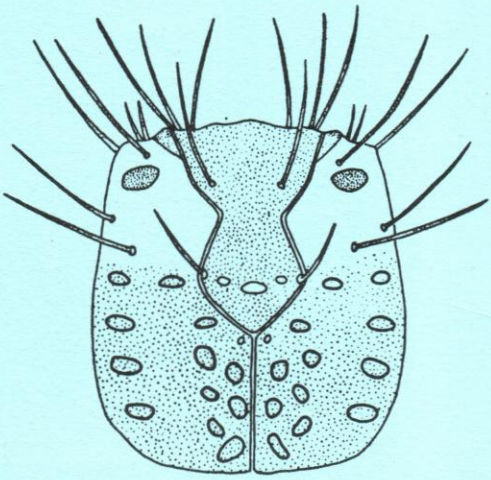
A Checklist of Irish Aquatic Insects

by

P. Ashe, J. P. O'Connor & D. A. Murray



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Front cover: Larval head of *Tinodes maculicornis* (Pictet) (Trichoptera: Psychomyiidae), illustration by Dr. J. P. O'Connor.

DEDICATED TO J. R. ("DICK") HARRIS, IN RECOGNITION OF HIS LOVE FOR IRISH FRESHWATER INSECTS WHICH RESULTED IN THE PUBLICATION OF HIS CLASSIC WORK " AN ANGLER'S ENTOMOLOGY".

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Preface

To celebrate the holding of the XXVII Congress of the International Association of Limnology in University College, Dublin, in August 1998, the authors decided to compile a checklist of Irish aquatic insects. It will be of particular importance to anyone interested in biogeography, biodiversity, limnology or entomology. The publication has been funded by the authors.

There are two previous publications in this occasional series *viz*: *Proceedings of the Postglacial Colonization Conference* and *Biogeography of Ireland. Past, present and future*.

J. P. O'Connor
General Editor
Irish Biogeographical Society
10 May 1998

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by

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Introduction

Since Ireland is an island off the coast of Europe, its insect fauna is attenuated compared with that of mainland Europe and Great Britain. Nevertheless, it is a surprisingly rich one (*circa* 16,000 species) containing many rare and interesting species. The island is very well endowed with freshwater habitats. As a result, many freshwater groups are better represented here than terrestrial ones. McCarthy (1986) compared and contrasted the British and Irish faunas for some very well known groups. In general, the freshwater insects represented about 73% of the equivalent section of Britain's fauna. By contrast, in the terrestrial insect groups studied, representation was lower (55%). Ants were only 40% while hoverflies were 68%.

Although Irish aquatic insects have been studied for over 150 years, the information is scattered throughout numerous publications (Ryan *et al.*, 1984). In many groups, no checklists have yet been prepared. Drawing upon published and unpublished data, the authors have compiled the first checklist of the entire Irish aquatic insect fauna. Exactly 1499 species are included in this comprehensive work (Table 1). Where relevant, brief notes are included noting *inter alia* rare species and key works. It is possible therefore to refer to the most modern works on any particular group.

It would not have been possible to compile this checklist without the help of many experts. In particular, we wish to thank Peter J. Chandler who kindly made available an unpublished checklist which includes the Irish Diptera (Chandler, in press). In addition, we are extremely grateful to Tom Bolger, Mary Kelly Quinn, Brian Nelson and Alan Stubbs for their advice.

TABLE 1. Summary of the Irish aquatic insects fauna compared with Britain.

	Ireland	Britain	British Isles	Irish only
COLLEMBOLA	17	20	21	1
EPHEMEROPTERA	33	48	48	
ODONATA	27	45	46	1
PLECOPTERA	20	34	34	
HEMIPTERA	50	61	63	2
COLEOPTERA	248	364	364	
NEUROPTERA	4	4	4	
MEGALOPTERA	2	3	3	
HYMENOPTERA	17	38	40	2
TRICHOPTERA	147	195	198	3
LEPIDOPTERA	5	5	5	
DIPTERA	929	1525	1542	17
Total	1499	2342	2368	26

References

Chandler, P. J. (ed.) (in press) A checklist of insects of the British Isles (new series). Part 1: Diptera (incorporating a list of Irish Diptera). *Handbk Ident. Br. Insects* **12** (2).

McCarthy, T. K. (1986) Biogeographical aspects of Ireland's invertebrate fauna. *In*: Sleeman, D.P., Devoy, R. J. and Woodman, P. C. (eds): Proceedings of the postglacial colonization conference. *Occ. Publ. Ir. biogeog. Soc.* **1**: 67-81.

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ORDER COLLEMBOLA (17 species)

Gisin (1978) listed Irish freshwater Collembola. Subsequently, Bolger (1986) provided a comprehensive account of the Irish springtails. A total of 203 Irish species are now known but only 17 are aquatic. In Britain, 20 aquatic species are recorded, the additional species being *Isotoma* (*Isotoma*) *infuscata* Murphy, *Sminthurides* (*Sminthurides*) *cruciatus* Axelson, *S.* (*S.*) *signatus* (Krausbauer) and *Bourletiella* (*Heterosminthurus*) *insignis* Reuter. However, one Irish species, *Sminthurides* (*Sminthurides*) *assimilis* (Krausbauer), has not been recorded in Britain and therefore 21 aquatic species are known from the British Isles.

	Family **PODURIDAE**
PODURA	***aquatica*** Linnaeus
	Family **HYPOGASTRURIDAE**
HYPOGASTRURA (HYPOGASTRURA)	***viatica*** (Tullberg)
	Family **NEANURIDAE**
ANURIDA	***tullbergi*** Schött
	Family **ISOTOMIDAE**
PROISOTOMA (PROISOTOMA)	***crassicauda*** (Tullberg)
PROISOTOMA (BALLISTURA)	***schoetti*** Della Torre
ISOTOMA (ISOTOMA)	***antennalis*** (Bagnall)
	viridis Bourlet
AGRENIA	***bidenticulata*** (Tullberg)
ISOTOMURUS	***alticola*** (Carl)
	palustris (Müller)
	Family **SMINTHURIDAE**
SMINTHURIDES (SMINTHURIDES)	***aquaticus*** (Bourlet)
	assimilis (Krausbauer)
	malmgreni (Tullberg)
	parvulus (Krausbauer)
	schoetti (Axelson)
SMINTHURIDES (STENACIDIA)	***violaceus*** (Reuter)
BOURLETIELLA (HETEROSMINTHURUS)	***novemlineatus*** (Tullberg)

References

Bolger, T. (1986) The Collembola of Ireland - a checklist and bibliography. *Proc. R. Ir. Acad.* **86B**: 183-218.

Gisin, H. (1978) Collembola, pp. 254-255. *In*: Illies, J. (ed.) *Limnofauna Europaea*, 2nd edn. Gustav Fischer Verlag, Stuttgart. 534 pp.

ORDER EPHEMEROPTERA (33 species)

There are 33 species recorded from Ireland whereas in Britain the total is 48 species. Connolly and McCarthy (1993) provide an account of the mayflies of the Corrib catchment in the west of Ireland while Wise and O'Connor (1997) give data on the group in the Killarney area of south-west Ireland (Co. Kerry). Kelly Quinn and Bracken (in prep.) review the Irish fauna.

	Family **SIPHLONURIDAE**
AMELETUS	***inopinatus*** Eaton
SIPHLONURUS	***alternatus*** (Say)
	armatus Eaton
	lacustris Eaton
	Family **BAETIDAE**
BAETIS	***atrebatinus*** Eaton
	fuscatus (Linnaeus)
	muticus (Linnaeus)
	rhodani (Pictet)
	scambus Eaton
	vernus Curtis
CENTROPTILUM	***luteolum*** (Müller)
CLOEON	***dipterum*** (Linnaeus)
	simile Eaton
PROCLOEON	***bifidum*** (Bengttson)
	Family **HEPTAGENIIDAE**
ECDYONURUS	***dispar*** (Curtis)
	insignis (Eaton)
	torrentis Kimmins
	venosus (Fabricius)

ELECTROGENA	***lateralis*** (Curtis)
HEPTAGENIA	***fuscogrisea*** (Retzius)
	sulphurea (Müller)
RHITHROGENA	***germanica*** Eaton
	semicolorata (Curtis)
	Family **LEPTOPHLEBIIDAE**
LEPTOPHLEBIA	***marginata*** (Linnaeus)
	vespertina (Linnaeus)
PARALEPTOPHLEBIA	***cincta*** (Retzius)
	Family **EPHEMERELLIIDAE**
EPHEMERELLA	***ignita*** (Poda)
	notata Eaton
	Family **EPHEMERIDAE**
EPHEMERA	***danica*** Müller
	Family **CAENIDAE**
CAENIS	***horaria*** (Linnaeus)
	luctuosa (Burmeister)
	macrura Stephens
	rivulorum Eaton

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Connolly, B. and McCarthy, T. K. (1993) Mayflies (Ephemeroptera) of the Corrib catchment, Ireland. *In*: Costello, M. J. and Kelly, K. S. (eds) Biogeography of Ireland: past, present and future. *Occ. Publ. Ir. biogeog. Soc.* **No. 2**.

Kelly Quinn, M. and Bracken, J. J. (in prep.) A review of the distribution of the Ephemeroptera in Ireland. *Bull. Ir. biogeog. Soc.*

Wise, E. J. and O'Connor, J. P. (1997) Observations on the distribution and relative abundance of the Ephemeroptera and Plecoptera in the Killarney Valley, Co. Kerry, Ireland. *In*: Landolt, P. and Sartori, M. (eds) *Ephemeroptera and Plecoptera: Biology-Ecology-Systematics*, pp. 175-179. MTL, Fribourg.

ORDER ODONATA (27 species)

Merritt *et al.* (1996) provide a comprehensive account of the Irish fauna and 27 species are recorded compared with 45 species known in Britain. The 'Irish Damselfly', *Coenagrion lunulatum* (Charpentier), is a widely distributed but uncommon species found in sheltered mesotrophic lakes and pools in cutover bogs in Ireland. This is a north European species that is rare outside northern Fennoscandia and the Irish population is one of the largest in western Europe. It is absent from Britain probably due to lack of suitable habitat (Nelson, 1997) and consequently a total of 46 species occur in the British Isles.

Hemianax ephippiger (Burmeister) is excluded from the list as it is essentially a species of arid parts of Africa, the Middle East and south-west Asia to Pakistan. This strongly migrant species is only known in Ireland from a single specimen found dead in a public park in Dublin in October 1913. Five other vagrant species, *Aeshna cyanea* (Müller), *Libellula depressa* Linnaeus, *L. fulva* Müller, *Sympetrum fonscolombii* (Sélys-Longchamps) and *S. flaveolum* (Linnaeus), have been included however since the records are more recent.

SUBORDER ZYGOPTERA

Family **CALOPTERYGIDAE**

CALOPTERYX	***splendens*** (Harris)
	virgo (Linnaeus)

Family **LESTIDAE**

LESTES	***dryas*** Kirby
	sponsa (Hansemann)

Family **COENAGRIONIIDAE**

COENAGRION	***lunulatum*** (Charpentier)
	puella (Linnaeus)
	pulchellum (van der Linden)
ENALLAGMA	***cyathigerum*** (Charpentier)
ISCHNURA	***elegans*** (van der Linden)
	pumilio (Charpentier)
PYRRHOSOMA	***nymphula*** (Sulzer)

SUBORDER ANISOPTERA

Family **AESHNIDAE**

AESHNA	***cyanea*** (Müller)

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	grandis (Linnaeus)
	juncea (Linnaeus)
BRACHYTRON	***pratense*** (Müller)
	Family **CORDULIIDAE**
CORDULIA	***aenea*** (Linnaeus)
SOMATOCHLORA	***arctica*** (Zetterstedt)
	Family **LIBELLULIDAE**
ORTHETRUM	***cancellatum*** (Linnaeus)
	coerulescens (Fabricius)
LIBELLULA	***depressa*** Linnaeus
	fulva Müller
	quadrimaculata Linnaeus
SYMPETRUM	***danae*** (Sulzer)
	flaveolum (Linnaeus)
	fonscolombii (Sélys-Longchamps)
	nigrescens Lucas
	sanguineum (Müller)
	striolatum (Charpentier)

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Merritt, R., Moore, N. W. and Eversham, B. C. (1996) *Atlas of the dragonflies of Britain and Ireland.* (ITE research publication no. 9). HMSO, London. 149 pp.

Nelson, B. (1977) Species Inventory for Northern Ireland: Odonata. *Environment and Heritage Service Research and Development Series*. No. 97/5.

ORDER PLECOPTERA (20 species)

Twenty species of stonefly are recorded from Ireland (Costello, 1988; O'Connor and Costello, 1997) and the total known from Britain stands at 34 species. One of these, *Perlodes microcephalus* (Pictet), is only known from two old records (King and Halbert, 1910) and may be extinct. Wise and O'Connor (1997) have published data on the Plecoptera occurring in the Killarney area of south-west Ireland (Co. Kerry).

	Family **TAENIOPTERYGIDAE**
BRACHYPTERA	***risi*** (Morton)
	Family **NEMOURIDAE**
AMPHINEMURA	***sulcicollis*** (Stephens)
NEMOURA	***avicularis*** Morton
	cinerea (Retzius)
NEMURELLA	***pictetii*** Klapálek
PROTONEMURA	***meyeri*** (Pictet)
	praecox (Morton)
	Family **LEUCTRIDAE**
LEUCTRA	***fusca*** (Linnaeus)
	hippopus Kempny
	inermis Kempny
	nigra (Olivier)
	Family **CAPNIIDAE**
CAPNIA	***atra*** Morton
	bifrons (Newman)
	Family **PERLODIDAE**
DIURA	***bicaudata*** (Linnaeus)
ISOPERLA	***grammatica*** (Poda)
PERLODES	***microcephalus*** (Pictet)
	Family **PERLIDAE**
DINOCRAS	***cephalotes*** (Curtis)

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PERLA ***bipunctata*** Pictet

Family **CHLOROPERLIDAE**

CHLOROPERLA ***tripunctata*** (Scopoli)

SIPHONOPERLA ***torrentium*** (Pictet)

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Costello, M. J. (1988) A review of the distribution of stoneflies (Insecta, Plecoptera) in Ireland. *Proc. R. Ir. Acad.* **88B**: 1-22.

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ORDER HEMIPTERA (50 species)

Nelson (1995) gives a comprehensive account of the Irish fauna including a checklist and some additional distribution records for some species are given in Nelson (1997a, b). The nomenclature is based on Savage (1989). A total of 63 species are known from the British Isles of which 61 occur in Britain and 50 occur in Ireland. The 50 Irish species include two, *Limnoporus rufoscutellatus* (Latreille) and *Sigara fallenoidea* (Hungerford), which are not known to be resident in Britain. Once thought to be a migrant throughout the British Isles, *L. rufoscutellatus* is now considered to be a resident species in Ireland. The corixid *S. fallenoidea* is common in the calcareous lakes of the Irish midlands. However, it has recently been discovered in the non-calcareous Lough Neagh in Northern Ireland. Outside Ireland, the species is only known from Finland, Russia and Canada (where it is rare and found on the prairies). It has not been reported from Britain.

SUBORDER HETEROPTERA

	Family **HEBRIDAE**
HEBRUS	***ruficeps*** (Thomson)
	Family **HYDROMETRIDAE**
HYDROMETRA	***stagnorum*** (Linnaeus)
	Family **VELIIDAE**
MICROVELIA	***pygmaea*** (Dufour)
	reticulata (Burmeister)
VELIA	***caprai*** Tamanini
	saulii Tamanini
	Family **GERRIDAE**
GERRIS	***argentatus*** Schummel
	costai (Herrich-Schaeffer)
	lacustris (Linnaeus)
	lateralis Schummel
	odontogaster (Zetterstedt)
	najas (De Geer)
	thoracicus Schummel
LIMNOPORUS	***rufoscutellatus*** (Latreille)

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	Family **NEPIDAE**
NEPA	***cinerea*** Linnaeus
	Family **APHELOCHEIRIDAE**
APHELOCHEIRUS	***aestivalis*** (Fabricius)
	Family **NOTONECTIDAE**
NOTONECTA	***glauca*** Linnaeus
	maculata Fabricius
	marmorea Delcourt
	obliqua Gallen
	Family **PLEIDAE**
PLEA	***leachi*** McGregor & Kirkaldy
	Family **CORIXIDAE**
ARCTOCORISA	***germari*** (Fieber)
CALLICORIXA	***praeusta*** (Fieber)
	wollastoni (Douglas & Scott)
CORIXA	***dentipes*** (Thomson)
	punctata (Illiger)
	iberica Jansson
	affinis Leach
	panzeri (Fieber)
CYMATIA	***bonsdorffii*** (Sahlberg)
GLAENOCORISA	***propinqua*** (Fieber)
HESPEROCORIXA	***linnaei*** (Fieber)
	sahlbergi (Fieber)
	castanea (Thomson)
	moesta (Fieber)
MICRONECTA	***poweri*** (Douglas & Scott)
SIGARA	***concinna*** (Fieber)
	dorsalis (Leach)
	distincta (Fieber)
	falleni (Fieber)
	fallenoidea (Hungerford)
	fossarum (Leach)

lateralis (Leach)
limitata (Fieber)
nigrolineata (Fieber)
scotti (Douglas & Scott)
selecta (Fieber)
semistriata (Fieber)
stagnalis (Leach)
venusta (Douglas & Scott)

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Nelson, B. (1995) The distribution of the aquatic and semi-aquatic Heteroptera in Northern Ireland. *Bull. Ir. biogeog. Soc.* **18**: 66-130.

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ORDER COLEOPTERA (248 species)

The aquatic Coleoptera with 248 species are well represented in Ireland whereas Britain has 364 species. The British fauna is richer by 26 genera and 116 species. Two beetle families, Limnichidae and Psephenidae, are each represented in Britain by a single genus and species but they are not recorded from Ireland - the record of *Eubria palustris* Germar (Psephenidae) for Ireland in Berthelemy and Olmi (1978) is apparently erroneous as we can find no basis for the record. A modern and comprehensive checklist of Irish Coleoptera is provided by Anderson *et al.* (1997) and this may be consulted for further information including references. It has often been difficult to decide with some species whether they are aquatic or not. Some genera such as *Bagous* and *Cercyon* include both aquatic and terrestrial species and the latter are excluded or in doubtful cases we follow the species listings in the relevant section of *Limnofauna Europaea*. Other aquatic species apparently exist in the Chrysomelidae (Halticinae and Galerucinae) but it has not been possible to include these here because there is no reference work available which enables an easy listing to be made of the aquatic species.

Family **GYRINIDAE**

Subfamily GYRININAE

GYRINUS	***aeratus*** Stephens
	caspius Ménétriés
	distinctus Aubé
	marinus Gyllenhal
	minutus Fabricius
	natator (Linnaeus)
	paykulli Ochs
	substriatus Stephens
	urinator Illiger
ORECTOCHILUS	***villosus*** (Müller)

Family **HALIPLIDAE**

BRYCHIUS	***elevatus*** (Panzer)
HALIPLUS	***apicalis*** Thomson
	confinis Stephens
	flavicollis Sturm
	fluviatilis Aubé
	fulvus (Fabricius)
	immaculatus Gerhardt
	lineatocollis (Marsham)

		lineolatus Mannerheim
		obliquus (Fabricius)
		ruficollis (De Geer)
		variegatus Sturm
		wehnckei Gerhardt
	Family	**HYGROBIIDAE**
HYGROBIA		***hermanni*** (Fabricius)
	Family	**NOTERIDAE**
NOTERUS		***clavicornis*** (De Geer)
		crassicornis (Müller)
	Family	**DYTISCIDAE**
	Subfamily	COPELATINAE
COPELATUS		***haemorrhoidalis*** (Fabricius)
	Subfamily	HYDROPORINAE
LACCORNIS		***oblongus*** (Stephens)
BIDESSUS		***minutissimus*** (Germar)
HYGROTUS (HYGROTUS)		***inaequalis*** (Fabricius)
		quinquelineatus (Zetterstedt)
		versicolor (Schaller)
HYGROTUS (COELAMBUS)		***confluens*** (Fabricius)
		impressopunctatus (Schaller)
		novemlineatus (Stephens)
		parallelogrammus (Ahrens)
HYPHYDRUS		***ovatus*** (Linnaeus)
HYDROPORUS		***angustatus*** Sturm
		discretus Fairmaire & Brisout
		erythrocephalus (Linnaeus)
		glabriusculus Aubé
		gyllenhalii (Schiödte)
		incognitus Sharp
		longicornis Sharp
		longulus Mulsant
		melanarius Sturm
		memnonius Nicolai

	morio Aubé
	nigrita (Fabricius)
	obscurus Sturm
	obsoletus Aubé
	palustris (Linnaeus)
	planus (Fabricius)
	pubescens (Gyllenhal)
	scalesianus Stephens
	striola (Gyllenhal)
	tessellatus Drapiez
	tristis (Paykull)
	umbrosus (Gyllenhal)
PORHYDRUS	***lineatus*** (Fabricius)
GRAPTODYTES	***bilineatus*** (Sturm)
	granularis (Linnaeus)
	pictus (Fabricius)
OREODYTES	***davisii*** (Curtis)
	sanmarkii (Sahlberg)
	septentrionalis (Gyllenhal)
SUPHRODYTES	***dorsalis*** (Fabricius)
STICTOTARSUS	***duodecimpustulatus*** (Fabricius)
	multilineatus (Falkenström)
STICTONECTES	***lepidus*** (Olivier)
NEBRIOPORUS	***assimilis*** (Paykull)
	depressus (Fabricius)
	Subfamily COLYMBETINAE
AGABUS	***affinis*** (Paykull)
	arcticus (Paykull)
	biguttatus (Olivier)
	bipustulatus (Linnaeus)
	chalconatus (Panzer)
	congener (Thunberg)
	conspersus (Marsham)
	guttatus (Paykull)
	labiatus (Brahm)
	montanus (Stephens)
	nebulosus (Forster)

		paludosus (Fabricius)
		sturmii (Gyllenhal)
		unguicularis Thomson
ILYBIUS		***aenescens*** Thomson
		ater (De Geer)
		fuliginosus (Fabricius)
		guttiger (Gyllenhal)
		quadriguttatus (Lacordaire)
		subaeneus Erichson
RHANTUS (NARTUS)		***grapii*** (Gyllenhal)
RHANTUS (RHANTUS)		***exsoletus*** (Forster)
		frontalis (Marsham)
		suturalis (Macleay)
		suturellus (Harris)
COLYMBETES		***fuscus*** (Linnaeus)
	Subfamily	LACCOPHILINAE
LACCOPHILUS		***hyalinus*** (De Geer)
		minutus (Linnaeus)
	Subfamily	DYTISCINAE
HYDATICUS		***seminiger*** (De Geer)
ACILIUS		***canaliculatus*** (Nicolai)
		sulcatus (Linnaeus)
DYTISCUS		***circumcinctus*** Ahrens
		circumflexus Fabricius
		lapponicus Gyllenhal
		marginalis Linnaeus
		semisulcatus Müller
	Family	**HYDRAENIDAE**
	Subfamily	HYDRAENINAE
HYDRAENA		***britteni*** Joy
		gracilis Germar
		minutissima Stephens
		nigrita Germar
		pulchella Germar
		pygmaea Waterhouse
		riparia Kugelann

	rufipes Curtis
	testacea Curtis
LIMNEBIUS	***aluta*** (Bedel)
	nitidus (Marsham)
	truncatellus (Thunberg)
	Subfamily OCHTHEBIINAE
OCHTHEBIUS	***auriculatus*** Rey
	bicolon Germar
	dilatatus Stephens
	exsculptus Germar
	lejolisii Mulsant & Rey
	marinus (Paykull)
	minimus (Fabricius)
	nanus Stephens
	punctatus Stephens
	viridis Peyron
	Family **HELOPHORIDAE**
HELOPHORUS	***aequalis*** Thomson
	alternans Géné
	arvernicus Mulsant
	brevipalpis Bedel
	flavipes Fabricius
	fulgidicollis Motschulsky
	grandis Illiger
	granularis (Linnaeus)
	griseus Herbst
	minutus Fabricius
	nanus Sturm
	nubilus Fabricius
	obscurus Mulsant
	porculus Bedel
	rufipes (Bosc d'Antic)
	strigifrons Thomson
	Family **GEORISSIDAE**
GEORISSUS	***crenulatus*** (Rossi)

	Family **HYDROCHIDAE**
HYDROCHUS	***angustatus*** Germar
	brevis (Herbst)
	ignicollis Motschulsky
	Family **HYDROPHILIDAE**
	Subfamily HYDROPHILINAE
BEROSUS	***luridus*** (Linnaeus)
	signaticollis (Charpentier)
CHAETARTHRIA	***seminulum*** (Herbst)
PARACYMUS	***scutellaris*** (Rosenhauer)
ANACAENA	***globulus*** (Paykull)
	limbata (Fabricius)
	lutescens (Stephens)
LACCOBIUS	***atratus*** (Rottenburg)
	atrocephalus Reitter
	biguttatus Gerhardt
	bipunctatus (Fabricius)
	minutus (Linnaeus)
	sinuatus Motschulsky
	striatulus (Fabricius)
HELOCHARES	***punctatus*** Sharp
ENOCHRUS	***affinis*** (Thunberg)
	bicolor (Fabricius)
	coarctatus (Gredler)
	fuscipennis (Thomson)
	halophilus (Bedel)
	melanocephalus (Olivier)
	ochropterus (Marsham)
	testaceus (Fabricius)
CYMBIODYTA	***marginella*** (Fabricius)
HYDROBIUS	***fuscipes*** (Linnaeus)
	Subfamily SPHAERIDIINAE
COELOSTOMA	***orbiculare*** (Fabricius)
CERCYON	***convexiusculus*** Stephens
	depressus Stephens

	littoralis (Gyllenhal)
	marinus Thomson
	tristis (Illiger)
	ustulatus (Preyssler)
MEGASTERNUM	***obscurum*** (Marsham)
	Family **SCIRTIDAE**
ELODES	***elongata*** Tournier
	marginata (Fabricius)
MICROCARA	***testacea*** (Linnaeus)
CYPHON	***coarctatus*** Paykull
	hilaris Nyholm
	ochraceus Stephens
	padi (Linnaeus)
	palustris Thomson
	punctipennis Sharp
	variabilis (Thunberg)
PRIONOCYPHON	***serricornis*** (Müller)
HYDROCYPHON	***deflexicollis*** (Müller)
SCIRTES	***hemisphaericus*** (Linnaeus)
	orbicularis (Panzer)
	Family **ELMIDAE**
ELMIS	***aenea*** (Müller)
OULIMNIUS	***tuberculatus*** (Müller)
LIMNIUS	***volckmari*** (Panzer)
ESOLUS	***parallelepipedus*** (Müller)
	Family **DRYOPIDAE**
DRYOPS	***ernesti*** Des Gozis
	luridus (Erichson)
	similaris Bollow
	Family **HETEROCERIDAE**
HETEROCERUS	***fenestratus*** (Thunberg)
	flexuosus Stephens
	fossor Kiensenwetter

	marginatus (Fabricius)
	maritimus Guérin-Méneville
	Family **CHRYSOMELIDAE**
	Subfamily DONACIINAE
PLATEUMARIS	***braccata*** (Scopoli)
	discolor (Panzer)
	rustica (Kunze)
	sericea (Linnaeus)
DONACIA	***aquatica*** (Linnaeus)
	bicolora Zschach
	cinerea Herbst
	clavipes Fabricius
	crassipes Fabricius
	dentata Hoppe
	impressa Paykull
	marginata Hoppe
	obscura Gyllenhal
	semicuprea Panzer
	simplex Fabricius
	thalassina Germar
	versicolorea (Brahm)
	vulgaris Zschach
MACROPLEA	***appendiculata*** (Panzer)
	Family **CURCULIONIDAE**
	Subfamily CURCULIONINAE
CLEOPUS	***pulchellus*** (Herbst)
CIONUS	***alauda*** (Herbst)
	hortulanus (Geoffroy)
HYDRONOMUS	***alismatus*** (Marsham)
BAGOUS	***glabrirostris*** (Herbst)
	lutulentus (Gyllenhal)
ERIRHINUS	***acridulus*** (Linnaeus)
	aethiops (Fabricius)
	scirpi (Fabricius)
NOTARIS	***bimaculatus*** (Fabricius)

THRYOGENES	***festucae*** (Herbst)
	nereis (Paykull)
GRYPUS	***equiseti*** (Fabricius)
TANYSPHYRUS	***lemnae*** (Paykull)
EUBRYCHIUS	***velutus*** (Beck)
PHYTOBIUS	***leucogaster*** (Marsham)
POOPHAGUS	***sisymbrii*** (Fabricius)
MECINUS	***collaris*** Germar
GYMNETRON	***beccabungae*** (Linnaeus)
	villosulum Gyllenhal

References

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Berthelemy, C. and Olmi, M. (1978) Dryopoidea, pp. 315-318. *In*: Illies, J. (ed.) *Limnofauna Europaea*, 2nd edn. Gustav Fischer Verlag, Stuttgart. 534 pp.

ORDER NEUROPTERA (4 species)

Only four aquatic species are known from Ireland (Barnard *et al.*, 1991) and Britain (Plant, 1994; Elliott, 1996).

Family **OSMYLIDAE**

OSMYLUS ***fulvicephalus*** (Scopoli)

Family **SISYRIDAE**

SISYRA ***dalii*** McLachlan
fuscata (Fabricius)
terminalis Curtis

References

Barnard, P. C., O'Connor, J. P. and Speight, M. C. D. (1991) A review of published distribution data for Irish Neuroptera (Insecta), together with additional records and a check-list of the Irish species. *Bull. Ir. biogeog. Soc.* **14**: 109-123.

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Plant, C. W. (1994) *Provisional atlas of the lacewings and allied insects (Neuroptera, Megaloptera, Raphidioptera and Mecoptera) of Britain and Ireland.* NERC Institute of Terrestrial Ecology, Monks Wood. 208 pp.

Occ. Pub. Ir. biogeog. Soc. No. 3 (1998)

ORDER MEGALOPTERA (2 species)

Two species are known from Ireland compared with three in Britain (Elliott, 1996), the additional British species being *Sialis fuliginosa* Pictet. *Sialis nigripes* Pictet was discovered for the first time in the British Isles when in 1976, adults and a larva were collected in Ireland at Hare Island, Lough Ree, Co. Westmeath (Elliott *et al.*, 1979). Very little is known about the life history and habitat requirements of this species. Its distribution in Ireland indicates that it may be associated chiefly with calcareous rivers, streams and lakes (O'Connor and O'Grady, 1990).

Family **SIALIDAE**

SIALIS ***lutaria*** (Linnaeus)
nigripes Pictet

References

Elliott, J. M. (1996) British freshwater Megaloptera and Neuroptera: a key with ecological notes. *Scient. Publs Freshwat. Biol. Ass.* **No. 54**.

Elliott, J. M., O'Connor, J. P. and O'Connor, M. A. (1979) A key to the larvae of Sialidae (Insecta: Megaloptera) occurring in the British Isles. *Freshwat. biol.* **9**: 511-514.

O'Connor, J. P. and O'Grady, M. F. (1990) Observations on the distribution of *Sialis nigripes* Pictet (Megaloptera) in Ireland. *Entomologist's Gaz.* **41**: 109-110.

ORDER HYMENOPTERA (17 species)

Hedqvist (1978) lists the European species which are known to be aquatic. In Ireland, 17 aquatic species of Hymenoptera are recorded whereas in Britain the number is 38 species. However, two species of Braconidae, *Syncrasis fucicola* (Haliday) and *Coelinius podagricus* (Haliday), are known from Ireland but not from Britain and the British Isles total for aquatic Hymenoptera is therefore 40 species.

Family **ICHNEUMONIDAE**

There are eight aquatic species of Ichneumonidae recorded from Britain but none are known from Ireland. Surprisingly, the ichneumonid *Agriotypus armatus* (Walker) has not been found in Ireland - it is a parasitoid of goerid Trichoptera larvae.

Family **BRACONIDAE**

In Ireland and Britain, 12 aquatic species are recorded but two of these, *Syncrasis fucicola* (Haliday) and *Coelinius podagricus* (Haliday), are known from Ireland but not from Britain. The total is the British Isles is therefore 14 species. Over 500 species of Braconidae have been recorded from Ireland (O'Connoe *et al.*, in prep.).

OPIUS	***caesus*** Haliday
	rudius Wesmael
SYNCRASIS	***fucicola*** (Haliday)
CHAENUSA	***conjugens*** (Nees)
	naiadum (Haliday)
	nereidum (Haliday)
COELINIUS	***podagricus*** (Haliday)
DACNUSA	***discolor*** (Förster)
	temula (Haliday)
CHOREBUS	***affinis*** (Nees)
	striola Stelfox
	uliginosa (Haliday)

Family **CHALCIDIDAE**

Only one aquatic species is known from Ireland but three are known from Britain, the two additional species being *Chalcis biguttata* Spinola and *C. myrifex* (Schulz).

CHALCIS	***sispes*** (Linnaeus)

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Family **PTEROMALIDAE**

Two aquatic species are known from Ireland but three are known from Britain, the additional species being *Polycystus clavicornis* Walker.

GYRINOPHAGUS ***aper*** (Walker)
UROLEPIS ***maritima*** (Walker)

Family **EULOPHIDAE**

Only one species of Eulophidae known from Ireland and Britain.

MESTOCHARIS ***bimacularis*** (Dalman)

Family **MYMARIDAE**

Although some species do occur in Ireland we are unaware of published records for any species. In Britain, four species are recorded.

Family **TRICHOGRAMMATIDAE**

Although the family does occur in Ireland we are unaware of any published records. In Britain, a single species is recorded.

Family **CERAPHRONIDAE**

In Britain, there is one aquatic species which has not been recorded from from Ireland.

Family **DIAPRIIDAE**

Although 68 species are recorded from Ireland (O'Connor and Ashe, 1992), only one is known to be aquatic. *Diapria conica* (Fabricius) is a parasitoid of the syrphids *Eristalis arbustorum* (Linnaeus) *and E. tenax* (Linnaeus) - it is widely distributed. A second aquatic species, *Paramesius rufipes* Westwood, is found in Britain.

DIAPRIA ***conica*** (Fabricius)

Family **SCELIONIDAE**

In Britain, there is one aquatic species which has not been recorded from from Ireland.

Family **EUCOILIDAE**

In Britain, there are two aquatic species which have not been recorded from from Ireland.

References

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Occ. Pub. Ir. biogeog. Soc. No. 3 (1998)

ORDER TRICHOPTERA (147 species)

The most recent complete checklist of Irish Trichoptera was published in O'Connor (1987) which listed a total of 143 authentically recorded species. Since then there have been several additional species recorded from Ireland which have been published in O'Connor and O'Hanrahan (1988), O'Connor *et al.* (1990) and O'Connor and Bond (1995) which brings the total number up to 147 species. The fauna of the British Isles has a total of 198 species of which 195 occur in Britain. However, there are three species, *Tinodes maculicornis* (Pictet), *Apatania auricula* (Forsslund) and *Limnephilus fuscinervis* (Zetterstedt), which occur in Ireland but have not been found in Britain.

	Family **RHYACOPHILIDAE**
RHYACOPHILA	***dorsalis*** (Curtis)
	munda McLachlan
	Family **PHILOPOTAMIDAE**
PHILOPOTAMUS	***montanus*** (Donovan)
WORMALDIA	***mediana*** McLachlan
	occipitalis (Pictet)
	subnigra McLachlan
CHIMARRA	***marginata*** (Linnaeus)
	Family **PSYCHOMYIIDAE**
LYPE	***phaeopa*** (Stephens)
	reducta (Hagen)
METALYPE	***fragilis***(Pictet)
PSYCHOMYIA	***pusilla*** (Fabricius)
TINODES	***dives*** (Pictet)
	maclachani Kimmins
	maculicornis (Pictet)
	unicolor (Pictet)
	waeneri (Linnaeus)
	Family **ECNOMIDAE**
ECNOMUS	***tenellus*** (Rambur)
	Family **POLYCENTROPODIDAE**
CYRNUS	***flavidus*** McLachlan

	insolutus McLachlan
	trimaculatus (Curtis)
HOLOCENTROPUS	***dubius*** (Rambur)
	picicornis (Stephens)
NEURECLIPSIS	***bimaculata*** (Linnaeus)
PLECTROCNEMIA	***conspersa*** (Curtis)
	geniculata McLachlan
POLYCENTROPUS	***flavomaculatus*** (Pictet)
	irroratus (Curtis)
	kingi McLachlan
	Family **HYDROPSYCHIDAE**
CHEUMATOPSYCHE	***lepida*** (Pictet)
DIPLECTRONA	***felix*** McLachlan
HYDROPSYCHE	***angustipennis*** (Curtis)
	contubernalis McLachlan
	instabilis (Curtis)
	pellucidula (Curtis)
	siltalai Döhler
	Family **GLOSSOSOMATIDAE**
GLOSSOSOMA	***boltoni*** Curtis
	conformis Neboiss
AGAPETUS	***delicatulus*** McLachlan
	fuscipes Curtis
	ochripes Curtis
	Family **HYDROPTILIDAE**
AGRAYLEA	***multipunctata*** Curtis
	sexmaculata Curtis
ALLOTRICHIA	***pallicornis*** (Eaton)
HYDROPTILA	***angulata*** Mosely
	cornuta Mosely
	forcipata (Eaton)
	martini Marshall
	occulta (Eaton)
	pulchricornis Pictet

	simulans Mosely
	sparsa Curtis
	tigurina Ris
	tineoides Dalman
OXYETHIRA	***falcata*** Morton
	flavicornis (Pictet)
	frici Klapálek
	sagittifera Ris
	simplex Ris
	tristella Klapálek
TRICHOLEIOCHITON	***fagesii*** (Guinard)
ITHYTRICHIA	***clavata*** Morton
	lamellaris Eaton
ORTHOTRICHIA	***angustella*** (McLachlan)
	costalis (Curtis)
	Family **PHRYGANEIDAE**
AGRYPNIA	***obsoleta*** (Hagen)
	pagetana Curtis
	varia (Fabricius)
OLIGOTRICHA	***striata*** (Linnaeus)
PHRYGANEA	***bipunctata*** Retzius
	grandis Linnaeus
	Family **LEPIDOSTOMATIDAE**
CRUNOECIA	***irrorata*** (Curtis)
LASIOCEPHALA	***basalis*** (Kolenati)
LEPIDOSTOMA	***hirtum*** (Fabricius)
	Family **LIMNEPHILIDAE**
APATANIA	***auricula*** (Forsslund)
	muliebris McLachlan
	wallengreni McLachlan
DRUSUS	***annulatus*** (Stephens)
ECCLISOPTERYX	***guttulata*** (Pictet)
HALESUS	***digitatus*** (Şchrank)
	radiatus (Curtis)

HYDATOPHYLAX	***infumatus*** (McLachlan)
MESOPHYLAX	***impunctatus*** McLachlan
MICROPTERNA	***lateralis*** (Stephens)
	sequax McLachlan
POTAMOPHYLAX	***cingulatus*** (Stephens)
	latipennis (Curtis)
STENOPHYLAX	***permistus*** McLachlan
CHAETOPTERYX	***villosa*** (Fabricius)
ANABOLIA	***nervosa*** (Curtis)
GLYPHOTAELIUS	***pellucidus*** (Retzius)
GRAMMOTAULIUS	***nigropunctatus*** (Retzius)
LIMNEPHILUS	***affinis*** Curtis
	auricula Curtis
	binotatus Curtis
	centralis Curtis
	coenosus Curtis
	decipiens (Kolenati)
	elegans Curtis
	flavicornis (Fabricius)
	fuscinervis (Zetterstedt)
	griseus (Linnaeus)
	hirsutus (Pictet)
	ignavus McLachlan
	incisus Curtis
	lunatus Curtis
	luridus Curtis
	marmoratus Curtis
	nigriceps (Zetterstedt)
	pati O'Connor
	rhombicus (Linnaeus)
	sparsus Curtis
	stigma Curtis
	tauricus Schmid
	vittatus (Fabricius)
PHACOPTERYX	***brevipennis*** (Curtis)

	Family **GOERIDAE**
GOERA	***pilosa*** (Fabricius)
SILO	***nigricornis*** (Picte)
	pallipes (Fabricius)
	Family **BERAEIDAE**
BERAEA	***maurus*** (Curtis)
	pullata (Curtis)
BERAEODES	***minutus*** (Linnaeus)
	Family **SERICOSTOMATIDAE**
SERICOSTOMA	***personatum*** (Spence in Kirby & Spence)
	Family **ODONTOCERIDAE**
ODONTOCERUM	***albicorne*** (Scopoli)
	Family **MOLANNIDAE**
MOLANNA	***albicans*** (Zetterstedt)
	Family **LEPTOCERIDAE**
ATHRIPSODES	***albifrons*** (Linnaeus)
	aterrimus (Stephens)
	bilineatus (Linnaeus)
	cinereus (Curtis)
	commutatus (Rostock)
CERACLEA	***albimacula*** (Rambur)
	annulicornis (Stephens)
	dissimilis (Stephens)
	fulva (Rambur)
	nigronervosa (Retzius)
	senilis (Burmeister)
LEPTOCERUS	***tineiformis*** Curtis
MYSTACIDES	***azurea*** (Linnaeus)
	longicornis (Linnaeus)
ADICELLA	***reducta*** (McLachlan)
TRIAENODES	***bicolor*** (Curtis)
YLODES	***reuteri*** (McLachlan)

OECETIS	***furva*** (Rambur)
	lacustris (Pictet)
	notata (Rambur)
	ochracea (Curtis)
	testacea (Curtis)
SETODES	***argentipunctellus*** McLachlan

References

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ORDER LEPIDOPTERA (5 species)

The aquatic Lepidoptera in Europe are represented by a total of five species (Hannemann, 1978), all belonging to the Family Pyralidae. In the recent checklist of Irish Microlepidoptera (Bond, 1995), all five species are confirmed as occurring in Ireland.

Family **PYRALIDAE**

ACENTRIA	***ephemerella*** (Denis & Schiffermüller)
CATACLYSTA	***lemnata*** (Linnaeus)
ELOPHILA	***nymphaeata*** (Denis & Schiffermüller)
NYMPHULA	***stagnata*** (Donovan)
PARAPONYX	***stratiotata*** (Linnaeus)

References

Bond, K. G. M. (1995) Irish Microlepidoptera check-list. *Bull. Ir. biogeog. Soc.* **18**: 176-262.

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ORDER DIPTERA (929 species)

Unlike most insect orders, entomologists working on Diptera tend to specialise on one or several closely related families rather than work on the whole order. Consequently, a short account for each dipteran family is given followed by the checklist and relevant references.

The number of known aquatic Diptera in Ireland is 929 species whereas 1525 species are known in Britain. However, 17 species occur in Ireland which have not been found in Britain and the British Isles total is therefore 1542 species. The aquatic species numbers for each family are summarised in Table 2.

We have utilised the aquatic Diptera lists for Europe (Illies, 1978) and the Netherlands (Mol, 1984) as the basis for deciding which species are included here since our main aim is to produce a comparable list for Ireland. There are problems in trying to calculate the exact number of aquatic and terrestrial species in some families because the immature stages and habitats of many species are unknown. In some cases we have made educated estimates of the numbers of aquatic species.

TABLE 2. Summary of the Irish aquatic Diptera fauna compared with Britain.

	Ireland	Britain	British Isles	Irish only
Athericidae	2	3	3	
Ceratopogonidae	40	131	132	1
Chaoboridae	3	6	6	
Chironomidae	396	578	588	10
Culicidae	18	32	32	
Cylindrotomidae	1	2	2	
Dixidae	13	15	15	
Dolichopodidae	54	80	82	2
Empididae	47	110	110	
Ephydridae	19	38	38	
Hybotidae	4	5	5	
Limoniidae	99	186	188	2
Muscidae	6	10	10	
Pediciidae	13	17	17	
Psychodidae	51	81	83	2
Ptychopteridae	6	7	7	
Rhagionidae	1	2	2	
Scatophagidae	6	9	9	
Sciomyzidae	39	48	48	
Simuliidae	26	33	33	
Stratiomyidae	13	26	26	
Syrphidae	43	52	52	
Tabanidae	9	29	29	
Thaumaleidae	2	3	3	
Tipulidae	18	22	22	
Total DIPTERA	929	1525	1542	17

References

Illies, J. (ed.) (1978)*Limnofauna Europaea*, 2nd edn. Gustav Fischer Verlag, Stuttgart. 534 pp.

Mol, A. W. M. (1984) Limnofauna Neerlandica. Een lijst van meercellige ongewervelde dieren aangetroffen in binnenwateren van Nederland. *Nieuwsbrief European Invertebrate Survey - Nederland*, Nummer 15, 124 pp.

Family **ATHERICIDAE** (2 species)

A review of the records of this small family in Ireland, which were previously included in the Rhagionidae, is given in Chandler (1975). There is one additional aquatic genus and species, *Atrichops crassipes* (Meigen), recorded from Britain which has not been found in Ireland.

ATHERIX *ibis* Fabricius
marginata Fabricius

Reference

Chandler, P. J. (1975) An account of the Irish species of two-winged flies (Diptera) belonging to the families of larger Brachycera (Tabanoidea and Asiloidea). *Proc. R. Ir. Acad.* **75B**: 81-110.

Family **CERATOPOGONIDAE** (40 species)

There is no comprehensive account of the Irish Ceratopogonidae apart from that published for the genus *Culicoides* (Boorman, 1986) and the records for other genera and species which do occur are scattered in various papers. A few species were originally described in the 19th century based on Irish type material (Haliday, 1833; Haliday in Walker, 1856) but most records of other species from this time are doubtful and excluded from the list below because they require confirmation. Scattered Irish records of various species are included in Yerbury (1902), Grimshaw (1912), Edwards (1926, 1929a, b), Edwards *et al.* (1939), Jackson (1947), Downes and Kettle (1952), Healy (1975), Speight and Healy (1977), Havelka (1978), Blackith and Blackith (1989) and Blackith *et al.* (1991). The nomenclature follows that given in Chandler (in press).

The total number of species recorded in the British Isles is 161 of which 132 are estimated to be aquatic and the remaining 29 are terrestrial - these figures are likely to change as the habitat preferences of many species are still unknown. The list below is a complete list of all 44 reliably published Irish species (40 aquatic and four terrestrial species). The four terrestrial species, indicated

by a # symbol, are not counted in the aquatic species totals. One aquatic Irish species, *Bezzia taeniata* (Haliday in Walker), has not been recorded from Britain where the estimated number of aquatic species is 131.

Subfamily **CERATOPOGONINAE**

Tribe CERATOPOGONINI

KOLENOHELEA	***calcarata*** (Goetghebuer)	
SERROMYIA	***femorata*** (Meigen)	
	morio (Fabricius)	
STILOBEZZIA (ACANTHOHELEA)	***gracilis*** (Haliday)	

Tribe CULICOIDINI

CULICOIDES (AVARITIA)	***chiopterus*** (Meigen)	#
	dewulfi Goetghebuer	#
	obsoletus (Meigen)	
	scoticus Downes & Kettle	#
CULICOIDES (BELTRANMYIA)	***circumscriptus*** Kieffer	
CULICOIDES (CULICOIDES)	***delta*** Edwards	
	grisescens Edwards	
	impunctatus Goetghebuer	
	newsteadi Austen	
	pulicaris (Linnaeus)	
	punctatus (Meigen)	
CULICOIDES (MONOCULICOIDES)	***nubeculosus*** (Meigen)	
	parroti Kieffer	
	riethi Kieffer	
	stigma (Meigen)	
CULICOIDES (OECACTA)	***brunnicans*** Edwards	
	duddingstoni Kettle & Lawson	
	festivipennis Kieffer	
	furcillatus Callot, Kremer & Paradis	
	heliophilus Edwards	
	kibunensis Tokunaga	
	pictipennis (Staeger)	
	poperinghensis Goetghebuer	
	reconditus Campbell & Pelham-Clinton	
	segnis Campbell & Pelham-Clinton	
	vexans (Staeger)	

CULICOIDES	
(SILVATICULICOIDES)	***achrayi*** Kettle & Lawson
	fascipennis (Staeger)
	pallidicornis Kieffer
	Tribe PALPOMYIINI
BEZZIA (BEZZIA)	***coracina*** (Zetterstedt)
	nobilis (Winnertz)
	ornata (Meigen)
BEZZIA (HOMOBEZZIA)	***taeniata*** (Haliday in Walker)
BEZZIA (PYGOBEZZIA)	***calceata*** (Haliday in Walker)
PALPOMYIA	***brachialis*** (Haliday)
	distincta (Haliday)
	flavipes (Meigen)
	spinipes (Meigen in Panzer)
	Subfamily **DASYHELEINAE**
DASYHELEA	
(PSEUDOCULICOIDES)	***flavoscutellata*** (Zetterstedt)
	Subfamily **FORCIPOMYIINAE**
ATRICHOPOGON	
(LOPHOMYIDIUM)	***rostratus*** (Winnertz) #

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Family **CHAOBORIDAE** (3 species)

There has been no published checklist of the Irish species and there are only a few scattered species records in the literature (Haliday, 1833; Hogan and Haliday, 1855; Grimshaw, 1912; Edwards, 1929, 1930; Freeman, 1950). Edwards (1930) described a new species, *Mochlonyx martinii* Edwards from Killarney, Co. Kerry but this species has since been shown to be a synonym of *M. fuliginosus* (Felt). *M. culiciformis* (De Geer), which is now a junior synonym of *M. velutinus* (Ruthé) (Wagner, 1990), is the most commonly mentioned species in the Irish literature. In Britain, six species are recorded and the additional three species not yet found in Ireland are *C.* (*C.*) *flavicans* (Meigen), *C.* (*C.*) *obscuripes* (van der Wulp) and *C.* (*Peusomyia*) *pallidus* (Fabricius).

CHAOBORUS (CHAOBORUS)	***crystallinus*** (De Geer)
MOCHLONYX	***velutinus*** (Ruthé)
	fuliginosus (Felt)

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Family **CHIRONOMIDAE** (396 species)

The first modern checklist of Irish species is given in Murray (1972). A considerable number of Irish species are recorded in Ashe and Cranston (1990) but some widely distributed species are not listed by country. In the last complete checklist of Irish Chironomidae there were 347 species recorded (Murray and Ashe, 1984). Additional species have been published in several subsequent papers (Sæther and Sublette, 1983; Murray and Fittkau, 1985; Ashe, 1987; Henegan and Murray, 1987; Bond *et al.*, 1988; Morgan and Murray, 1988; Hayes and Murray, 1989; Sæther, 1990; Soponis, 1990; Tokeshi, 1990; Ashe and O'Connor, 1994; Murray, 1996; Ashe and O'Connor, 1997; Langton and McLarnon, 1998) bringing the Irish total to 396 species. Nomenclatural changes are based on Ashe and Cranston (1990) and include the most recent changes given in Chandler (in press).

Two species, *Harnischia curtilamellata* (Malloch) and *Prodiamesa rufovittata* Goetghebuer, which are doubtfully Irish are excluded from the list given below because the former is based on the questionable synonymy of *Chironomus lacustris* Haliday and the latter is based on an unconfirmed 19th century record. The British chironomid fauna currently stands at 578 species with 182 more species there than are known in Ireland. However, ten species are known from Ireland but not yet recorded from Britain, *Anatopynia plumipes* (Fries), *Corynocera ambigua* Zetterstedt, *Diamesa cinerella* Meigen, *Metriocnemus beringiensis* (Cranston & Oliver), *Parachironomus subalpinus* (Goetghebuer), *P. swammerdami* (Kruseman), *Paratanytarsus dimorphis* Reiss, *Pseudorthocladius rectangilobus* Caspers & Siebert, *Rheotanytarsus nigricauda* Fittkau and *Saetheria reissi* Jackson, and therefore the total number of species for the British Isles is 588. There are a number of additional

species known from Ireland which have not yet been published and more additional species are expected to be added to both the British and Irish lists on a regular basis. Two additional Irish species, *Procladius* "near *crassinervis*" (Murray, pers. obs.) and *Phaenopsectra (Phaenopsectra)* "Pe F Bala" (Murray, 1996), are excluded from the totals and the list below because the correct taxonomic names to apply to these species needs to be resolved.

A complete checklist of all the Irish species is given here and no attempt has been made to exclude the relatively small number of terrestrial species as the ecology of many of these species is still imperfectly known.

	Subfamily **PODONOMINAE**
	Tribe BOREOCHLINI
LASIODIAMESA	***sphagnicola*** (Kieffer)
	Tribe PODONOMINI
PAROCHLUS	***kiefferi*** (Garrett)
	Subfamily **TANYPODINAE**
	Tribe ANATOPYNIINI
ANATOPYNIA	***plumipes*** (Fries)
	Tribe COELOTANYPODINI
CLINOTANYPUS	***nervosus*** (Meigen)
	Tribe MACROPELOPIINI
APSECTROTANYPUS	***trifascipennis*** (Zetterstedt)
MACROPELOPIA	***adaucta*** Kieffer in Thienemann & Kieffer
	nebulosa (Meigen)
	notata (Meigen)
PSECTROTANYPUS (PSECTROTANYPUS)	***varius*** (Fabricius)
	Tribe NATARSIINI
NATARSIA	***nugax*** (Walker)
	punctata (Meigen)
	Tribe PENTANEURINI
ABLABESMYIA	***longistyla*** Fittkau
	monilis (Linnaeus)
	phatta (Egger)
ARCTOPELOPIA	***barbitarsis*** (Zetterstedt)
	griseipennis (van der Wulp)
CONCHAPELOPIA	***melanops*** (Meigen)

	pallidula (Meigen)
	viator (Kieffer)
GUTTIPELOPIA	***guttipennis*** (van der Wulp)
HAYESOMYIA	***tripunctata*** (Goetghebuer)
KRENOPELOPIA	***binotata*** (Wiedemann)
	nigropunctata (Staeger)
LARSIA	***atrocincta*** (Goetghebuer)
	curticalcar (Kieffer)
MONOPELOPIA	***tenuicalcar*** (Kieffer)
NILOTANYPUS	***dubius*** (Meigen)
PARAMERINA	***cingulata*** (Stephens in Walker)
	divisa (Walker)
RHEOPELOPIA	***eximia*** (Edwards)
	maculipennis (Zetterstedt)
	ornata (Meigen)
TELMATOPELOPIA	***nemorum*** (Goetghebuer)
THIENEMANNIMYIA	***carnea*** (Fabricius)
	festiva (Meigen)
	geijkesi (Goetghebuer)
	laeta (Meigen)
	lentiginosa (Fries)
	northumbrica (Edwards)
	pseudocarnea Murray
TRISSOPELOPIA	***longimana*** (Staeger)
XENOPELOPIA	***falcigera*** (Kieffer)
	nigricans (Goetghebuer)
ZAVRELIMYIA	***barbatipes*** (Kieffer)
	hirtimana (Kieffer)
	melanura (Meigen)
	nubila (Meigen)
	Tribe PROCLADIINI
PROCLADIUS (HOLOTANYPUS)	***choreus*** (Meigen)
	crassinervis (Zetterstedt)
	culiciformis (Linnaeus)
	sagittalis (Kieffer)
	signatus (Zetterstedt)
	simplicistylis Freeman

PROCLADIUS (PSILOTANYPUS)	***flavifrons*** Edwards
	lugens Kieffer
	rufovittatus (van der Wulp)
	Tribe TANYPODINI
TANYPUS	***punctipennis*** Meigen
	Subfamily **BUCHONOMYIINAE**
BUCHONOMYIA	***thienemanni*** Fittkau
	Subfamily **DIAMESINAE**
	Tribe DIAMESINI
DIAMESA	***bohemani*** Goetghebuer
	cinerella Meigen in Gistl
	incallida (Walker)
	insignipes Kieffer in Kieffer & Thienemann
	permacra (Walker)
	tonsa (Haliday in Walker)
POTTHASTIA	***gaedii*** (Meigen)
	longimanus (Kieffer)
	montium (Edwards)
PSEUDODIAMESA	***branickii*** (Nowicki)
	nivosa (Goetghebuer)
	Tribe PROTANYPINI
PROTANYPUS	***morio*** (Zetterstedt)
	Subfamily **TELMATOGETONINAE**
THALASSOMYA	***frauenfeldi*** Schiner
	Subfamily **PRODIAMESINAE**
MONODIAMESA	***bathyphila*** (Kieffer)
	ekmani Brundin
PRODIAMESA	***olivacea*** (Meigen)
	Subfamily **ORTHOCLADIINAE**
ACAMPTOCLADIUS	***submontanus*** (Edwards)
ACRICOTOPUS	***lucens*** (Zetterstedt)
BRILLIA	***flavifrons*** (Johannsen)
	modesta (Meigen)

BRYOPHAENOCLADIUS	***femineus*** (Edwards)
	furcatus (Kieffer in Thienemann & Kieffer)
	nitidicollis (Goetghebuer)
	subvernalis (Edwards)
	vernalis (Goetghebuer)
CAMPTOCLADIUS	***stercorarius*** (De Geer)
CARDIOCLADIUS	***capucinus*** (Zetterstedt)
	fuscus Kieffer
CHAETOCLADIUS	***dentiforceps*** (Edwards)
	dissipatus (Edwards)
	perennis (Meigen)
CLUNIO	***marinus*** Haliday
CORYNONEURA	***carriana*** Edwards
	celeripes Winnertz
	celtica Edwards
	coronata Edwards
	edwardsi Brundin
	lacustris Edwards
	lobata Edwards
	scutellata Winnertz
CRICOTOPUS (CRICOTOPUS)	***albiforceps*** (Kieffer in Thienemann & Kieffer)
	annulator Goetghebuer
	bicinctus (Meigen)
	curtus Hirvenoja
	cylindraceus (Kieffer in Kieffer & Thienemann)
	ephippium (Zetterstedt)
	festivellus (Kieffer)
	fuscus (Kieffer)
	pallidipes Edwards
	pulchripes Verrall
	similis Goetghebuer
	tremulus (Linnaeus)
	triannulatus (Macquar)
	trifascia Edwards
	tristis Hirvenoja
CRICOTOPUS (ISOCLADIUS)	***intersectus*** (Staeger)
	laricomalis Edwards

	obnixus (Walker)
	ornatus (Meigen)
	pilitarsis (Zetterstedt)
	reversus Hirvenoja
	sylvestris (Fabricius)
	tricinctus (Meigen)
	trifasciatus (Meigen in Panzer)
CRICOTOPUS (NOSTOCOCLADIUS)	***lygropis*** Edwards
DIPLOCLADIUS	***cultriger*** Kieffer in Kieffer & Thienemann
EPOICOCLADIUS	***ephemerae*** (Kieffer in Sulc & Zavrel)
EUKIEFFERIELLA	***ancyla*** Svensson
	brevicalcar (Kieffer)
	claripennis (Lundbeck)
	clypeata (Kieffer)
	coerulescens (Kieffer in Zavrel)
	devonica (Edwards)
	dittmari Lehmann
	gracei (Edwards)
	ilkeyensis (Edwards)
	minor (Edwards)
	tirolensis Goetghebuer
EURYCNEMUS	***crassipes*** (Panzer)
GEORTHOCLADIUS	***luteicornis*** (Goetghebuer in Strenzke)
GYMNOMETRIOCNEMUS	***brumalis*** (Edwards)
	subnudus (Edwards)
HALOCLADIUS (HALOCLADIUS)	***fucicola*** (Edwards)
	variabilis (Staeger)
	varians (Staeger)
HALOCLADIUS (PSAMMOCLADIUS)	***braunsi*** (Goetghebuer)
HELENIELLA	***ornaticollis*** (Edwards)
HETEROTANYTARSUS	***apicalis*** (Kieffer)
HETEROTRISSOCLADIUS	***grimshawi*** (Edwards)
	marcidus (Walker)
KRENOSMITTIA	***camptophleps*** (Edwards)
LIMNOPHYES	***edwardsi*** Sæther
	gurgicola (Edwards)
	habilis (Walker)

	minimus (Meigen)
	natalensis (Kieffer)
	pentaplastus (Kieffer)
	pumilio (Holmgren)
MESOSMITTIA	***flexuella*** (Edwards)
METRIOCNEMUS	***albolineatus*** (Meigen)
	atriclavus Kieffer
	beringiensis (Cranston & Oliver)
	eurynotus (Holmgren)
	fuscipes (Meigen)
	hirticollis: Edwards, misident.
	martinii Thienemann
	picipes (Meigen)
NANOCLADIUS	***balticus*** (Palmen)
	bicolor (Zetterstedt)
	rectinervis (Kieffer)
ORTHOCLADIUS (EUDACTYLOCLADIUS)	***fuscimanus*** (Kieffer in Kieffer & Thienemann)
ORTHOCLADIUS (EUORTHOCLADIUS)	***ashei*** Soponis
	rivicola Kieffer
	rivulorum Kieffer
	thienemanni Kieffer in Kieffer & Thienemann
ORTHOCLADIUS (ORTHOCLADIUS)	***dentifer*** Brundin
	frigidus (Zetterstedt)
	oblidens (Walker)
	obumbratus Johannsen
	pedestris Kieffer
	rivinus Kieffer
	rubicundus (Meigen)
	wetterensis Brundin
ORTHOCLADIUS (POGONOCLADIUS)	***consobrinus*** (Holmgren)
ORTHOCLADIUS (SYMPOSIOCLADIUS)	***lignicola*** Kieffer in Potthast
PARACLADIUS	***conversus*** (Walker)
PARAKIEFFERIELLA	***bathophila*** (Kieffer)

	coronata (Edwards)
PARALIMNOPHYES	***hydrophilus*** (Goetghebuer)
PARAMETRIOCNEMUS	***stylatus*** (Kieffer)
PARAPHAENOCLADIUS	***exagitans*** ssp. ***monticola*** Strenzke
	impensus (Walker)
	irritus (Walker)
	penerasus (Edwards)
	pseudirritus Strenzke
PARATRICHOCLADIUS	***rufiventris*** (Meigen)
	skirwithensis (Edwards)
PARATRISSOCLADIUS	***excerptus*** (Walker)
PSECTROCLADIUS	
(ALLOPSECTROCLADIUS)	***obvius*** (Walker)
	platypus (Edwards)
PSECTROCLADIUS	
(MESOPSECTROCLADIUS)	***barbatipes*** Kieffer
PSECTROCLADIUS	
(MONOPSECTROCLADIUS)	***calcaratus*** (Edwards)
PSECTROCLADIUS	
(PSECTROCLADIUS)	***barbimanus*** (Edwards)
	bisetus Goetghebuer
	fennicus Storå
	limbatellus (Holmgren)
	octomaculatus Wülker
	oligosetus Wülker
	psilopterus (Kieffer in Kieffer & Thienemann)
	sordidellus (Zetterstedt)
PSEUDORTHOCLADIUS	
(PSEUDORTHOCLADIUS)	***cranstoni*** Sæther & Sublette
	curtistylus (Goetghebuer)
	filiformis (Kieffer in Kieffer & Thienemann)
	rectangilobus Caspers & Siebert
PSEUDOSMITTIA	***recta*** (Edwards)
	trilobata (Edwards)
RHEOCRICOTOPUS	
(PSILOCRICOTOPUS)	***chalybeatus*** (Edwards)
	glabricollis (Meigen)

RHEOCRICOTOPUS	
(RHEOCRICOTOPUS)	***fuscipes*** (Kieffer)
RHEOSMITTIA	***spinicornis*** (Brundin)
SMITTIA	***albipennis*** (Goetghebuer)
	aterrima (Meigen)
	contingens (Walker)
	edwardsi Goetghebuer
	leucopogon (Meigen)
	pratorum (Goetghebuer)
SYNORTHOCLADIUS	***semivirens*** (Kieffer)
THALASSOSMITTIA	***thalassophila*** (Bequaert & Goetghebuer)
THIENEMANNIA	***gracilis*** Kieffer
THIENEMANNIELLA	***acuticornis*** (Kieffer)
	clavicornis (Kieffer)
	flavescens (Edwards)
	majuscula (Edwards)
	vittata (Edwards)
TRISSOCLADIUS	***brevipalpis*** Kieffer in Kieffer & Thienemann
TVETENIA	***bavarica*** (Goetghebuer)
	calvescens (Edwards)
	discoloripes (Goetghebuer in Thienemann)
	verralli (Edwards)
ZALUTSCHIA	***humphriesiae*** Dowling & Murray

Subfamily **CHIRONOMINAE**

Tribe CHIRONOMINI

CHIRONOMUS	
(CAMPTOCHIRONOMUS)	***tentans*** Fabricius
CHIRONOMUS (CHIRONOMUS)	***annularius***: auctt., misident.
	anthracinus Zetterstedt
	aprilinus Meigen
	cingulatus Meigen
	commutatus Keyl
	dorsalis: auctt., misident.
	longipes Staeger
	longistylus Goetghebuer
	lugubris Zetterstedt

	pilicornis (Fabricius)
	plumosus (Linnaeus)
	prasinus Meigen
	pseudothummi Strenzke
	riparius Meigen
	salinarius Kieffer in Thienemann
	striatus: auctt., misident.
CLADOPELMA	***krusemani*** (Goetghebuer)
	laterale (Goetghebuer)
	viridulum (Linnaeus)
CRYPTOCHIRONOMUS	***albofasciatus*** (Staeger)
	psittacinus (Meigen)
	rostratus Kieffer
	supplicans (Meigen)
CRYPTOTENDIPES	***pseudotener*** (Goetghebuer)
DEMEIJEREA	***rufipes*** (Linnaeus)
DEMICRYPTOCHIRONOMUS	
(DEMICRYPTOCHIRONOMUS)	***vulneratus*** (Zetterstedt)
DICROTENDIPES	***lobiger*** (Kieffer)
	nervosus (Staeger)
	notatus (Meigen)
	objectans (Walker)
	tritomus (Kieffer in Thienemann & Kieffer)
EINFELDIA	***pagana*** (Meigen)
ENDOCHIRONOMUS	***albipennis*** (Meigen)
	tendens (Fabricius)
GLYPTOTENDIPES	
(CAULOCHIRONOMUS)	***viridis*** (Macquart)
GLYPTOTENDIPES	
(GLYPTOTENDIPES)	***barbipes*** (Staeger)
	gripekoveni (Kieffer)
	pallens (Meigen)
	paripes (Edwards)
GRACEUS	***ambiguus*** Goetghebuer
KIEFFERULUS	***tendipediformis*** (Goetghebuer)
LAUTERBORNIELLA	***agrayloides*** (Kieffer)
MICROCHIRONOMUS	***deribae*** (Freeman)

MICROTENDIPES	***chloris*** (Meigen)
	confinis (Meigen)
	nitidus (Meigen)
	pedellus (De Geer)
	rydalensis (Edwards)
	tarsalis (Stephens in Walker)
NILOTHAUMA	***brayi*** (Goetghebuer)
OMISUS	***caledonicus*** (Edwards)
PAGASTIELLA	***orophila*** (Edwards)
PARACHIRONOMUS	***arcuatus*** (Goetghebuer)
	biannulatus (Staeger)
	frequens (Johannsen)
	monochromus (van der Wulp)
	parilis (Walker)
	subalpinus (Goetghebuer)
	swammerdami (Kruseman)
	tenuicaudatus (Malloch)
PARACLADOPELMA	***camptolabis*** (Kieffer)
	laminatum (Kieffer)
	nigritulum (Goetghebuer)
PARALAUTERBORNIELLA	***nigrohalteralis*** (Malloch)
PARATENDIPES	***albimanus*** (Meigen)
	nudisquama (Edwards)
	plebeius (Meigen)
PHAENOPSECTRA	***flavipes*** (Meigen)
	punctipes (Wiedemann)
POLYPEDILUM (PENTAPEDILUM)	***nubens*** (Edwards)
	sordens (van der Wulp)
	tritum (Walker)
	uncinatum (Goetghebuer)
POLYPEDILUM (POLYPEDILUM)	***acutum*** Kieffer
	albicorne (Meigen)
	arundineti (Goetghebuer)
	convictum (Walker)
	cultellatum Goetghebuer
	laetum (Meigen)
	nubeculosum (Meigen)

	pedestre (Meigen)
POLYPEDILUM (TRIPODURA)	***bicrenatum*** Kieffer
	pullum (Zetterstedt)
	quadriguttatum Kieffer
	scalaenum (Schrank)
SAETHERIA	***reissi*** Jackson
SERGENTIA (SERGENTIA)	***coracina*** (Zetterstedt)
STENOCHIRONOMUS (STENOCHIRONOMUS)	***gibbus*** (Fabricius)
STENOCHIRONOMUS (?subgenus)	***hibernicus*** (Edwards)
STICTOCHIRONOMUS	***maculipennis*** (Meigen)
	pictulus (Meigen)
	rosenschoeldi (Zetterstedt)
	sticticus (Fabricius)
SYNENDOTENDIPES	***dispar*** (Meigen)
	impar (Walker)
XENOCHIRONOMUS	***xenolabis*** (Kieffer in Thienemann & Kieffer)
	Tribe PSEUDOCHIRONOMINI
PSEUDOCHIRONOMUS	***prasinatus*** (Staeger)
	Tribe TANYTARSINI
CLADOTANYTARSUS	***atridorsum*** Kieffer
	difficilis Brundin
	mancus (Walker)
	nigrovittatus (Goetghebuer)
	vanderwulpi (Edwards)
CORYNOCERA	***ambigua*** Zetterstedt
MICROPSECTRA	***apposita*** (Walker)
	aristata Pinder
	atrofasciata (Kieffer)
	bidentata (Goetghebuer)
	contracta Reiss
	fusca (Meigen)
	groenlandica Andersen
	junci (Meigen)
	lindrothi Goetghebuer in Goetghebuer & Lindroth
	notescens (Walker)
	recurvata Goetghebuer

NEOZAVRELIA	***luteola*** Goetghebuer in Goetghebuer & Thienemann
PARAPSECTRA	***nana*** (Meigen)
PARATANYTARSUS	***austriacus*** (Kieffer in Albrecht)
	bituberculatus (Edwards)
	dimorphis Reiss
	dissimilis (Johannsen)
	grimmii (Schneider)
	inopertus (Walker)
	intricatus (Goetghebuer)
	laccophilus (Edwards)
	penicillatus (Goetghebuer)
	tenuis (Meigen)
RHEOTANYTARSUS	***curtistylus*** (Goetghebuer)
	distinctissimus (Brundin)
	nigricauda Fittkau
	pentapoda (Kieffer)
	photophilus (Goetghebuer)
	rhenanus Klink
STEMPELLINA	***bausei*** (Kieffer)
STEMPELLINELLA	***brevis*** (Edwards)
TANYTARSUS	***bathophilus*** Kieffer
	brundini Lindeberg
	buchonius Reiss & Fittkau
	chinyensis Goetghebuer
	curticornis Kieffer
	debilis (Meigen)
	eminulus (Walker)
	excavatus Edwards
	glabrescens Edwards
	gracilentus (Holmgren)
	gregarius Kieffer
	heusdensis Goetghebuer
	lestagei (aggregate)
	medius Reiss & Fittkau
	pallidicornis (Stephens in Walker)
	quadridentatus Brundin
	signatus (van der Wulp)

	striatulus Lindeberg
	sylvaticus (van der Wulp)
	usmaensis Pagast
VIRGATANYTARSUS	***arduennensis*** (Goetghebuer)
	triangularis (Goetghebuer)
ZAVRELIA	***pentatoma*** Kieffer

References

Ashe, P. (1987) *Lasiodiamesa sphagnicola*, *Cardiocladius capucinus* and *Orthocladius (Eudactylocladius) fuscimanus* (Diptera, Chironomidae) new to Ireland. *Ir. Nat. J.* **22**: 194-195.

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Ashe, P. and O'Connor, J. P. (1994) *Eukiefferiella ancyla* and *Paratanytarsus grimmii*: insects new to Ireland (Diptera: Chironomidae) with a second record for *Orthocladius (Symposiocladius) lignicola*. *Ir. Nat. J.* **24**: 364-366.

Ashe, P. and O'Connor, J. P. (1997) *Metriocnemus cavicola* Kieffer (Dipt., Chironomidae) new to Ireland. *Entomologist's mon. Mag.* **133**: 76.

Bond, K. G. M., O'Connor, J. P. and Ashe, P. (1988) *Limnophyes habilis* and *Metriocnemus atratulus* (Diptera): terrestrial chironomids new to Ireland. *Ir. Nat. J.* **22**: 444-445.

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Langton, P. H. and McLarnon, L. A. (1998) *Monodiamesa ekmani* Brundin (Diptera: Chironomidae), confirmed new to Britain and Ireland. *Br. J. ent. Nat. Hist.* **10**: 196-202.

Morgan, D. and Murray, D. A. (1988) Five Chironomidae (Diptera) new to Ireland. *Bull. Ir. biogeog. Soc.* **11**: 95-99.

Murray, D.A. (1972) A list of the Chironomidae (Diptera) known to occur in Ireland with notes on their distribution. *Proc. R. Ir. Acad.* **72B**: 275-293.

Murray, D.A. (1996) Records of Chironomidae (Diptera) in Ireland: twenty-nine species new to the Irish fauna. *Bull. Ir. biogeog. Soc.* **19**: 195-201.

Murray, D.A. and Ashe, P. (1984) An inventory of Irish Chironomidae (Diptera). *Mem. Am. ent. Soc.* **34**: 223-233.

Murray, D.A. and Fittkau, E.J. (1985) *Hayesomyia* n.gen., a new genus of Tanypodinae (Diptera, Chironomidae) from the Holarctic. *Spixiana Suppl.* **11**: 195-207.

Sæther, O. A. (1990) A review of the genus *Limnophyes* Eaton from the Holarctic and Afrotropical regions (Diptera: Chironomidae, Orthocladiinae). *Ent. Scand., Suppl.* **20**: 1-100.

Sæther, O. A. and Sublette, J. E. (1983) A review of the genera *Doithrix* n.gen., *Georthocladius* Strenzke, *Parachaetocladius* Wülker and *Pseudorthocladius* Goetghebuer (Diptera: Chironomidae, Orthocladiinae). *Ent. Scand., Suppl.* **35**: 1-135.

Soponis, A.R. (1990) A revision of the Holarctic species of *Orthocladius* (*Euorthocladius*) (Diptera: Chironomidae). *Spixiana Suppl.*, **13**: 1-56.

Tokeshi, M. (1990) Chironomid fauna of Lough Neagh, Northern Ireland (Diptera, Chironomidae). *Entomologist's Gaz.* **41**: 145-148.

Family **CULICIDAE** (18 species)

A checklist of the eighteen species and their known distribution in Ireland is given by Ashe *et al.* (1991). In Britain, the total number of recorded species stands at 32 and of the additional 16 species at least eight can be expected to occur in Ireland. The *Anopheles maculipennis* complex contains two species in the British Isles, *A. atroparvus* van Thiel and *A. messeae* Falleroni, but which one (or if both species) occurs in Ireland is unknown at present.

Subfamily **ANOPHELINAE**

ANOPHELES (ANOPHELES)	***algeriensis*** Theobald
	claviger (Meigen)
	maculipennis complex
	plumbeus Stephens

Subfamily **CULICINAE**

AEDES (AEDES)	***cinereus*** Meigen
AEDES (OCHLEROTATUS)	***cantans*** Meigen
	caspius (Pallas)
	detritus (Haliday)
	dorsalis (Meigen)
	punctor (Kirby)
	rusticus (Rossi)

COQUILLETTIDIA

(COQUILLETTIDIA)	***richiardii*** (Ficalbi)
CULEX (CULEX)	***pipiens*** Linnaeus
CULISETA (CULICELLA)	***litorea*** (Shute)
	morsitans (Theobald)
CULISETA (CULISETA)	***alaskaensis*** (Ludlow)
	annulata (Schrank)
	subochrea (Edwards)

Reference

Ashe, P., O'Connor, J. P. and Casey, R. J. (1991) Irish mosquitoes (Diptera: Culicidae): a checklist of the species and their known distribution. *Proc. R. Ir. Acad.* **91B**: 21-36.

Family **CYLINDROTOMIDAE** (1 species)

A single aquatic species, *Phalacrocera replicata* (Linnaeus), was added to the Irish fauna several years ago (Ashe *et al.* 1991). In Britain two aquatic species are recorded with the additional species being *Triogma trisulcata* (Schummel) which has not yet been found in Ireland.

PHALACROCERA	***replicata*** (Linnaeus)

References

Ashe, P., O'Connor, J. P., Chandler, P. J., Stubbs, A. E. Vane-Wright, R. I. and Blackith, R. E. (1991) Craneflies new to Ireland (Diptera: Cylindrotomidae, Limoniidae, Tipulidae). *Bull. Ir. biogeog. Soc.* **14**: 54-59.

Family **DIXIDAE** (13 species)

A review of the Irish species is given in Ashe (1986). Further records are published in Ashe and O'Connor (1990) and Blackith *et al.* (1991) and the current total stands at 13 species. In Britain, 15 species are recorded, the two additional species not found in Ireland being *Dixella graeca* (Pandazis) and *D. obscura* (Loew).

Although *Dixa maculata* Meigen was not included in Ashe (1986) as definitely Irish, the synonymy of *D. maculata* (Chandler, in press) with *D. moesta* Haliday in Curtis (1832), with the latter having a

type locality of "Ireland", confirms that *D. maculata* does occur here though there are no modern records.

DIXA	***dilatata*** Strobl
	nebulosa Meigen
	maculata Meigen
	nubilipennis Curtis
	puberula Loew
	submaculata Edwards
DIXELLA	***aestivalis*** Meigen
	amphibia De Geer
	attica Pandazis
	autumnalis Meigen
	filicornis Edwards
	martinii Peus
	serotina Meigen

References

Ashe, P. (1986) A checklist of Irish Dixidae (Diptera). *Bull. Ir. biogeog. Soc.* **9**: 46-50.

Ashe, P. and O'Connor, J. P. (1990) Further records of Irish Dixidae (Diptera) including *Dixella attica* Pandazis, new to Ireland. *Bull. Ir. biogeog. Soc.* **13**: 23-28.

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co. Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Curtis, J. (1832) *British entomology: being illustrations and descriptions of the genera of insects found in Great Britain and Ireland: containing coloured figures from nature of the most rare and beautiful species, and in many instances of the plants upon which they are found.* London: (1832): pls 384-433.

Family **DOLICHOPODIDAE** (54 species)

A provisional list of the Irish Dolichopodidae was published by Dyte (1969) and additional records of some aquatic species are given in Speight (1987), Speight and Meuffels (1989), Blackith *et al.* (1991) and Speight *et al.* (1992). The most recent list of all Irish species in given in Chandler (in press). A total of 54 aquatic Dolichopididae are known from Ireland. Two species, *Argyra argyria* (Meigen) and *Dolichopus* (*Dolichopus*) *arbustorum* Stannius, are excluded from the list given below

because they are doubtfully Irish and require confirmation. Two species, *Campsicnemus dasycnemus* Loew (Chandler, 1989) and *Syntormon setosum* Parent (Speight and Meuffels, 1989), have been recorded from Ireland which have not yet been found in Britain. However, it is estimated that there are 28 aquatic species (including the two doubtful Irish species noted above) found in Britain which are not known from Ireland. The total number of aquatic species in the British Isles is estimated to be 82. In some of the genera listed below, there are additional species known from Ireland and Britain and it is likely that some of these will eventually prove to be aquatic.

Subfamily **DIAPHORINAE**

ARGYRA	***argentina*** (Meigen)
	diaphana (Fabricius)
	elongata (Zetterstedt)
	leucocephala (Meigen)
	perplexa Becker
	vestita (Wiedemann)

Subfamily **DOLICHOPODINAE**

DOLICHOPUS (DOLICHOPUS)	***atratus*** Meigen
	nubilus Meigen
	pennatus Meigen
	phaeopus Haliday in Walker
	plumipes (Scopoli)
	signatus Meigen
	trivialis Haliday
	urbanus Meigen
HERCOSTOMUS (GYMNOPTERNUS)	***aerosus*** (Fallén)
	assimilis (Staeger)
POECILOBOTHRUS	***nobilitatus*** (Linnaeus)
SYBISTROMA	***obscurellum*** (Fallén)
TACHYTRECHUS	***insignis*** (Stannius)
	notatus (Stannius)

Subfamily **HYDROPHORINAE**

HYDROPHORUS	***albiceps*** Frey
	balticus (Meigen)
	bipunctatus (Lehmann)

	litoreus Fallén
	nebulosus Fallén
	oceanus (Macquart)
	praecox (Lehmann)
LIANCALUS	***virens*** (Scopoli)
MACHAERIUM	***maritimae*** Haliday
ORTHOCERATIUM	***lacustre*** (Scopoli)
	Subfamily **RHAPHIINAE**
RHAPHIUM	***albomaculatum*** (Becker)
	brevicorne Curtis
	consobrinum Zetterstedt
	elegantulum (Meigen)
	riparium (Meigen)
	Subfamily **SYMPYCNINAE**
ANEPSIOMYIA	***flaviventris*** (Meigen)
CAMPSICNEMUS	***armatus*** (Zetterstedt)
	compeditus Loew
	curvipes (Fallén)
	dasycnemus Loew
	loripes (Haliday)
	pusillus (Meigen)
	scambus (Fallén)
SYNTORMON	***aulicum*** (Meigen)
	mikii Strobl
	monile (Haliday in Walker)
	pallipes (Fabricius)
	pumilum (Meigen)
	setosum Parent
	sulcipes (Meigen)
	tarsatum (Fallén)
	zelleri (Loew)
TEUCHOPHORUS	***monacanthus*** Loew
	spinigerellus (Zetterstedt)

Occ. Pub. Ir. biogeog. Soc. No. 3 (1998)

References

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co. Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Chandler, P.J. (1989) *Campsicnemus dasycnemus* (Loew) (Diptera: Dolichopodidae): first record for the British Isles for Ireland. *Ir. Nat. J.* **23**: 17-19.

Chandler, P. J. (ed.) (in press) A checklist of insects of the British Isles (new series). Part 1: Diptera (incorporating a list of Irish Diptera). *Handbk Ident. Br. Insects* **12** (2).

Dyte, C.E. (1969) A provisional list of Irish Dolichopodidae (Diptera). *Entomologist* **12**: 40-48.

Speight, M.C.D. (1987) *Achalcus melanotrichus*, *Systenus leucurus* and *S. pallipes* (Diptera: Dolichopodidae) new to Ireland, bred from rot-holes in *Betula*, *Fagus* and *Acer pseudoplatanus*, with a comment on the significance of these records. *Ir. Nat. J.* **22**: 250-252.

Speight, M.C.D., Blackith, R.M. and de Courcy Williams, M. (1992) *Calliopum elisae*, *Hercostomus nanus*, *Psacadina verbekei*, *Systenus alpinus* and *Zabrachia tenella*. Insects new to Ireland. *Ir. Nat. J.* **24**: 147-151.

Speight, M.C.D. and Meuffels, H.G.J. (1989) *Campsicnemus compeditus*, *Melanostolus melancholicus*, *Syntormon setosus* and *Systenus pallidus* (Diptera: Dolichopodidae), insects new to Ireland. *Ir. Nat. J.* **23**: 92-97.

Family **EMPIDIDAE** (47 species)

The first modern review of the Irish Empididae is given in Chandler (1978). A checklist, including additions to the Irish fauna, is included in Lavery *et al.* (1993). Recently *Dolichocephala oblongoguttata* (Dale) was added to the Irish list by Drake and Chandler (1997). The majority of Empididae are terrestrial but it is estimated that there are 110 species in the British Isles which are aquatic of which 47 occur in Ireland - all the Irish species occur in Britain.

Subfamily **CLINOCERINAE**

CLINOCERA	***fontinalis*** (Haliday)
	nigra Meigen
	stagnalis (Haliday)
DOLICHOCEPHALA	***guttata*** (Haliday)
	irrorata (Fallén)
	oblongoguttata (Dale)
KOWARZIA	***bipunctata*** (Haliday)
WIEDEMANNIA (CHAMAEDIPSIA)	***lota*** Walker
WIEDEMANNIA (WIEDEMANNIA)	***bistigma*** (Curtis)

	insularis Collin
	Subfamily **EMPIDINAE**
HILARA	***anglodanica*** Lundbeck
	beckeri Strobl
	brevistyla Collin
	chorica (Fallén)
	clavipes (Harris)
	cornicula Loew
	flavipes Meigen
	galactoptera Strobl
	intermedia (Fallén)
	interstincta (Fallén)
	litorea (Fallén)
	longivittata Zetterstedt
	lundbecki Frey
	manicata Meigen
	maura (Fabricius)
	monedula Collin
	morata Collin
	nigrina (Fallén)
	obscura Meigen
	quadriseta Collin
	quadrivittata Meigen
	rejecta Collin
	subpollinosa Collin
	thoracica Macquart
	Subfamily **HEMERODROMINAE**
CHELIFERA	***concinnicauda*** Collin
	diversicauda Collin
	pectinicauda Collin
	precatoria (Fallén)
	trapezina (Zetterstedt)
CHELIPODA	***albiseta*** (Zetterstedt)
	vocatoria (Fallén)
HEMERODROMIA	***baetica*** Collin

oratoria (Fallén)
raptoria Meigen
unilineata Zetterstedt

Subfamily **TRICHOPEZINAE**

HELEODROMIA ***immaculata*** Haliday

References

Chandler, P. J. (1978) The Irish fauna of Empididae (Diptera Brachycera). *Proc. R. Ir. Acad.* **78B**: 145-169.

Chandler, P. J. (ed.) (in press) A checklist of insects of the British Isles (new series). Part 1: Diptera (incorporating a list of Irish Diptera). *Handbk Ident. Br. Insects* **12** (2).

Drake, C. M. and Chandler, P. J. (1997) Reinstatement of *Dolichocephala oblongoguttata* (Dale) (Diptera, Empididae) as a valid species. *Dipterists Dig.* (2nd Ser.) **4**: 74-77.

Lavery, T. A., Speight, M. C. D. and Blackith, R. M. (1993) Records of some Irish dance flies, including eleven species new to Ireland and a checklist of the Irish fauna (Diptera: Empididae, Hybotidae, Microphoridae). *Ir. Nat. J.* **24**: 204-212.

Family **EPHYDRIDAE** (19 species)

The Irish fauna has not been intensively studied though the older records have been reviewed by de Courcy Williams (1989) and some new locality records are given for some species in Blackith *et al.* (1991). There are 137 species of ephydrid recorded in Britain (Chandler, in press) of which 38 species are known to be aquatic. The habitat preference of many species is unknown and at least some of these are likely to be aquatic. In Ireland, 19 aquatic species have been recorded though additional species await discovery.

Subfamily **EPHYDRINAE**

Tribe EPHYDRINI

COENIA ***palustris*** (Fallén)
EPHYDRA (EPHYDRA) ***riparia*** Fallén
PARACOENIA (PARACOENIA) ***fumosa*** (Stenhammar)
SETACERA ***micans*** (Haliday)

Tribe PARYDRINI

PARYDRA (CHAETOAPNAEA) ***pusilla*** (Meigen)

Tribe SCATELLINI

SCATELLA ***paludum*** (Meigen)
stagnalis (Fallén)

Subfamily **GYMNOMYZINAE**

Tribe OCHTHERINI

OCHTHERA (OCHTHERA) ***mantis*** (De Geer)

Subfamily **HYDRELLIINAE**

Tribe HYDRELLIINI

HYDRELLIA ***albilabris*** (Meigen)
cardamines Haliday
griseola (Fallén)
maura Meigen
ranunculi Haliday
subalbiceps Collin

Tribe NOTIPHILINI

NOTIPHILA (AGROLIMNA) ***uliginosa*** Haliday
NOTIPHILA (NOTIPHILA) ***annulipes*** Stenhammar
cinerea Fallén
riparia Meigen

Subfamily **ILYTHEINAE**

Tribe HYADININI

PELINA ***aenescens*** (Stenhammar)

References

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co. Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Chandler, P. J. (ed.) (in press) A checklist of insects of the British Isles (new series). Part 1: Diptera (incorporating a list of Irish Diptera). *Handbk Ident. Br. Insects* **12** (2).

de Courcy Williams, M. (1989) A list of Irish Ephydridae (Diptera) based on the Haliday collection in the National Museum of Ireland. *Ir. Nat. J.* **23**: 6-11.

Occ. Pub. Ir. biogeog. Soc. No. 3 (1998)

Family **HYBOTIDAE** (4 species)

Four aquatic species of Hybotidae are known from Ireland (Chandler, 1978; Lavery *et al.*, 1993). One additional aquatic species, *Stilpon sublunatus* Collin, is known from Britain which has not been found in Ireland.

Subfamily **TACHYDROMIINAE**

Tribe DRAPETINI

STILPON

graminum (Fallén)
lunatus (Haliday in Walker)
nubilus Collin
subnubilus Chvála

References

Chandler, P. J. (1978) The Irish fauna of Empididae (Diptera Brachycera). *Proc. R. Ir. Acad.* **78B**: 145-169.

Lavery, T. A., Speight, M. C. D. and Blackith, R. M. (1993) Records of some Irish dance flies, including eleven species new to Ireland and a checklist of the Irish fauna (Diptera: Empididae, Hybotidae, Microphoridae). *Ir. Nat. J.* **24**: 204-212.

Family **LIMONIIDAE** (99 species)

There are a considerable number of references which contain records of Limoniidae in Ireland. However only the more recent publications are included here because a detailed review of the records, literature and distribution of Irish species is to be published in a series of papers of which Ashe *et al.* (in press) is expected to be published in 1998. Mendl (1987) included many distribution records as well as adding a considerable number of species which were new to Ireland. Since then additional records and/or species have been added by Nash (1989), Hancock (1990), Ashe *et al.* (1991), Blackith *et al.* (1991) and Ashe and O'Connor (1993). There are some species recorded for Ireland in the 19th century literature which are excluded from the list below because they are doubtful and require confirmation.

To date there are 216 species of Limoniidae recorded from the British Isles and most (188 species) are aquatic though an estimated 28 species are regarded as having terrestrial larvae. In Ireland 115 species are recorded (99 aquatic and 16 terrestrial) - the list below includes all 115 species but the terrestrial ones are marked with a # symbol and are excluded from the aquatic totals. However, there are two aquatic species, *Hoplolabis* (*Parilisia*) *yezoana* (Alexander) and *Orimarga* (*Orimarga*) *attenuata* (Walker), recorded from Ireland which have not yet been found in Britain. The nomenclature in general follows Savchenko *et al.* (1992) apart from any more recent changes

included in Chandler (in press). Because there is at present a considerable amount of research being done on the Irish fauna, additions to the present list are expected.

Subfamily **CHIONEINAE**

CHEILOTRICHIA (CHEILOTRICHIA)	***imbuta*** (Meigen)	
CHEILOTRICHIA (EMPEDA)	***cinerascens*** (Meigen)	#
CRYPTERIA	***limnophiloides*** Bergroth	
ELLIPTEROIDES (ELLIPTEROIDES)	***lateralis*** (Macquart)	
ERIOCONOPA	***diuturna*** (Walker)	
	trivialis (Meigen)	
ERIOPTERA (ERIOPTERA)	***flavata*** (Westhoff)	
	fuscipennis Meigen	
	lutea Meigen	
	nielseni de Meijere	
	squalida Loew	
GONEMPEDA	***flava*** (Schummel)	
GONOMYIA	***bifida*** Tonnoir	
	conoviensis Barnes	
	dentata de Meijere	
	lucidula de Meijere	
	simplex Tonnoir	
	tenella (Meigen)	
HOPLOLABIS (PARILISIA)	***areolata*** (Siebke)	
	yezoana (Alexander)	
ILISIA	***maculata*** (Meigen)	
MOLOPHILUS	***appendiculatus*** (Staeger)	
	ater (Meigen)	
	bifidus Goetghebuer	
	bihamatus de Meijere	
	cinereifrons de Meijere	
	crassipygus de Meijere	
	czizeki Lackschewitz	
	flavus Goetghebuer	
	griseus (Meigen)	
	lackschewitzianus Alexander	
	medius de Meijere	
	obscurus (Meigen)	

	occultus de Meijere	
	ochraceus (Meigen)	
	pleuralis de Meijere	
	propinquus (Egger)	
	pusillus Edwards	
	serpentiger Edwards	
NEOLIMNOPHILA	***carteri*** (Tonnoir)	
ORMOSIA (ORMOSIA)	***albitibia*** Edwards	
	depilata Edwards	
	hederae (Curtis)	
	nodulosa (Macquart)	#
	pseudosimilis (Lundström)	
RHYPHOLOPHUS	***varius*** (Meigen)	
SYMPLECTA (PSILOCONOPA)	***stictica*** (Meigen)	
SYMPLECTA (SYMPLECTA)	***hybrida*** (Meigen)	
TASIOCERA (DASYMOPHILUS)	***collini*** Freeman	#
	fuscescens (Lackschewitz)	#
	murina (Meigen)	#
TRIMICRA	***pilipes*** (Fabricius)	
	Subfamily **DACTYLOLABINAE**	
DACTYLOLABIS	***sexmaculata*** (Macquart)	
	Subfamily **LIMNOPHILINAE**	
AUSTROLIMNOPHILA (AUSTROLIMNOPHILA)	***ochracea*** (Meigen)	#
ELOEOPHILA	***apicata*** (Loew)	
	maculata (Meigen)	
	mundata (Loew)	
	submarmorata (Verrall)	
	trimaculata (Zetterstedt)	
EPIPHRAGMA (EPIPHRAGMA)	***ocellare*** (Linnaeus)	#
EUPHYLIDOREA	***aperta*** (Verrall)	
	dispar (Meigen)	
	lineola (Meigen)	
	meigenii Verrall	
IDIOPTERA	***linnei*** Oosterbroek	

NEOLIMNOMYIA (BRACHYLIMNOPHILA)	***adjuncta*** (Walker)	
	nemoralis (Meigen)	
NEOLIMNOMYIA (NEOLIMNOMYIA)	***batava*** (Edwards)	
	filata (Walker)	
PARADELPHOMYIA (OXYRHIZA)	***fuscula*** (Loew)	
	senilis (Haliday)	
PHYLIDOREA (PARAPHYLIDOREA)	***fulvonervosa*** (Schummel)	
PHYLIDOREA (PHYLIDOREA)	***abdominalis*** Staeger	
	ferruginea (Meigen)	
	squalens (Zetterstedt)	
PILARIA	***discicollis*** (Meigen)	
	fuscipennis (Meigen)	
	meridiana (Staeger)	
PSEUDOLIMNOPHILA	***lucorum*** (Meigen)	
	sepium (Verrall)	
Subfamily **LIMONIINAE**		
ANTOCHA (ANTOCHA)	***vitripennis*** (Meigen)	
DICRANOMYIA (DICRANOMYIA)	***autumnalis*** (Staeger)	
	chorea (Meigen)	#
	didyma Meigen	
	goritiensis (Mik)	
	lucida (de Meijere)	
	mitis (Meigen) (species complex)	
	modesta (Meigen)	
	omissinervis (de Meijere)	
	sera (Walker)	
DICRANOMYIA (IDIOPYGA)	***danica*** (Kuntze)	
DICRANOMYIA (MELANOLIMONIA)	***caledonica*** (Edwards)	
	morio (Fabricius)	
	stylifera (Lackschewitz)	
DICRANOMYIA (NUMANTIA)	***fusca*** (Meigen)	
DICRANOMYIA (SIVALIMNOBIA)	***aquosa*** (Verrall)	
GERANOMYIA	***bezzii*** Alexander & Leonard	
	unicolor (Haliday)	
HELIUS	***flavus*** (Walker)	

	longirostris (Meigen)	
	pallirostris Edwards	
LIMONIA	***flavipes*** (Fabricius)	#
	macrostigma (Schummel)	
	nubeculosa Meigen	#
	phragmitidis (Schrank)	#
	trivittata (Schummel)	
LIPSOTHRIX	***remota*** (Walker)	
METALIMNOBIA (METALIMNOBIA)	***bifasciata*** (Schrank)	#
	quadrinotata (Meigen)	#
NEOLIMONIA	***dumetorum*** Meigen	#
ORIMARGA (ORIMARGA)	***attenuata*** (Walker)	
	juvenilis (Zetterstedt)	
RHIPHIDIA (RHIPHIDIA)	***ctenophora*** (Loew)	#
	maculata Meigen	#
THAUMASTOPTERA	***calceata*** Mik	

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Ashe, P., O'Connor, J. P., Chandler, P. J., Stubbs, A. E. Vane-Wright, R. I. and Blackith, R. E. (1991) Craneflies new to Ireland (Diptera: Cylindrotomidae, Limoniidae, Tipulidae). *Bull. Ir. biogeog. Soc.* **14**: 54-59.

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Hancock, E. G. (1990) Some cranefly (Diptera: Tipulidae, Anisopodidae, Ptychopteridae) records from Kerry, Ireland, 1982. *Bull. Ir. biogeog. Soc.* **13**: 137-140.

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Savchenko, E. N., Oosterbroek, P. and Stary, J. (1992) Family Limoniidae, pp. 183-369. *In*: Soós, A. and Papp, L., (eds) *Catalogue of Palaearctic Diptera*, Volume **1**: Trichoceridae - Nymphomyiidae. Elsevier, Amsterdam/Akadémiai Kiadó, Budapest.

Family **MUSCIDAE** (5 species)

Since the publication of the revision of Irish Muscidae given in Nash (1979) only one additional aquatic species, *Limnophora exuta* Kowarz, has been added to the list (Nash and O'Connor 1982). Nash (1997) published a recent review of all the muscid species, including aquatic ones, occurring in Northern Ireland. In Britain, an additional five species are known bringing the total known aquatic muscid fauna in the British Isles to 10 species.

Subfamily **LIMNOPHORINAE**

Tribe LIMNOPHORINI

LIMNOPHORA	***exuta*** Kowarz
	riparia (Fallén)
LISPE	***litorea*** Fallén
	pygmaea Fallén
	tentaculata (De Geer)

References

Nash, R. (1979) A checklist of Irish Fanniidae and Muscidae (Diptera). *Bull. Ir. biogeog. Soc.* **5**: 11-17.

Nash, R. (1997) Species inventory for Northern Ireland: muscids (Diptera: Faniidae and Muscidae). *Environment and Heritage Service Research and Development Series*, No. **97/9**: 1-19.

Nash, R. and O'Connor, J. P. (1982) *Limnophora exuta* and *Leptocera caenosa* (Insecta: Diptera) new to Ireland. *Ir. Nat. J.* **20**: 509-560.

Family **PEDICIIDAE** (13 species)

A detailed account of the Irish Pediciinae, which has recently been raised to family rank, is given in Ashe *et al.* (1995). Of the 15 Irish species 13 are aquatic. In Britain four additional aquatic species are recorded which bring the total known to occur in the British Isles to 17 species.

Subfamily **PEDICIINAE**

DICRANOTA (DICRANOTA)	***bimaculata*** (Schummel)
	guerini Zetterstedt

DICRANOTA (PARADICRANOTA)	***pavida*** (Haliday)
	subtilis Loew
DICRANOTA (LUDICIA)	***claripennis*** (Verrall)
	lucidipennis (Edwards)
DICRANOTA (RHAPHIDOLABIS)	***exclusa*** (Walker)
PEDICIA (AMALOPIS)	***occulta*** (Meigen)
PEDICIA (CRUNOBIA)	***littoralis*** (Meigen)
	straminea (Meigen)
PEDICIA (PEDICIA)	***rivosa*** (Linnaeus)
TRICYPHONA	***immaculata*** (Meigen)
	schummeli (Edwards)

Reference

Ashe, P., O'Connor, J. P., Chandler, P. J., Stubbs, A. E. Vane-Wright, R. I. and Blackith, R. E. (1995) The craneflies (Diptera) of Ireland. Part 1. Limoniidae: Pediciinae. *Bull. Ir. biogeog. Soc.* **18**: 136-147.

Family **PSYCHODIDAE** (51 species)

Sixty species of moth-fly are recorded from Ireland (Withers and O'Connor, 1992) and 94 are found in Britain. Of these, 51 Irish and 81 British species may be regarded as aquatic although the life-histories of some psychodids are still unknown. Two aquatic species are recorded from Ireland but have not been found in Britain. These are *Panimerus goodi* (Vaillant and Withers, 1992) and *Mormia satchelli* (Jung) which are only known from Newbridge Fen, Co. Kildare. A total of 83 aquatic species occur therefore in the British Isles and additional species are likely to be found.

Subfamily **PSYCHODINAE**

	Tribe BRUNETTIINI
ATRICHOBRUNETTIA	***angustipennis*** (Tonnoir)
	Tribe PERICOMINI
BOREOCLYTOCERUS	***dalii*** (Eaton)
	ocellaris (Meigen)
PERICOMA (PERICOMA)	***blandula*** Eaton
	diversa Tonnoir
	exquisita Eaton
	fallax Eaton
	pseudoexquisita Tonnoir

	rivularis Berdén
	tonnoiri Vaillant
	trifasciata (Meigen)
PERICOMA (PNEUMIA)	***compta*** Eaton
	crispi Freeman
	mutua Eaton
	nubila (Meigen)
	palustris (Meigen)
	pilularia Tonnoir
	trivialis Eaton
PERICOMA (ULOMYIA)	***cognata*** Eaton
	fuliginosa (Meigen)
SZABOIELLA	***hibernica*** (Tonnoir)
TONNOIRIELLA	***pulchra*** (Eaton)
	Tribe PSYCHODINI
PSYCHODA	***albipennis*** Zetterstedt
	cinerea Banks
	gemina Eaton
	phalaenoides (Linnaeus)
TINEARIA	***alternata*** (Say)
	Tribe TELMATOSCOPINI
FEUERBORNIELLA	***obscura*** (Tonnoir)
MORMIA	***satchelli*** (Jung)
PANIMERUS	***albifacies*** (Tonnoir)
	denticulatus Krek
	goodi Vaillant and Withers
	maynei (Tonnoir)
	notabilis (Eaton)
PARAMORMIA	***decipiens*** (Eaton)
	ustulata (Haliday in Walker)
PERIPSYCHODA	***auriculata*** (Haliday in Curtis)
TELMATOSCOPUS	***advenus*** Eaton
	ambiguus (Eaton)
	consors (Eaton)
	ellisi Withers
	labeculosus (Eaton)
	longicornis (Tonnoir)

	morulus (Eaton)
	parvulus Vaillant
	pseudolongicornis (Wagner)
	rothschildii Eaton
	tristis (Meigen)
TELMATOSCOPUS	***lucifugus*** (Haliday in Walker)

Subfamily **SYNCORACINAE**

SYCORAX	***silacea*** Haliday in Curtis

References

Vaillant, F. and Withers, P. (1992) *Panimerus goodi* sp.n. from Ireland, with a description of other members of the *maynei* complex (Diptera: Psychodidae). *Ir. Nat. J.* **24**: 27-28.

Withers, P. and O'Connor, J. P. (1992) A preliminary account of the Irish species of moth fly (Diptera: Psychodidae). *Proc. R. Ir. Acad.* **92B**: 61-77.

Family **PTYCHOPTERIDAE** (6 species)

There are six species known from Ireland whereas seven are known from Britain, the additional British species being *Ptychoptera longicauda* (Tonnoir). The most recent account of the Irish species is given in Speight and O'Connor (1983) and the only other modern paper is Blackith *et al.* (1991) which includes a few additional records of *P. albimana* (Fabricius).

PTYCHOPTERA	***albimana*** (Fabricius)
	contaminata (Linnaeus)
	lacustris Meigen
	minuta Tonnoir
	paludosa Meigen
	scutellaris Meigen

References

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co. Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Speight, M. C. D. and O'Connor, J. P. (1983) The Irish Ptychopteridae (Diptera). *Bull. Ir. biogeog. Soc.* **5**: 29-37.

Family **RHAGIONIDAE** (1 species)

There is only one recorded aquatic Irish species (Chandler, 1975) and some additional locality records for Co. Wicklow are given in Blackith *et al.* (1991). In Britain a second aquatic species, *Chrysopilus erythrophthalmus* Loew, is known.

CHRYSOPILUS ***cristatus*** (Fabricius)

References

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co. Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Chandler, P. J. (1975) An account of the Irish species of two-winged flies (Diptera) belonging to the families of larger Brachycera (Tabanoidea and Asiloidea). *Proc. R. Ir. Acad.* **75B**: 81-110.

Family **SCATOPHAGIDAE** (6 species)

Apart from *Spaziphora hydromyzina* (Fallén), the other five species listed below are not usually regarded as aquatic. However, Chandler (1974) states that these species belong to a group of genera which have aquatic larvae, according to Vockeroth (in litt.), but they are not included as aquatic in Mol (1984). Consequently there are six aquatic species known from Ireland but nine occur in Britain, the additional species being *Acanthocnema* (*Acanthocnema*) *nigrimana* (Zetterstedt), *A.* (*Clinoceroides*) *glaucescens* (Loew) and *Hydromyza livens* (Fabricius). Some additional distribution records for two of the aquatic species are published in Irwin (1975) and Speight (1983) confirmed *Trichopalpus fraternus* (Meigen) as an Irish species. The larvae of *Coniosternum obscura* (Fallén) were found in Ireland feeding on the eggs of Trichoptera (Berté and Wallace, 1987).

Subfamily **SCATHOPHAGINAE**

CHAETOSA ***punctipes*** (Meigen)
CONISTERNUM ***obscurum*** (Fallén)
MICROPROSOPA ***pallidicauda*** (Zetterstedt)
POGONOTA ***barbata*** (Zetterstedt)
SPAZIPHORA ***hydromyzina*** (Fallén)
TRICHOPALPUS ***fraternus*** (Meigen)

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References

Berté, S.B. & Wallace, I.D. (1987) Larvae of *Coniosternum minuta* (Malloch) and *C. obscura* Fallén (Dipt., Scathophagidae) feeding on eggs of Trichoptera in Canada and Ireland. *Entomologist's mon. Mag.* **123**: 181-184.

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Irwin, A. G. (1975) Recent records of dung flies (Diptera, Scatophagidae) from Northern Ireland. *Ir. Nat. J.* **18**: 188-189.

Mol, A. W. M. (1984) Limnofauna Neerlandica. Een lijst van meercellige ongewervelde dieren aangetroffen in binnenwateren van Nederland. *Nieuwsbrief European Invertebrate Survey - Nederland*, Nummer 15, 124 pp.

Speight, M. C. D. (1983) *Cordilura aemula* and *Microprosopa pallidicauda* new to Ireland, *Trichopalpus fraternus* confirmed as an Irish insect and other records of Scathophagidae (Diptera). *Ir. Nat. J.* **21**: 165-167.

Family **SCIOMYZIDAE** (39 species)

An account of the distribution of the Irish species was published by Chandler (1972) and Speight (1979) produced a checklist. Since the publication of these two papers, records of additional species have been added in several papers (Speight 1982, 1988, 1995; Blackith *et al.*, 1991). There are an estimated 48 aquatic species in Britain and of these 39 occur in Ireland. At least a few of the additional species known from Britain can be expected to occur in Ireland.

Subfamily **SCIOMYZINAE**

Tribe SCIOMYZINI

COLOBAEA	***bifasciella*** (Fallén)
	punctata (Lundbeck)
DITAENIELLA	***grisescens*** (Meigen)
PHERBELLIA	***argyra*** Verbeke
	brunnipes (Meigen)
	griseola (Fallén)
	nana (Fallén)
	schoenherri (Fallén)
	ventralis (Fallén)
PTEROMICRA	***angustipennis*** (Staeger)
	glabricula (Fallén)

	leucopeza (Meigen)
	pectorosa (Hendel)
SCIOMYZA	***dryomyzina*** Zetterstedt
	Tribe TETANOCERINI
ANTICHAETA	***analis*** (Meigen)
	brevipennis (Zetterstedt)
DICTYA	***umbrarum*** (Linnaeus)
ELGIVA	***cucularia*** (Linnaeus)
	solicita (Harris)
HYDROMYA	***dorsalis*** (Fabricius)
ILIONE (ILIONE)	***albiseta*** (Scopoli)
ILIONE (TUMIDICERCUS)	***lineata*** (Fallén)
LIMNIA	***paludicola*** Elberg
PHERBINA	***coryleti*** (Scopoli)
PSACADINA	***verbekei*** Rozkosny in Knutson, Rozkosny & Berg
	zernyi (Mayer)
RENOCERA	***pallida*** (Fallén)
	striata (Meigen)
	stroblii Hendel
SEPEDON	***sphegea*** (Fabricius)
	spinipes (Scopoli)
TETANOCERA	***arrogans*** Meigen
	ferruginea Fallén
	freyi Stackelberg
	fuscinervis (Zetterstedt)
	hyalipennis von Roser
	punctifrons Rondani
	robusta Loew
	silvatica Meigen

References

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co. Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Chandler, P. J. (1972) The distribution of snail-killing flies (Diptera: Sciomyzidae) in Ireland. *Proc. Brit. ent. Nat. Hist. Soc.* **5**: 1-21.

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Speight, M. C. D. (1979) A check-list of the Irish Sciomyzidae (Diptera). *Bull. Ir. biogeog. Soc.* **3**: 27-29.

Speight, M. C. D. (1982) *Acrocera globulus*, *Limnia paludicola* and *Sphaerophoria loewi*: insects new to Ireland. *Ir. Nat. J.* **20**: 369-372.

Speight, M. C. D. (1988) *Elgiva solicita*, *Chyromya flava* and *Paykullia maculata*: insects new to Ireland. *Ir. Nat. J.* **22**: 415-416.

Speight, M. C. D. (1995) *Paragus constrictus*, *Pteromicra pectorosa* and *Stegana similis*: insects new to Ireland and *Stegana coleoptrata*, presence in Ireland confirmed (Diptera). *Ir. Nat. J.* **25**: 28-32.

Family **SIMULIIDAE** (26 species)

Frost (1942) recorded several simuliid species from the upper reaches of the River Liffey. A preliminary account of the Irish species was given in Fahy (1972) who recorded 15 species. In Crosskey's (1991) checklist, 23 species are listed for Ireland. By combining the records in Fahy (1972), Dowling *et al.* (1981), Schröder and Schweder (1986), Schröder (1987, 1988), Bass (1990, 1998) and Crosskey (1991) the total number of Irish species is 26. Two species, *Simulium posticatum* Meigen and *S. tuberosum* (Lundström), are doubtfully recorded from Ireland and are excluded from the list below. In Britain, a total of 33 species are known.

Subfamily **SIMULIINAE**

Tribe PROSIMULIINI

PROSIMULIUM	***hirtipes*** (Fries)
	latimucro (Enderlein)
	tomosvaryi (Enderlein)

Tribe SIMULIINI

SIMULIUM (BOOPHTHORA)	***erythrocephalum*** (De Geer)
SIMULIUM (EUSIMULIUM)	***angustipes*** Edwards
	aureum Fries
	velutinum (Santos Abreu)
SIMULIUM (HELLICHIELLA)	***latipes*** (Meigen)
SIMULIUM (NEVERMANNIA)	***angustitarse*** (Lundström)
	armoricanum Doby & David
	cryophilum (Rubzov)
	dunfellense Davies

	juxtacrenobium Bass & Blockhouse
	naturale Davies
	urbanum Davies
	vernum Macquart (spp. complex)
SIMULIUM (SIMULIUM)	***argyreatum*** Meigen
	intermedium Roubaud
	noelleri Friederichs
	ornatum Meigen (spp. complex)
	reptans (Linnaeus)
	rostratum (Lundström)
	trifasciatum Curtis
	variegatum Meigen
SIMULIUM (WILHELMIA)	***equinum*** (Linnaeus)
	lineatum (Meigen)

References

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Crosskey, R. W. (1991) A new checklist of the blackflies of Britain and Ireland, with geographical and type information (Diptera: Simuliidae). *Entomologist's Gaz.* **42**: 206-217.

Dowling, C., O'Connor, J. P. and O'Grady, M. F. (1981) A baseline survey of the Caragh, an unpolluted river in southwest Ireland: observations on the macroinvertebrates. *J. life Sci. R. Dubl. Soc.* **2**: 147-159.

Fahy, E. (1972) A preliminary account of the Simuliidae (Diptera) in Ireland, with observations on the growth of three species. *Proc. R. Ir. Acad.* **72B**: 75-81.

Frost, W. E. (1942) R. Liffey Survey IV. The fauna of the submerged "mosses" in an acid and an alkaline water. *Proc. R. Ir. Acad.* **47B**: 293-369.

Schröder, P. (1987) Algae as food of blackfly (Diptera: Simuliidae) in some Irish river systems. *Arch. Hydrobiol. Suppl.* **77**: 117-141.

Schröder, P. (1988) Distribution patterns of blackfly (Diptera: Simuliidae) associations in two Irish river systems. *Hydrobiologia* **164**: 149-160.

Schröder, P. and Schweder, H. (1986) Kriebelmücken (Diptera: Simuliidae) im county Kerry, Südwest Irland. *Z. angew. Ent.* **96**: 85-91.

Occ. Pub. Ir. biogeog. Soc. No. 3 (1998)

Family **STRATIOMYIDAE** (13 species)

The species and their known distribution within Ireland is reviewed in Chandler (1975). There are 13 and 26 aquatic species recorded from Ireland and Britain respectively. Additional records of some aquatic species from Co. Wicklow are given in Blackith *et al.* (1991).

Subfamily **CLITELLARIINAE**

NEMOTELUS (CAMPTOPELTA)	***nigrinus*** Fallén
NEMOTELUS (NEMOTELUS)	***notatus*** Zetterstedt
	pantherinus Linnaeus
	uliginosus Linnaeus
OXYCERA	***fallenii*** Staeger
	morrisii Curtis
	nigricornis Olivier
	pardalina Meigen
	pygmaea Fallén
	trilineata Fabricius
VANOYIA	***tenuicornis*** (Macquart)

Subfamily **STRATIOMYINAE**

OPLODONTHA	***viridula*** (Fabricius)
STRATIOMYS	***singularior*** (Harris)

References

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co. Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Chandler, P. J. (1975) An account of the Irish species of two-winged flies (Diptera) belonging to the families of larger Brachycera (Tabanoidea and Asiloidea). *Proc. R. Ir. Acad.* **75B**: 81-110.

Family **SYRPHIDAE** (43 species)

A detailed account of the Irish species was published by Speight *et al.* (1975) followed a few years later by an updated checklist (Speight, 1978). Since then, there have been a considerable number of nomenclatural changes and additions and the most complete current list for Ireland is included in Chandler (in press). Separation of the aquatic species from the terrestrial species is based on the

combined listing of aquatic species given in Venturi (1978), Mol (1984) and Chandler (in litt.). In the British Isles, 266 species of Syrphidae are recorded and of these 52 are aquatic. All of the 43 aquatic Irish species are known from Britain.

ANASIMYIA	***contracta*** Torp & Claussen
	lineata (Fabricius)
	lunulata (Meigen)
	transfuga (Linnaeus)
ARCTOPHILA	***superbiens*** (Müller)
CHRYSOGASTER	***cemiteriorum*** (Linnaeus)
	solstitialis (Fallén)
	virescens Loew
ERISTALINUS (ERISTALINUS)	***sepulchralis*** (Linnaeus)
ERISTALINUS (LATHYROPTHALMUS)	***aeneus*** (Scopoli)
ERISTALIS (EOSERISTALIS)	***abusivus*** Collin
	arbustorum (Linnaeus)
	cryptarum (Fabricius)
	horticola (De Geer)
	interruptus (Poda)
	intricarius (Linnaeus)
	pertinax (Scopoli)
	rupium Fabricius
ERISTALIS (ERISTALIS)	***tenax*** (Linnaeus)
HELOPHILUS	***hybridus*** Loew
	pendulus (Linnaeus)
	trivittatus (Fabricius)
LEJOGASTER	***metallina*** (Fabricius)
	tarsata (Megerle in Meigen)
MELANOGASTER	***aerosa*** (Loew)
	hirtella Loew
MYATHROPA	***florea*** (Linnaeus)
NEOASCIA (NEOASCIA)	***podagrica*** (Fabricius)
	tenur (Harris)
NEOASCIA (NEOASCIELLA)	***geniculata*** (Meigen)
	interrupta (Meigen)
	meticulosa (Scopoli)

	obliqua Coe
ORTHONEVRA	***brevicornis*** Loew
	geniculata Meigen
	nobilis (Fallén)
PARHELOPHILUS	***consimilis*** (Malm)
	versicolor (Fabricius)
RIPONNENSIA	***splendens*** (Meigen)
SERICOMYIA	***lappona*** (Linnaeus)
	silentis (Harris)
SPHEGINA (SPHEGINA)	***clunipes*** (Fallén)
	elegans Schummel

References

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Mol, A. W. M. (1984) Limnofauna Neerlandica. Een lijst van meercellige ongewervelde dieren aangetroffen in binnenwateren van Nederland. *Nieuwsbrief European Invertebrate Survey - Nederland*, Nummer 15, 124 pp.

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Venturi, F. (1978) Syrphidae, pp. 479-481. *In*: Illies, J. (ed.) *Limnofauna Europaea*, 2nd edn. Gustav Fischer Verlag, Stuttgart. 534 pp.

Family **TABANIDAE** (9 species)

A total of 30 species are currently known from Britain (Chandler, in press) of which 29 are aquatic (*Haematopota pluvialis* (Linnaeus) is terrestrial). Only nine aquatic species are recorded from Ireland. The first detailed review of the Irish distribution records is given in Chandler (1975). Additional records for some species are given in Blackith *et al.* (1991).

Subfamily **CHRYSOPSINAE**

Tribe CHRYSOPSINI

CHRYSOPS (CHRYSOPS)	***caecutiens*** (Linnaeus)
	relictus Meigen
	sepulcralis (Fabricius)

Subfamily **TABANINAE**

Tribe HAEMATOPOTINI

HAEMATOPOTA	***crassicornis*** Wahlberg

Tribe TABANININI

ATYLOTUS	***fulvus*** (Meigen)
HYBOMITRA	***montana*** (Meigen)
	muehlfeldi (Brauer in Brauer & Bergenstamm)
TABANUS	***bromius*** Linnaeus
	sudeticus Zeller

References

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co. Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Chandler, P. J. (1975) An account of the Irish species of two-winged flies (Diptera) belonging to the families of larger Brachycera (Tabanoidea and Asiloidea). *Proc. R. Ir. Acad.* **75B**: 81-110.

Family **THAUMALEIDAE** (2 species)

An up to date review of the family in Ireland is given in Ashe (1987) and the only subsequent paper to appear is a brief note (O'Connor *et al.*, 1993) concerning *Thaumalea verralli* Edwards which was found in Co. Waterford. Three species are known from Britain, the additional species being *T. truncata* Edwards.

THAUMALEA	***testacea*** Ruthé
	verralli Edwards

References

Ashe, P. (1987) The families Anisopodidae and Thaumaleidae (Diptera: Nematocera) in Ireland with comments on relevant Haliday manuscripts. *Bull. Ir. biogeog. Soc.* **10**: 107-123.

O'Connor, J. P., O'Connor, M. A. and Ashe, P. (1993) Records of *Thaumalea verralli* Edwards (Diptera) from Co. Waterford. *Ir. Nat. J.* **24**: 168.

Occ. Pub. Ir. biogeog. Soc. No. 3 (1998)

Family **TIPULIDAE** (18 species)

There are a considerable number of references which contain records of Tipulidae in Ireland. However for the most part only the more recent publications are included here because a detailed review of the records, literature and distribution of Irish species is being prepared for publication. Feeney (1968) included distribution records from two counties as well as adding several species which were new to Ireland. Since then additional records of aquatic species have been added by Nash (1989), Hancock (1990), Ashe *et al.* (1991) and Blackith *et al.* (1991). Most of the species which occur in the British Isles are terrestrial but 22 species can be considered as aquatic of which 18 definitely occur in Ireland.

There are some species recorded for Ireland in the 19th century literature (Haliday, 1833; Walker, 1856) for which no museum reference material apparently exists and for which there are no recent records. One such example concerns the aquatic species, *T.* (*Platytipula*) *luteipennisis* Meigen, which require confirmation for Ireland and is excluded from the list below.

The nomenclature in general follows Oosterbroek and Theowald (1992) apart from any more recent changes included in Chandler (in press).

Subfamily **TIPULINAE**

	Tribe PRIONOCERINI
PRIONOCERA	***turcica*** (Fabricius)
	Tribe TIPULINI
TIPULA (ACUTIPULA)	***fulvipennis*** De Geer
	luna Westhoff
	maxima Poda
	vittata Meigen
TIPULA (BERINGOTIPULA)	***unca*** Wiedemann
TIPULA (PLATYTIPULA)	***melanoceros*** Schummel
TIPULA (SAVTSHENKIA)	***subnodicornis*** Zetterstedt
TIPULA (SCHUMMELIA)	***variicornis*** Schummel
	yerburyi Edwards
TIPULA (TIPULA)	***oleracea*** Linnaeus
	subcunctans Alexander
TIPULA (YAMATOTIPULA)	***couckei*** Tonnoir in Goetghebuer & Tonnoir
	lateralis Meigen
	marginella Theowald
	montium Egger
	pierrei Tonnoir in Goetghebuer & Tonnoir
	pruinosa Wiedemann

References

Ashe, P., O'Connor, J. P., Chandler, P. J., Stubbs, A. E. Vane-Wright, R. I. and Blackith, R. E. (1991) Craneflies new to Ireland (Diptera: Cylindrotomidae, Limoniidae, Tipulidae). *Bull. Ir. biogeog. Soc.* **14**: 54-59.

Blackith, R. E., Blackith, R. M., Speight, M. C. D. and M. de Courcy Williams, M. (1991) A first list of Diptera from the Murrough, Co.Wicklow, Ireland, including 663 species and 140 breeding records. *Bull. Ir. biogeog. Soc.* **14**: 185-253.

Chandler, P. J. (ed.) (in press) A checklist of insects of the British Isles (new series). Part 1: Diptera (incorporating a list of Irish Diptera). *Handbk Ident. Br. Insects* **12** (2).

Feeney, A. M. (1968) A list of crane-flies of the genera *Tipula* and *Nephrotoma* captured in counties Leitrim and Carlow. *Ir. Nat. J.* **16**: 48-49.

Haliday, A. H. (1833) Catalogue of Diptera occurring about Holywood in Downshire. *Ent. Mag.* **1**: 147-180.

Hancock, E. G. (1990) Some cranefly (Diptera: Tipulidae, Anisopodidae, Ptychopteridae) records from Kerry, Ireland, 1982. *Bull. Ir. biogeog. Soc.* **13**: 137-140.

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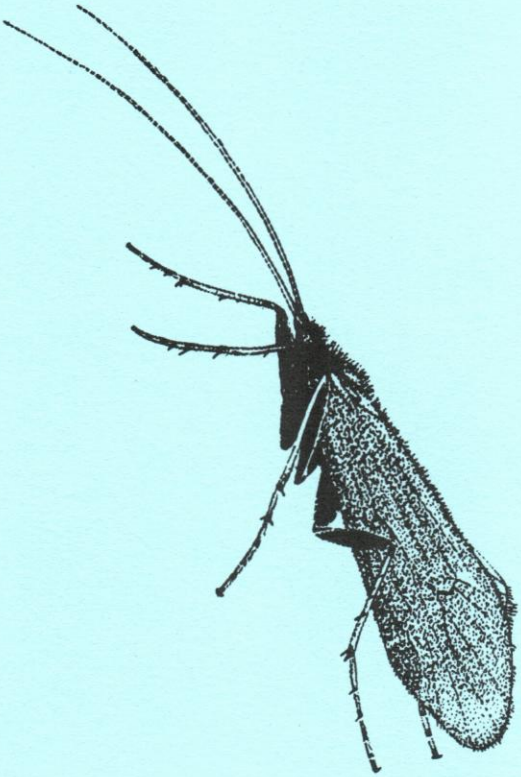
Oosterbroek, P. and Theowald, Br. (1992) Family Tipulidae, pp. 56-178. *In*: Soós, A. and Papp, L., (eds) *Catalogue of Palaearctic Diptera*, Volume 1: Trichoceridae - Nymphomyiidae. Elsevier, Amsterdam/Akadémiai Kiadó, Budapest.

Walker, F. (1856) *Insecta Britannica, Diptera.* **3**, 252 pp.



Adult of *Apatania auricula* (Forsslund) (Trichoptera: Limnephilidae), illustration by Norman Hickin.