, Louisburg, upstream of bridge (L807807), 5 August 2004, DAM/WM (DAM). R. Althoney, Newport (F950050), 1969, EF (Fahy and Murray, 1972): **HA 33** - R. Owenmore, Bangor Bridge, Bangor Erris (F863228), 18 August 1983 and R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - R. Moy: Bellanacurra (G403047) and Ballylahan (M277992), 29 August 1982 also Cloongullaun (G348016), 30 August 1982 (Hayes, 1991). **MEATH: HA 6** - R. Dee, Drumconrath (N910894), 27 July 1983 (Hayes, 1991): **HA 7** - R. Boyne: Bellinter Bridge (N894625), 21 May 1968 (Murray, 1972) and 21 August 1988 (Murray, 1988); opposite R. Skane, d/s Bellinter Bridge (N895628), 3 May 1982 (DAM) and 22 April 2005 (Murray, 2005); Ardsallagh, eel weir (N897630), 11 May 1982 (DAM); Stackallen Bridge (N917713), 17 August 1988 (Murray, 1988). R. Blackwater, Bloomsbury Bridge, Oristown (N793741) and Donaghpatrick (N819723), 19 August 1988 (Murray, 1988). **OFFALY: HA 25** - R. Shannon, Shannon Bridge (M967254), 15 August 1981 (Hayes, 1991; Murray, 2005). R. Little Brosna: Milltown Park (S068907), Brosna Bridge (S077938), Sharavogue (S056953) and New Bridge (N016088) also R. Brosna, Cloghan (M046209), all 2 September 1982, all BPH (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck: Mount Talbot (M813531), 14 August 1981; Castlecoote (M809627), Ballyforan (M817464) and Newtown (M844346), 15 August 1981, all BPH (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Carrownden (G530205), Cloonacool (G493168), Metal Bridge, Tobercurry (G464138) and Annagh (G466123), 30 August 1982, all BPH (Hayes, 1991): **HA 35** - R. Drumcliff, Glencar (G734430), 19 August 1983 (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore, Clonakenny (S116805) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991). **TYRONE: HA 3** - R. Ballinderry, Ballinderry Bridge (H928798), 10 May 2000 (Langton, 2002). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992) and Lismore (X047988), 31 August 1981 (Hayes, 1991). **WICKLOW: HA 10** - R. Avonbeg, Drumgoft Bridge, Glenmalure (T105905), 4 August 1983 (Hayes, 1991); R. Avonbeg, Meetings Bridge (T188831), 11 July and 27 October 1997 and R. Avonmore, Lion Arch Bridge (T194833), 11 July 1997, all FC (Curran, 2001). R. Avoca, Whitebridge, Tigrone (T198821), 4 August 1983 (Hayes, 1991); R. Avoca, Whitebridge, Tigrone (T198821) and Avoca Village (T203802), 11 July 1997, FC (Curran and Murray, 2001): **HA 12** - R. Derry, Balisland (S978645), 28 July 1981 and Bridgeland (T021744), 29 July 1981 (Hayes, 1991).

***Tanytarsus excavatus* Edwards, 1929**

CLARE: HA 27 - L. Cullaun, Corrofin, mid east shore (R317905), 7 June, 4 July, 1 August and 5 September 2006, EPA (PHL/LPR). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 3

July 2006, EPA (PHL). **GALWAY: HA 30** - L. Corrib, Hurney, west shore (M258310), 3 May 1980 and Derrenmeel, west shore (M150450), 5 August 1980, BC (Murray, 1996). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 26 June 2006 (EPA).

***Tanytarsus gibbosiceps* Kieffer, 1922**

KERRY: HA 22 - R. Flesk, u/s L. Leane (V964894), 24 July 1978, PJA [Ashe collection, NMI - det. T. Ekrem, Murray (2010)].

***Tanytarsus glabrescens* Edwards, 1929**

CAVAN: HA 7 - L. Cuilcagh, Virginia (N636895), 23 May 1968 (Murray, 1972). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 1 August and 5 September 2006 (EPA). L. Cullaun, Corrofin, mid east shore (R317905), 1 August 2006, EPA, (PHL). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 7 June and 2 August 2006, EPA (PHL). **CORK: HA 19** - L. Aderry, Castlemartyr (W935730), 21 May 1969, NH (Bracken and Murray, 1973). **DERRY: HA 3** - L. Neagh (H9080), no date (McLarnon and Carter, 2000). **DONEGAL: HA 40** - L. Fad, Coolmany (C398428), 15 June 2009, EPA (DAM). **GALWAY: HA 30** - L. Corrib, Derrenmeel, west shore (M150450) 5 August 1980, BC (DAM). **KERRY: HA 21** - L. Clonee, Kenmare (V800639), 26 July 1968, NH (Murray, 1972). **OFFALY: HA 25** - bog lake, Turraun (N150230), 3 June 1999, DAM/WM (Murray, 2005). **WESTMEATH: HA 7** - L. Lene, south west shore, Collinstown (N532681), 20 August 1981 (DAM): **HA 25** - L. Owel, Mullingar (N421566), 12 June 1973, NH (BPH). L. Ennell, Tudenham (N415466), 7 July 1966 (Murray, 1972): **HA 36** - L. Bane, Collinstown (N550712), 26 June and 22 August 2006 (EPA).

***Tanytarsus gracilentus* (Holmgren, 1883)**

KILDARE: HA 9 - pond, Lyons Estate, Celbridge (N972285), 29 March 1982 (Murray and Ashe, 1983). **MAYO: Clare Island** - Bunnamohaun (L652849), 21 August 2002 (Murray and Murray, 2003).

***Tanytarsus gregarius* Kieffer, 1909**

ANTRIM: HA 3 - L. Neagh, Lennymore Bay, north shore (J115745), 1965 (Marks and Henderson, 1970): **HA 5** - L. Mourne, Carrickfergus (J415924), 4 May 1999 (PHL): **Rathlin Island** - pool 1 (D163521) and pool 2 (D164520) east of lighthouse, 24 July 2000 (Langton, 2002). **CAVAN: HA 36** - L. Garty, Arvagh (N278978), 18 July 2007, EPA (DAM). **CLARE: HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 22 July 2009, EPA (DAM). Gortglass L., Killadysert, south shore (R223596), 2 April 2009, EPA (DAM). L. Rosroe, Newmarket on

Fergus, north east shore (R449697), 16 September 2009, EPA (DAM). **CORK: HA 20** - L. Skeagh (Reservoir), Schull (V937338), 8 April 2008, EPA (DAM): **HA 21** - L. Avaul, Glengarrif (V910553), 24 August 1969, NH (Bracken and Murray, 1973). L. Bofinna, Bantry (W041488), 8 April 2008, EPA (DAM). L. Glenbeg, Ardgroom (V706530), 3 September 2008, EPA (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 26 April and 18 May 2001 (PHL) and 17 May 2002 (Langton, 2002): **HA 3** - Howell's Tarn, Ballywildrick, Coleraine (C766325), 7 April 2002. R. Bann, Coleraine (C854304), 26 April 2001 also L. Neagh, Ballyronan (H948862), 27 April and 4 May 1999 and 15 May 2002 (all PHL). **DONEGAL: HA 36** - L. Golagh, Ballyshannon (G965655), 21 April 2009, EPA (DAM). L. Avehy, Belalt (H043664), 27 April 2002 (PHL): **HA 37** - Carn L., Blue Stack Mountains (G871886), 27 July 2005, JRB (DAM). L. Shinvagh, Carricodé (H005675) and inflow stream to L. Shinvagh, Carricodé (H005673), 27 May 2002 (PHL): **HA 38** - L. Altercan, The Rosses (B755158), L. Dunglow, The Rosses (B787117), L. Voriskey, The Rosses (B762176) and R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000, PHL (Langton, 2002). L. Nasnahida, Doocharry, Dunglow (B852076), 10 September 2009, EPA (DAM). L. Dunlewy, Dunlewy (B926193), 19 July 2000 (Langton, 2002). L. Veagh, GNP, north east shore (C039231), 24 July and 22 August 1985 (Heneghan, 1986). **FERMANAGH: HA 36** - L. Macnean, lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). L. Keenaghan, Beleek (G974600), 28 March 2004 (PHL). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 30** - L. Ballyquirke, Moycullen (M232317), 14 September 2007, EPA (DAM). L. Corrib Lower, Moycullen (M271360), 28 August 2007, EPA (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL): **HA 31** - L. Ardderry, Maam Cross (L982458), 25 May 2003 (PHL). L. Shindilla, Derreenacreeva, south shore (L958460), 16 May 2006, EPA (DAM): **HA 32** - L. Kylemore, Kylemore (L771582), 30 July 2007, EPA (DAM). **KERRY: HA 21** - Eagles L., Knocknagantee (V674728), 25 April and 9 August 2005, JRB (DAM). Eirk L., Derrygarriff (V881777), 25 April 2005, JRB (DAM). L. Namona, Waterville (V596711), 10 September 2008, EPA (DAM): **HA 22** - L. Caragh, Killorglin (V719904), 15 July 2008, EPA (DAM). Doo L., Muckross Peninsula, Killarney (V949860), 1973, DJD/DAM (Douglas and Murray, 1980; Murray, 2005). L. Guitane, Crohane, Killarney (W025846), 16 May 2005, EPA (DAM). L. Kilbrean, Killarney (W005935), 9 October 1969, NH (Bracken and Murray, 1973). L. Leane, Killarney: O'Sullivan's Cascade, JPOC (V916886), 17 April 1973; Castlelough Bay, north shore (V975873) and mid lake (V930883), 14 July 1973; Gléna Bay (V930858), 27 July 1973; Peninsula Bay (V940860), July 1973 (all Douglas and Murray, 1980) also L. Leane (V931886), 22 April 2008, EPA (DAM). Muckross Lake, mid-lake (V950850) and Camilan Bay (V943859), July 1973 (Douglas and Murray, 1980). **LIMERICK: HA 24** - Bleach L., Pallaskenry (R441569), 16 September 2009, EPA (DAM). **MAYO: HA 26** - L. Nanoge, Urlaur

(M506903), 23 September 2008, EPA (DAM): **HA 30** - L. Carra, Keel Bridge, Ballinrobe (M165680), 28 July 2008, EPA (DAM). L. Corrib Upper, Kitten's Bay, Oughterard (M110463), 25 June 2010, JRB (DAM). L. Mask (M1170), 1928 (Edwards, 1929): **HA 32** - L. Doo, Delphi, north east shore (L834689), 6 June 2002, DAM/WM (DAM). L. Fin, Delphi (L841657), 19 May 2005 and 12 July 2006 and L. Feeagh, Newport (L975983), 17 September 2008, EPA (DAM): **HA 34** - L. Alone, Ox Mountains (G367157), 22 April and 5 August 2005, JRB/MC (DAM): **Clare Island** - L. Leinapollbauty, Lecarrow (L691856), 5 June 2002 (Murray and Murray, 2003). Creggan L., Lecarrow (L689857), June to October 1998 and June to September 1999 (Fahy, 2001) also 21 August 2002 (Murray and Murray, 2003). **MONAGHAN: HA 6** - L. Muckno, Castleblaney (H837202), 22 April 1974, DJD (DAM). **ROSCOMMON: HA 26** - L. Urlar, Abbey, north east shore (M508900), 10 March 2005, DAM/WM (DAM). **SLIGO: HA 35** - L. Easky, Ox Mountain (G446230), 18 June 2008, EPA (DAM). **TIPPERARY: HA 18** - L. Curra, Galtymore Mountain (R867242), 26 May 2005, JRB (DAM). **WATERFORD: HA 17** - L. Carrigavantry, Tramore (S548022), 19 August 2009, EPA (DAM). **WESTMEATH: HA 36** - L. Bane, Collinstown (N550712), 23 May and 22 August 2006, EPA (DAM). **WEXFORD: HA 13** - Lady's Island Lake, Carnsore (T105077), 12 July 1974, DJD (DAM). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 24 May, 12 July and 14 August 1983, HD (DAM).

***Tanytarsus heusdensis* Goetghebuer, 1923**

CARLOW: HA 12 - R. Slaney, Motabower Bridge (S832778) and Kildavin (S899597), 28 July 1981 (Hayes, 1991). **CAVAN: HA 36** - R. Erne: Kilsarin (N362910), 27 May 1982, Drumbarry (N462951), 17 August 1982 and Carrigan (N391935), 27 August 1982, all BPH (Hayes, 1991). **CORK: HA 18** - R. Blackwater, Keale Bridge, Millstreet (W294936), 2 September 1981 (Hayes, 1991): **HA 20** - R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363) also R. Ovane, Pierson's Bridge (W023454), all 24 August 1983 (Hayes, 1991). **DONEGAL: HA 37** - R. Eany, d/s Eanybeg confluence (G842815), R. Eanymore, Letterbara Bridge (G883825) and Drumagraa Bridge (G863822), 10 August 1982 also R. Oily, Claggen (G751803), 8 August 1982, all BPH (Hayes, 1991): **HA 38** - R. Tullaghobeg, Falcarragh (B925319) and Millmount (B933304), 12 August 1982 (Hayes, 1991): **HA 39** - R. Crana, Buncrana (C347328), 15 August 1982 (Hayes, 1991): **HA 40** - R. Keenagh, Hugh Roe's Bridge, Umgall (C454543), 16 August 1982 (Hayes, 1991). **FERMANAGH: HA 35** - Glen R., Garrison (G943522), 29 June 2000 (Langton, 2002): **HA 36** - R. Colebrook tributary, Maguiresbridge (H348387), 22 May 1998 (PHL). **GALWAY: HA 26** - R. Shiven, d/s Ballinaglass (M788494), 29 July 1981 (Hayes, 1991). R. Tirur, Newbridge (M492699), 29 August 1983 (Hayes and Murray, 1989). **GALWAY: HA 30** - R. Cregg, Addergoole Bridge,

Addergoole (M324350), 16 August 1981 (Hayes, 1991). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707) and Norelands Bridge (S547436), 28 August 1981 (Hayes, 1991; Murray, 2005). **LAOIS: HA 15** - R. Nore, Castletown Bridge (S326930), Kilbricken (S362898), Shanahoe Bridge (S407858) and u/s Durrow (S416787), 27 August 1981 (Hayes, 1991). **MAYO: HA 32** - R. Erriff, Ashleigh Falls (L895645), 18 August 1981 (Hayes, 1991): **HA 33** - R. Glenlassra, Belderg (G023407), 19 August 1983 (Hayes, 1991): **HA 34** - L. Cullin, Drummin Wood, north east shore (G235048), 22 August 1995, DAM/WM (DAM). R. Moy, Bellanacurra (G403047), 29 August 1982 and Cloongullaun (G348016), 30 August 1982 (Hayes, 1991). **MEATH: HA 6** - R. Dee, Drumconrath (N910894), 27 July 1983 (Hayes, 1991): **HA 7** - R. Boyne: Bellinter Bridge (N894626) and Kilcarn Bridge, Navan (N884657), 21 August 1988 (Murray, 1988); Stackallen Bridge (N917713), 19 July 1989 (DAM). R. Blackwater, Bloomsbury Bridge, Oristown (N793741), 19 August 1988 (Murray, 1988). R. Skane, Dalgan Park, Navan (N901626), 23 May 2015 (Murray, 2015a): **HA 8** - Meadesbrook Stream-pond area, Meadesbrook, Kilmoon (O038594), 3 April 2005 (Murray, 2005). **OFFALY: HA 25** - bog lake 2, Turraun (N150230), September 1995, WT (DAM). Bog lake 1, Turraun (N172185), 6 June 1998 (DAM). R. Little Brosna, Ryan's Cross (S053882) and Milltown Park (S068907), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck, Castlecoote (M809627), 16 July 1981 and Newtown (M844346), 15 August 1981, BPH (Hayes, 1991). **SLIGO: HA 34** - R. Moy, Metal Bridge, Tobercurry (G464138) and Annagh (G466123), 30 August 1982 (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore, Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991). **WEXFORD: HA 12** - R. Slaney, Edernline Bridge (S977345), 29 July 1981 (Hayes, 1991). **WICKLOW: HA 12** - R. Slaney, Kilmurray (S889856), 28 July 1981 (Hayes, 1991).

***Tanytarsus inaequalis* Goetghebuer, 1921**

CLARE: HA 28 - L. Keagh, Milltown Malbay, north shore (R100813), 19 September 2012 (DAM). **DONEGAL: HA 38** - L. Kindrum, Kindrum, Fanad (C186430), 16 June 2009, EPA (DAM). **GALWAY: HA 29** - L. Rea, Loughrea, east shore (M624153), 25 May 2003 (Langton, 2004): **HA 30** - L. Corrib, Derrenmeel, west shore (M150450), 5 August 1980, BC (DAM): **HA 31** - L. Anaserd, Ballyconneely (L605443), 17 July and 11 September 2007, EPA (DAM). **KERRY: HA 21** - L. Brin, Derreeny (V780775), 18 June 2008, EPA (DAM). Eirk L., Derrygarriff (V881777), 9 August 2005, JRB (DAM): **HA 23** - L. Gill, Castlegregory (Q603139), 18 September 2008, EPA (DAM). **MAYO: HA 34** - L. Cullin, Drummin Wood, north shore (G235046), 18 June 2008, EPA (DAM). **TIPPERARY: HA 18** - Black L., Arra Mountains (R738771), 10 August 2005, JRB (Murray, 2005).

***Tanytarsus lactescens* Edwards, 1929**

CLARE: HA 27 - L. Bunny, Aughrim, south east shore (R377965), 7 June and 4 July 2006 (EPA). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 7 June, 3 July and 2 August 2006, EPA (PHL). **MAYO: HA 32** - L. Doo, Delphi, west shore (L835681), 9 May 2006, EPA (Murray, 2010). **ROSCOMMON: HA 26** - L. Key, wharf in Forest Park, Boyle (G848040), 11 June 2008, EPA (Murray, 2010). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), June 1973, NH (Hayes, 1980).

***Tanytarsus lestagei* Goetghebuer, 1922**

Synonyms *Tanytarsus palmeni* Lindeberg, 1967; *T. socialis* Lindeberg, 1967

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 August 2001 (PHL): **HA 4** - Dungonnell Dam, Newtown Crommelin (D193170) and Pool, Ballyhoe Bridge (D077294), 2 July 2000 (Langton, 2002); Altnahinch Reservoir, Ballymoney (D119234), 22 August 2001 (PHL): **HA 5** - L. Mourne, Carrickfergus (J415924), 4 May 1999 (PHL). **CLARE: HA 25** - L. Graney, Caher, south shore (R568907), 24 May 2003 (Langton, 2004). **CORK: HA 19** - L. Allua, Inchegeelagh (W201661), 27 July 1968 (Murray, 1972). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 23 March, 10 and 18 May 2001 also 17 May 2002 (PHL); Lower Reservoir, Creggan, Derry (C422174), 10 May 2001 (PHL): **HA 3** - Balinrees Reservoir, Coleraine (C794300), 9 June 2000 (Langton, 2002 as *T. palmeni*). Downhill Lake, Bishops Gate, Coleraine (C762361), 18 May 2000 (Langton, 2002). R. Bann, Coleraine (C854304), 4 May and 23 June 1999 (PHL). L. Neagh (H9080), no data (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990 as *T. palmeni*) also 4 May 1999 (PHL) and 4 July 2000 (Langton, 2002). **DONEGAL: HA 38** - L. Dunglow, The Rosses (B787117), 19 July 2000 (Langton, 2002). L. Keel, Crolly (B848162), 13 August 2009, EPA (DAM). L. Nambraddan, GNP, Glenveagh (C022193), 31 July 1985. L. Veagh, GNP; north east shore, Glenveagh (C039231), 24 July 1985 and lake shore near Glenveagh Castle (C025213), 22 May 1986, (Heneghan, 1986 as *T. palmeni*): **HA 39** - L. Fern, Milford (C182247), 18 August 2011 (PHL): **HA 40** - L. Fad, Rowantree Hill, Moville (C539397), 18 August 2011 (PHL). **DUBLIN: HA 9** - bog pool, Featherbed Mountain (O120190), November 1974, CD (Dowling, 1975; Dowling and Murray, 1981). **FERMANAGH: HA 36** - L. Erne Lower, Brocagh Point, Boa Island (H108626), 17 August 2011 and Black Bay (H072639), 27 April 2002 (PHL). L. Lattone, Kiltyclogher (H003456), 29 June 2000 (Langton, 2002). L. Macnean Upper, Belcoo (H042403) and L. Macnean Lower, Belcoo (H085384), 29 June 2000 (Langton, 2002). **GALWAY: HA 30** - L. Corrib, Derrenmeel, west shore (M150450), 19 May 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL). **KERRY: HA 22** - L. Guitane, Crohane, Killarney (W025846), 14 October 1973 (Douglas and Murray, 1980). L. Leane, Killarney: Bog

Bay (V963866) and Peninsula Bay (V940860), 1973 (Douglas and Murray, 1980); Muckcross Boathouse (V965866), 23 August 1973 (DAM) and 29 August 1987, NOM (LJH). Muckcross Lake, Dundag Bay (V964858), 23 July 1973 (Murray, 2005). **MAYO: HA 32** - L. Doo, Delphi, north east shore (L834689), 22 August 2002, DAM/WM (DAM): **HA 33** - bog pools, R. Glenamoy basin, Glenamoy (F896345), May 1973, CD (Dowling, 1975; Dowling and Murray, 1981): **HA 34** - R. Moy, Cloongullaun (G348016), 30 August 1982, BPH (DAM): **Clare Island** - pond east of Maum road (L710863), 28 April 2000 (Murray and Murray 2003). **OFFALY: HA 25** - bog lake 2, Turraun (N150230), 3 June 1999 (DAM). **ROSCOMMON: HA 26** - L. Key, wharf in Forest Park, Boyle (G848040), 11 June 2008, EPA (DAM). **SLIGO: HA 35** - L. Templehouse, Ballymote (G619182), 11 June 2008, EPA (DAM). **TIPPERARY: HA 15** - R. Nore, Nore Bridge (S133816), 27 August 1981, BPH (Murray, 2005): **HA 18** - Black L., Arra Mountains (R738771), 4 May 2005, JRB (Murray, 2005). **TYRONE: HA 1** - L. Fingrean, Craggan, Omagh (H576775), 16 August 2011 (PHL). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 21 August 1973, NH (BPH/DAM): **HA 26** - L. Ree, Quigleys Marina, Killenure (N051601), 18 September 1996 (DAM). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 13 August 1983, HD (DAM).

***Tanytarsus longitarsis* Kieffer, 1911**

ARMAGH: HA 3 - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (PHL). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 26 April 2001 (Langton, 2004). **DONEGAL: HA 37** - inflowing stream to L. Shinvagh, Carricode (H005673), 27 April 2002 (Langton, 2004). **KERRY: HA 21** - Eagles L., Knocknagantee (V674728), 25 April 2005, JRB/MC (Murray, 2005).

***Tanytarsus lugens* (Kieffer, 1916)**

ANTRIM: HA 3 - L. Neagh, Lennymore Bay (J115745), 1965 (Marks and Henderson, 1970). **WICKLOW: HA 10** - Vartry Reservoir, south east shore, Roundwood (O214002), 14 August 1983, HD (DAM).

***Tanytarsus medius* Reiss and Fittkau, 1971**

CORK: HA 19 - L. Allua, Ballingearry (W180652), 4 April 2008, EPA (DAM). **KERRY: HA 22** - Muckcross Lake, Killarney, Dundag Bay (V964858), May 1972, DJD/DAM (Murray, 2005; Douglas and Murray, 1980). Upper Lake, Killarney, Gortroe (V918818), 1973 (Douglas and Murray, 1980). **KILKENNY: HA 15** - R. Nore, Norelands Bridge (S547436), 8 August 1982, BPH (Hayes, 1991; Murray, 2005). **MAYO: HA 32** - R. Bunowen, Louisburg, u/s bridge (L807807) and Westport L., Westport Woods Hotel, Westport (L985843), 30 September 2004,

DAM/WM (DAM). L. Knappabeg, Westport (M010803), 18 September 2008, EPA (DAM). **MEATH: HA 7** - R. Skane, Dalgan Park, Navan (N901626), 23 May 2015 (Murray, 2015a). R. Boyne, Ardsallagh, at St Bridget's Well (N897635), 7 July 1988 (Murray, 1988) and Bru ía Boinne Centre, Newgrange (O023727), 21 June 2015 (DAM). R. Blackwater, Poolboy Bridge, Navan (N871681), 18 August 1988 and Donaghpatrick (N819723), 19 August 1988 (Murray, 1988). **SLIGO: HA 35** - L. Gill, Sligo (G782350), 11 June 2008 (DAM). **WESTMEATH: HA 26** - L. Killinure, Ballaghkeernan Bay (N069445), 26 June 2007 (DAM).

***Tanytarsus mendax* Kieffer, 1925**

Synonym *Tanytarsus holochlorus* Edwards, 1929

ANTRIM: HA 3 - pool, Leslie Hill, Ballymoney (C935263), 26 September 1999 and Templepatrick Pond, Templepatrick (J232856), 26 August 2008 (PHL): **Rathlin Island** - no name lough, Nature Reserve (D095505), 24 July 2000 (Langton, 2002) also L. Ally (D154497) and Ushet L. (D154485), 5 July 2004 (PHL). **CAVAN: HA 36** - L. Sillan, Shercock, north east shore (H705067), 1 October 1972, JPOC (Murray, 2005). **CLARE: HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 5 September 2006, EPA (PHL). **DERRY: HA 3** - Downhill Lake, Bishops Gate, Coleraine (C762361), 21 August 2001 (Langton, 2002). **DOWN: HA 5** - Bow L., Ballynahinch (J354577), 22 June 2000 (Langton, 2002). **GALWAY: HA 25** - L. Derg, Woodford (M794964), 24 May 2003 (PHL): **HA 30** - L. Corrib, Derrenmeel (M150450), 16 August 1980, BC (DAM - as *T. holochlorus*). L. Ross, Moycullen (M200363), 24 May 2003 (PHL). **KERRY: HA 22** - L. Leane, Killarney, Muckross Boathouse (V965866), 29 August 1987, NOM (LJH/DAM as *T. holochlorus*). **LEITRIM: HA 26** - L. Rinn, Mohill (N095943), 18 July 2008, EPA (DAM). Pond in garden, Lough Rynn Castle (N098936), 25 September 2014 (DAM). **LOUTH: HA 6** - L. Mentrim, Ardee (N913879), 27 June 2005, DAM/WM (DAM). **MONAGHAN: HA 36** - Summerhill L., Magheraveely (H490280), 28 June 2000 (Langton, 2002). **MONAGHAN: HA 36** - Kilroosky L., Clones (H494274), 28 June 2000 (Langton, 2002). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S665049), 2 July 2009, EPA (DAM).

***Tanytarsus miriforceps* (Kieffer, 1921)**

FERMANAGH: HA 36 - L. Keenaghan, Beleek (G979600), 28 March 2004 (Langton, 2012).

***Tanytarsus nemorosus* Edwards, 1929**

CLARE: HA 27 - L. Cullaun, Corrofin, mid east shore (R317905), 7 June 2006, EPA (PHL). **New to Ireland**

***Tanytarsus niger* Andersen, 1937**

CLARE: HA 27 - L. Dromore, Ruan, Corrofin, west basin (R345858), 21 September 2009,

EPA (DAM): **HA 29** - L. Skeardeen, Kilcorkan (R388991), 7 April 2009, EPA (DAM). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 26 April and 10 May 2001 (Langton, 2004): **HA 3** - R. Bann, Coleraine (C855304), 26 April 2001 (Langton, 2004). **KERRY: HA 22** - Doo L., Muckross Peninsula, Killarney (V949860), 12 April 1977, PJA (DAM) and 26 April 1977 (Murray, 2005).

***Tanytarsus palettaris* Verneaux, 1969**

GALWAY: HA 30 - stream at layby on road N59, Moycullen (M204326), 25 May 2003 (PHL). **LAOIS: HA 15** - R. Nore, Shanahoe Bridge (S407858), 27 August 1981 (Hayes, 1991). **MEATH: HA 8** - Meadesbrook Stream, Meadesbrook, Kilmoon (O038594), 9 June 2006 (DAM). **SLIGO: HA 34** - R. Moy, Metal Bridge, Tobercurry (G464138), 30 August 1982 (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore, Clonakenny (S116805) and Quaker Bridge (S211868) 27 August 1981 (Hayes, 1991) also Nore Bridge (S133816), 27 August 1981 (Hayes, 1991; Murray, 2005).

***Tanytarsus pallidicornis* (Walker, 1856)**

ANTRIM: HA 3 - Glenravel Water, Gartnageeragh, Newtown Crommelin (D147154), 2 July 2000 (Langton, 2002): **HA 4** - R. Bush, Conogher Bridge (C963305), 10 September 2000 (Langton, 2002). **CAVAN: HA 36** - R. Erne: Kilsarin (N362910), 27 May 1982; Drumbarry (N462951), 17 August 1982 and Carrigan (N391935), 27 August 1982 (Hayes, 1991). **CORK: HA 18** - R. Blackwater: Killavullen (W648998), 31 August 1981; Ballymacquirk Bridge, Banteer (W382989), Roskeen Bridge, Banteer (W444988) and Lombardstown (W463968), 1 September 1981; Duncannon (W180931), 2 September 1981, all BPH (Hayes, 1991): **HA 20** - R. Ilen, Drimoleague (W098454), Madore (W103419) and Hollybrook (W117363), 24 August 1983 (Hayes, 1991). **DERRY: HA 1** - Upper Reservoir, Creggan, Derry (C417173), 26 April 2001 and 17 May 2002 and Lower Reservoir, Creggan, Derry (C422174), 26 April 2001 (all PHL): **HA 2** - Roe Valley Park pool, Limavady (C679201) and R. Roe, Largy Bridge, Limavaddy (C681202), 14 July 2000 (Langton, 2002): **HA 3** - R. Aghadowey, Ballybritain Bridge (C859212), 26 May 2000 (Langton, 2002). Howell's Tarn, Ballywildrick, Coleraine (C766325), 7 April and 7 July 2002, Downhill Forest, Coleraine (C760353), 17 March 1999, R. Agivey, ford at Ballynameen (C827148), 14 June 2008 (PHL). R. Macosquin, Black Bridge (C854256), 18 April 2004 and R. Bann, Coleraine (C854304), 7 June 2000 and 18 April 2010 all PHL (PHL). **DONEGAL: HA 37** - R. Eanymore, Drumagraa Bridge (G863822), 10 August 1982 (Hayes, 1991): **HA 39** - R. Crana, Buncrana (C347328), 15 August 1982 (Hayes, 1991). Stagnant drain at L. Swilly, Newtown Cunningham (C311197), 21 June 2000 (Langton, 2002). **GALWAY: HA 26** - R. Tirur, Newbridge (M492699), 16 August 1981 (Hayes, 1991).

KERRY: HA 18 - R. Blackwater, Lacknastooka (R153008), 2 September 1981 (Hayes, 1991): **HA 21** - R. Inny, Scarriff Bridge (V504696), 24 August 1983 (Hayes, 1991): **HA 22** - R. Flesk, d/s Whitebridge (V987900), 14 October 1978, PJA (Murray, 2005). **KILDARE: HA 9** - pond, Lyons Estate, Celbridge (N972285), 29 March 1982 (DAM). **KILKENNY: HA 15** - R. Nore, Ballyragget (S445707), Norelands Bridge (S547436) and Brownsbarn Bridge (S618391), 28 August 1981 (Hayes, 1991). **LAOIS: HA 15** - R. Nore: Castletown Bridge (S326930); Kilbricken (S362898); Shanahoe Bridge (S407858) and u/s Durrow (S416787), 27 August 1981 also Athanagh (S423763), 28 August 1981, all BPH (Hayes, 1991). **LIMERICK: HA 25** - R. Mulkear, d/s Cappamore (R779504) and Dromkeen Bridge (R741480), 8 September 1981 (Hayes, 1991). **MAYO: HA 32** - R. Altahoney, Newport (F950050), 21 July 1975 (DAM): **HA 34** - R. Moy, Bellanacurra (G403047), 29 August 1982 (Hayes, 1991): **Clare Island** - Creggan L., Lecarrow (L689857), July to October 1998 and June to September 1999 (Fahy, 2002). **MEATH: HA 6** - R. Dee, Drumconrath (N910894), 27 July 1983 (Hayes, 1991): **HA 7** - R. Boyne: Ardsallagh, at St Bridget's Well (N897635), 30 May 1999 (Murray, 2005) and 28 September 1981; opposite R. Skane, d/s Bellinter Bridge (N895628), 3 May 1982 and Slane Bridge (N965737), 19 July 1989, all DAM (DAM). **OFFALY: HA 25** - R. Little Brosna, Sharavogue (S056953) and New Bridge (N016088), 2 September 1982 (Hayes, 1991). **ROSCOMMON: HA 26** - R. Suck: Castlecoote (M809627) 1 April 1981 and 16 July 1981, Ballyforan (M817464), 16 July 1981; Ballynoe (M693757) and d/s L. O'Flynn (M590804), 14 August 1981 (Hayes, 1991). L. O'Flynn, Ballinlough, south east shore (M585786), 28 March 1966 (Murray, 1972). **SLIGO: HA 34** - R. Moy, Cloonacool (G493168) and Metal Bridge, Tobercurry (G464138), 30 August 1982 (Hayes, 1991). **TIPPERARY: HA 15** - R. Nore, Clonakenny (S116805), Nore Bridge (S133816) and Quaker Bridge (S211868), 27 August 1981 (Hayes, 1991): **HA 16** - R. Drish, Castletown (S207634), 6 July 1992 (Murray and Lynch 1992). **WATERFORD: HA 18** - R. Blackwater, Ballyduff (W964992), 31 August 1981 (Hayes, 1991). **WICKLOW: HA 12** - R. Slaney, Stratford Bridge (S895930), 28 July 1981 (Hayes, 1991).

***Tanytarsus quadridentatus* Brundin, 1947**

CLARE: HA 27 - L. Bunny, Aughrim, south east shore (R377965), 7 June, 4 July and 5 September 2006, EPA (PHL). L. Cullaun, Corrofin, mid east shore (R317905), 7 June, 1 August and 5 September 2006, EPA (PHL/LPR). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 7 June, 3 July and 2 August 2006, EPA (PHL). **KERRY: HA 22** - L. Leane, Killarney, Castletown Bay, north shore (V966866), 27 June 1973, DJD/DAM (Murray, 2005; Douglas and Murray, 1980).

***Tanytarsus recurvatus* Brundin, 1947**

CLARE: HA 27 - L. Bunny, Aughrim, south east shore (R377965), 2 May, 7 June, 1 August 2006 and 5 September 2006 (EPA). **DONEGAL: HA 38** - L. Kiltoris, Dawros, Ardara (G675976), 30 July 2009, EPA (DAM): **HA 40** - L. Fad, Coolmany (C398428), 15 June 2009, EPA (DAM). **GALWAY: HA 30** - stream at layby on road N59, Moycullen (M204326), 25 May 2003 (Langton, 2004): **HA 31** - L. Anaserd, Ballyconneely (L605443), 6 June 2007, EPA (DAM). L. Ardderry, Maam Cross (L982458), 25 May 2003 (PHL). **KERRY: HA 21** - L. Currane, Waterville (V535664), 22 July 2008, EPA (DAM). Eirk L., Derrygarriff (V881777), 9 August 2005, JRB (Murray, 2005): **HA 22** - L. Guitane, Crohane, Killarney (W025846), 8 July and 9 September 2008, EPA (DAM). Muckcross Lake, Muckcross, Killarney (V950853), 24 June 2008 and Upper Lake, Killarney (V909821), 24 June 2008, EPA (DAM).

***Tanytarsus signatus* (van der Wulp, 1859)**

CLARE: HA 27 - L. Bunny, Aughrim, south east shore (R377965), 7 June and 4 July 2006 (EPA). L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 2 August 2006, EPA (PHL). **CORK: HA 21** - L. Glenbeg, Ardgroom (V706530), 18 June and 3 September 2008, EPA (DAM). **DONEGAL: HA 36** - L. Golagh, Ballyshannon (G965655), 8 June 2009, EPA (DAM). L. Unshin, Ballyshannon (G951637), 6 July 2009, EPA (DAM): **HA 38** - L. Keel, Crollly (B848162), 7 September 2009, EPA (DAM). L. Altercan, The Rosses (B755158), L. Nacung Upper, Dunlewy (B904191) and L. Veagh, north east shore near Visitor Centre, Glenveagh (C033223), 19 July 2000, all PHL (Langton, 2002): **HA 39** - R. Leannan, Drumaboden (C165218), 12 August 1982, BPH (Hayes, 1991; Murray, 2005). **GALWAY: HA 31** - L. Ardderry, Maam Cross (L982458), 25 May 2003 (PHL). L. Illauntrasna, Glentrasna, Garomna (L888254), 25 July 2007, EPA (DAM). **KERRY: HA 21** - Eirk L., Derrygarriff (V881777), 9 August 2005, JRB (DAM): **HA 22** - L. Acoose, Carrauntoohil (V755857), 17 July 1975 (DAM). L. Caragh, Killorglin (V719904), 20 June 2008, EPA (DAM). Killarney (V9589), 1928, FWE (Edwards 1929). R. Flesk, d/s Whitebridge (V987900), July 1976 (Ashe, 1982). **MAYO: HA 34** - L. Alone, Ox Mountains (G367157), 5 August 2005, JRB/MC (DAM): **Clare Island** - first order stream, west side of Maum road (L711861), 5 June 2002 (Murray, 2005; Murray and Murray 2003). Fawnglass stream (L713854), 4 June 2002; Roadside, Bayview Hotel (L716856) and Sea Coast, Bayview Hotel (L717857), 20 August 2002, all DAM/WM (Murray and Murray, 2003). L. Poirтин Fuinch (L706857), 1 September 1998 and 10 June 1999 (Fahy, 2002). **ROSCOMMON: HA 26** - L. Key, Boyle (G838057), 6 August 2008, EPA (DAM). **TYRONE: HA 1** - L. Oak, Gortin, Newtownstewart (H498843) and inflow stream to L. Oak (H498842), 16 August 2011 (PHL). **WESTMEATH: HA 26** - L. Ree, Quigleys Marina, Killinure (N051601), 15 June 1999 (DAM). L. Killinure, Wineport (N067458), 15 August 2007,

EPA (DAM). **WICKLOW: HA 9** - Pollaphuca Reservoir, Blessington Bridge (N990144), 17 June 2000, DAM/WM (DAM).

***Tanytarsus striatulus* Lindeberg, 1976**

CLARE: HA 27 - L. Bunny, Aughrim, south east shore (R377965), 7 June 2006, (EPA). **DONEGAL: HA 38** - L. Altercan, The Rosses (B755158) and L. Voriskey, The Rosses (B762176), 19 July 2000 (Langton, 2002). **KERRY: HA 21** - Eirk L., Derrygarriff (V881777), 9 August 2005, JRB (DAM). **MAYO: HA 33** - bog pool, Achill Island (F712008), 5 August 2004, DAM/WM (DAM) and pool at Campport, Achill Island (L677982), 29 September 2004, DAM/WM (Murray, 2005). **MEATH: HA 7** - R. Boyne - opposite R. Skane, d/s Bellinter Bridge (N895628), 3 May 1982 (DAM). R. Blackwater, Bloomsbury Bridge, Oristown (N793741), 19 August 1988 (Murray, 1988).

***Tanytarsus sylvaticus* (van der Wulp, 1859)**

CAVAN: HA 26 - L. Sheelin, Kilnashard (N435860), 23 March 1974, JPOC (DAM) and 28 March 1983 (Murray, 2005). **DERRY: HA 3** - L. Neagh (H9080), no date (McLarnon and Carter, 2000). **KILDARE: HA 9** - pond, Lyons Estate, Celbridge (N973288), 2 April 1984, CAD (DAM). **MONAGHAN: HA 36** - L. Drumlona, Rockcorry (H636176), 4 April 2007, EPA (DAM).

***Tanytarsus telmaticus* Lindeberg, 1959**

Synonym *Tanytarsus simulans* Lindeberg, 1967; Pe 9 in Langton (1991)

ANTRIM: HA 4 - Dungonnell Dam, Newtown Crommelin (D193170), 20 June 2000 (Langton, 2002); **Rathlin Island** - lough in Nature Reserve (D095505) and pool 2, east of lighthouse (D164520), 24 July 2000 (Langton, 2002); pool at lighthouse (D163520), 24 July 2000 (Langton, 2004): L. Ally (D154497) and Ushet L. (D154485), 5 July 2004 (PHL). **CAVAN: HA 36** - L. Garty, Arvagh (N278978), 18 July 2007, EPA (DAM). **CLARE: HA 27** - L. Cullaun, Corrofin, mid east shore (R317905), 7 June 2006 and L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 2 May 2006, EPA (LPR). **DERRY: HA 3** - L. Neagh, Ballyronan (H948862), 4 July 2000 and 15 July 2002 (PHL). **DONEGAL: HA 37** - Carn L., Blue Stack Mountains (G871886), 27 July 2005, JRB (DAM); **HA 37** - L. Shinvagh, Carricode (H005675), 27 April 2002 (PHL); **HA 38** - L. Mulladerg, The Rosses (B775199); L. Anure, Loughanure (B817166); L. Nacung Upper, Dunlewy (B904191); L. Voriskey, Rosses (B762176) and L. Veagh, north east shore near Visitor Centre, Glenveagh (C033223), all 19 July 2000, all PHL (Langton, 2002). L. Nabuckan, Grogan More (B850184), 10 May and 27 July 2005, JRB (DAM). **FERMANAGH: HA 36** - L. Atona, Cuilcagh Mountain (H110294); R.

Belbarrinagh, Belcoo (H112309) and R. Sruh Croppa, Cuilcagh Mountain (H111329), 29 June 2000 (Langton, 2002). **GALWAY: HA 29** - L. Rea, Loughrea, east shore (M624153), 25 May 2003 and L. Cutra, Gort (R485986), 24 May 2003 (PHL). **LEITRIM: HA 26** - L. Natire, north of L. Allen (G966340), 3 August 2005, JRB/MC (DAM): **HA 35** - L. Nabrack, Crocknagapple (G860477), 4 August 2005, JRB/MC (DAM). **MAYO: HA 32** - L. Fin, Delphi (L841657), 19 May 2005, EPA (DAM): **HA 33** - L. Bunacurry, Achill Island (F695048), 29 September 2004, DAM/WM (DAM). **TIPPERARY: HA 18** - Black L., Arra Mountains (R738771), 10 August 2005, JRB (DAM).

***Tanytarsus usmaensis* Pagast, 1931**

ANTRIM: HA 3 - L. Neagh, Antrim Bay (J135866), 22 August 2001 (PHL): **Rathlin Island** – L. Ally (D154497), 24 July 2000 (Langton, 2002). **ARMAGH: HA 3** - L. Neagh, Oxford Island, Lurgan (J044621), 18 July 2003 (Langton, 2012). **CAVAN: HA 7** - L. Mullagh, Mullagh (N680856) 9 May 1994 (DAM): **HA 36** - R. Erne, Kilsarin (N362910), 27 August 1982, BPH (Hayes, 1991; Murray, 2005). **CLARE: HA 27** - L. Muckanagh, Tubber, Corrofin, mid lake (R368926), 3 July 2006, EPA (PHL). **DERRY: HA 1** - Lower Reservoir, Creggan, Derry (C422174), 26 April 2001 and Upper Reservoir, Creggan, Derry (C417173), 10 May 2001 (PHL): **HA 3** - R. Bann, Coleraine (C854304), 2 May 2010 (PHL). L. Neagh (H9080), no date (McLarnon and Carter, 2000). **DONEGAL: HA 36** - L. Avehy, Belalt (H043664), 27 April 2002 (PHL): **HA 37** - L. Shinvagh, Carricode (H005675), 27 April 2002 (PHL): **HA 38** - L. Mulladerg, The Rosses (B775199), 19 July 2000 (Langton, 2002). L. Nabuckan, Grogan More (B850184), 10 May 2005, JRB (DAM): **HA 40** - L. Naminn, Cloonmany (C400423) and L. Fad, Rowantree Hill, Moville (C539397), 18 August 2011 (PHL). **FERMANAGH: HA 36** - L. Erne Lower, Black Bay (H072639), 27 April 2002 and Brocagh Point, Boa Island (H108626), 17 August 2011 (PHL). R. Finn, Lisnanesnagh Bridge (H544337), 26 June 2000 (Langton, 2002). Toppedmountain L., Tempo, Enniskillen (H310453), 16 August 2011 (PHL). **KILDARE: HA 9** - pond, Lyons Estate, Celbridge (N973288), 2 April 1984, CAD (DAM). **MAYO: HA 32** - L. Knappabeg, Westport (M010803), 18 September 2008, EPA (DAM). **MEATH: HA 7** - R. Boyne, New Bridge, Navan (N873679), 18 August 1988 (Murray, 1988). **OFFALY: HA 25** - bog lake 2, Turraun (N150230), 3 June 1999 (DAM). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), May 1973, NH (Hayes, 1980) and 1981 (Forde, 1985): **HA 26** - L. Derravarragh, Crookedwood (N468631), 20 August 1981 (Murray, 2005): **HA 36** - L. Bane, Collinstown (N550712), 26 June 2006 (EPA).

***Tanytarsus verralli* Goetghebuer, 1928**

ANTRIM: HA 3 - L. Neagh, Churchtown Point (J056852), 22 August 2001 (Langton, 2012).

ARMAGH: HA 3 - L. Neagh, Oxford Island, Lurgan (J044621), 18 August 2003 (Langton, 2012). **CLARE: HA 27** - L. Bunny, Aughrim, south east shore (R377965), 7 June and 4 July 2006 (EPA). L. Cullaun, Corrofin, mid east shore (R317905), 1 August 2006 and L. Muckanagh, Tubber, Corrofin (R368926), 2 August 2006, EPA (PHL). **DERRY: HA 3** - Balinrees Reservoir, Coleraine (C794300), 9 June 2000 (Langton, 2002). L. Neagh (H9080), no date (McLarnon and Carter, 2000); L. Neagh, Ballyronan (H948862), 1988 (Tokeshi, 1990) also August 2001 (Langton, 2012) and 22 and 31 May 2011 (PHL). **DONEGAL: HA 38** - L. Altercan, The Rosses (B755158) and L. Voriskey, The Rosses (B762176), 19 July 2000, 19 July 2000 (Langton, 2002, 2012). L. Dunglow, The Rosses (B787117) and R. Gweedore at L. Anure outflow, Crolly (B827184), 19 July 2000 (Langton, 2002). **FERMANAGH: HA 36** - Toppedmountain L., Tempo, Enniskillen (H310453), 16 August 2011 (Langton, 2012). **GALWAY: HA 29** - L. Rea, Loughrea, east shore (M624153), 25 May 2003 (PHL): **HA 30** - L. Corrib - General, Derrenmeel, west shore (M150450), 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (Langton, 2012). R. Owenriff, Oughterard (M112426), 25 May 2003 (Langton, 2012). L. Adrehid, Oughterard (M055428), 25 May 2003 (Langton, 2012). **OFFALY: HA 25** - bog lake 1, Turraun (N172185), 6 June 1998 (DAM); bog lake 2, Turraun (N150230), 3 June 1999 (Murray, 2005). **WATERFORD: HA 17** - Belle Lake, Dunmore East (S667048), 7 July 1974, DJD (DAM).

Virgatanytarsus arduennensis (Goetghebuer, 1922)

CARLOW: HA 12 - R. Slaney, Kildavin (S899597), 29 July 1981, BPH (Hayes, 1991; Murray, 2005). **DERRY: HA 3** - paddling pool, Kylebeg, Coleraine (C856304), 6 and 28 August 2002 (PHL). **GALWAY: HA 26** - R. Tirur, Newbridge (M492699), 20 August 1983 (Hayes and Murray, 1989): **HA 31** - L. Nahasleam, Maam Cross (L972440), 17 May 2005, EPA (DAM). **MAYO: HA 32** - R. Altahoney, Newport (F950050), 1968-1971, EF (Fahy and Murray, 1972). **MEATH: HA 7** - R. Boyne: Bellinter Bridge (N894625), 18 June 1968 (Murray, 1972 - sub *Tanytarsus arduennensis*); Ardsallagh, at St Bridget's Well (N897635), 30 May 1999 (DAM); Kilcarn Bridge, Navan (N884657), 21 August 1988 (Murray, 1988); Slane Bridge (N965737) and Knowth Weir (N995720), 19 July 1989 (DAM); R. Skane, Dalgan Park, Navan (N901626), 23 May 2015 (Murray, 2015a). **ROSCOMMON: HA 26** - R. Suck, Ballyforan (M817464), 28 July 1982, BPH (Murray, 2005) and 20 August 1983 (Hayes and Murray, 1989). **WESTMEATH: HA 25** - L. Owel, Mullingar (N421566), 31 July 1973, NH/BPH (DAM).

Virgatanytarsus triangularis (Goetghebuer, 1928)

CAVAN: HA 7 - R. Barora tributary, Relaghbeg (N679907), 23 May 1968 (Murray, 1972 - sub *Tanytarsus triangularis*). **CLARE: HA 27** - Castle Lake, west shore, Kilmurry, Sixmilebridge

(R482691), 17 September 2009, EPA (DAM). **DONEGAL: HA 38** - Glenveagh National Park: R. Owencarrow (C041229), 22 July 1985 and R. Owenveagh, Glenveagh Cottage (B990178), 28 July 1985; L. Veagh, in foam along north east shore, Glenveagh (C038233) and (C039230), 24 July 1985; Administration Centre, at light, GNP (C041228), 28 August 1985, all LJH (Heneghan, 1986; Murray, 2005). **GALWAY: HA 29** - L. Rea, Loughrea, east shore (M624153), 25 May 2003 (PHL): **HA 30** - L. Corrib, Lower, Hurney's west shore (M258310), 26 August 1980, BC (DAM). L. Ross, Moycullen (M200363), 25 May 2003 (PHL). **KERRY: HA 22** - R. Clydagh, Caherbarnagh (W202842) and Knocknagowan (W187837), June to August 1978 (Ashe, 1982). R. Flesk; d/s Clydagh/Loo confluence (W084814); Garries Bridge (W082835); Flesk Bridge (W034876), June to August 1978 (Ashe, 1982); d/s Whitebridge (V987900), 27 July 1976 and June to August 1978 (Ashe, 1982). R. Loo, Aughnanus Bridge, Crohane (W045790), June to August 1978 (all Ashe, 1982 - specimen from d/s Clydagh/Loo confluence, 10 August 1978 in NMI). **MAYO: HA 32** - R. Bunowen, Louisburg, u/s bridge (L807807), 5 August 2004 and R. Owengarve, Rosgalliv Bridge, Mulranny (L886962), 4 August 2004, DAM/WM (DAM). **MEATH: HA 8** - R. Nanny, Duleek (O050683), 6 June 2006, DAM/WM (DAM). **TIPPERARY: HA 16** - R. Suir, Rossestown Bridge (S134624), September 1991 and 6 July 1992 (Murray and Lynch, 1992). **WESTMEATH: HA 25** - L. Ennell, Tudenham (N415466), 26 June to 24 August 1966 (Murray, 1972).

***Virgatanytarsus* Pe1 sensu Langton and Visser, 2003**

Three species are represented by this pupal morphotype in Langton (1991) and Langton and Visser (2003). It is not yet possible to discriminate with certainty between *Virgatanytarsus arduennensis*, *V. triangularis* and *V. albisutus*. The latter is thus far only known from Macaronesia and some Mediterranean countries (Sæther and Spies, 2013). Some of the following distribution records of *Virgatanytarsus* Pe1, representing either *V. arduennensis* or *V. triangularis*, coincide with discrete species records presented above while other records extend the known distribution of the genus in Ireland.

CLARE: HA 27 - L. Bunny, Auhgrim, south east shore (R377965), 7 June and 5 September 2006 (EPA). Castle Lake, west shore, Kilmurry, Sixmilebridge (R482691), 17 September 2009, EPA (DAM). **CARLOW: HA 12** - R. Slaney, Kildavin (S899597), 29 July 1981, BPH (Hayes, 1991; Murray, 2005). **DONEGAL: HA 38** - L. Nadourcan, Glenveagh (C054228) and R. Owencarrow, d/s road bridge, Glenveagh (C043235), 18 July 2000; Owennacally stream, Glenveagh (C043226) and R. Gweedore, outflow from L. Anure, Crolly (B827184), 19 July 2000, all PHL (Langton, 2002). L. Veagh, in foam along north east shore, Glenveagh (C038233) and (C039230), 24 July 1985, (LJH) and R. Owenveagh, Glenbeagh Cottage, Glenveagh (B990178), 30 July 1985 (Heneghan, 1986). **FERMANAGH: HA 35** - L. Melvin,

Garrison (G938518), 29 June 2000 (Langton, 2002). **GALWAY: HA 31** - L. Nahasleam, Maam Cross (L972440), 17 May 2005, EPA (DAM). **MEATH: HA 7** - R. Boyne: Bellinter Bridge (N894625), 18 August 1968 (Murray, 1972) and 21 August 1988 (Murray, 1988); Kilcarn Bridge, Navan (N884657), 21 August 1988; New Bridge, Navan (N873679), 18 August 1988; Stackallen Bridge (N917713), 17 August 1988 (Murray, 1988) and 19 July 1989 (DAM); Slane Bridge (N965737), 19 July 1989 (DAM). R. Blackwater, Poolboy Bridge, Navan (N871681), 18 August 1988; Bloomsbury Bridge, Oristown (N793741) and Donaghpatrick (N819723), 19 August 1988 (Murray, 1988)

***Zavrelia pentatoma* Kieffer and Bause, 1913**

DONEGAL: HA 37 - R. Eany, d/s Eanybeg confluence (G842815), 10 August 1982, BPH (Murray, 1996). **GALWAY: HA 29** - L. Cutra, Gort (R485986), 24 March 2003 (PHL). **MAYO: HA 32** - L. Roonagh, Carrowinsky (L749759), 30 September 2004 (DAM). Pond, Laghta, west side of road (L845759), 7 May 2004 (DAM): **Clare Island** - Creggan L., Lecarrow (L689857), 21 August 2002 (Murray and Murray, 2003).

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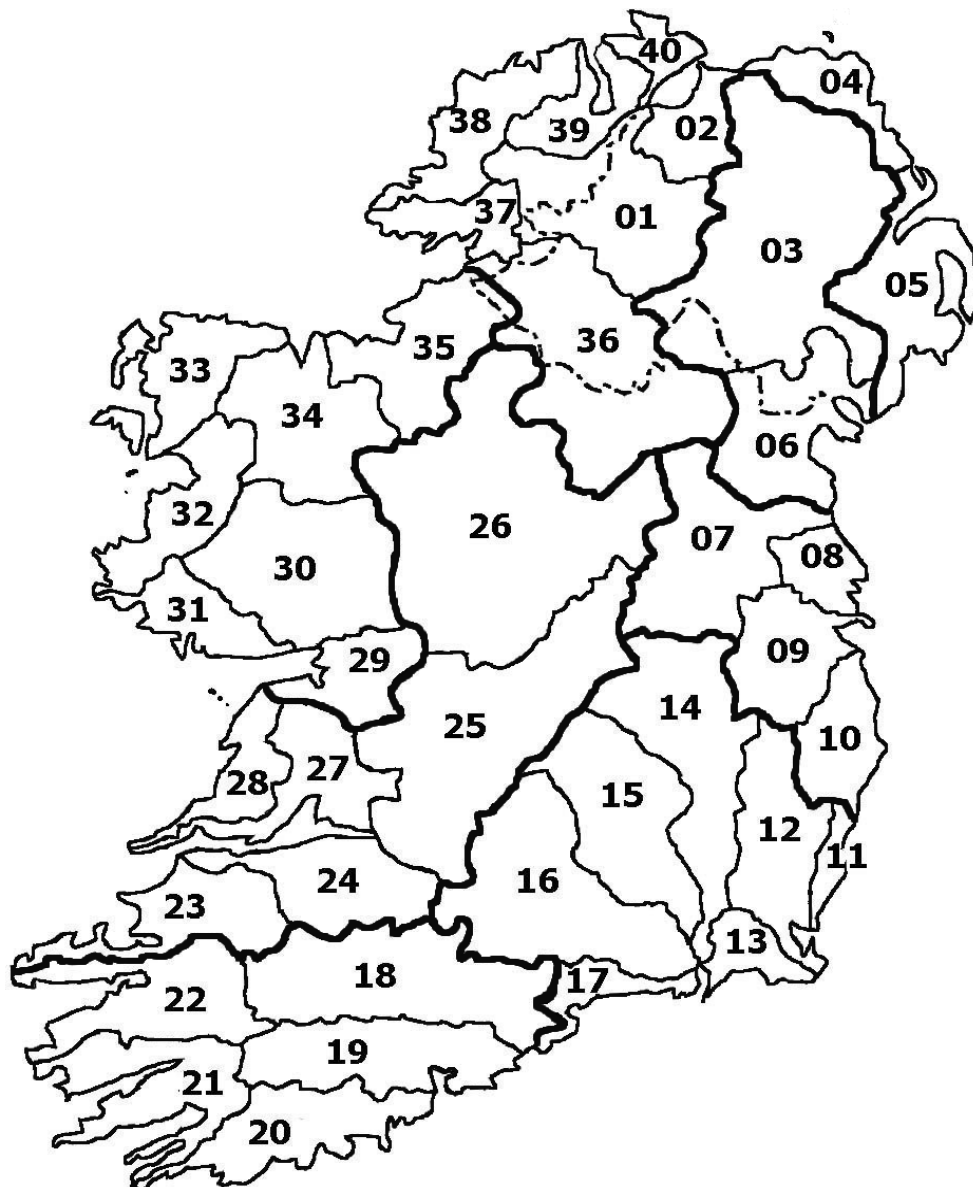
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FIGURE 1. The counties of Ireland.



FIGURE 2. The forty hydrometric areas of Ireland. Heavy lines illustrate demarcations of designated River Basin Districts (Water Resource Regions) consisting of hydrometric areas as follows: **North Western** - HA 01, 02, 36, 37, 38, 39, 40. **Neagh-Bann** - HA 03 and 06. **North Eastern** - HA 04 and 05. **Eastern** - HA 07, 08, 09, 10. **South Eastern** - HA 11, 12, 13, 14, 15, 16, 17. **South Western** - HA 18, 19, 20, 21, 22. **Shannon** - HA 23, 24, 25, 26, 27, 28. **Western** - HA 29, 30, 31, 32, 33, 34, 35. Dashed line indicates the international boundary.



EFFECT OF SOIL TYPE ON FEMALE MATE CHOICE AND MALE FORCEPS DIMORPHISM IN THE EARWIG *FORFICULA AURICULARIA* LINNAEUS, 1758 (DERMAPTERA: FORFICULIDAE) IN IRELAND

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Abstract

Interpopulation variation in female preference for male forceps size in the earwig *Forficula auricularia* Linnaeus, 1758 has been previously recorded, and data are presented here for earwigs from Co. Cavan, Ireland. Twenty-five replicate containers with one female, one macrolabious male (with long forceps) and one microlabious male (with short forceps) each, were established in early January, and copulations recorded twice daily over a period of 26 days. There were significantly more copulations with macrolabious males (64%, n = 110), but 14 out of 18 females, which were observed in copulation more than twice, mated with both types of male. The following hypothesis is suggested for further examination: earwigs occurring on loamy or heavy-textured soils in Ireland may overwinter socially for a longer period to avoid flooding and fungal parasitism in their soil cells, and so may have an extended period of female polyandry, compared to earwigs in sandy or free-draining soils (such as occur in coastal and island habitats) which may begin their pair-forming in cells in the soil earlier, and therefore be guarded for a longer period by macrolabious males. This may contribute to the greater frequency of macrolabious males observed on offshore islands and in coastal areas.

Key words: *Forficula auricularia*; forceps dimorphism; sexual selection; island entomology

Introduction

It is over 120 years since Bateson and Brindley originally showed that the caudal forceps of male common earwigs (*Forficula auricularia* Linnaeus, 1758) are dimorphic in length, and that the proportion of males with long forceps was much greater on some offshore islands than on the English mainland (Bateson and Brindley, 1892). Morison (1941) also recorded a greater proportion of males with long forceps in coastal areas and islands in northern Scotland. Some other examples, where a preponderance of male earwigs with long forceps occurred on islands, were the Scilly Isles, off Cornwall (Brindley, 1913), Lihou Island, Guernsey (Lucas, 1923), Orestone Rock, off the Devon coast (Woodroffe, 1961), and Grassholm Island, off Pembrokeshire in Wales (Popham, 1969). Of nine male earwigs collected from Inistearaght

(Blasket Islands, Co. Kerry) by Dr Tom Kelly and Dr G.A Walton (now held in the National Museum of Ireland), seven possessed long forceps, three being >9 mm (J. A. Good, unpublished data). In contrast, some larger islands and some mainland localities have been recorded as having no or extremely few males with large forceps. Lucas (1917) recorded *F. auricularia* as swarming in thousands at Newmarket, England, but no '*forcipata*' (the name given to the form with long forceps) were recorded. Neither did Carpenter (1912) record this form from Clare Island (off Co. Mayo), and Kuhl (1928) recorded few males with long forceps at Helgoland in the North Sea over a two year period. The question arising from these observations is how can this geographical variation in the proportion of male forceps morphs in island and mainland populations be explained.

In *F. auricularia*, male forceps are used for fighting amongst males (Radesäter and Halldórsdóttir, 1993), and during courtship prior to mating (Walker and Fell, 2001). Males with longer forceps have been shown to have greater mating success (Radesäter and Halldórsdóttir, 1993; Forslund, 2003), and forceps size is therefore likely to be subject to sexual selection.

Dimorphism can occur as a result of a balance between sexual selection and natural selection, where morphs with greater mating success are more susceptible to predation or parasitism (Gadgil, 1972). Dimorphism could also occur as a result of different mating strategies in the two morphs; for example, in some species of the scarabaeid beetle *Onthophagus*, males with large thoracic horns are more successful at guarding females, whereas males with little or no horn development have a strategy of 'sneaking' matings (Emlen, 1997), and can have greater insemination volume per mating event, and more motile sperm (Simmons *et al.*, 1999).

In 2004, the question of high numbers of male *F. auricularia* with long forceps on islands was thoroughly addressed in a paper by Tomkins and Brown (2004). Based on morph ratio data from a range of localities in Britain, including 11 islands in the Firth of Forth (Scotland), they confirmed that the proportion of males with long forceps in island populations was significantly greater than in mainland populations. They explained this increased frequency in island populations as a response to higher population density: "In *F. auricularia*, the probability of being challenged by an unpaired male, or conversely of successfully usurping a guarding male, depends on the probability of encountering another burrow. Across the very similar island habitats studied here, the predominant factor determining encounter rate is likely to be population density. Where earwigs occur at high densities, challenges over guarded females are likely to be frequent, elevating the fitness of males with adaptations for fighting for and defending females. Extremely high population densities of earwigs are a conspicuous feature of the ecology of the islands of the Firth of Forth and Farnes [where Bateson and Brindley (1892) had originally taken their dimorphic sample]. ... The extraordinarily high population densities that seem to be driving threshold evolution may arise due to the escape from parasitic species or

competitors on the mainland. This hypothesis predicts increasingly high densities of earwigs as islands become more difficult for other species to colonise.”

In 1983, I carried out a mate choice experiment using *F. auricularia* collected in a mainland area of Ireland (Co. Cavan). In light of the studies of Tomkins and Brown (2004) above, and of Tomkins and Simmons (1998) which showed geographic variation in female choice for males with long forceps, the results of this experiment are reported here as an example of female mating preference at a specific inland locality in Ireland. In addition, a supplementary explanation to Tomkins’ and Brown’s density hypothesis, where soil conditions affect female mate choice in the wetter Atlantic climate in Ireland, is also proposed here. The experiment involved recording mating frequencies in replicated sets of 1♀ + 2♂♂, one with long forceps and one with short forceps.

Methods

Definitions

Male earwigs with long forceps (> 5 mm) are referred to as ‘*macrolabious*’; males with short forceps (< 5 mm) as ‘*microlabious*’. Forceps length is taken as the measurement from the proximal end of the outer margin (as seen ventrally) to the apex.

The term ‘promiscuous’ is used frequently in the literature on earwigs and beetles, where females mate with several males. However, this term is technically incorrect according to Elgar *et al.* (2013), and ‘*polyandrous*’ should be used instead; this will be followed here.

Source location

Earwigs (*Forficula auricularia*) were collected from hollow dead stems of hogweed (*Heracleum sphondylium* L.) (Apiaceae) on roadsides, at two sites (approximately 4km apart) in Co. Cavan:- (a) Carnin, near Ballyjamesduff (N5289), 25 September 1982; (b) Near Mount Nugent (N4986), 26 September 1982. Both sex ratio and the proportion of macrolabious (long-forceps) males (as assessed by eye) varied between these two sites. The female:male ratio near Mount Nugent was 1:0.99 (n=161), and near Ballyjamesduff was 1:1.07 (n=182). The percentage of macrolabious males was 22.5% and 9.6%, respectively.

Mating experiment

On return to the laboratory, earwigs from the two locations were mixed but were separated by sex into two large terraria, with drinking straws as shelters, and maintained on a diet of vegetables, yeast and apple. On 4 January 1983, 25 replicates of one female, one microlabious male and one macrolabious male were selected and placed in 250 ml conical flasks containing two drinking straws as shelters. The earwigs were fed with lettuce throughout the experiment,

and kept on a 8:16 Light:Dark cycle by covering the 25 flasks with double-layered black polythene at 17:00 and removing it at 9:00. The mean temperature in the jars was recorded as 19°C, and the damp lettuce prevented low humidity.

Pairs found in copulation were recorded twice daily (09:00 and 17:00) for 13 days (5-18 January), after which each female was transferred to its neighbouring jar, and recording of copulation continued for a further 13 days (19 January-1 February). As mortality increased towards the end of the experiment (possibly due to parasitisation by the fungus *Zoophthora forficulae* (Giard) A. Batko (Entomophthorales)), and copulations were less frequently recorded, the experiment was discontinued. The reason for moving females was to attempt to distinguish between female choice and male dominance; if female choice was involved, then the same female should continue her preference for a forceps type with a different male. However, the data from the second period were insufficient to answer this question.

Results

Of 110 copulations observed (Table 1), 64% were with macrolabious males, which is significantly greater than would be expected if they were random (binomial test, $P < 0.01$). Of the females which mated with one male type only, there were on average four times as many copulations observed with macrolabious males (5.75, $n = 4$) as with microlabious males (1.4, $n = 5$) (Table 1). However, the majority of females observed in copulation more than twice ($n > 2$) mated with both males rather than with one only (77%, $n = 18$ females) (Table 1).

Discussion

Effects of soil type on the extent of the pair-forming period

Herter (1965) observed that there are two phases to the pre-oviposition stage of adult female earwig life, the first being a 'promiscuous' (=polyandrous) phase, and the second a 'monogamous' (=pair-forming) phase where the male and female occur in cells and burrows in the soil. In Washington State (U.S.A.), where common earwigs were introduced from Europe, pairs were recorded as hibernating in these cells from autumn until January (Crumb *et al.*, 1941), when the female evicts the male prior to oviposition (the female earwig then cares for the eggs and early nymphal stage in the cell). So, in Washington, there is long pair-forming period, presumably where the male guards the female in the overwintering cell. On the offshore island of Inishtrahull (Co. Donegal), where earwigs have been found in groups in soil surface cells in late autumn, the macrolabious males were observed to be the first to leave (Sullivan, 1943), presumably to join the female also as a pair in separate cells.

In contrast, in mainland localities in Cos Kildare and Cork, earwigs have been found during the winter in numbers in above-ground shelters such as the hollow dead stems of hogweed

(*Heracleum sphondylium*) (Good, 1982; J. A. Good, unpublished data). This represents a social environment, where earwigs aggregate in groups, so the polyandrous stage may be much longer than the pair-forming stage, at least in some individuals, unlike Washington and possibly Inishtrahull (Sullivan (1943), unfortunately, did not give dates). *Heracleum* stems were also where the Cavan earwigs, used in this experiment, were collected from in October.

Tomkins and Brown (2004), in proposing their hypothesis that population density is positively correlated with the proportion of macrolabious males on islands, refer to earwigs occurring in chambers under stones, driftwood, etc., where mate guarding by macrolabious males could lead to greater mating success during a longer pair-forming period. However, in inland localities with heavier soils and a wet winter climate, such as Co. Cavan, forming a nest cell in the soil during winter may result in greater mortality due to cell flooding or fungal parasitism. Thus, the polyandrous period may be much longer than the pair-forming period in such environments, leading to a greater proportion of overall matings with microlabious males. What is interesting from the Cavan earwig results is the high proportion of females which mated with both types of male, despite greater mating frequency with macrolabious males. The macrolabious males in these cases appear not to have guarded the females sufficiently well to avoid microlabious male mating. In a study of another earwig species, *Euborellia plebeja* (Dohrn, 1863) (Anisolabididae), Kamimura (2013) explained how polyandry might actually increase female accumulation of superior genes:- “If females can sample many (e.g. 30) males before oviposition, it means that they have many chances to gather superior sperm little by little from multiple superior males among the mates. ... [A]lthough the mating frequencies and sequence are determined by precopulatory processes, the moderately restricted sperm displacement (a postcopulatory process) is an essential factor for female *E. plebeja* to accumulate genes from superior males. ... Even without active and discriminative ‘picking up’ of superior sperm (or dumping of inferior sperm), genetic benefits inevitably arise when female morphology or behaviours provide an arena for competition among sperm from males of different genetic quality ...”.

Although *F. auricularia* has a different spermathecal morphology (Popham, 1965; Hudson, 1973), compared to *E. plebeja*, nevertheless this type of explanation could also apply to *F. auricularia* if females control sperm transfer (Brown, 2006) or facilitate partial sperm displacement during subsequent matings. A further advantage of polyandry, found to occur in ladybirds for instance (Majerus, 1994), is an increase in fertility.

Female choice

Darwin (1871) originally pointed out that: “in a multitude of cases the males which conquer other males, do not obtain possession of the females, independently of choice on the part of the

latter.”

However, there has been some disagreement in the literature as to whether female earwigs show active pre-copulatory choice for males, or are merely passive, mating with males that have successfully competed for access. Kamimura (2014) concluded that the evidence for female preference for long-forceps was not convincing, but several studies indicate an active involvement of female earwigs in mating (Herter, 1965; van Lieshout *et al.*, 2009), or the rejection of copulation with male suitors (Radesäter and Halldórsdóttir, 1993; Walker and Fell, 2001), the latter which I also observed in this experiment. In particular, Tomkins and Simmons (1998) found variation in female preference between two island populations in the Farne Islands (*italics added*): “... females from the West Wideopen population were less choosy than those on Brownsman Island in terms of the proportion of courting males with which they *refused to copulate*. West Wideopen females did not share the preference for males with long forceps found on Brownsman or the mainland.”

Nevertheless, whether, and how, female earwigs can differentiate long from short male forceps, presumably by tactile sense as they are nocturnally active, is not clear. Males have been observed to completely encircle the female abdomen during courtship (Walker and Fell, 2001), a behaviour also observed during this experiment, and this may be more successfully attempted by macrolabious males.

Mating experiments

It would be particularly interesting to carry out mating preference experiments with samples of *F. auricularia* from some of the Irish offshore islands. However, future experiments should take samples from one soil type only, as one of the shortcomings of the mating experiment reported here was that a mixed sample was taken from two areas with different soil types, albeit only 4km apart. This was because the first area sampled (Carnin) had a low proportion (9.6%) of macrolabious males, so a different area (near Mount Nugent) was sampled to obtain sufficient numbers of this morph (where 22.5% were macrolabious). Unfortunately, this meant that the mating results may have included populations from a more freely draining soil (near Mount Nugent) as well as from a soil with poorer drainage properties (Carnin) (soil data from Gardiner and Radford, 1980).

Finally, the observation by the light-keeper naturalist D. J. Sullivan at Inishtrahull (Sullivan, 1943), of macrolabious males leaving the social nests earlier than the microlabious males, provides a particularly important insight. It suggests that at any one time during the autumn and winter, there may be a proportion of the population in the polyandrous phase, and proportion in the pair-forming phase, so it would be necessary to sample from both to obtain a balanced view of the mating preferences of a population of *F. auricularia*.

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TABLE 1. Results for individual females of *Forficula auricularia*, from a mating experiment with 25 sets of one ♀ + one macrolabious ♂ + one microlabious ♂, collected in Co. Cavan (two of the 25 females were not observed mating). Each female was rotated after two weeks, and subsequent matings (i.e. with a different pair of males) are recorded after the break (‘...’). L = mating recorded with macrolabious (long forceps) male; S = ditto with microlabious (short forceps) male.

Macrolabious only

1. L L L ... L L L L
2. L L L ... L L
3. L L L L L L ...
4. L L ... L L L

Microlabious only

5. S S ...
6. ... S S
7. S ...
8. S ...
9. ... S

Both macrolabious & microlabious

10. L L S S S L L L L L L L ...
11. S S S S L S L ... L S L
12. L L S ... S S L L
13. S S L L L S ... S
14. L S S ... S S L
15. S S L L ... S L
16. L L L S L ...
17. L S S ... L L
18. S ... L L L L
19. L L ... S L
20. L L S ... S
21. L L ... S
22. L S ... L
23. L ... L S

ADDITIONAL CADDISFLY (TRICHOPTERA) RECORDS FROM COUNTY FERMANAGH INCLUDING *HYDROPTILA CORNUTA* AND *CERACLEA SENILIS* NEW TO NORTHERN IRELAND

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Abstract

Two collecting trips to County Fermanagh in 2015 yielded interesting new records of caddisflies (Trichoptera) from the area including two species new to Northern Ireland viz. *Hydroptila cornuta* and *Ceraclea senilis*

Key words: Trichoptera, Northern Ireland, Fermanagh, new records, distribution

Introduction

A total of 68 species of caddisfly are recorded from Fermanagh (O'Connor, Bond and O'Connor, 2013; O'Connor and Davy-Bowker, 2014; O'Connor and O'Connor, 2014, 2015). In May and September 2015, the authors carried out further research on the Trichoptera of the county and discovered four additions to the fauna including *Hydroptila cornuta* Mosley, 1922 and *Ceraclea senilis* (Burmeister, 1839) new to Northern Ireland. As a result, 72 species are now known from the area, representing some 48% of the Irish fauna.

Adults were taken by sweeping water-side vegetation with a hand-net or captured with Heath portable light-traps. All the material was identified by the senior author using Mosely (1939), Malicky (1983) and Barnard and Ross (2012). Irish grid references are given for each site. Unless otherwise stated, distributional information is from O'Connor and O'Connor (2014). Voucher specimens of the species new to Northern Ireland will be deposited in the National Museum of Ireland.

The records

GLOSSOSMATIDAE

***Agapetus ochripes* Curtis, 1834**

River Sillees: (H2341), near Enniskillen, swept, ♀ 2 September 2015.

In Fermanagh, the species is also known from the nearby Arney River.

HYDROPTILIDAE

***Agraylea multipunctata* Curtis, 1834**

Lower Lough Erne: Castle Archdale County Park (H1758), swept, ♂ 13 May 2015.

In Fermanagh, the species is also known from the Rivers Erne and Finn, and Upper Lough Erne.

***Hydroptila cornuta* Mosley, 1922** **New to Northern Ireland**

Lower Lough Erne: Castle Archdale County Park (H1758), swept, 3♂♂ 1 September 2015.

New to Fermanagh and Northern Ireland, *Hydroptila cornuta* is widely distributed in Ireland (Fig. 1).

***Hydroptila forcipata* (Eaton, 1873)**

River Arney: Old Drumane Bridge (H2336), swept, ♂ 1 September 2015.

Previously only known in Northern Ireland from a female taken at the same site.

***Hydroptila sparsa* Curtis, 1834**

River Sillees: (H2341), near Enniskillen, swept, ♂♂ 2 September 2015. Upper Lough Erne: Bellanaleck (H2339), swept, 2♂♂♀ 2 September 2015.

Previously known in Fermanagh from the Arney River and Lower Lough Erne.

ECNOMIDAE

***Ecnomus tenellus* (Rambur, 1842)**

Lower Lough Erne: Castle Archdale County Park (H1758), swept, ♀ 1 September 2015, JPOC/MAOC, det. JPOC.

New to Fermanagh. In Northern Ireland, the species was previously known from larvae collected in Lough Neagh, County Antrim (Murphy and Carter, 1984). The Irish distribution is shown (Fig. 2).

POLYCENTROPODIDAE

***Cyrnus flavidus* McLachlan, 1864**

Mill Lough: near Bellanaleck (H2438), light-trap 17♂♂ 1 September 2015.

A single male had been previously taken at this lake.

***Cyrnus trimaculatus* (Curtis, 1834)**

River Sillees: (H2341), near Enniskillen, swept, ♂ 2 September 2015.

Previously known from the Lower and Upper Lough Ernes.

***Neureclipsis bimaculata* (Linnaeus, 1758)**

River Erne: Cloonatrig, Bellanaleck (H2637), light-trap, 9♂♂2♀♀ 2 September 2015. Upper Lough Erne: Bellanaleck (H2339), swept, 2♀♀ 2 September 2015.

In Fermanagh, there are larval records from the Rivers Finn and Sillees (O'Connor and Davy-Bowker, 2014).

***Polycentropus flavomaculatus* (Pictet, 1834)**

Lower Lough Erne: Castle Archdale County Park (H1758), swept, 2♂♂ 13 May and 3♂♂♀ 1 September 2015.

Although widespread in Northern Ireland, the species had not previously been recorded from

the Lower Lough Erne.

***Polycentropus irroratus* (Curtis, 1835)**

Upper Lough Erne: Bellanaleck (H2339), swept, ♀ 2 September 2015.

In Fermanagh, there are larval records from the Foxhill Burn and the River Arney (O'Connor and Davy-Bowker, 2014).

PSYCHOMYIIDAE

***Lype phaeopa* (Stephens, 1836)**

Mill Lough: near Bellanaleck (H2438), light-trap, 3♂♂ 1 September 2015. River Erne: Cloonatrig, Bellanaleck (H2637), light-trap, ♂ 1-2 September 2015. Upper Lough Erne: Bellanaleck (H2339), swept, ♀ 2 September 2015.

Reported new to Northern Ireland by O'Connor and O'Connor (2015). This record was based on a female taken on the Upper Lough Erne at Bellanaleck. Another female has now been collected at the same site as well as males at two other localities. The known Irish distribution is shown (Fig. 3).

***Psychomyia pusilla* (Fabricius, 1781)**

River Sillees: (H2341), near Enniskillen, swept, ♂2♀♀ 2 September 2015.

A new site for this wide-spread species.

PHRYGANEIDAE

***Phryganea bipunctata* Retzius, 1783**

Mill Lough: near Bellanaleck (H2438), swept, ♂ 13 May 2015. Upper Lough Erne: Bellanaleck (H2339), swept, ♀ 14 May 2015.

New to Fermanagh. The species is widely distributed in Ireland.

LEPIDOSTOMATIDAE

***Lepidostoma hirtum* (Fabricius, 1775)**

Lower Lough Erne: Castle Archdale County Park (H1758), swept, ♂♀ 1 September 2015.

Although widespread in Northern Ireland, the species had not previously been recorded from the Lower Lough Erne.

LIMNEPHILIDAE

***Limnephilus auricula* Curtis, 1834**

Mill Lough: near Bellanaleck (H2438), light-trap, ♂ 13 May 2015. Upper Lough Erne: Bellanaleck (H2339), swept, 2♂♂ 14 May 2015: Derryinch (H2637), swept, ♀ 14 May 2015.

In Fermanagh, there are previous records from the Upper Lough Erne at Knockninny Quay.

***Limnephilus sparsus* Curtis, 1834**

Mill Lough: near Bellanaleck (H2438), light-trap, ♂ 1 September 2015. Upper Lough Erne: Bellanaleck (H2339), swept, ♀ 14 May 2015.

Previously known from a male taken from a spider's web at Knockninny Quay, Upper Lough

Erne (O'Connor, Bond and O'Connor, 2013).

LEPTOCERIDAE

Athripsodes albifrons (Linnaeus, 1758)

Arney River: Old Drumane Bridge (H2336), swept, 2♂♂♀ 1 September 2015.

Larvae have been recorded from the Arney River (O'Connor and Davy-Bowker, 2014).

Athripsodes cinereus (Curtis, 1834)

River Sillees: (H2341), near Enniskillen, swept, ♂ 2 September 2015.

Larvae have been recorded from the River Sillees (O'Connor and Davy-Bowker, 2014).

Ceraclea fulva (Rambur, 1842)

Lower Lough Erne: Castle Archdale County Park (H1758), swept, ♂ 1 September 2015. Mill Lough: near Bellanaleck (H2438), light-trap, 4 ♂♂ 1 September 2015. Upper Lough Erne: Bellanaleck (H2339), swept, ♂ 2 September 2015.

Recorded new to Northern Ireland from the Crom Estate, Upper Lough Erne, Fermanagh (O'Connor, Bond and O'Connor, 2013).

Ceraclea nigronervosa (Retzius, 1783)

Upper Lough Erne: Bellanaleck (H2339), swept, 3♂♂ 14 May 2015.

Recorded as larvae from the nearby Rivers Arney and Sillees (O'Connor and Davy-Bowker, 2014).

Ceraclea senilis (Burmeister, 1839)

New to Northern Ireland

Lower Lough Erne: Castle Archdale County Park (H1758), swept, 2♂♂ 1 September 2015.

New to Fermanagh and Northern Ireland, *Ceraclea senilis* is widely distributed in Ireland (Fig. 4).

Mystacides azurea (Linnaeus, 1761)

River Erne: Cloonatrig, Bellanaleck (H2637), light-trap, ♀ 2 September 2015. Upper Lough Erne: Knockninny Quay (H2731), swept, ♀ 2 September 2015.

In Fermanagh, the species is previously known from the Lower and Upper Lough Ernes (Bellanaleck).

Oecetis lacustris (Pictet, 1834)

Lower Lough Erne: Castle Archdale County Park (H1758), swept, ♂ 1 September 2015. Mill Lough: near Bellanaleck (H2438), light-trap, ♂ 1 September 2015.

In Northern Ireland, only previously known from the Upper Lough Erne.

Oecetis ochracea (Curtis, 1825)

Upper Lough Erne: Bellanaleck (H2339), swept, 3♂♂ 2 September 2015: Knockninny Quay (H2731), swept, ♂ 2 September 2015.

In Fermanagh, the species is previously known from the River Erne at Cloonatrig.

Acknowledgement

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FIGURES 1-4. The known Irish distributions of *Hydroptila cornuta* Mosely, *Ecnomus tenellus* (Rambur), *Lype phaeopa* (Stephens) and *Ceraclea senilis* (Burmeister).

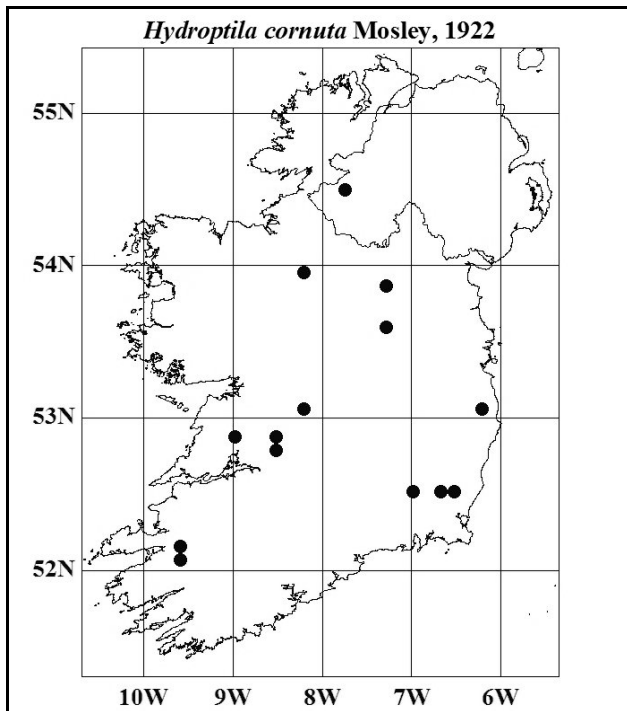


Figure 1: *Hydroptila cornuta*.

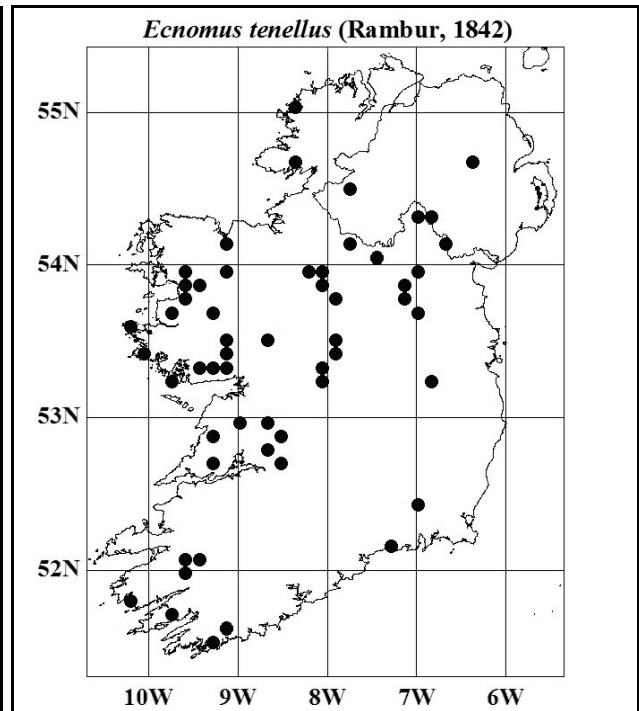


Figure 2: *Ecnomus tenellus*.

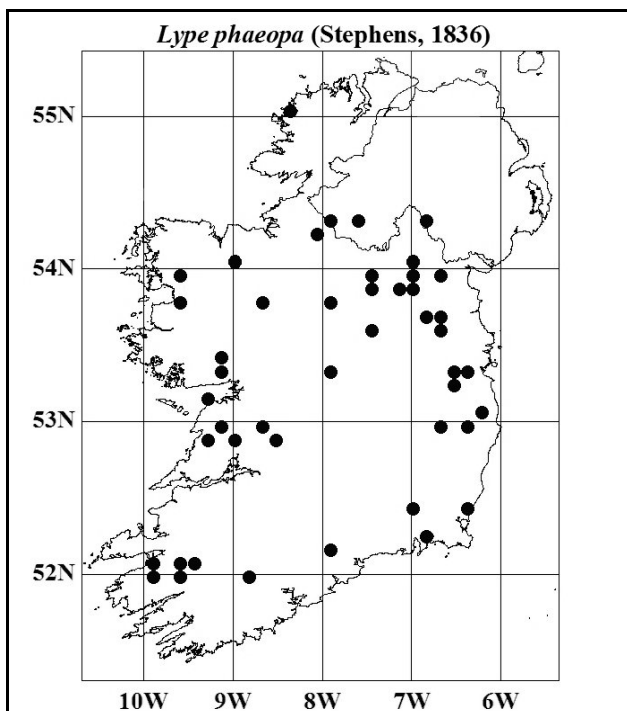


Figure 3: *Lype phaeopa*.

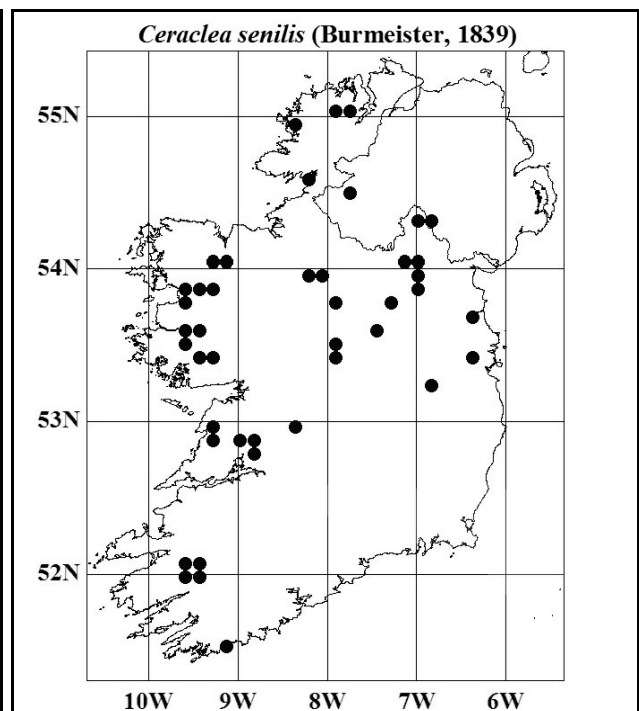


Figure 4: *Ceraclea senilis*.

TWO MARINE ORTHOCLADIINAE (DIPTERA: CHIRONOMIDAE) FROM THE ALGARVE – FIRST RECORDS OF *HALOCLADIUS (HALOCLADIUS) MILLENARIUS* AND *THALASSOSMITTIA THALASSOPHILA* FOR PORTUGAL

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Abstract

Two species of marine coastal dwelling Orthoclaadiinae, *Halocladius (Halocladius) millenarius* Santos-Abreu and *Thalassosmittia thalassophila* Bequaert & Goetghebuer, are documented as new to Portugal. The records come from pupal exuviae collected at Albufeira and Vilamoura on the Algarve coast.

Key words: Chironomidae, Orthoclaadiinae, marine, pupal exuviae, new records, Portugal

Introduction

The current check list of Chironomidae for the Portuguese mainland provided in Fauna Europaea (Sæther and Spies, 2013) includes just one coastal halobiontic chironomid species, *Halocladius (Halocladius) varians* (Staeger, 1839) which was reported by Reiss (1989) from Duoro Litoral Province and cited in checklist of Chironomidae of the Iberian Peninsula by Soriano *et al.* (1997) and Cobo *et al.* (2002). In September 2015, chironomid pupal exuviae were collected at two locations on the southern Portuguese Atlantic coastline of the Algarve that yielded two species of halobiontic Orthoclaadiinae, one each in the genus *Halocladius (Halocladius)* Hirvenoja, 1973 and in the genus *Thalassosmittia* Strenzke & Remmert, 1957. Although already on record for Spain (Sæther and Spies, 2013), the two species and the genus *Thalassosmittia* are new records for Portugal.

Methods

Collections of pupal exuviae were obtained by skimming the surface water of littoral marine habitats with a fine mesh net. Specimens obtained were preserved on site in 75% alcohol. Following dehydration exuviae were slide mounted in Euparal according to Pinder (1986) and identified from Langton and Visser (2003) with additional reference to Hirvenoja (1973) for *Halocladius*. Voucher slide-mounted specimens are deposited at Zoologische Staatssammlungen, Munich.

Collection sites

Albufeira: UTM 29S (37° 5' 4'' N, 8° 15' 18" W). Samples were collected on 15 September 2015 from a small tidal pool in a crevice on a steep natural rock outcrop.

Vilamoura: UTM 29S (37° 4' 42'' N, 8° 7' 29" W). Samples collected on 16 September 2015 along the tidal shore of a man-made rock embankment adjacent to Avenida Cerrodo da Vila, at Marina da Vilamoura.

Results and comments

Pupal exuviae of two halobiontic species of Orthocladiinae were obtained in the samples.

Halocladius (Halocladius) millenarius (Santos-Abreu, 1918)

The collection at Albufeira yielded several exuviae of *Halocladius (Halocladius) millenarius*, the first record of the species from Portugal. A record for the Iberian Peninsula from the Gulf of Cadiz, Spain, was cited in the listing by Soriano *et al.* (1997) and also by Cobo *et al.* (2002) but the authors commented that the record was from a larval identification and confirmation of the species for the Iberian Peninsula was needed. First described from La Palma, Canary Islands (Santos-Abreu, 1918), and more recently reported from Lanzarote by Murray (2014), Langton and Visser (2003) also note a circum Mediterranean coastal distribution from Algeria, France, Italy and Spain. Given the proximity of the Gulf of Cadiz to the Algarve and the sites of this study, the record at Albufeira is not surprising.

Thalassosmittia thalassophila Bequaert & Goetghebuer, 1914

Numerous exuviae of *Thalassosmittia thalassophilla* were present in collections at Vilamoura. While *T. thalassophila* is recorded from a number of Atlantic coastal countries including Belgium, France, Germany, Great Britain, Ireland, The Netherlands and the Mediterranean coasts of Spain, Greece and Romania (Langton and Visser, 2003); this is the first record of the genus and species for Portugal.

Acknowledgement

I am grateful to my son Finbarr Murray who collected the sample on a hazardous exposed and steep rocky shore at Albufeira.

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A THIRD IRISH SITE FOR THE SCARAB BUG *THYREOCORIS SCARABAEOIDES* (L.) (HEMIPTERA: THYREOCORIDAE)

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Abstract

The scarab bug, *Thyreocoris scarabaeoides* (L.) is a rare Irish insect, previously only known from County Wexford in the south-east of Ireland, based on records from two different sites in the nineteen thirties. The author has now identified a specimen taken in 2004 in County Waterford, also in the south-east.

Key words: Hemiptera, *Thyreocoris scarabaeoides*, scarab bug, Ireland, distribution

Introduction

The author had somehow formed the opinion that the scarab bug, *Thyreocoris scarabaeoides* (L.) was widespread in the south east of Ireland until information contained in McCormack and Regan (2015) suggested that this was not the case. I subsequently checked with Dr Brian Nelson of the National Parks and Wildlife Services who informed me that this insect is only known from two sites in Ireland, and has not been collected here since the nineteen thirties. The Irish records for this distinctive landbug are from Ballyteige Burrow (Halbert, 1935) and Curraclloe (O'Connor and Nelson, 2013). The latter record refers to a specimen collected in 1936, and both localities are in Co. Wexford.

T. scarabaeoides is a warmth loving species, which can burrow into sandy or fine-crumbed substrates and is associated with violets *Viola* spp. As a result, the bug requires bare ground, or at least very sparse vegetation, in order to maintain its temperature and to provide opportunities for burrowing in adverse weather conditions. In consequence, it mostly occurs where violets grow on disturbed ground, for example that created by trampling on slopes or where rabbit grazing has reduced the plants to tight clumps amongst very low sparse vegetation (O'Connor and Nelson, 2013).

The new record

WATERFORD: Tramore (S6100), adult 6 June 2004, on the sand-dunes, collected and determined M. Cawley. The specimen will be deposited in the National Museum of Ireland.

The author's primary objective in visiting Tramore was to collect spiders (Araneae), and *T. scarabaeoides* would have been collected incidentally to this activity, most likely grubbed from the ground layer. The specimen was identified using Southwood and Leston (1959).

Acknowledgements

Thanks to Dr Brian Nelson for his advice. Dr J. P. O'Connor provided the photograph of the specimen in the National Museum of Ireland and the map. The latter was produced with DMAP using a programme supplied by Dr Alan Morton.

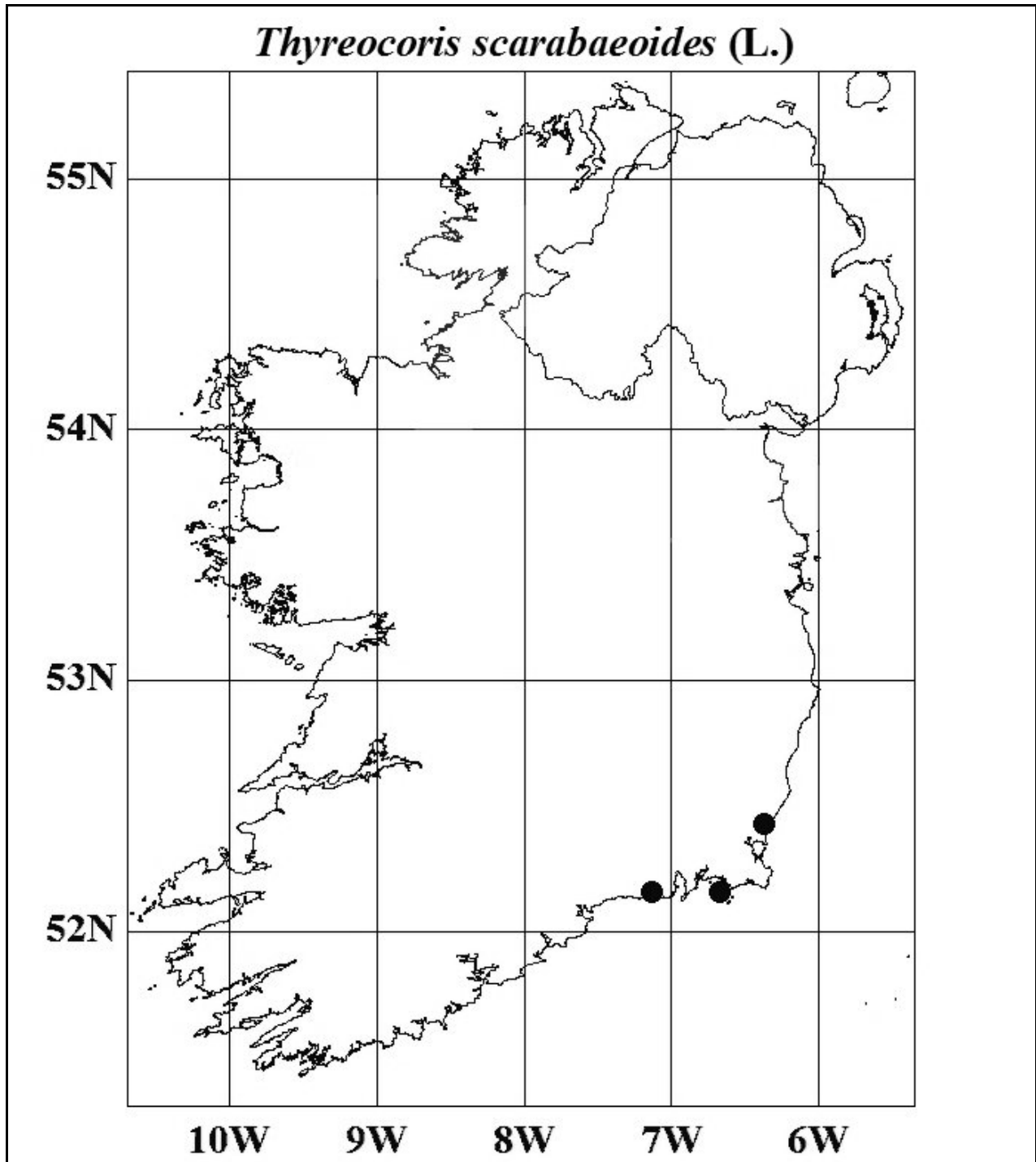
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FIGURE 1. The specimen of *Thyreocoris scarabaeoides* (L.) taken by J. N. Halbert at Curraclloe, Co. Wexford. Photograph: J. P. O'Connor.



FIGURE 2. The known Irish distribution of *Thyreocoris scarabaeoides* (L.).



TAXONOMIC NOTES ON ANAGRUS INCARNATUS HALIDAY AND SOME OTHER FAIRYFLIES (INSECTA: HYMENOPTERA: MYMARIDAE) FROM THE A. H. HALIDAY COLLECTION IN THE NATIONAL MUSEUM OF IRELAND

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Abstract

Taxonomic notes and identifications are provided for some type and other specimens in the Alexander H. Haliday fairyfly (Hymenoptera: Mymaridae) collection in the National Museum of Ireland in Dublin. *Anagrus breviphragma* Soyka syn. n., *A. longigaster* Soyka syn. n., *A. ovipositor* Soyka syn. n., *A. silwoodensis* I. Walker syn. n., *A. supremus* Soyka syn. n., and *A. vacuipennis* Soyka syn. n. are synonymized under *A. incarnatus* Haliday, the lectotype of which was examined. *Anagrus incarnatosimilis* Soyka stat. rev. is resurrected, as a valid taxon, from the previous synonymy under *A. incarnatus* with the following new synonyms: *A. danicus* Soyka syn. n., *A. mutans* I. Walker syn. n., *A. neopallidus* Soyka syn. n., *A. pallidior* Soyka syn. n., *A. pulcher* Soyka syn. n., *A. pulcherrimus* Soyka syn. n., *A. stenocrani* I. Walker, and *A. varicolor* Soyka syn. n.; all of these are conspecific to the misidentified *A. incarnatus incarnatus* Haliday *sensu* Debauche. A lectotype is designated for *A. incarnatosimilis*.

Key words: *Anagrus incarnatus*, *A. incarnatosimilis*, Mymaridae, fairyflies, nomenclatural changes, synonyms, lectotype, Haliday Collection

Introduction

The National Museum of Ireland – Natural History in Dublin, Ireland (NMID) houses the invaluable collection of fairyflies, or mymarids (Hymenoptera: Mymaridae), which is arguably the most important among the oldest taxonomic collections of this family. Graham (1982) provided a detailed account of the specimens in this collection, mostly using the numbers previously assigned by F. Enock and C. O. Waterhouse. His work, which includes lists of specimens, has been of great value to taxonomists of the Mymaridae. I had an opportunity to visit NMID in August 2015 and examine the entire collection of the Haliday fairyflies (Figs 1-2), using Graham's (1982) publication as a guide.

In 2005, Csaba Thuróczy (Kőszeg, Hungary) remounted some of the primary types of Mymaridae in the A. H. Haliday collection at NMID from the original cards onto new, white cards and also slide-mounted an antenna and a pair of wings from most of these specimens in

micro-slides (inserted in cards of a slightly larger size) on the same pin; the original (very short) pin with the original card and labels were also preserved. In the process specimens were carefully cleaned, so as the result quality of the specimens has often improved while availability of the slide-mounted appendages resulted in better recognition of these species. That was definitely the case with the lectotype female of *Anagrus incarnatus* Haliday (Haliday, 1833), which was designated by Graham (1982, p. 200) and later examined by Chiappini (1989). My examination revealed that it is actually not conspecific with *A. incarnatus incarnatus* Haliday *sensu* Debauche (1948), who had not examined the Haliday collection, and *A. incarnatus* Haliday *sensu* Chiappini (1989) or Triapitsyn (2015), but rather with *A. breviphragma* Soyka. Therefore, nomenclatural changes must follow.

Taxonomic notes on *Anagrus incarnatus* Haliday

The lectotype female of *Anagrus incarnatus* stands under number 68 in the Haliday's main Mymaridae collection in NMID (Fig. 1), or "Enock-Waterhouse box" (Graham, 1982). It was remounted by C. Thuróczy onto a new, larger card except for one antenna and one fore wing which were mounted on a micro-slide inserted on the same pin in a similar card placed underneath the card with the dry-mounted specimen (Fig. 3). There are the following labels on this pin (all non-original): 1. "68"; 2. "*Anagrus incarnatus* Hal."; 3. "*Anagrus incarnatus* Haliday LECTOTYPE ♀ M. de V. Graham det. 1972". The two original "68" labels are on the separate, modern pin along with the original short pin and the following additional labels: "Original labels of *Anagrus incarnatus* Haliday" and "Remounted by Thuróczy 2005". Upon a thorough examination of the lectotype, it became clear that its both fore wings have a distinct, large bare area in the widest part that is characteristic of *A. breviphragma*, as illustrated for the latter by Chiappini (1989) and Triapitsyn (2015). Therefore, *A. breviphragma* syn. n. and its synonyms *A. longigaster* Soyka syn. n., *A. ovipositor* Soyka syn. n., *A. silwoodensis* I. Walker syn. n., *A. supremus* Soyka syn. n., and *A. vacuipennis* Soyka syn. n. are hereby synonymized under *A. incarnatus*.

The paralectotype female of *A. incarnatus* stands under number 69 next to the lectotype and is marked only as "69" by two labels one of which is blue (Fig. 3). Its species identity is impossible to figure out from a dry-mounted specimen because it is mounted on a card in a way that diagnostically important features are not fully visible.

The almost equally common species in Europe, which was previously known as *A. incarnatus* (Chiappini, 1989; Triapitsyn, 1997, 2015) and before that as *A. incarnatus incarnatus* Haliday *sensu* Debauche (1948) and *A. pallidus* Foerster *sensu* Soyka (1956), is now to be called *A. incarnatosimilis* Soyka stat. rev. The latter is resurrected, as a valid taxon, from the previous synonymy under *A. incarnatus* with the following synonyms of its own: *A. danicus*

Soyka syn. n., *A. mutans* I. Walker syn. n., *A. neopallidus* Soyka syn. n., *A. pallidior* Soyka syn. n., *A. pulcher* Soyka syn. n., *A. pulcherrimus* Soyka syn. n., *A. stenocrani* I. Walker, and *A. varicolor* Soyka syn. n. The lectotype female of *A. incarnatosimilis*, here designated to avoid any ambiguity about its status, is on W. Soyka's slide No. 383; it was examined during one of my visits to the Naturhistorisches Museum Wien, Vienna, Austria (NHMW). This specimen, labeled by W. Soyka as "Type", was incorrectly listed as a "holotype" by Chiappini (1989) along with the primary types (also as "holotypes") of other species of *Anagrus* Haliday described by Soyka (1956) in the key without mentioning any type material, and thus these are all invalid lectotype designations according to Article 74.5 (ICZN, 1999). The type locality of *A. incarnatosimilis* is Hundsheim, Lower Austria, Austria, where its lectotype was collected on 21 September 1953 by W. Soyka.

The type locality of *A. pulcher* is Domaszczyn (near Wrocław), Gmina Długołęka, Wrocław County, Lower Silesian Voivodeship, Poland; it had been indicated by W. Soyka on the label and then mentioned by Chiappini (1989, p. 114) as "Domatschine (Breslau, Germany)"; at the time of collection Domatschine was in Schlesien, then part of Germany.

New records of *A. incarnatosimilis* from Ireland are as follows (both on slides in NMID): Dublin: NMID (on window), 23.ii.1926, E. O' Mahony, 1 female; Mayfield [Clareville Road, Rathgar, Dublin] (house, on window), 30.vi.1928, A. W. Stelfox, 1 female.

Notes on other fairyfly specimens in the A. H. Haliday collection in NMID, only when different from the identifications of Graham (1982, lists on pp. 233-237)

Drawer 1 (Fig. 1): Haliday's main Mymaridae collection, or "Enock-Waterhouse box" (Graham, 1982).

4. Wings and fragments of antennae of an undetermined male Tetrastichinae (Eulophidae).

25. *Ooctonus vulgatus* Haliday, female.

43. Fragments of *Polynema gracile* (Nees ab Esenbeck), female (paralectotype of *Polynema fumipenne* Walker).

49. Paralectotype of *Polynema flavipes* Walker, female.

57. *Anagrus* sp., male.

60. *Anagrus ?incarnatosimilis* Soyka, female.

71. *Anagrus* sp. from the *atomus* group, male (paralectotype of *A. ustulatus* Haliday).

72-73. *Anagrus incarnatosimilis* Soyka, females (on the same original card).

74. *Arescon iridescens* (Enock), an incomplete specimen of an unknown sex (probably a male).

75. *Anagrus* sp., female (from the *incarnatus* species group).

76. *Anagrus* sp., female (without head, from the *incarnatus* species group).

77-82. *Anagrus ?incarnatosimilis* Soyka, females (*Anagrus atricapillus* Walker *nomen nudum*).

85. *Camptoptera magna* Soyka, female.
89. *Alaptus fuscus* Walker, female (*Anagrus concinnus* Walker *nomen nudum*).
91. 4 remounted females of *Alaptus* spp.: one of them (without head) is *A. fuscus* Walker, one (with a micro-slide) is *A. ?pallidicornis* Foerster, and two are *A. minimus* Westwood.
92. *Alaptus* sp(p)., too poorly mounted to be identified to species with any confidence.
94. *Anagrus* sp., female.
95. *Alaptus fuscus* Walker, female.
96. *Anaphes* sp., female.
98. 3 specimens of *Alaptus* sp(p). (on the same card): one female of *A. minimus* Westwood, one male of *Alaptus* sp., and one specimen of *Alaptus* sp. of an unknown sex (antennae missing). Graham (1982, p. 235) incorrectly indicated the female lectotype of *A. minimus* under this number, which rather was remounted by W. D. Hincks onto a slide from the card with number 97.
99. *Alaptus ?pallidicornis* Foerster, female.
106. *Ooctonus hemipterus* Haliday, male.
107. *Ooctonus hemipterus* Haliday, male.
118. *Gonatocerus* sp., male.
121. *Gonatocerus ?fuscicornis* (Walker), male.
125. *Gonatocerus fuscicornis* (Walker), female (paralectotype of *Ooctonus litoralis* Haliday).
127. *Gonatocerus fuscicornis* (Walker), female (paralectotype of *Ooctonus litoralis* Haliday).
132. *Anaphes* sp., male.
139. *Lymaenon litoralis* (Haliday) (paralectotype of *Ooctonus litoralis* Haliday).
142. *Gonatocerus fuscicornis* (Walker), female (paralectotype of *Ooctonus litoralis* Haliday).
143. *Gonatocerus fuscicornis* (Walker), female (paralectotype of *Ooctonus litoralis* Haliday).
145. *Gonatocerus fuscicornis* (Walker), female (paralectotype of *Ooctonus litoralis* Haliday).
148. *Alaptus ?pallidicornis* Foerster (head and parts of antennae missing).
154. *Ooctonus hemipterus* Haliday, male.
155. *Ooctonus ?insignis* Haliday, male.
158. *Ooctonus hemipterus* Haliday, male.
159. *Ooctonus hemipterus* Haliday, male.
161. *Ooctonus* sp., male.
164. *Gonatocerus fuscicornis* (Walker), female (paralectotype of *Ooctonus litoralis* Haliday).
167. Remains of a *Polynema* sp., male.
Drawer 2 (Fig. 2): Haliday's main collection of Chalcidoidea (Graham, 1982), although now only Mymaridae remain.
H4. *Polynema gracile* (Nees ab Esenbeck), female.

H1667. *Lymaenon litoralis* (Haliday), female.

Acknowledgements

I thank James P. O'Connor for invaluable and friendly help, discussions, and useful information during my visit to NMID, and Nigel T. Monaghan for kind assistance in planning it.

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FIGURE 1. Drawer 1: Haliday's main Mymaridae collection, or "Enock-Waterhouse box".

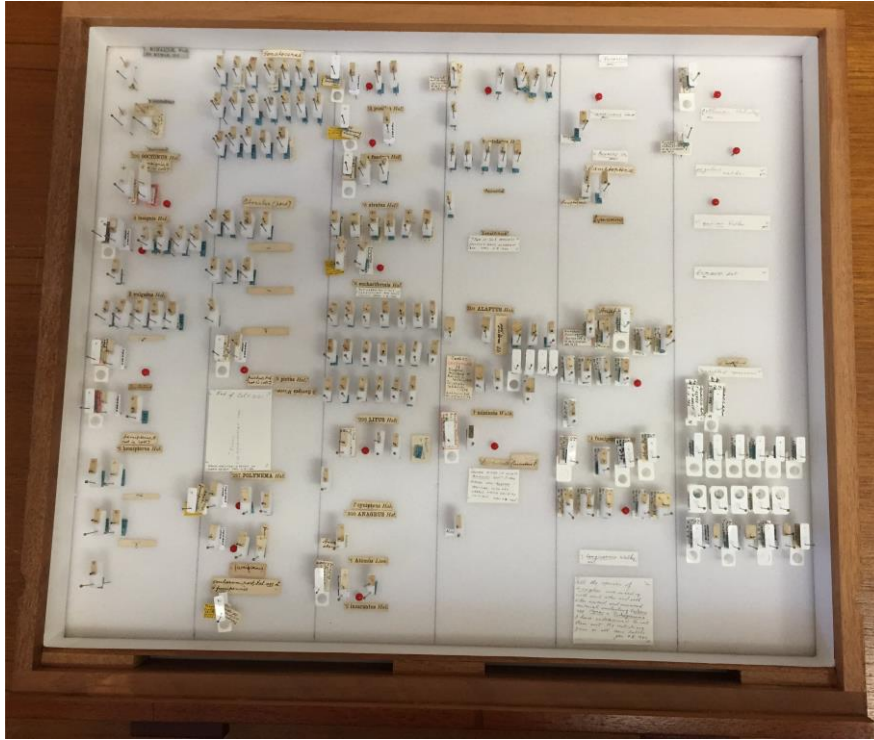
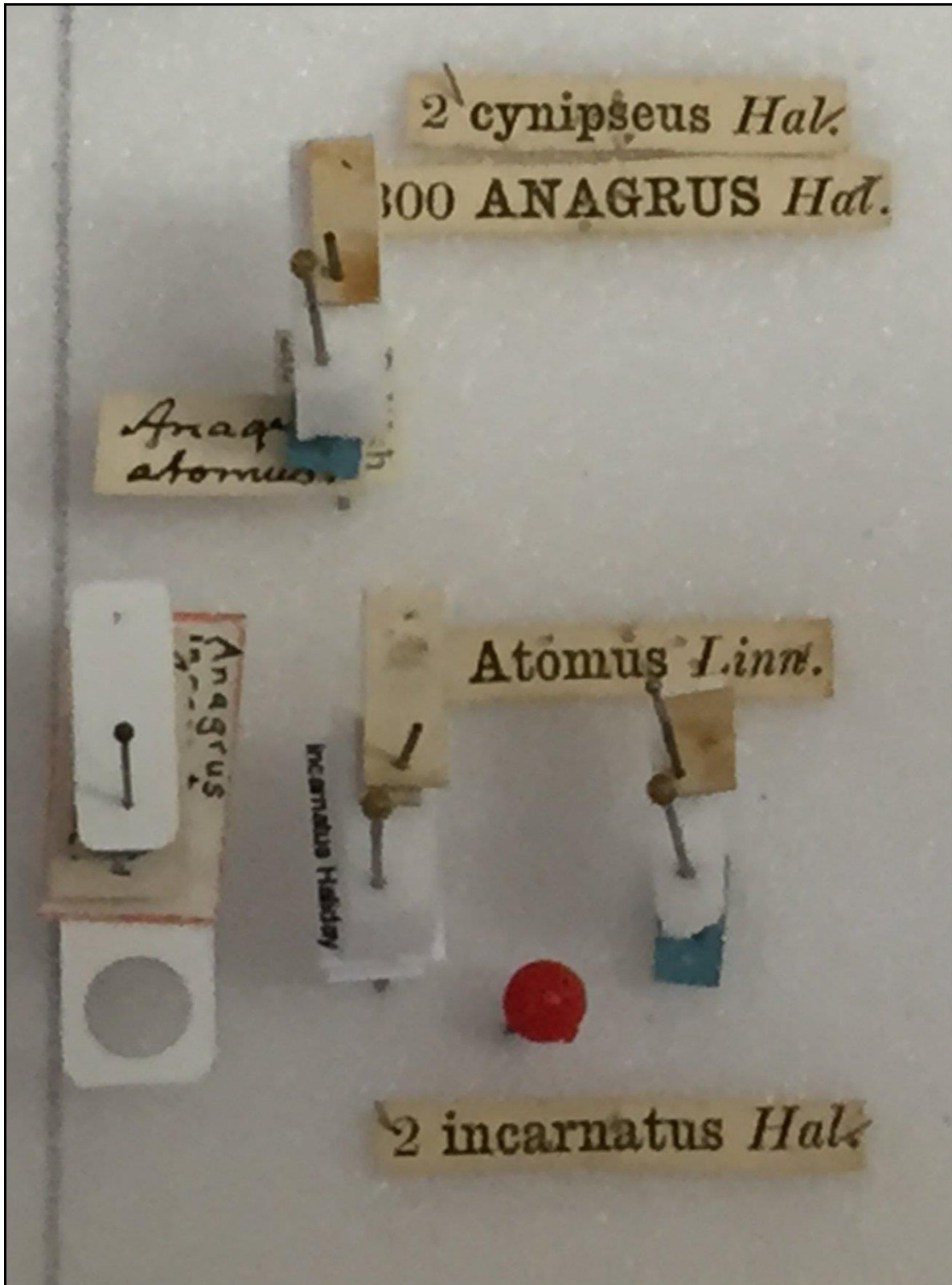


FIGURE 2. Drawer 2 of Haliday's collection of Mymaridae.



FIGURE 3. The lectotype and paralectotype females of *Anagrus incarnatus*.



A FURTHER RECORD OF THE MARINE ISOPOD *IDOTEA METALLICA* BOSCH, 1802 IN IRISH WATERS AND A REVIEW OF THE SPECIES' HABITATS, TROPHIC ASSOCIATIONS AND ECOLOGY IN NW EUROPEAN WATERS

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Abstract

On 25 May 2014, a dead adult specimen of the marine Isopod *Idotea metallica* Bosc, 1802 was discovered inside a stranded plastic vented bait jar of North American origin on Lohar Beach, near Waterville, Co. Kerry, South-West Ireland. The status of *I. metallica* in Irish and North-West European waters is reviewed. Although the current paucity of records would suggest that the species is relatively rare, this may simply be due to a lack of recording effort.

Keywords: *Idotea metallica*, Irish waters, North-West European waters

Introduction

On 25 May 2014, RH discovered a single dead adult specimen of *Idotea metallica* Bosc, 1802 (Figures 1-2) inside a 1.5 L plastic vented bait jar of North American origin (Figures 3-5) stranded on Lohar Beach (51.79°N, 10.17°W), near Waterville, Co. Kerry, South-West Ireland. The specimen, which measured 30mm TL, and 8mm maximum body width, was donated to the National Museum of Ireland - Natural History) (NMINH:2014:47).

The plastic vented bait jars are manufactured by Scotty Fishing and Marine Products <www.Scotty.com>, a company based in Sidney, British Columbia, Canada. Their website describes the jar as ‘A rugged container for storing bait or for protecting bait in a crab or prawn trap. The quick unscrew lid and vented body have the right size slots to send the bait smell out, yet protect the bait from most parasites’. According to Mr Ryan Emile (pers. comm.), the bait jars are used extensively in inshore crustacean fisheries throughout North America but ‘We do not currently have any sales of our bait jars, into Ireland or any other part of Europe’. The jars are baited, *inter alia*, with proprietary fish bait, such as those manufactured from herring *Clupea harengus* L. by Ace of Baits Co. Inc. <www.aceofbaits.com>, a company based in Ladysmith, British Columbia, Canada (Ryan Schoor, pers. comm.). Over the last decade, RH has found over 30 of these plastic vented bait jars stranded near Waterville, occasionally with lids attached and primarily during the winter months. Some of the stranded bait jars with lids attached contained the remains of unidentified fish bones. Similar bait jars have recently been

found stranded on the south-west coast of England (Holmes *et al.*, 2015).

Since these plastic vented bait jars are widely used on the east coast of North America, and not in the NE Atlantic, it seems reasonable to assume that the provenance of all the bait jars found stranded by RH at Waterville originated on the east coast of North America, and passively floated across the North Atlantic to the SW coast of Ireland *via* the Gulf Stream and North Atlantic Drift. It is possible that the bait jars were either deliberately released or lost during storms on the east coast of North America. Various estimates have been made regarding the expected time interval for passive eastward long-range dispersal of drift objects from the south-eastern USA to Western Europe, ranging from at least 14 to 18 months (Guppy, 1917; Nelson, 1988; Otto and van Aken, 1996; Bonhommeau *et al.*, 2009). Although Cotton (1987) estimated that a plastic bottle had passively traversed the North Atlantic from Newfoundland to the west coast of Ireland within a maximum of 127 days (*circa* 4 months), Cadée (1988) pointed out that a plastic bottle offers a relatively large surface to the wind to act on and that this may lessen the time taken to cross the Atlantic. However, since *I. metallica* is an oceanic species with a cosmopolitan distribution, the current specimen could have entered the bait jar anywhere within the North Atlantic. Considering the relatively large size of the current specimen of *I. metallica* in relation to the relatively small size of the vents in the bait jar (the maximum width and depth of the largest vents in the base of the bait jar are 23mm and 2mm respectively), it seems likely that the isopod probably entered the jar either as a free-swimming larva or juvenile and eventually became entombed, having substantially out-grown the dimensions of the vents, its potential escape route.

In common with littoral isopods, *I. metallica* is thought to have a relatively long lifespan, ranging from 1 to 2.5 years (Fish, 1970; Naylor, 1972; Abello and Frankland, 1997). Males and females attain a maximum length of 30mm and 21mm respectively (Naylor, 1957; Abello and Frankland, 1997). In the western Mediterranean, females reach sexual maturity at a mean length of 14.9mm. The larvae hatch as ‘manca’ juveniles and apart from the absence of the last pair of pereopods, they are similar in appearance to adults. Abello and Frankland (1997) suggested that direct development in neustonic crustaceans appears to be of adaptive significance in avoiding larval dispersion and hence restricting their distribution to the neustonic zone. Dow and Menzies (1958) remarked that although ‘The species is apparently a truly pelagic animal; it lacks any major modifications for a pelagic life’.

I. metallica has a widespread, albeit irregular worldwide distribution. Apart from isolated records from NW European waters, the species has been recorded from the Mediterranean and Black Sea, the Azores, Madeira, Selvagens Islands and Cape Verde, and along the east coast of North America, from the Gulf of Mexico to Nova Scotia (North Atlantic). Kroyer (1846) recorded *I. metallica* (as *I. robusta* Kroyer, 1846) at latitude 60⁰ N, between Greenland and

Iceland. Hansen (1888) reported the species from west Greenland as far north as 64° 46'N, 53° 35'W. The latter record represents the most northern record from the NW Atlantic. There are also isolated records from Brazil, Patagonia and South Africa (South Atlantic), the west coast of North America, Japan, Australia and New Zealand (Pacific Ocean), and the Indian Ocean (Red Sea, Amsterdam Island, St Paul, Mascarene Plateau, and Mozambique) (Naylor, 1957; Van der Baan and Holthuis, 1969; Noel and Jomard, 2011; Riera, 2014).

Review of Irish records

Despite its cosmopolitan distribution, there are relatively few records of *Idotea metallica* from Irish waters (Tully and McGrath, 1987). Details of all known Irish records are summarised in Table 1. Norman (1904) referred to a single specimen of *I. metallica* from SW Ireland which Professor Haddon had sent him to identify at the British Museum of Natural History (BMNH), some years ago. Norman (1904) stated that Haddon's specimen represented the first record of *I. metallica* from Irish and British waters. Haddon's specimen most likely refers to either Record No. 1 or 2 which were both taken on 4 July 1890, 48-64km off Achill Head, Co. Mayo, during the research cruise of the SS Fingal, sponsored by the Royal Dublin Society (RDS) (O'Riordan, 1969; Monaghan, pers. comm.). Although there are no records of *I. metallica* from Irish waters relating to Haddon in the BMNH register, it is interesting to note that a specimen of *I. pelagica* Leach, 1815 was donated by Haddon to the BMNH (BMNH: 1911.11.8900). Indeed, in relation to *I. pelagica*, Norman (1904) stated that 'I have it only from the south-west of Ireland; and some specimens given me by Dr Thos. Scott, which were found at Aberdeen'. Due to its perceived rarity, it is likely that Norman returned Haddon's specimen of *I. metallica* to the former Science and Art Museum, Dublin (now known as the National Museum of Ireland which includes the Natural History Museum aka National Museum of Ireland – Natural History (NMINH)). In conclusion, Record Nos. 1 and 2, which are currently housed in the NMINH collections (NMINH: 1896.64), represent the first and second records of *I. metallica* from Irish waters.

Tattersall (1905, 1906, 1912) reported that 'One male and one female specimen (of *I. metallica*) were taken in July 1900, at the surface between Inisgort and the Gun Rock (Inishbofin, Co. Galway) (Record No. 3) and remarked that 'Dr Scharff, of the Museum of Science and Art, Dublin, very kindly sent me a specimen of *I. metallica* taken by Haddon in 1890 off Achill Head (NMINH: 1896.64), to compare with the present specimens'. Although Tattersall obviously returned Haddon's specimen to NMINH, the whereabouts of Tattersall's specimens (Record Nos. 3-5) are unknown. Naylor (1957) noted that a single juvenile specimen, taken off Bofin Island, Co. Galway during 1908, was presented by Tattersall to the BMNH (Norman Collection) during 1911 (Record No. 6, BMNH: 1911.11.8.8914). During June 1928,

a single specimen was recorded at a depth of 100m off SW Ireland (50.33⁰N, 13.52⁰W). The latter specimen is housed in the collections of the National Museum of Natural History, Smithsonian Institution, U.S.A. (Record No. 7, USNM 86588.276492).

On 25 August 1976, McGrath (1980) discovered one adult male and 17 juveniles in association with a floating buoy of northern Spanish origin (Erando-Bilbao) festooned with two species of Goose Barnacle *Lepas* spp., 80km west of Inishshark, Co. Galway (53⁰ 35'N, 11⁰ 32'W) (Record No. 8, BMNH: 1979.409.5, NMINH: 1980.44). On 27 June 1981, Tully and McGrath (1987) reported three specimens of *I. metallica* from the stomach contents of a Garfish *Belone belone* (L.) captured in Courtmacsherry Bay, Co. Cork (Record No. 9, NMINH: 1982.116). Between July 1982 and August 1985, Tully and O'Ceidigh (1986) and Tully and McGrath (1987) recorded a total of 45 free-swimming specimens from surface neuston nets in Galway Bay (Record No. 10), including a single adult in a German 'Nachtai' high speed surface plankton sampler off the west coast of Ireland (52⁰ 45'N, 10⁰ 45.5'W) during April 1983 (Record No. 11). Tully and McGrath (1987) suggested that the occurrence of relatively large numbers of *I. metallica* in Galway Bay over four successive years may indicate that the species is less sporadic in Irish inshore waters than previously indicated by Naylor (1957) and that resident populations are probably established in oceanic waters to the west of Ireland. It is interesting to note that a number of specimens have been recorded in international waters just outside the current limits of Ireland's EEZ waters. For example, during 1875, five specimens, including two females and three males, which are housed in the collections of the BMNH (BMNH: 1882.11), were collected during the 'Valorous Expedition' off NW Ireland (55⁰ 49'N, 16⁰ 44'W) (Naylor, 1957), and on 8 August 1975, six specimens, exhibiting vivid blue luminescence, were observed swimming at the surface in offshore waters off SW Ireland (52⁰ 42'N, 19⁰ 55'W) (BMNH: 1976.49). Tully and McGrath (1987) hypothesised that the occurrence of *I. metallica* in inshore waters around Ireland and Britain may be the result of wind stress on resident populations to the west and suggested that the paucity of records for the species may simply reflect the general lack of data on the neuston of the NE Atlantic; the species was more likely to be taken with appropriate surface sampling gear (neuston nets) rather than with conventional tow nets.

According to Naylor (1957, 1972), *I. metallica* has variously been recorded from amongst floating weed or timber, amongst floating colonies of Goose Barnacles (*Lepas* sp.), or even free-swimming at the surface, and this surface living habit probably accounts for its wide distribution. Two specimens of *I. metallica* were reported in association with the Buoy Barnacle *Dosima (Lepas) fascicularis* (Ellis and Solander, 1786) (Record Nos. 2 and 5) and one specimen with an unidentified Goose Barnacle *Lepas* sp. (Record No. 8). While on board the SS Helga during August 1903, Farran (1905) observed large swarms of *D. fascicularis* (as *L. fascicularis*)

at various locations off the west coast of Ireland: on 10 August, between 48 and 80km WNW of Cleggan, Co. Galway, on 13 August, between 8 and 24km NNW of Rathlin O’Birne, Co. Donegal, on 17 August, between 16 and 32km WNW of Cleggan, Co. Galway, and on 19 August, 80km WNW of Tearaght, Co. Kerry. Farran (1905) noted that ‘The Fulmar Petrels (*Fulmarus gracialis* (L.)), which are invariably seen round the ship at any distance over 48km from shore, seemed to spend most of their time pecking at the floating colonies (of *D. fascicularis*), probably feeding on the marine Isopod, *Idotea metallica*, several specimens of which were obtained among the stalks of the barnacles’. It is interesting to note that Furness and Todd (1984) discovered that *I. metallica* was an important prey item in the diet of *F. gracialis* at nesting sites on the offshore islands of St Kilda (NW Scotland) and Foula (Shetland Isles). Farran (1905) remarked that the occurrence of *D. fascicularis* ‘in such an immense swarm off the west coast of Ireland seems to be exceptional, as no signs were seen of it during the Fishery Survey cruises of either the SS Fingal or the SS Harlequin in 1890 and 1891 respectively, nor during the various expeditions made off the west coast by the SS Helga in 1901 and 1902 (or 1904)’. However, according to the NMINH register (Monaghan, pers. comm.), a specimen of *I. metallica* (Record No. 2) was taken in association with *D. fascicularis* by SS Fingal on 4 July 1890, 64km off Achill Head, Co. Mayo (Station No. 63 or 64). Although not stated, it seems likely, based on Farran’s (1905) observations that the specimen of *I. metallica* recorded by Tattersall (1906) during August 1903 on board the SS Helga, 64km WNW of Cleggan Head, Co. Galway, may also have been associated with *D. fascicularis* (Record No. 4). In his subsequent review of Nordic Isopods, Tattersall (1911) noted that *I. metallica* had been found in association with *D. fascicularis*. It is interesting to note that there are relatively few published records of *D. fascicularis* from Irish waters (O’Riordan, 1967, 1969; Minchin and Holmes, 1993).

Review of North-West European records

There are also relatively few records of *Idotea metallica* from NW European waters. In Norwegian waters, Rathke (1843) reported *I. metallica* (as *Idothea brevicornis* Rathke, 1843) along with the polychaete *Nereis zonata* Malmgren, 1867 (as *N. pulsatoria* Audouin and Milne Edwards, 1834) and the bivalve *Mytilus* sp. (as *Mytilis* sic) at the cliffs near Kristiansund (as Christiansund) (63°06’37”N, 07°43’40”E). However, Sars (1899) was of the opinion that Rathke’s specimen was misidentified and was actually *I. pelagica*. On the 7 August 1929, a female specimen measuring 18mm TL, was found on a beach at Klokkeroy, near Hammerfest, north Norway (70° 40’N). The specimen was initially identified as *I. emarginata* (Fabricius, 1793) by Dons (1933), but was subsequently examined by Pethon (1970) who identified it as *I. metallica*. The latter specimen, which is housed in Trondheim Museum (Museum No. 99),

represents the most northern record of *I. metallica* from the NE Atlantic and NW European waters (Brattegard and Holthe, 2001).

Naylor (1957) listed two specimens of *I. metallica* in the collections of the BMNH which were collected SW of the Faeroe Islands. The first specimen, a juvenile, was taken on 15 July 1949 at 60° 51'N, 09° 06'W, and the second, a male, on 11 September 1950 at 61° 48'N, 09° 06'W.

Naylor (1955) remarked that *I. metallica* 'does not seem to be a British resident, the few specimens which have been recorded being chiefly found amongst *Lepas* on floating wood (Tattersall, 1911)'. Collinge (1917) stated that 'Dr Scott informs me that he took it off the NE coast of Scotland in 1909'. Naylor (1957) listed a total of 5 specimens in the collections of the BMNH which were recorded in British waters. The first specimen, a juvenile, was taken on 7 November 1949 in a routine haul with a 2m straming ring trawl in the English Channel, 3.2km east of Eddystone, Cornwall. The second specimen (originally identified as *I. pelagica*), a male, was taken on 2 July 1950 near the Labadie Bank, Celtic Sea, SW United Kingdom (UK). The third specimen, a male, was taken on 7 September 1954 SW of the Shetland Islands (59° 45'N, 03° 00'W). The fourth specimen, a female, was taken on 9 July 1955 off NW Scotland (59° 02'N, 09° 08'W). The fifth specimen, a male, was taken in a vertical haul with a coarse tow-net on 2 May 1957 in the western approaches of the English Channel (49° 14'N, 05° 11'W). Although Furness and Todd (1984) subsequently recorded significant numbers of *I. metallica* in the diet of *F. gracialis* at nesting sites on the offshore islands of St Kilda (NW Scotland) and Foula (SW Shetland Isles), Isaac *et al.* (1990) regarded the species as rare in UK waters. On 3 July 1989, Davenport and Rees (1993) recorded a specimen in a manta-type neuston net in the eastern Irish Sea between Anglesey (NW Wales) and the Isle of Man (53° 41.5'N, 04° 45.6'W).

Until recently, there were no records of *I. metallica* from the northern North Sea area. However, Franke *et al.* (1999) hypothesised that the recent arrival (since 1994) of relatively large numbers of *I. metallica* in the northern North Sea (German Bight) may be related to a long-term increase in summer temperatures in that region (Franke and Gutow, 2004). Although adult males, ovigerous females and juveniles have been recorded from NW European waters, Franke and Gutow (2004) considered that the species is probably transported from the Atlantic Ocean into the North Sea *via* rafting, but the establishment of a persistent local population is apparently prevented by its elimination during winter because current temperatures are too low for either survival or sustainable reproduction (Gutow and Franke, 2001, 2003; Thiel and Haye, 2006). Indeed, Franke *et al.* (1999) and Gutow and Franke (2001) suggested that *I. metallica* may be useful as a sensitive indicator of the predicted long-term warming trend; in a warming North Sea the species may become a regular summertime immigrant, developing more and more conspicuous populations in this area as the annual period with water temperatures above critical

levels (based on their laboratory experiments) for both survival ($\geq 8^{\circ}\text{C}$) and reproduction ($\geq 13^{\circ}\text{C}$) extends. Leidenberger *et al.* (2012) noted that *Idotea* is a key taxon in the Baltic Sea food web, where guilds often contain few dominant species. They suggested that changes in population dynamics of *Idotea*, as a function of human generated global environmental change, may have large-scale consequences for ecosystem functions in a future Baltic Sea. Tully and McGrath (1987) suggested that resident populations of *I. metallica* are probably established in oceanic waters to the west of Ireland. Although the increasing trend in sea water temperatures in Irish and UK waters during recent decades (Hiscock *et al.*, 2004; Boelens *et al.*, 2005) may eventually facilitate the establishment of self-sustaining inshore breeding populations, laboratory based critical water temperatures for survival ($\geq 8^{\circ}\text{C}$) (Gutow and Franke, 2001) may not necessarily be a limiting factor in the wild. For example, it is interesting to recall that live specimens of *I. metallica*, have been recorded, albeit rarely, in cold arctic regions as far north as Greenland (Kroyer, 1846; Hansen, 1888) and Norway (Rathke, 1843). Indeed, Zaitsev (1970) classified *I. metallica* as eurythermic and euryhaline in the Black Sea where considerable numbers occur at temperatures as low as 4°C .

The species has rarely been reported from the southern North Sea. Between 1961 and 1964, 17 specimens of *I. metallica* were collected in surface plankton near the lightship 'Texel' ($53^{\circ}01'30''\text{N}$, $04^{\circ}22'\text{E}$) off the Dutch coast (Van der Baan and Holthuis, 1969). Since then, a single specimen was found on 7 July 1978 on the beach between Ijmuiden and Bloemendaal (Noord-Holland) [RMNH, Leiden 1153] (Huijsman and Huwae, 1978). Another specimen was found on 11 August 1979 between clusters of hydroids on a beach between Katwijk and Noordwijk (Zuid-Holland) [RMNH, Leiden 5933] (Adema and Huwae, 1982). On 6 August 1993, a further specimen was discovered beached on large brown algae south of Gravenzande (Zuid-Holland) [www.gbif.org/occurrence/814037383], NMR 993700000523]. *I. metallica* has also been recorded, albeit rarely, on the Belgian coast at Oostduinkerke (51.13°N , 02.65°E), Knokke't Zoute (51.35°N , 03.30°E), in coastal waters at Kustbanken (51.39°N , 03.26°E) and further offshore (51.46°N , 02.70°E) (Beyst, 2001; Huwae and Rappe, 2003; Vandepitte *et al.*, 2010; [www.gbif.org/occurrence/24739977, [24740415](http://www.gbif.org/occurrence/24740415), [24740506](http://www.gbif.org/occurrence/24740506), [24740070](http://www.gbif.org/occurrence/24740070), [24740394](http://www.gbif.org/occurrence/24740394), [24740408](http://www.gbif.org/occurrence/24740408), [24603188](http://www.gbif.org/occurrence/24603188), [22216684](http://www.gbif.org/occurrence/22216684)]). There are also relatively few records of *I. metallica* from French Atlantic waters. Two specimens were recorded from the Manche, one from Boulogne-sur-Mer (50.73°N , 01.61°E) and another from Wimereux (50.77°N , 01.62°E) (Davoult *et al.*, 1999; Muller, 2004; Noel and Jomard, 2011; [www.gbif.org/occurrence/22217172, [115627403](http://www.gbif.org/occurrence/115627403)]). Two more specimens were recorded from NW France, near Penmarch, Brittany (47.77°N , 04.15°W , 47.76°N , 04.28°W) ([www.gbif.org/occurrence/812116542], [812122225](http://www.gbif.org/occurrence/812122225)).

Habitats and substrate associations

Although *Idotea metallica* has been recorded from the intertidal zone down to depths of 163m (Rathke, 1843; Dow and Menzies, 1958; Van Guelpen *et al.*, 2005; Gozler *et al.*, 2010), it is generally regarded as an offshore surface-dwelling neustonic species (Naylor, 1957) where its abundance in the neuston does not appear to vary diurnally (Hempel and Weikert, 1972; Holdway and Maddock, 1983a, b; Locke and Corey, 1989). Although both juveniles and adult specimens of *I. metallica* have been found free-swimming at the surface (Dow and Menzies, 1958; Herring, 1969; Tully and McGrath, 1987), the species has frequently been described as an obligate rafter, usually found in association with a wide range of floating biotic and abiotic substrata (Naylor, 1957, 1972; Thiel and Gutow, 2005), including macroalgae (Locke and Corey, 1989; Safran and Omori, 1990; Davenport and Rees, 1993; Aliani and Molcard, 2003; Sano *et al.*, 2003; Gozler *et al.*, 2010), goose barnacles, including *Lepas* sp. (McGrath, 1980) and *D. fascicularis* (Farran, 1905), Loggerhead Turtles *Caretta caretta* (L.) (Domènech *et al.*, 2014), timber (Naylor, 1957, 1972; Holdway and Maddock, 1983a), plastics (Holdway and Maddock, 1983a, b; Gutow and Franke, 2003; this paper), rope (Cabezas *et al.*, 2013), buoys (Miller, 1968; McGrath, 1980), tar balls (Horn *et al.*, 1970; Wong *et al.*, 1974; Butler, 1975; Holdway and Maddock 1983a, b) and pumice (Holdway and Maddock, 1983a, b). Savilov (1958) suggested that it may also use pleustonic species such as the Hydrozoan *Velevella velevella* (L.) as a substrate or as a source of food. Abello *et al.* (2004) observed high densities of *I. metallica* associated with high quantities of flotsam along the oceanic side of a shelf-sea front off the Catalan coast (western Mediterranean). Thiel and Gutow (2005) observed that *I. metallica* retains high motility during its adult life and may seek out new floating items when conditions on their original raft deteriorate and that this behaviour probably accounts for its apparently cosmopolitan distribution. Van der Baan and Holthuis (1969) suggested that the species' frequent association with floating algae may account for its curious worldwide distribution pattern. Nevertheless, based on the relatively high frequency of free-swimming specimens recorded from Irish inshore waters, Tully and McGrath (1987) suggested that the isopod's association with floating items may be facultative rather than obligate. It is quite well possible that if searched for in the right places it will be found in many other localities and probably its range is more homogeneous than our present knowledge seems to indicate'. Indeed, it is also possible that the species may occur at greater depths than the current paucity of records would suggest.

Organisms living on floating substrata must be adapted to the high environmental variability taking place at the surface of the oceans (e.g. turbulence, UV rays, temperature and salinity) and must also be highly affected by the characteristics of the surface hydrography such as currents and frontal structures (Abello and Frankland, 1997). Rafterers, such as *I. metallica*, apparently

possess adaptive UV-shielding pigments (Thiel and Gutow, 2005). The pigmentary system of *I. metallica* consists of epidermal chromatophores, iridophores and carotenoid pigments; the latter are mainly obtained in the form of astaxanthin taken from other crustaceans consumed by the isopods. The animals can actively adapt to different light intensities by expansion and contraction of the chromatophores and the iridophores. Expansion of the iridophores generates a metallic glimmer, which is characteristic of surface-dwelling planktonic organisms such as *I. metallica* (Herring, 1969).

Trophic ecology

Idotea metallica appears to be highly plastic in its feeding ecology. Thiel and Gutow (2005) noted that generalist feeders, such as *I. metallica*, were well adapted to the rafting environment and were favoured amongst the rafting fauna. *I. metallica* has variously been described as a predator, a scavenger (Gutow, 2003a), and an omnivore (Sano *et al.*, 2003). Dow and Menzies (1958) noted that free-swimming specimens of *I. metallica* ‘had remnants of what appeared to be a brown alga, possibly *Sargassum*, in their intestinal tracts. Attached diatoms, sponge spicules, and in one instance the test of a radiolarian, was found with the alga. Eighteen of the 34 specimens examined (53%) contained what we have identified as brown algae. Curiously brown algae are not abundant in the Mediterranean surface waters and were not taken in the plankton tows’. It is interesting to note that Gozler *et al.* (2010) recently discovered *I. metallica* in association with the brown alga *Cystoseira barbata* (Stackhouse) C. Agardh, 1820 in the infra-littoral zone on the Turkish coast of the south-eastern Black Sea coast. Indeed, at least 14 endemic Fucales species (12 *Cystoseira* spp. and 2 *Sargassum* spp.), including the free-floating species, *C. barbata f. repens* Zinova and Kalugina, 1974, have been recorded from the Mediterranean (Thibaut *et al.*, 2005). Sano *et al.* (2003) noted that crustacean fragments (including amphipods, cirripedes and copepods) as well as several species of pinnate diatoms were commonly found in the gut of *I. metallica* found in association with drifting seaweeds in Japanese waters. On abiotic floating substrata, Gutow (2003a, b) and Gutow *et al.* (2006, 2007) noted that *I. metallica* was sustained by fouling organisms on abiotic substrata. Based on laboratory experiments, they demonstrated that *I. metallica* can achieve fast growth rates. Although growth was strongly dependant on temperature and food quality, they reported average growth rates of 0.37mm per day. In comparison with the coastally distributed herbivore *I. baltica*, the oceanic carnivore *I. metallica* was only little affected by the absence of plant food. Thus, *I. metallica* proved to be better adapted to long-term persistence on abiotic substrata where they feed mainly on zooplankton from the surrounding water. Additionally, floating algal substrates were destroyed at a much slower rate by *I. metallica* than by *I. baltica* because of the lower demand for plant food. *I. metallica* was able to survive longer periods of starvation than *I.*

baltica because of a higher content of total lipids. This was interpreted as an adaptation by *I. metallica* to life under conditions of low and unpredictable food availability occurring on abiotic drift material during extended rafting voyages at the surface of oligotrophic oceans.

I. metallica, in turn, is preyed upon by many marine taxa associated with rafting communities, including, *inter alia*, seabirds, fish, and turtles. It has already been noted that the *I. metallica* was identified, albeit most likely as an opportunistic prey item in the diet of Fulmars (*F. gracialis*) off the west coast of Ireland (Farran, 1905) and Scotland (Furness and Todd, 1984). Tully and McGrath (1987) noted that three specimens of *I. metallica* had been recorded from the stomach contents of a garfish *Belone belone* (L.) caught off the south coast of Ireland during the summer of 1981. The latter specimens are housed in the collections of the NHINH (NMINH: 1982.116). Dorman (1988), who originally discovered the latter specimens, subsequently reported a total 55 specimens of *Idotea* spp. from the stomach contents of 16 specimens of *B. belone* from Courtmacsherry Bay, Co. Cork. Off the island of Majorca, in the western Mediterranean, Massuti *et al.* (1998) reported *I. metallica* in the diet of Dolphin Fish *Coryphaena hippurus* L. captured on drifting long-lines and pelagic purse seines, while Deudero and Morales-Nin (2001) reported *I. metallica* from the stomach contents of Greater Amberjack *Seriola dumerili* (Risso, 1810) captured in association with floating abiotic fish aggregating devices (FADs). Safran and Omori (1990) reported *I. metallica* from the stomach contents of Yellowtail (Japanese Amberjack) *S. quinqueradiata* Temminck and Schlegel, 1845 captured in association with drifting seaweed off the Tohoku coast, Japan. Williams and Bunkley-Williams (2010) also reported *I. metallica* in the stomach contents of *C. hippurus* in the Caribbean. *I. metallica* has also been recorded in the gut contents of juvenile *Caretta caretta* at Madeira (Van Nierop and Den Hartog, 1984), Azores (Frick *et al.*, 2009), and central Mediterranean (Casale *et al.*, 2008). Noel and Jomard (2011) discussed the possible risqué of transfer of petro-chemical pollutants from *I. metallica* rafting on tar balls to its predators.

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TABLE 1. Irish records of *Idotea metallica* Bosc, 1802.

Record No.	Date	Location	Method	Depth (m)	Notes	Reference	Museum Registration Details
1	04.07.1890	64km off Achill Head, Co. Mayo (ss. Fingal, Station No. 63)	4.5m beam trawl	at surface (over 440)		Norman (1904), Tattersall (1906), O’Riordan (1969), Monaghan (pers. comm.)	NMNH:1896.64 (NC:zool.jar.1483 tube.1), presented by R.D.S.
2	04.07.1890	64 or 48km off Achill Head, Co. Mayo (ss. Fingal, Station No. 63 or 64)	4.5m beam trawl	at surface (over 440 or 288)	with <i>Dosima (Lepas) fascicularis</i> (Ellis and Solander, 1786)	Norman (1904), O’Riordan (1969), Monaghan (pers. comm.)	NMNH:1896.64 (NC:zool.jar.1483 tube.2), presented by R.D.S.
3	July 1900	between Inisgort and Gun-rock, Inishbofin Island, Co Galway		at surface	one male and one female specimen	Tattersall (1905, 1906, 1912), Naylor (1957)	
4	August 1903	64km WNW of Cleggan Head, Co. Galway (ss. Helga)	demersal tow net		one female, 10mm	Tattersall (1905, 1906)	

TABLE 1 (Continued).

Record No.	Date	Location	Method	Depth (m)	Notes	Reference	Museum Registration Details
5	August 1903	48km WNW of Tearaght, Co. Kerry (ss Helga)	demersal tow net		one female, 19mm, with <i>Dosima (Lepas) fascicularis</i> (Ellis and Solander, 1786)	Farran (1905), Tattersall (1905, 1906)	BMNH:1911.11.8.8914 (Norman Collection), presented by Tattersall in 1911
6	1908	Bofin Island, Co. Galway			juvenile	Naylor (1957)	USNM 86588.276492 (ID by J.O. Maloney)
7	June 1928	off SW Ireland (50.33°N, 13.52°W)		100		Anon (2014)	
8	25.08.1976	80km W of Inishshark, Co. Galway (53° 35' N, 11° 32' W)	on floating buoy with two species of <i>Lepas</i> spp.	at surface (over 220)	18 specimens, including one male (14mm) and 17 juveniles (2-6mm)	McGrath (1980)	BMNH:1979.409.5, NMINH:1980.44 (NC:zool.jar.1483.tube.3), presented by D. McGrath

TABLE 1 (Continued).

Record No.	Date	Location	Method	Depth (m)	Notes	Reference	Museum Registration Details
9	27.06.1981	Courtmacsherry Bay, Co. Cork	found in Garfish <i>Belone belone</i> (L.) stomach		3 specimens	Tully and McGrath (1987), Dorman (1988)	NMNH:1982.116 (NC:zool.jar.1483.tube.4), presented by J. Dorman
10	July 1982 - September 1984 (and August 1985)	Galway Bay	neuston net	at surface	45 specimens	Tully and O'Ceidigh (1986), Tully and McGrath (1987)	
11	April 1983	West coast of Ireland (52° 45' N, 10° 45.5' W)	German 'Nachtai' high speed plankton sampler	at surface	a single adult specimen	Tully and McGrath (1987)	
12	25.05.2014	Lohar Beach, near Waterville, Co. Kerry	stranded inside plastic	stranded	adult specimen found	This paper	NMNH:2014.47, identified by M. Holmes, presented by D. Quigley and R. Hill

FIGURES 1-2. *Idotea metallica*. 1: ventral view; 2: dorsal view.



FIGURES 3-5. Plastic vented bait jar. 3: side view; 4: dorsal view; 5: ventral view.



CARABUS NITENS L. (COLEOPTERA: CARABIDAE) IN THE SOUTH OF IRELAND: RECENT AND HISTORICAL RECORDS

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Abstract

Four specimens of the distinctive beetle *Carabus nitens* L. were obtained from raised bogs in Co. Offaly from 2008-2010. The beetle had been thought not to occur in the southern half of Ireland and on account of its Irish distribution possibly to be a relatively recent advent. An historical record from Co. Kilkenny made by Alfred Furlong around 1850 is discussed and re-validated on the basis of the recorder's competence and information from contemporary manuscript sources of A. H. Haliday. The Kilkenny and Offaly records can all be demonstrated to be from the beetle's preferred habitat. Reasons as to why the beetle has not been detected since the mid-nineteenth century are discussed and may include its rarity, under-surveying and a relatively short breeding season. Raised bogs in Ireland may serve to maintain populations of this beetle which have declined severely in some parts of north-western Europe. The beetle is probably more widespread in the southern half of Ireland than the present records indicate.

Keywords: *Carabus nitens* L., Irish Coleoptera, midlands raised bog, historical manuscript records, Alfred Furlong, A. H. Haliday, threatened species

Introduction

Establishing if species have declined or become extinct at local or national level is vital in assessing changes to Ireland's biodiversity, as is tracking the status of species that are considered recent immigrants. Museum specimens can play a critical role in such assessments because they vouch for the presence of a species at a particular time in the past and because they can, ideally, be re-identified where doubts about the veracity of a record arise. Historic manuscript information can also provide insights into the status of species. A recent assessment of a nineteenth century Irish collection depended very largely on manuscript information to interpret the status of the specimens involved (Good, 2013, 2014).

A nineteenth century record of the beetle *Carabus nitens* L. from Co. Kilkenny has been questioned due to the absence of subsequent specimens from the southern half of Ireland (McFerran *et al.*, 1996). However, the beetle was recently collected in Co. Offaly and this suggests that the historic record should be examined more closely.

County Offaly records and habitat characteristics

1♀ All Saints Bog, Co. Offaly (N010111), pitfall traps, 23 May-12 June 2008; 2♀ All Saints Bog, Co. Offaly (N013117), pitfall traps, 2 June-15 July 2009; 1♂ Clara Bog, Co. Offaly (N239298), pitfall traps, 30 April-27 May 2010.

All Saints' Bog (2008): open high bog with relatively low vegetative sward (*circa* 20cm) dominated by heather *Calluna vulgaris*, bell-heather *Erica cinerea* and bog asphodel *Narthecium ossifragum*, with smaller amounts of other species typical of Irish midlands raised bog i.e. bog rosemary *Andromeda polifolia*, cranberry *Vaccinium oxycoccus*, bog-cottons *Eriophorum* spp., sun-dews *Drosera* spp. and white-beak sedge *Rhynchosporon alba*. Very small pools present. *All Saints' Bog (2009)*: regenerating cutover bog *circa* 20-30m from vertical facebank. Vegetation heavily dominated by *Eriophorum* spp., *Calluna* and others of the above named species. *Clara Bog*: a marginal area of high bog, *circa* 20m from vertical facebank. The area was dominated by medium to tall *Calluna*, bog myrtle *Myrica gale*, deergrass *Trichophorum caespitosum* and *Eriophorum* spp. The substrate was thickly carpeted with humid mosses. Moss-infilled local drainage channels remained very wet.

Preferred habitat and distribution

In Northern Ireland the beetle is usually found in wet upland and montane situations with deep peat e.g. dwarf shrub heath (McFerran *et al.*, 1996; Anderson *et al.*, 2000). It has been recorded from blanket bogs and raised bogs at lower altitudes (McFerran *et al.*, 1996). Hyman and Parsons (1992) note the beetle's preference in Britain for "the edges of *Sphagnum* bogs and in wet heathy areas of *Sphagnum* moss", and Luff (1998, 2007) lists upland wet heaths with *Sphagnum* (and preferably some bare ground), lowland wet heaths, bogs and wet dune slack. Wet habitats, especially heaths and bogs, seem to constitute its usual habitat across Europe (McFerran *et al.*, 1996) though it occurs also on dune systems in other European countries. Luff's suggestion that the beetle has a preference for areas with some bare ground might be given weight by the appearance of three of the four Co. Offaly specimens in marginal areas of the bogs, close to or on areas of cutover peat where soils can remain exposed for long periods. Obviously the Co. Offaly locations thus coincide with the beetle's habitat preferences elsewhere in Ireland, Britain and Continental Europe.

***Carabus nitens* in Ireland**

The beetle is stated to occur in Ireland only north of a line drawn from Sligo Bay on the west coast to just north of Carlingford Lough on the east coast (Anderson *et al.*, 2000; McFerran *et al.*, 1996). In Northern Ireland, it has substantial populations through the Sperrin Mountains in Co. Tyrone and on hill-land in Cos Antrim and Fermanagh (Anderson *et al.*, 2000). In Britain, it

has a disjunct distribution with a body of records across a wide band of northern England and southern Scotland, and a much smaller cluster from England's south coast (Luff, 1998; Anon, 2015). It is suggested that it may have colonised Ireland by possibly moving from Scotland into the north of Ireland relatively recently (Anderson *et al.*, 2000; McFerran *et al.*, 1996). Johnson and Halbert (1902) note a record from Co. Kilkenny but according to McFerran *et al.* (1996) "the record given for Kilkenny (Fogan ms) must be regarded as doubtful." They offer no specific grounds for their doubt but it would seem to be due to the absence of any subsequent records of the beetle from the southern half of Ireland.

The Co. Kilkenny record was accepted by Johnson and Halbert (1902) on the basis of a pencilled marginal annotation by Alfred Furlong in a copy of Stephen's *Manual of British Coleoptera or beetles* (Stephens, 1839). Fogan then is a misinterpretation of the letters Fg, the abbreviation used for Furlong by Johnson and Halbert (1902). Furlong's copy of Stephens' *Manual* is held by the National Museum of Ireland - Natural History (NMINH) so it is possible to confirm that the annotation 'Kilkenny' is pencilled adjacent to the entry for *C. nitens* and also that 'Antrim' is pencilled in the same hand immediately beneath 'Kilkenny'. Other annotations in this volume indicate that the species was in 1847 considered Irish and is listed in Trinity College Dublin's catalogue (for a discussion of the College catalogue and associated mss see Good and Linnie (1990) and Good (2013)).

Furlong's credentials as a coleopterist are outlined elsewhere (Nolan, 2015) and given his capability, there are no good grounds for dismissing a record of such a highly recognisable species. We have confirmation in a letter from Furlong to Haliday that he did make a trip through Kilkenny in 1851 and if it was the case that he recorded or collected the species at that time the grounds are even fewer, for his identification skills were very well-developed by then (Nolan, 2015). If it was the case that Furlong had recorded the species at some time earlier, perhaps in the 1840s, and then marked up the *Manual* retrospectively there could possibly be grounds for doubt, however, no other coleopterist expressed doubts at the time as to the identification. However it is worth adducing any available information that might substantiate the records given the doubt expressed by McFerran *et al.* (1996).

It is worth noting in the first case that Furlong's 'Antrim' annotation is probably the first record from that county, preceding the first published record there by Brunton (1878). This was cited by Johnson and Halbert (1902) instead of Furlong's presumably because it was preferable to have a published record. Furlong would thus seem to have had both the second and third records of the beetle from Ireland, predated only by that from Birkie Bog in Co. Down (Patterson, 1838). From the noted contribution of Furlong at the first meeting of the Dublin University Zoological Association (DUZA) (Hogan, 1853), we have a statement showing he collected in Ulster, and Johnson and Halbert (1902) contain a small number of Furlong records

from Donegal, Antrim and Lough Neagh (the relevant county not being nominated). So we have corroborative evidence that Furlong was in an area of Ireland where *C. nitens* is known to occur in some abundance (McFerran *et al.*, 1996; Anderson *et al.*, 2000). As such Furlong was in a position to record *C. nitens* from both counties annotated in his Stephens' *Manual*.

Haliday in his ms *List* (discussed in Ashe, 1987; Good and Linnie, 1990; Good, 2013; Nolan, 2015) describes *C. nitens* as a species that he considers 'certainly Irish' and 'common or in many collections'. In a darker ink (possibly it was added after the initial list of species was composed), we read "peatbogs pass. rare - dug from a fathoms depth". The first two words I understand to mean that the species has been found in peatbogs throughout Ireland. The term 'pass' (= Latin *passim*) appears a number of times on this page of the ms *List*, in both abbreviated and expanded form e.g. "mnts passim" i.e. mountains throughout. It is of interest that Haliday does not here bother to nominate *any* counties from which the beetle has been recorded which seems to me to indicate that he considers it a species that may be found in appropriate habitat where available. Haliday's ms *List* was compiled at least in part by 1838 (Ashe, 1987) and he continued to add to it into the late 1850s (evidenced in the ms itself). By 1861, when Furlong died and Haliday left Ireland, the beetle was recorded only from Cos Down, Kilkenny, and Antrim. Haliday's comment strongly suggests an awareness of the Kilkenny record, for if he was referring only to the Down and Antrim records he would hardly characterise this as 'throughout' Ireland. The note also demonstrates that Haliday feels that the beetle's preferred habitat is understood. As such, I interpret Haliday's annotation to offer expert testimony that the beetle was known to occur widely if rarely in Ireland in the 1850s. Haliday and Furlong were well acquainted (Nolan, 2015) and Haliday could easily have received verbal or written confirmation from Furlong as to the habitat in which he recorded the beetle.

Another ms volume of interest here is Thomas Coulter's copy of Curtis' (1837) *A guide to the arrangement of British Insects* which is annotated in relation to the insect collections that were held in the Dublin University Zoological Museum (DUZM) in Trinity College in the 1840s' (Good and Linnie, 1990). Coulter purchased and had care of the Tardy collection of insects while in Trinity College. The volume's annotations indicate that *C. nitens* is considered "certainly Irish" and also noted in the margin against the species is "Antrim" (inked) and "Kilkenny" (pencilled). If the annotations were Coulter's then they must have been made in or before 1843 when Coulter died. However, it is known that Haliday annotated Coulter's copy of Curtis subsequent to 1843 (Good and Linnie, 1990) so it is not possible to be absolutely certain of the notes' provenance. Given the thin evidence that Furlong was actively recording as early as 1843 (Nolan, 2015) it seems to me more likely that these annotations are Haliday's, made possibly on basis of Furlong's Stephens' *Manual* or correspondence with Furlong himself. Thus

the Coulter annotations provide additional evidence that Haliday was aware of Furlong's records, allowing him make his assessment of *C. nitens* as it appears in his ms *List*.

It is important to consider the indirect evidence that Haliday's ms *List* supplies since no specimens of *C. nitens* that were certainly collected by Furlong are to be found in the NMINH collection. There is a single specimen in the DUZM collection which is of uncertain provenance and could possibly have been contributed by Furlong. It does seem that some Furlong specimens did find their way into this collection (Nolan, 2015). Good (2013) suggests how this specimen, which he does not consider a Tardy specimen *sensu stricto*, could have found its way into the collection *via* Haliday. However, given that Furlong recorded the species from two counties, exhibited specimens at DUZM Association meetings and contributed specimens to the DUZM collections, that the specimen might have originated from him arguably offers an alternative and more parsimonious explanation of its provenance. The largest obstacle to this argument is that we have little evidence that Furlong was collecting insects in or prior to 1847 when the college catalogue was prepared. Unless there was another specimen already in the collection, which allowed it be described as Irish and in the collection, the grounds for stating that the specimen is definitely a Furlong specimen are perhaps rather shaky.

Furlong's records should not by any means be accepted uncritically (re-identification of specimens especially would almost certainly reveal errors) but each needs to be examined on a case-by-case/species-by-species basis, subject to a range of criteria *inter alia* distribution and locality data, collection specimens etc. (Good, 2013 A range of criteria were not applied by McFerran *et al.* (1996) and an error was made in identifying the non-existent Fogan as the recorder in question.

Furlong was a highly respected coleopterist and an error over a readily identifiable species such as *C. nitens* seems unlikely. Dismissing the record on the basis of what seems to be an assumption about the distribution of *C. nitens* is unreasonable and more substantial justification should certainly be made. As such, Furlong should be reinstated as the recorder in question and the validity of the record noted. It should thus be accepted that *C. nitens* had a presence in the southern half of Ireland in the nineteenth century and has been up until now missed by collectors.

Finding *Carabus nitens*

It might be asked how the beetle has been missed over the last 160 or so years in the south of Ireland? W. H. Harvey, Vice-President of the DUZA noted in an end of year address to the association that "several midland districts...remain almost unnoticed" (Harvey, 1857). He was speaking with particular respect to botany but the statement could be applied to zoological research at that time also. Little changed for some 100 years for Ireland's midland's counties

were neglected by Irish entomologists up to as late as the 1950s (Beirne, 1985), and the midlands contain a significant percentage of the beetle's favoured habitat on the island. The beetle is also rather scarce (Luff, 2007). A large number of pitfall traps were deployed in the three years of my surveys from 2008-2010 (equivalent to over 30,000 trap days), yet only four specimens of *C. nitens* were collected. McFerran *et al.* (1996) note the difficulty of finding it without intensive effort; the survey on which their paper was based consisted of over 120,000 trap days and caught 49 specimens.

It is also suggested by McFerran *et al.* (1996) that the species is somewhat restricted in the time of its appearance; they collected it most abundantly in May, less so in July and got a single specimen in October. Luff (2007) has it occurring (i.e. active) from May to June only while Hyman and Parsons (1992) have it most abundant from March to May and also occurring in July and August. While the species may have a shorter adult season than many other beetles in Ireland and Britain it is not clear just how short this season is - April to July probably represents the adult maximal period with a greater abundance of specimens in May/June.

McFerran *et al.* (1996) imply that it is unlikely *C. nitens* would have escaped detection in the south of Ireland over the last 150 years, but lack of intensive survey in the appropriate habitat and a restricted activity season could be sufficient explanation of exactly why it was missed.

Haliday's observation that at least one specimen of the beetle was dug from a depth of six feet (1.8m) is certainly interesting and if the beetle has a propensity for burrowing, this could obviously contribute to the scarcity of records. Digging soils was a common method at the time for the collection of the burrowing, pupating or larval stages of beetles. I am not aware however of other observations of this behaviour in *C. nitens*. A specimen could of course fall into such an excavation.

It is worth observing finally that under the entry for *C. nitens*, Johnson and Halbert (1902) note doubtful records of *C. auratus* L. (an occasional adventive species) from the vicinity of Lough Bray, Co. Wicklow and wonder if they could be attributed to *C. nitens* (see Good (2013) for a discussion of these putative Irish records). Were it the case that these records did indeed refer to *C. nitens*, it would significantly further increase the beetle's known Irish range.

Conclusions

By the year 2000, *C. nitens* had not been recorded from the southern half of Ireland for some 150 years. It is easy to see why the authors of *The Ground-beetles of Northern Ireland* might have doubted the single published occurrence; however, very clearly the provenance of the record was worthwhile examining in detail.

The occurrence of *C. nitens* in Co. Offaly on two bogs 30km apart between 2007 and 2010 and in habitat preferable to the species clearly indicates the beetle is established in some areas

of the southern half of Ireland. Since the beetle is flightless (I checked my specimens to verify this), it seems unlikely it would have colonised southern parts of Ireland only over the last fifteen to twenty years. A widespread presence in Ireland together with the beetle's being flightless places a question mark over speculation that it colonised Ireland from Scotland in the first place (Anderson *et al.*, 2000). Rather it raises again the perennial question as to how small, flightless, terrestrial animals made it to Ireland throughout the post-glacial period assuming they were not relicts established in refugia.

Accepting the validity of the 19th century Co. Kilkenny record means *C. nitens* was established in the southern half of Ireland far longer than currently thought and is not a recent incursion. The beetle remained undetected for a number of reasons: lack of collecting effort in the relevant habitat, a general scarcity of specimens and possibly a somewhat narrow adult season. Very possibly the beetle occurs over a wide area of Ireland on peat-lands at a range of altitudes. Searching for it one might best focus on locations with a mosaic of wet, vegetated and bare peat.

Raised bogs and other Irish peat-lands will hopefully play a significant role in maintaining *C. nitens* in Ireland. As is well known however, most peat-lands, and raised bogs especially, in Ireland have been severely impacted by drainage and peat extraction - All Saints Bog and Clara Bog are no exception. Heathland conversion (Hyman and Parsons, 1992), afforestation and drainage are considered to threaten *C. nitens* and the beetle has undergone severe declines in some areas of north-western Europe (McFerran *et al.*, 1996; Anderson *et al.*, 2000). Ireland's bog habitats in general may prove to be important strongholds for the species, as stated by Anderson *et al.* (2000) with particular respect to Northern Ireland. The beetle's RDB status in Britain currently stands as Nationally Scarce (B) (Hyman and Parsons, 1992; Anon, 2015).

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ALFRED FURLONG: A NINETEENTH CENTURY IRISH ENTOMOLOGIST

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Abstract

Alfred Furlong is a little known Irish entomologist who was active in Ireland especially between 1849-1861. He worked as an estate agent in Co. Limerick until 1846 where he was also a Justice of the Peace and a Magistrate. He may have had some acquaintance with the entomologist James Tardy (1782-1834). He developed a strong acquaintance with A. H. Haliday upon or before moving to Dublin in the late 1840s. Furlong collected beetles all over Ireland and in some parts of England and much of the information he collected was noted in a copy of J. F. Stephens' *Manual of British Coleoptera or beetles*. This volume is held in the library of the National Museum of Ireland – Natural History and Furlong's use of it is discussed. Haliday noted many of his observations in his ms *List of Irish insects* and some of these entries are discussed. Furlong was very active in a number of entomological societies and became a member of the Royal Dublin Society and the Royal Irish Academy in the 1850s. His few published contributions are noted and some correspondence with Haliday transcribed in an appendix. Specimens collected by Furlong are held in the National Museum of Ireland - Natural History and some of these seem to have come from Trinity College Dublin. Some of the Trinity College specimens are discussed in relation to the Tardy collection held in the College's Zoological Museum. Furlong's legacy is briefly characterised.

Keywords: Alfred Furlong (1792-1861), entomology, Coleoptera, James Tardy, A. H. Haliday, historical manuscript records, letters, zoological societies, museum specimens

Introduction

The investigation of a nineteenth century record of a beetle, *Carabus nitens*, L., showed that it was recorded by one Alfred Furlong about whom little information has been previously available (Nash, 1983). The investigation demonstrated the record's legitimacy based on Furlong's abilities and corroborative evidence from contemporary sources (Nolan, 2015). Biographical information on Furlong was compiled and is presented here. His identification skills and the accuracy of same are not addressed in detail. While there are good grounds for endorsing Furlong's identification of *C. nitens*, the same cannot be safely said for some of the more cryptic species named in the present paper. A more thorough investigation of this question

and of extant Furlong specimens will be presented at another time. Specimens discussed in this paper should not be considered to have been re-identified (even in the case of very distinctive species) and the names given are those that appear in the source nominated. Thus species' names are not necessarily in line with current taxonomic thinking. I have inserted the family that is currently considered valid for species involved (Anderson *et al.*, 1997) and in the case of beetles omit repetition of the term Coleoptera for the sake of brevity. The order and family is noted for all non-beetle species named. Newspaper sources are named and dated within the paper and are not listed in the references.

Alfred Furlong 1792-1861

Alfred Furlong was born in 1792, the youngest son of William Furlong. I am as yet unaware where Alfred was born and raised and how he passed his youth. His father had a life-long practice as a solicitor and through the early 1820s was resident in Co. Limerick. Alfred had connections with the law by the age of 26 when he travelled to France and England in 1818 to serve subpoenas on two witnesses (*Freeman's Journal*, 10 March 1819). In April 1819, he put himself forward as a candidate for the post of Law Agent to the Dublin Society (*Freeman's Journal*, 2 April 1819), which became the Royal Dublin Society (hereafter RDS) in 1820.

In 1821, he became the estate agent of the Devon estates in Co. Limerick (*Freeman's Journal*, 2 November 1821), a post which he would hold for 25 years. As an estate agent and landowner, Furlong was appointed a Magistrate and Justice of the Peace early in the 1820s. He sat regularly at the Petty Sessions at Newcastle, Co. Limerick, over the next few decades and his name appears not infrequently in contemporary newspapers in connection with various matters relating to estate and legal matters. In November 1821, he certified a letter of petition from a widow seeking compensation for the murder of her husband (CSO/RP/1821/384). Two letters of 1822 consist of a petition by Furlong for a sum of money to repair a road between Newcastle and Abbeyfeale and a reply from the Lord Lieutenant to the Chief Secretary in Dublin Castle stating that Furlong is to be advanced same (CSO/RP/1822/397; CSO/RP/1822/296).

Furlong held some 85 acres of land in Co. Limerick in 1828, nearly 60 of which were of the first quality. He probably lived throughout this period on the Devon estates; he was resident for example in Courtenay Castle, Newcastle, in 1837 and this is noted in Samuel Lewis' *Topographical Dictionary of Ireland*, to which Furlong subscribed for a large paper copy. He was appointed an *ex-officio* guardian to the recently formed (1838) Poor Law Commission on 10 January 1839 on which he also served as an unsalaried treasurer (Kelly, 1984). In 1844, he was examined at a sitting of the Land Commission in relation to abuses of housing policy wherein he was accused of illegally knocking down houses that had been abandoned by tenants (*Irish Examiner*, 21 and 26 May 1845). He was present at the election of William Smith

O'Brien as Chairman of the new board of Guardians in Newcastle in 1845 (*Irish Examiner*, 11 April 1845), an election that sought to enact the principles of the Repeal movement. Furlong also sat on the County Grand Jury for Co. Limerick a number of times in 1845 and 1846 (*Freeman's Journal*, 18 July 1845; *Kerry Examiner*, 28 March 1846).

Furlong lived and worked through a period of extraordinary social and political upheaval in Ireland. His responsibilities as a Justice of the Peace and a Magistrate meant he was, however unwillingly, very directly involved in witnessing and addressing the consequences of some of the most significant political movements in Ireland in the first half of the nineteenth century including the Catholic Relief Act of 1829 (Catholic Emancipation), the Tithe wars of the 1830s, the Repeal Association's activities in the 1830s, effects of the Reform Act of 1832, and the establishment of the Irish Poor Law Commission and Poor Law Act of 1838. His position as an estate agent and a Guardian in the Poor Law Commission involved him directly in the housing and provisioning of hundreds of individuals affected by the famines of 1845-1846. Furlong resigned his agency to the Devon estates in 1846 due to ill health. The year after he retired Ireland was hit by the great famine of 1847. A notice was published marking his resignation.

"Owing to impaired health, Alfred Furlong, Esq., has resigned his agency of the Devon Estates, in the county Limerick, where he commenced his arduous duties in the year 1821 - a period of unexampled difficulty for such an undertaking. The success of his judicious exertions are well known; and his employers have recorded, in the handsomest manner, their high sense of his services, as well as their regard for him personally, by awarding to him without solicitation a comfortable provision for the remainder of his life." (*The Nation*, 28 March 1846).

In April of that year, he was appointed to the council of the Royal Agricultural Improvement Society to replace a retired member (*Belfast Newsletter*, 21 April 1854). He continued as a Magistrate in the jurisdiction of Limerick but in the list of Magistrates for 1851, his place of residence is given as Dublin; he was probably resident there before that year. The Griffith Valuations (1853) show that he owned property in the parishes of Newcastle, where he leased to the trustees of the Devon Estates (an office and yard presumably used by the Estate) and in Ballingarry, Co. Limerick, where he leased to four individuals named in the valuations.

In April 1857, Furlong attended with his father the funeral of Dr Robert Ball (*Freeman's Journal*, 4 April 1857) who in 1844 had been appointed Director of the Dublin University Museum and in November 1859, Furlong was one of many signatories to a letter requesting the Mayor of Dublin to host a public event to acknowledge and celebrate the return of Captain M'Clintock from his famous Arctic expedition (*Freeman's Journal*, 7 November 1859).

With respect to Furlong's residences in Dublin, a couple of clarifications can be made. Nash (1983) has Furlong residing at 87 Lucan Street in Dublin, however, there was not at that time (nor is there now) a Lucan Street in Dublin city. Furlong's correspondence and *Thom's*

Directory confirms that Furlong's place of residence when he moved to Dublin was 87 Leeson Street Lower. 'Lucan' is probably a misinterpretation of a manuscript Leeson - narrow loops on the double-e interpreted as the risers of a single u etc. 87 Leeson Street Lower had been occupied by Alfred's father William since 1847 and Alfred lived there for some years after leaving Co. Limerick. He changed address in 1856, moving to 4 Wilton Terrace, Dublin and this is confirmed by *Thom's Directory* and his certificate of candidature for membership of the Royal Irish Academy.

Furlong died at 4 Wilton Terrace on 6 April 1861, aged 69, leaving, according to the *Calendar of Wills and Administrations* (1858-1920), a will and effects worth "under £8000". His death was proved by Henry Leland Keily a solicitor; the other executors are not named. Furlong is noted as "formerly of Newcastle in the County of Limerick and later of Upper Leeson-Street" (this should read Lower) and his death is noted by the Royal Irish Academy on March 15th 1862 as having occurred "during the past year".

His father, William Furlong, had died on 17 January 1859 while resident at his Leeson Street address and his death was registered by the oath of "Sarah Furlong of 87 Leeson-Street Dublin Widow the sole executrix." (*Calendar of Wills and Administrations*, 1858-1920). Sarah Furlong died on 27 May 1877 while resident at the same address. Sarah was almost certainly not Alfred's biological mother for in 1877 she would have been 105 years old if she was twenty when she gave birth to Alfred, and Alfred we are told was the youngest of William's sons. William Furlong thus almost certainly remarried at some time. Sarah's death was registered by two of her daughters, Susan and Isabella Fanan and I would suggest they were half-sisters or step-sisters to Alfred through his father's second marriage. They and a third sister Eliza died, all spinsters, between 1900 and 1907 (*Calendar of Wills and Administrations*, 1858-1920) (it is the late year of their deaths that suggests they were Furlong's sisters by marriage - had they all been born by 1820 then they were all particularly long-lived). I am currently less certain about Alfred's brothers but one Charles A. Furlong, later a reverend, was elected to both the RDS and the Royal Irish Academy (hereafter RIA) at the same time as Alfred. Charles also was a resident at 87 Leeson Street Lower. Robert O'Brien Furlong, born in 1843 and resident in 87 Leeson Street Lower in 1867 (*Calendar of Wills and Administrations*, 1858-1920) became a practising lawyer and barrister (Census of Ireland, 1901) and was executor to the wills of the three aforementioned sisters and also to the will of Caroline Matilda Furlong, wife of the reverend Thomas Furlong both of whom died in the town of Bath in England, Caroline in 1867 and Thomas in 1870 (*Calendar of Wills and Administrations*, 1858-1920). Thomas may also have been a brother of Alfred's. Robert O'Brien was I suspect a brother by marriage to Alfred and seems to have had some fondness for him for in 1882 when his wife Henrietta gave birth to a son, they named him Alfred William (Census of Ireland, 1901).

Early entomological years

It is difficult to know when Furlong's interest in entomology first arose. It perhaps seems unlikely that he would have turned to it for the very first time upon retirement but evidence of his interest prior to the late 1840s is not substantial. Nevertheless there are some grounds for considering this possibility. Furlong's most important acquaintance from the later 1840s on was with the renowned entomologist A. H. Haliday (1806-1870) (Nash and O'Connor, 2011). Haliday's ms *List of Irish insects* contains a substantial number of annotations citing records given to him by Furlong. The importance of this ms *List* as a testament to Ireland's mid-nineteenth century insect fauna and museum specimens dating from that period is discussed by a number of authors (Ashe, 1987; Good and Linnie, 1990; Good, 2013).

One tantalising entry seen in Haliday's ms *List* is for the hoverfly *Didea alneti* (Fallén) (Diptera: Syrphidae) which Haliday has marked as "certainly Irish" and "A.F. Bray 1821" (the style in which annotations from the Haliday ms *List* are presented here follows Good (2013)). *D. alneti* is now considered extinct in Ireland and there is in fact only one confirmed Irish record of the species from the first half of the twentieth century according to Speight (2008). This record is however from Clara, Co. Wicklow, only 30km from Bray, so the Furlong record is not implausible with respect to locality. I cannot comment on the accuracy of the identification in the absence of the specimen or corroborating evidence, but assuming Haliday's entry is accurate, it backdates Furlong's entomological interests by 28 years from 1849, by which time Furlong is corresponding with Haliday (this is all assuming there was not an A. F. Bray collecting in Ireland in the 1820s!). In 1821, as we have seen, Furlong became agent to the Devon estates and this might well have impacted on his ability to make more substantial efforts in the field of entomology. There are other small hints that Furlong may have been an active entomologist before the late 1840s and these suggest a possible connection with James Tardy (1782-1834) (Good and Linnie, 1990; Good, 2014). Furlong was Tardy's junior by only ten years and it is reasonable to suggest that if he was actively collecting and recording invertebrates in Ireland, especially on the east coast, he would have been aware of Tardy who was characterised at the time as the most active entomologist in Dublin (Good, 2014).

Again in the Haliday ms *List*, an entry against *Calosoma sycophanta* L. (Carabidae) reads "JT had from Belfast" AF." across which is pencilled a long ✓. Good (2013) discussed this species and entry suggesting that it shows that Furlong related the information to Haliday (in ms or *in litt.*) which seems a reasonable conclusion. In respect of a record of *Apatura iris* (L.) (Lepidoptera: Nymphalidae), the purple emperor butterfly, attributed to Tardy from Killarney, Haliday notes "See A. Fs letter", again suggesting the information might have come from Furlong (Good, 2013). One of Furlong's annotations in his copy of J. F. Stephen's *A manual of British Coleoptera or beetles* (1839) (Furlong's use of this is discussed later in detail) reads

“1337. Tardy rec[eive]d all his specimens from Dr. Sealy Cork, and writes ‘quere [i.e. query] native’”. Species 1337 is *Rhizotrogus (Amphimallon) solstitialis* (L.) (Melolonthidae), a species not considered established in Ireland. Again, the note shows that Furlong had access to written information from Tardy.

Two other species discussed by Good (2013) in relation to the Tardy collection in Trinity College Dublin are of interest here. *Paelobius (Hygrobia) hermanni* (Fabricius) (Hygrobiiidae) is noted in the Haliday ms with the following ““Old ponds now overgrown, Mr Furlong...road from Lara to Rathdrum.” Ta! Furlong has specimens (1849)”. It is possible to read this note in a number of ways: does it mean that specimens were identified/collected from the “old ponds” by Tardy and then later from the “overgrown” ponds by Furlong?; might it imply that Tardy and Furlong collected the specimens together, Furlong retaining them? Furlong’s knowledge of the location and habitat and the way “Ta!” is bracketed by Furlong’s name suggests the information therein is Furlong’s which again suggests at least an acquaintance with Tardy’s collecting efforts. And it might be asked if the specimens in question are those originally collected by Tardy (and Furlong?), Haliday becoming aware Furlong had them only in 1849? An observation of *Papilio machaon* L. (Lepidoptera: Papilionidae), the swallowtail butterfly, is noted in Haliday’s ms *List* as “ta! seen by Mr Tardy on an umbellif. by the canal. “seen on wing” J.Tardy! A.Furlong!”. Good (2014) interprets this as suggesting Tardy and Furlong made independent observations. Could it be the case however that the umbellifer record was Tardy’s alone and the sighting ‘on the wing’ was made by Tardy and Furlong together?

Another point at which Furlong’s and Tardy’s names coincide is Hogan’s (1854) list of beetles from the area of Dublin. This list, which contains 36 records attributed to Tardy and Hogan, thanks both Haliday and Furlong noting that “Much of the information contained in this catalogue” had been provided by them. The obvious suggestion is that the Tardy records would have been provided by Haliday on foot of the Dublin University Zoological Museum (hereafter DUZM) *i.e.* Trinity College collection and/or Tardy mss then held in the College (see Good and Linnie, 1990 for a discussion of this collection). The possibility that these records were contributed by Furlong instead, on information from Tardy is only very slight; Furlong did mark up his Stephens’ *Manual*, annotating most of the Tardy records with a pencilled “ta” or “Tardy Co Dub”. Of the 36 Tardy records, Furlong notes 29 in the volume and one of these shows clearly that he used the published list: “Tardy. Edin. Dub list Rag” is pencilled beside the entry for *Telephorus testaceus* Müller and indicates that in the Hogan list (1854), the species is listed under *Ragonycha* (Cantharidae) instead of *Telephorus*. Hogan’s statement that this edition of Stephens’ *Manual* was used to compose the list is therefore not entirely reliable. It could be suggested that Furlong did have the records and marked up the volume after the Dublin list was published but this is a thin argument: thus there is no strong indication that Furlong might have

supplied the Tardy records to Hogan.

Against the possibility of an acquaintance or relationship between Furlong and Tardy it has to be stated that entries in the Haliday ms *List* are usually brief, terse and highly abbreviated. Contiguous words, phrases or abbreviations do not necessarily directly complement one another; for example, Haliday's annotation "See A. Fs letter" could possibly refer to a letter from Furlong in which he discussed *A. iris* but made no mention of Tardy. There are numerous instances in the ms *List* where two sets of initials e.g. 'fu' for Furlong and 'ha' for Haliday, are adjacent to a single county name, but this *definitely* does not indicate that both had recorded the relevant species in that county. Information on Tardy's collecting efforts may have come indirectly to Furlong and observations of species that suggest they may have collected together could of course have been independently made. Nevertheless it must be pointed out that all of the observations discussed here have been addressed by Good (2013, 2014) in connection with the Tardy collection in Trinity College. The not infrequent association of Tardy's and Furlong's names supports the possibility of a corresponding acquaintance. This seems all the more likely when one considers that if the information Furlong had was from the Tardy mss at one time held in Trinity College (Good and Linnie, 1990), Haliday would surely have been aware of these and would not have needed to cite Furlong.

Thus Furlong does seem to have been privy to information on species collected or seen by Tardy and this may have been on the basis of a personal acquaintance with him.

Furlong and A. H. Haliday

The earliest evidence that I have for the acquaintance between Furlong and Haliday is found in Haliday's ms *List* in a reference to a letter from Furlong noting a find of *Elater sanguineus* (L.) (Elateridae); Haliday notes against the species "Powerscourt. AF. (litt. 49.2.17 [17 February 1849]) among peat earth in rotten branch of oaktree.", so their acquaintance goes back at least to February 1849. It seems reasonable to suppose it predates this.

Three letters Furlong penned to Haliday in the first half of 1851 are archived in the library of the Royal Entomological Society (RES Box 8/10-12: these letters are fully transcribed (see Appendix)) and show Furlong to be an adept coleopterist by that year. We learn from a letter of 15 February that Furlong was loaned the copy of Stephens' *Manual*, previously referred to, by Haliday himself, Furlong stating "I am afraid I am keeping your vol. of Stephens too long". What constitutes 'too long' is anyone's guess but it must indicate Furlong was using the Stephens' *Manual* through at least the latter part of 1850. Furlong also mentions A. R. Hogan, suggesting an acquaintance, and with whom his name would be, as we have seen, closely associated through publications within a few years. He opens the letter with a reply to suggestions from Haliday regarding the best illumination techniques for microscope

examination of insects which shows that he had long been considering such matters. In the letter of 7 June, Furlong lists fifteen towns/locations in which he stayed over the previous six weeks on an extended collecting trip. In the third letter, of 18 June, Furlong offers a diagnosis of Irish specimens of *Aphodius* (Scarabidae) “according to my present views”. Based on his specimens he lists 24 ‘species’, naming 21 of these and commenting on where the others may be best placed. This substantial effort says something of Furlong’s dedication to his interests.

Thus Furlong was well acquainted with Haliday by at least 1849, very probably earlier, and was sufficiently respected for Haliday to loan him a copy of Stephens’ *Manual* (Stephens, 1839) to assist him in the identification and recording of beetles. Haliday would obviously have provided a conduit into the broader body of Irish entomology.

Furlong use of the Stephen’s *Manual*

Furlong’s contribution to Irish entomology is first noted in the twentieth century by Johnson and Halbert (1902) in relation to Stephens’ *Manual of British Coleoptera or beetles* (1839). They write that “Dr. E. P. Wright has most kindly placed in our hands many valuable ms. notes which belonged to the late A. H. Haliday and Alfred Furlong. Amongst these may be mentioned...a copy of “ Stephens’ Manual,” with marginal notes on localities, made by Mr. Furlong.” Johnson and Halbert (1902) attribute about 100 records to Furlong’s annotations in this volume (‘Fg. MS.’) and a much smaller number to specimens collected by Furlong (‘Fg. Coll’) that had, by 1902, been deposited in the National Museum of Ireland – Natural History (NMINH). Fewer again refer to notes Furlong read at the first meeting of the Dublin University Zoological Association (hereafter DUZA) in Dublin in 1853 (‘53 Fg.’) that were summarised by A. R. Hogan (Hogan, 1853).

Haliday left Ireland in 1861 and his library was bequeathed after his death to the Royal Irish Academy in 1871 (Nash and O’Connor, 2011). The Stephens’ *Manual* seems not to have been returned to Haliday and to have instead gone at some point to Wright who then passed it on to Johnson and Halbert around 1900. There is the possibility that Haliday consulted it occasionally while it was in Furlong’s possession. It is unlikely that it was further annotated after Furlong’s death since Wright would probably have advised this to Johnson and Halbert. It has been noted (Good and Linnie, 1990; Nolan, 2015) that this book is retained in the library of the NMINH.

Other evidence that Furlong was using this specific volume is provided by his statement in the same letter of February 1851 that, with respect to the Brachyelytra (i.e. Staphylinidae), he was “generally trying to get the kinds together and adopt Erichson...I am collating him with my manual.” The Stephens’ *Manual* shows very numerous pencilled annotations beside species on the Staphylinidae pages consisting of “Er” followed by a number; these refer to page numbers of Erichson’s 1839 publication on the Staphylinidae (Erichson, 1839) which I have confirmed

by an examination of Haliday's copy in the RIA. Thus Furlong used both Stephens (1839) and Erichson (1839) to identify his staphylinid specimens and annotated Stephens to show the corresponding species in Erichson. Other authorities that Furlong cites and used include Gyllenhall, Paykull and Latreille; he writes of three species within *Meligethes* (Nitidulidae) that "These are all treated as varieties by Latreille Gen Crust & Ins 1807" referring to Latreille (1807).

A handwritten prefatory pencilled note in the Stephens' *Manual* is of significance and explains some annotations in the volume that relate species to the DUZM collection in Trinity College. These are discussed and in part noted by Good and Linnie (1990) and read as follows (/ indicates a line break; ¶ indicates a paragraph break; [] contain expanded abbreviations; ^^ contain superscript text):

"Line under specific name / species in catalogue of TCD. 1847 / Line in margin also indicates Irish ¶ . Dot under specific number / Geodephaga in College Catal by AHH / admitted by Coulter as Irish ¶ ° Ring under specific number / Geodeph[aga] in College Catal by AHH / doubted by Coulter as Irish ¶ " double mark between no. & margin / Note some Eng[land]. ^ taken or ^ in poss[ession] of AF"

The prefatory notes are Furlong's - the hand is extremely close to that in his autograph letters. However, numerous of the marks referred to are in a brown ink that is closely similar to that used by Haliday in his ms *List* (Ashe, 1987) and are thus quite distinct from the pencilled annotations which far outnumber them. It seems reasonable to suppose that Haliday may have made this series of marks, either for his own use in relating the species listed to an extant reference collection or, more specifically, to assist Furlong with his investigations. Haliday was closely involved in the preparation not only of the College collection, but also of the Catalogue, of which there is no trace and which may never have been printed (Good and Linnie, 1990) (I am assuming here that the "catalogue of TCD, 1847" and the "College Catal by AHH" referred to are one and the same). If the marks are Furlong's then they were almost certainly made with direct assistance from Haliday given his connection with Trinity College and its collection. The effort meant that Furlong had use of an identification manual that enabled him to decide rapidly whether he had found a beetle that was novel to Ireland as well as checking if Irish specimens matched British specimen descriptions'. Furlong presumably inserted the prefatory notes to explain the marks and he did continue to use this code throughout the volume.

There are other inked annotations, usually indicating suspected synonymies and consisting of a species name beside the printed species entry or at the bottom margin of the page. More usually than not, these entries have 'H' inked after them. These may represent Haliday entries. However, it is possible they could have been made by Furlong on Haliday's suggestion and he is noting their originator - it is only because they are made in a brown ink that Haliday seems a

possible candidate. A small number of place names are also inked in brown, most of them British locations.

Furlong's annotations to the Stephens' *Manual* consist largely of county or locality names with dates appearing less frequently. The county records show a strong bias toward the south-west of Ireland and thereafter it's east coast and this is echoed in Johnson and Halbert (1902). There are numerous British locations noted, especially from coastal areas of southern England. Furlong's knowledge of the beetles of English sand-dune systems were gathered on these trips (Anon, 1853a; Hogan, 1854). Many of the other annotations consist of taxonomic synonymies or correlations with other authorities: "Edin" which appears frequently refers to Wilson and Duncan (1834). Furlong also made annotations reflecting the opinions of others, especially Haliday, for example "AHH says he thought he had *flavipes* but thinks it is *pterygomales*" is noted at the bottom of the page describing *Polydrusus* (Curculionidae). There are numerous briefer pencilled annotations with 'AHH' written against them, Furlong's reminder of the note's provenance. Unlike with the brown inked annotations, I am quite convinced that these are Furlong's. Haliday's name appears in its typical abbreviated form more than once in a context clearly indicating Furlong made the note e.g. "rec[eive]d from AHH and mal[?]:" is noted of *Remus sericeus* Holme (Staphylinidae).

While Furlong was certainly annotating the Stephens' *Manual* from 1850, it is not certain if he annotated it retrospectively. If this was the case then some undated entries could well relate to observations made years previously. The latest entry I have found in it notes specimens collected on the 11 August 1857 but it is only very occasionally that years are noted. Furlong had the volume and annotated it for at least the best part of eight years but this would stretch to eleven if he received it in 1850 and it was with him to his death.

Furlong contributions to Haliday's ms *List*

Haliday notes numerous Furlong records in this ms *List*; I count 46 instances of 'A. Furlong', 'AF' or 'fu' against the Carabidae alone. Some but not all of these are echoed or repeated in Furlong's Stephens' *Manual*. Others were thus almost certainly communicated in correspondence or personally. These Furlong annotations probably represent a second tier of information in Haliday's ms *List*. Having compiled his *List* initially in 1838 or thereabouts (Ashe, 1987), Haliday added information over the years against the species' names entered with earlier citations of individuals' records e.g. those of Haliday himself, found immediately to the right of the species name. References to Furlong are usually placed well to the right of the species name, or close to the right hand margin of the page, suggesting they were added subsequent to the initial compilation. Also, species that first appear in Haliday's list on basis of Furlong's authority seem to inevitably appear at the end of the species list within that genus, this

being the case for the following (names appear here as in the ms *List*): *Amara formosa* Schiødte (Carabidae), *Peryphus agile* Stephens (Carabidae) and *Anobium molle* L. (Anobiidae). This strongly suggests they were added after the ms *List* was initially compiled.

An occasional entry in Haliday's ms *List* shows him noting Furlong observations that also appeared in print. A record of *Mniophila muscorum* (Koch) (Chrysomelidae) is noted twice by Furlong in the Stephens' *Manual* thus "Moss Rostrevor hill river may". A marginal pencilled horizontal line indicates Furlong's opinion that he considers the species Irish. In Haliday's ms *List* we read against this species "Rostrevor AF! On moss on top of large stones in bed of torrent." This entry was pencilled originally, with the microsite detail later inked over. Interestingly the species is marked with an open circle suggesting Haliday was, when he made the entry, still uncertain about the species' Irish status. Furlong referred to this find at the first DUZA meeting (Hogan, 1853) which very probably dates the find to May 1852, "Near Rostrevor I found for the first time *Mniophila muscorum*, on the banks of the Demesne river, rather high up." The differences between the three notes suggest Haliday was not making use of either the printed or the Stephens' *Manual* versions and thus was relying on correspondence from Furlong or information personally transmitted.

Furlong in entomological society

On 31 March 1853, Furlong was nominated and elected a member of the RDS (Anon., 1853a). According to a list of members, his father William had been a life member since 1815 (Anon., 1853b). Alfred sat on the Society's Natural History Committee from 1856 to 1861 and chaired a Committee meeting on 2 June 1859 (Anon., 1859). He was also elected to the Committee for Zoology and Botany including Physiology for the British Association Committee meeting which was to be held in Dublin in August 1857 (Anon., 1857).

On 24 August 1857, Furlong was elected a member of the Royal Irish Academy. His certificate of candidature is extant and shows the signatures of the five individuals who proposed and recommended his nomination: William H. Harvey, George J. Allman, Alexander Carte, Edward Percival Wright and Alexander H. Haliday, a veritable roll-call of the entomological and zoological elite working around that time in Ireland. Harvey in 1857 held the Chair of Botany in Trinity College Dublin (TCD); Allman had within the last year left TCD, having accepted the post of Regius Professor of Natural History at the University of Edinburgh; Carte was director of the Royal Dublin Society's Natural History Museum, for whose collections a dedicated building (the present Natural History Museum, Dublin) had been erected in 1856; Wright, only 23 years old, following completion of his Ph.D. had been appointed curator at the DUZM and Haliday, amongst many other things, was still heavily involved in the DUZA and especially in the production of its *Proceedings* which appeared in the *Natural*

History Review, the journal founded by Wright.

Furlong's first noted contribution to Irish beetle studies seems to be information that he communicated at the first meeting of the DUZA on 26 February 1853 (Hogan, 1853) where he was present as an Honorary Member. There was some distinction in this as we are told the DUZA was to have "a limited number of Honorary Members, taken from the Professors and other cultivators of zoological Science" (Hogan, 1853), Furlong falling into the latter category. His observations summarise briefly an excursion he made through the northern counties of Ireland and some of the beetles he noted, including *Mniophila muscorum* as noted below. Furlong was present at a later meeting on 19 November 1853 when Hogan presented the first of the three parts of his catalogue of beetles in the Dublin area (Hogan, 1854). Furlong's significant contributions to the paper were acknowledged and he made the following observations.

"Mr. A. Furlong said that as yet our Irish fauna did not contain more than one-third of the British insects. Even taking into account the difference of season and latitude, he thought it would not be too much to expect one-half; he also thought that so small a number of Coleoptera being discovered in Ireland might be owing either to the defectiveness of local lists or the scarcity of collectors. Some insects it would be useless to expect in this country, as, for instance, those frequenting the chalk hills of England; but, at the same time, he was persuaded that our Irish sands were very much superior to any in that country."

His name appears a number of times in a paper detailing some finds in Co. Kerry in July 1854 (Hogan and Haliday, 1855), where the authors target some species previously seen or collected by Furlong. Information on these species must have been transmitted personally by Furlong. On 16 May 1856 Furlong read, at a DUZA meeting, a supplement to Hogan's *Catalogue* (1854) in the absence of Hogan the actual author (Hogan, 1856). Hogan should be reinstated as the paper's author contrary to Ryan *et al.* (1984) who attributed authorship to Furlong; Nash (1983) accidentally attributes the paper separately to both Furlong and Hogan in his references.

Furlong's name appeared in print in 1854 in relation to his find of *Nebria complanata* (L.) (Carabidae). A note on the find appeared thus in Dawson's *Geodephaga Britannica* (Dawson, 1854); "A single specimen (half-dead) was found on the Arklow sands by Mr. Furlong. A. H. Haliday Esq.". So Haliday was quite happy to pass Furlong records on to other authors. Doubts about the Irish status of *N. complanata* were quashed in 1856 when a number of specimens were found at the same location and elsewhere on Ireland's east coast. In a paper that Haliday presented in November 1856 (Haliday, 1857), he made the following statement; "The admission of this species into the Irish Fauna previously rested on the authority of a single specimen, found many years ago by Mr. Furlong, in the same neighbourhood." Also at this meeting we are

told that Furlong presented “many interesting entomological preparations,” (Nash, 1983). Presenting specimens was typical at these meetings and it shows Furlong was still collecting specimens at this time.

Furlong museum specimens and donations

Furlong made a single donation in his lifetime to the NMINH, registered on 20 April 1860, “A small collection of birds from Australia and the skins of a large, *Ornithorhynchus paradoxus* Blumenbach (Duck-billed platypus).”. His sisters, “The Misses Furlong”, then resident at 87 Leeson Street Lower, made a donation on 4 June 1861 of “A collection of native shells, Lepidoptera & Coleoptera and also some foreign shells and minerals the property of the late Alfred Furlong Esq.” Under the entry is the word “return” which, on inspection of other such entries in the register signifies the intention of the registrar to return to the entry, rather than an intention to return the donation. There is no indication of the scale of the latter donation and donations at the time did not receive accession numbers, so unless they were at the time marked with Furlong’s name the specimens involved may not be identifiable.

A small number of specimens have been located in the NMINH collection which seem to be Furlong specimens but which came from the Trinity College collection. These are marked with the accession number 262.1901. This suggests that Furlong may have donated specimens to the DUZM collection some of which then acceded to the NMINH. Specimens labelled with this accession number are referred to as ‘Tardy specimens’ by Good and Linnie (1990) and Good (2013). A closer study of Furlong’s museum specimens in general will be presented on another occasion but in view of the interest in a connection with James Tardy and his collection some evidence is presented here to show that Furlong donated specimens to the DUZM.

***Carabus clathratus* L. (Carabidae)**

A single specimen of *Carabus clathratus* in the NMINH has the following labels: (Parteen Bog Limerick/*latratus*) and (T. C. Coll. 262:1901).

Furlong’s copy of Stephens’ *Manual* notes “Lim Kerry Wicklow etc” against this species. Furlong certainly collected on Parteen Bog; a marginal annotation against *Stenolophus vespertinus* (Panzer) reads “Parteen” and one against *Notaphus ustulatus* (L.) reads “Lim bog”. Haliday’s ms *List* however has “Parteen Bog, Limk, A. Furlong” against the former species and “Parteen Bog - Limerick AF” against the latter. Haliday further notes that *C. clathratus* is certainly Irish, common, and “(indecipherable word) Connemara, peatbogs passim Limck Kerry AF Enniskerry JT”. Since Tardy possibly did no collecting in the west of Ireland (Good, 2013), it may be reasonable to consider this a Furlong specimen. Obviously the fact that there is no label actually marked Furlong against the specimen is a serious drawback to the argument, however another two species for discussion have had relevant labels go missing.

***Melandrya caraboides* L. (Melandryidae)**

Three specimens of *Melandrya caraboides* in the NMINH collection are labelled thus: two with (Powerscourt) (Furlong 262.1901) and a third with (Prscourt, Deer Pk) (Furlong). There are no corroborating notes in the Stephens' *Manual*, however Johnson and Halbert's (1902) notes show that another label accompanied one of the specimens with the following; "Powerscourt Deerpark, June 24, in rotten thorn stump plentifully". This label seems to have disappeared.

***Necrobia quadrimaculatus* Marsham (Cleridae)**

Two specimens of *Necrobia quadrimaculatus* (*violacea*) in the NMINH collection are labelled thus: one with (Kilruddery) (T.C.Coll. 262. 1901) (Under stones Kilruddery/ *Necrobia quadra*), the other with a single label (Kilruddery). Johnson and Halbert (1902) note this species thus "Dublin (local under bones, '54 Hn.; Kilruddery, Fg. coll.)", which again unfortunately means the label bearing Furlong's name has gone missing. Inked marks in Furlong's Stephens' *Manual* indicate this species is in the College catalogue of 1847, and that specimens are English *or* in the possession of Furlong. Pencilled marks by Furlong show "Dub" and a line in the margin indicating the species is Irish. There is no indication in Hogan (1854), the Haliday ms *List* or in the Stephens' *Manual* to suggest that Tardy collected the specimens. In this instance, we have it on the authority of Johnson and Halbert (1902) that there was a specimen of this species labelled Furlong in the NMINH collection and that the Kilruddery records are distinct from the Dublin records noted by Hogan. It is reasonable then to conclude that at least one of these specimens is a Furlong specimen.

Given that Furlong was throughout the 1850s very well acquainted with individuals directly connected with Trinity College and the DUZM collection, ample opportunity would have presented itself to donate or deposit specimens. The evidence is certainly not as clear as one would like, nevertheless it seems possible that the accession number '262.1901' does not refer strictly to Tardy specimens.

An obvious question to ask is whether there was a Furlong collection that might have been absorbed into the DUZM? Arthur Stelfox notes in a paper reviewing the Irish Hymenoptera (Stelfox, 1927), the necessity of carefully interpreting Museum specimens of uncertain pedigree. Good (2013) utilises Stelfox' opinions to assess how errors may have crept into the DUZM collection when unlabelled foreign specimens came to be interpreted as Irish. It is of interest that Stelfox describes the collection as "the Tardy and Furlong collections which seem to have been presented to Trinity College, Dublin, during, or a little after the close of Haliday's university career." This suggests Stelfox considers Tardy and Furlong's legacy to be in some manner equal and also that there may have been at some time a distinct Furlong collection in Trinity College or in the NMINH. While there certainly is evidence that Furlong specimens may

have been added to the DUZM collection, it is impossible to say how substantial this was or if his contributions were ever maintained as a discrete collection. Stelfox may have been relying on labelled specimens in the NMINH as a guide to what came from Trinity and seeing specimens collected by Tardy and Furlong with the same accession number may have reasoned as he did.

Of interest here is a report on the fauna of Ireland, read in 1843 at a British Association meeting (Thompson, 1844). Thompson lists all the major Irish zoological collections, private and public, of which he was aware at the time which included collections belonging to individuals in Youghal, Waterford, Tipperary, Tuam, Letterkenny etc. The Tardy collection is noted but Furlong's name does not appear in the list. If Furlong did at this time have a significant collection it would surely have featured in this *précis*. This list is also of interest since it contains a comment provided by Haliday on the state of knowledge of Irish insects (Haliday, 1844); again Furlong's name is not mentioned. This report adds to the evidence that Furlong was not notably active in entomology in the first half of the 1840s. It does not of course mean that Furlong did not compile a significant collection through the late 1840s and 1850s. While all specimens in the NMINH with the accession number '262.1901' are not necessarily Tardy specimens, it is not possible to state that specimens in the DUZM collection are certainly Furlong specimens.

Summary

Furlong identified and collected beetles and other insects in Ireland and Britain from at least 1849 onwards. It is not possible to be certain how active an entomologist he was prior to then. By early 1851 he was adept at identifying a wide range of species and was quite prepared to tackle taxonomically difficult groups. It is difficult to suggest when his activities ceased. The latest entries that can be dated in the Stephens' *Manual* are from 1857. His election to the RIA in 1857 bespeaks the regard in which he was held by those who nominated him. His election to the Natural History Committee of the RDS late in 1860 (Anon. 1861) suggests that, at that time, he was still quite capable. He was an active coleopterist in Ireland for at least an eleven year period and possibly somewhat longer.

Furlong was elected an honourable member of the DUZA upon its formation in 1853 and this was surely out of respect for his entomological skills. He may have had a significant role in assisting or influencing other and younger members of the Society. Furlong did obtain the first records of at least one Irish beetle. However, specimens that can be attributed to him will be addressed on another occasion. There is little evidence that Furlong's collecting efforts led to the formation of a collection as substantial or significant as that of Tardy which numbered 10,000 specimens when it was purchased for Trinity College (Good and Linnie, 1990). While

some Furlong specimens seem to have found their way into the DUZM collection (and thence into the collections of the NMINH) and others were donated directly to the NMINH, there is little evidence as yet to suggest the existence of a very substantial Furlong collection.

This assessment of Furlong is not intended to suggest his efforts were necessarily more substantial than many others at that time who contributed to Irish entomology. Information is lacking on many of these individuals and comparing their achievements with Furlong's is beyond this paper's ambit. Furlong's legacy is to some extent attested by Johnson and Halbert (1902). Their list, of which Furlong's records constitute a notable part, continues to be of importance in evaluations of the status of beetles in Ireland *q.v.* the review by Nelson *et al.* (2007) of Irish donaciine beetles. Not all Furlong's records as they appear in the Stephens' *Manual* are noted by Johnson and Halbert however. It is of great interest that Furlong's letters exist and most especially that of February 1851 since it is the only testimony, other than the statement of Johnson and Halbert (1902), that Furlong had use of the Stephens' *Manual*. This annotated volume is probably the principal extant testament to Furlong's efforts and will almost certainly yield information that is of further interest. Good (2013) suggests that notebooks and other ms records can be of key importance in the critical re-evaluation of early museum specimens and it is hoped their relevance is shown again here.

Acknowledgments

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insects found in the neighbourhood of Edinburgh. William Blackwood, Edinburgh and T. Cadell, London.

APPENDIX. Transcripts of three letters from Alfred Furlong to A. H. Haliday. Individual page numbers are shown thus (f.2 etc). Superscript words are between ^ ^. Expanded abbreviations are in []. Comments or notes in { } are my interpolations. I have italicised genus and species names for purposes of clarity.

LETTER 1

15th February 51

87 Leeson Street

My dear Sir

I don't think it would be worth while to adapt one of Robinsons lamps to my pillar which is extra strong and well made; I can get from Gardner, Strand London, who made my lamp, a fountain (or Watch makers lamp) to fit my Rod, either by sending him the Rod or a mould from it. He made for me a very complete candle holder with superior steady slide, and this I now use exclusively, with a last{?} of short thick wax candle ^ from Lamberts Graft[on] St ^ having thick straight wicks 8 to the pound. (f.2) They give good light but require snuffing – for ordinary purposes I find a pencil of light from this candle, transmitted thro[ugh] a bulls eye (the smaller the better) placed between the object and the lamp, the object being kept at a distance from the lens, and these viewed with a common hand microscope, answer better than the compound microscope. It is inconvenient to work in this way unless the candle admit of adjustment on a rod. Gardner makes the fountain lamps and would perhaps furnish ~~what~~ ^ the part ^ I require, as cheap as Robinson sells his small French lamps. (f.3) They are not dear at 10s but if I determined on one of his, I sh[ould] have it as it is, and put my own aside. I am afraid I am keeping your vol of Stephens too long. I have not been idle, but my task has been with my *Brachelytra* generally trying to get the kinds together and adopt Erichson. I have had *Philonthus*, of Er[ichson]. under exam[ination]; I think I have 30 *Philonthi* of Stephens, including *skrimshiranus*, a very peculiar species which I took at a seaweed port of G[len]begh where the weed is always in a state of decomposition. It constitutes one of Steph[en]s subdivisions having 4 punctures on the thorax thus {drawing of thorax} and 4 on the head {drawing of head}. I have from P[ort]marnock *aterrimus* of (f.4) Of Er[ichson] 2 lines only; 6 punctures in line. I cannot find it in Stephens. *Aterrimus* of Stephens is a var[iant] of *varians* of Er[ichson]s. I have not yet made out *skrimshiranus* in Er[ichson]. I am collating him with my manual. I had a couple of hours yesterday on P[ort]marnock strand & pits. The sun was brilliant but the S[outh] wind was cold & persevering & kept the surface of the sand in constant motion: Insects were plenty, of various kinds. Two or three species of *Helophorus* in great profusion & perfection, several species of *Aphodius* abundant, these with some *Brachelytra* were all under the banks facing the sea, especially at turns, where they escaped the wind. The ordinary things of P[ortmarno]ck

were not numerous but (f.5) There were enough of them. I did not see *Otiorrhynchus* ^ or *Dyschirius* ^ . I took y[our] hint and beat the furze blossom, finding plenty of Mycetophagidae, two or three species – *Sitona*, *Chalcis*, *Dromius*, &cc one{?} thrips; furze very scarce. On the strand were *Cercyon*, *Hydroporus*, *Simplocaria*, &cc besides Diptera. I think Mr. Hogan might have found some occupation, but if we get a little more of this weather P[ortmarno]ck will be worth visiting.

Believe me

Yours very truly

A Furlong

A H Haliday Esq
23 Harcourt Street

NOTE: An oil fountain lamp has the oil reservoir elevated above the flame allowing the flame be brought close to an object without the obstruction of the reservoir.

LETTER 2

87 Leeson St 7 June 51

My dear Sir

I got a distant glimpse of you last night at the concert. I arrived here on Thursday after six weeks ramble in the South West. The weather was uniformly cold and windy, although some mornings were, in the sunshine, extremely hot. Insects were not to be seen and the kinds everywhere common under stones were torpid. I rarely exceeded a couple of days in one place. My sleeping quarters were Charleville, Cork, Fermoy, Lismore, Dungarvan, Waterford, Tramore, Kilkenny, Bagenalstown, Enniscorthy, Arklow, Woodenbridge, Rathdrum, Newrath Br, Bray (f.2) You will perceive by the list, I had some good opportunities but for the reasons mentioned, I was unable to effect anything. I consider the sands of Tramore equal if not superior to any I have seen. They present all the features of Baldoyle, P[ort]marnock and Rossbegh. The sand hills are not behind the beach but at one end, the town at the other end. The sea flows round the sand hills in a narrow shallow channel forming an inner water of considerable extent when the tide is in, but nearly dry at other times. The inner beach abounds with (f.3) The Baldoyle associates *Cillenus*, *Hesperophilus* &cc and *Diglossa* - The little valleys within the sandhills are interesting and differ in herbage as well as insects from our well known sands. One of these valleys is almost exclusively occupied with dwarf privet, others abound with bramble, rose, willow &c &c and these are liberally covered with the larger *Timarcha* &c{?}. The common *Orthophag[us]*, I believe the only one of these sands, seems different from

nuchicornis; I think it is *Dilwynii* [*Onthophagus* in Curculionidae!]. It's average size is larger, the male has two obscure prominences on the anterior edge of thorax, and the elytra seem wholly destitute of metallic tint. On the inner beach I found (f.4) *Phaleria cadaverina* plenty, also *Hister*{?} *maritimus*, *Aphodius erraticus* 1 specimen, *lividus* 3. The two first were also common at Arklow where I ascertained the best points of the high sands to be North of the river & nearest to it. It is necessary to walk half a mile along the beach to get at the point as there is a stream to be jumped which is narrowest at the Sea. On the *Elymus Dasytes viridis* was rather plenty, in pairs found far between, when one observed another was sure to be within a few feet.

Believe me

Very truly yours

A Furlong

A H Haliday Esq

&cc

NOTES: Thursday was the 5th of June. Six weeks = roughly 25 April to 5 June. The itinerary is listed in three columns with six locations in each of the first two columns. Written across and perpendicular to the text on p. 4 we find a note somewhat difficult to interpret: "(illegible word) me there is nothing / easy in a minute hymenoptera / I took near from here att black / antennae branched"

LETTER 3

18 June 51

My dear Sir

On Friday afternoon I went by train to Rush station. Where I found myself a couple of miles from the village the sands are nearer and altho[ugh] separated by an arm of the sea (over which is a ferry) the sands of Donabate and Rush may be regarded as one range. The Donabate side is higher and there{?} covered with vegetation. I do not think Rush worth (f.2) an exclusive visit. It may however be used as a means of going to or from Donabate as the train hours do not agree. I paid extra for liberty to dine at Malahide from which place I availed myself of my return hither. I think this an unfair charge. The company requires that two trains only shall be used.

I could only judge from appearances of Rush sands; the evening was cold & windy besides being late. (f.3) I add a list of my Aphodii according to my present views.

Yours faithfully

Alfred Furlong

A H Haliday Esq
&cc

Aphodius **1** 1 fossor 2 haemorhoidalis (small var. of last?) 3 erraticus **2** 4 fimetarius
5.....? 6 aestivalis (foetens catal?) 7 scybalarius 8.....? 9 rufescens 10
turpis 11 nitidulus (South?) 12 terrestris 13 castaneus ? (South?) **3** 14 rufipes 15 nigripes 16
luridus 17 contaminatus 18 prodromus 19 sphacelatus) same? {the word'same' links 18, 19 and
20} 20 marginalis 21 merdarius 22 granum 23.....? 24 conspurcatus 1 specimen {latter
written under species name }

(f.4) No. 5 is a solitary specimen equalling in size the average of those between which I have placed it, It resembles them but is less convex, has the abdomen black, & thorax punctured throughout with rather large puncture The thoracic spot is very obscure &c{?}

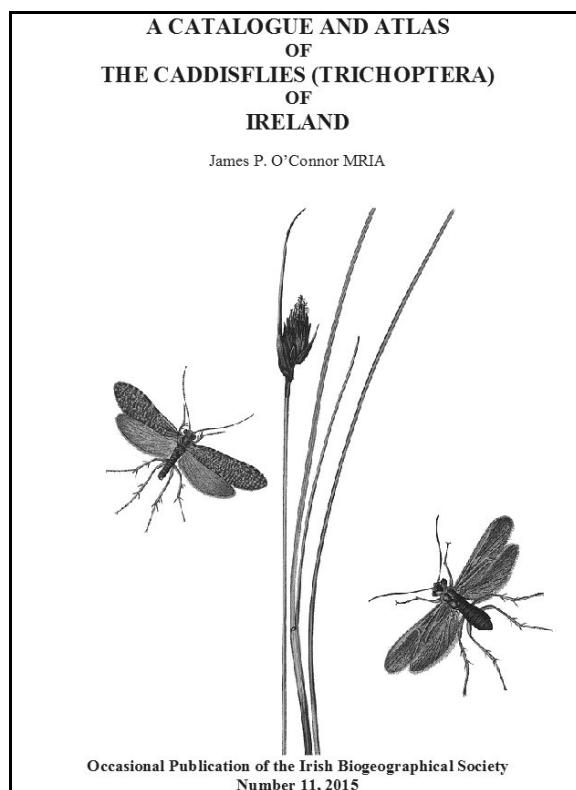
No. 8 resembles *rufescens* in size & general appearance, but the thor[ax] is wholly black, finely punct[ured] throughout the elytra deep bay not varied, the abd[omen] & legs black –

No. 13 is the size of & shape of *terrestris* thor[ax] shining black, coarsely punct[ured] with a clear pale spot in the angle. El[ytra] of one color pale testaceous red, ant[erior] abd[omen] & legs pale.

No. 23 is exceedingly like *granum*, it is a spotless black – and does not agree with *pusillus* which may be a var. of *granum* an old spec[imen] {last three words squeezed into bottom right corner }

NOTES: *Aphodius* 'group' numbers are in bold. In the letter species are listed in two columns with a horizontal line separating the three 'groups', 'group' 3 forming the second column.. 'catal' = Stephens' *Manual*.

NEW PUBLICATION



A catalogue and atlas of the caddisflies (Trichoptera) of Ireland by James P. O'Connor MRIA. Published 11 December 2015 by the Irish Biogeographical Society in association with the National Museum of Ireland. *Occasional Publication Number 11*. ISBN 978-0-9550806-8-5. Thread Sewn. Size A5. 656 pages. Text with 519 illustrations including colour plates and black and white photographs.

The work is divided into two parts: a catalogue and an atlas. In the catalogue, the Irish caddisfly (Trichoptera) fauna is reviewed. A checklist of the 149 valid species is presented. Detailed information is provided on the Irish and European distributions along with data on ecology, flight periods and taxonomy. Sections listing published and unpublished records are included. There is a comprehensive bibliography. In addition, there are accounts of the history of Irish caddisfly studies, identification and recording. The atlas contains full page maps showing the Irish distribution of each species with 10km square records plotted using longitude and latitude. The maps are based on an analysis of some 20,000 records, both published and unpublished.

Copies may be obtained by writing to The Irish Biogeographical Society c/o Dr James P. O'Connor, National Museum of Ireland – Natural History, Merrion Street, Dublin D02 F627, Ireland or by e-mail to: the Treasurer Mr John Walsh <ampersandwalsh@gmail.com> or the Editor Dr James P. O'Connor <joconnor@museum.ie>. Price €20 or £10, plus postage & packaging outside Ireland.

NOTICE



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The *Irish Naturalists' Journal* commenced publication in 1925 as successor to the *Irish Naturalist*. Two issues a year include papers on all aspects of Irish natural history, including botany, ecology, geography, geology and zoology. The *Journal* also includes distribution records, principally for cetaceans, fish, insects and plants, together with short notes and book reviews. There is an Occasional Publications series for larger contributions on specific topics.

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