

ADULT STONEFLY (PLECOPTERA) RECORDS FROM IRELAND IN 2022

Hugh B. Feeley¹, Bryan Kennedy², Ryan Mitchell³ and Jan-Robert Baars⁴

¹*Environmental Protection Agency, McCumiskey House, Richview, Clonskeagh Road, Dublin 14, D14 YR62, Ireland.*

e-mail: <h.feeley@epa.ie>

²*Environmental Protection Agency, John Moore Road, Castlebar, Co. Mayo, F23 KT91, Ireland.*

e-mail: <b.kennedy@epa.ie>

³*Johnstown Court, Sligo, Co Sligo, Ireland.*

e-mail: <ryanmitchell1994@live.com>

⁴*Invasive Ecology (InEco) Laboratory, School of Biology and Environmental Science, University College Dublin, Belfield, Dublin 4, Ireland.*

e-mail: <janrobert.baars@ucd.ie>

Abstract

Adult distribution records for 17 species of stoneflies (Plecoptera) taken randomly on lakes and rivers across 12 counties from March to November 2022. Included are records of the first reported male specimens of *Protonemura praecox* in Ireland in 40 years. Additionally, we report adult specimens of *Leuctra nigra*, the first since 2005, and report adult *Brachyptera risi* from June, supporting observations on larval records of extended emergence period for this species into early summer in some Irish rivers. Records of brachyptery and microptery are also provided, as well as observations on wing crumpling and Entomophthora infection, where relevant.

Key words: Plecoptera, stoneflies, lakes, rivers, *Leuctra nigra*, *Protonemura praecox*, wing length, wing crumpling, Entomophthora infection.

Introduction

From March to November 2022, while in the field, the authors took the opportunity to collect adult stoneflies from lake shores, streams and rivers across the island. Records presented were collected mainly from Counties Cavan, Dublin, Galway, Kerry, Kildare, Mayo, Sligo and Wicklow, but records from Counties Clare, Kilkenny, Westmeath and Waterford are also presented. Specimens collected by Elvira de Eyto, Bryan Kennedy and Ryan Mitchell were forwarded to Hugh Feeley for identification or verification. Similarly, specimens collected by Oscar Flynn, Kate O'Leary and Heather Swanwick were forwarded to Jan-Robert Baars for identification or verification.

In all, this paper presents records for 17 of the 19 extant Irish stoneflies species, and all stonefly families (Capniidae, Chloroperlidae, Leuctridae, Nemouridae, Perlidae, Perlodidae and Taeniopterygidae), confirmed in Ireland. Two species, *Nemoura avicularis* Morton, 1894 and *Zwicknia bifrons* (Newman, 1839), went unrecorded as adults by the authors in 2022. These two species are considered to have restricted distributions in Ireland (Feeley *et al.*, 2016), and recent records have been reported by Feeley and Baars (2020) and Feeley *et al.* (2021). As a result, new adult records of all 19 extant Irish species of stoneflies and over 500 individual records have now been published since 2019.

This paper also notes brachyptery and microptery (e.g. Costello, 1988a; Feeley *et al.*, 2021) where observed but all adults were fully winged (i.e. macropterous) and all male Perlidae were brachypterous unless otherwise stated. Similarly, the phenomenon of ‘crumpled wings’ (Feeley and Macadam 2021; Feeley *et al.*, 2021; Plate 1) where observed are noted, while one observation of Entomophthora infection is also noted.

All specimens were identified using Hynes (1977) and Macadam *et al.* (2022). Nomenclature is based on Feeley *et al.* (2020) and Macadam *et al.* (2022) although additional notes on the taxonomic uncertainty of Irish *Perla* and *Isoperla* are discussed below. All records will be forwarded to the National Biodiversity Data Centre to update the dataset “Stoneflies (Plecoptera) of Ireland” (Feeley, 2022).

The records:

CAPNIIDAE

***Capnia atra* Morton, 1896**

KERRY: Devil’s Punchbowl, Mangerton Mountain (V975817) 7♂♂14♀♀ 25 May 2022, collected by O. Flynn, K. O’Leary and H. Swanwick, verified by J-R. Baars, and 1♂16♀♀ 27 May 2022, J-R. Baars.

On both occasions all males and female were brachypterous.

Capnia atra was first reported in Ireland by King and Halbert (1910) using specimens collected from this location in June 1905. O’Connor (1978) confirmed it as a valid Irish species after Hynes (1977) questioned its validity owing to the short-wingedness of both sexes, a trait not observed in British populations. This species is now known to have a widespread, if localised, distribution along the western seaboard of Ireland (Feeley *et al.*, 2016) although it is considered vulnerable to extinction because of climate change (Feeley *et al.*, 2020).

CHLOROPERLIDAE

***Chloroperla tripunctata* (Scopoli, 1763)**

KERRY: Galway’s River, Derrycunihy Woods (V910810) 2♂♂2♀♀ 28 March 2022;

Owengarriff River, upstream Torc Waterfall (Old Bridge) (V965838) 1♂ 24 May 2022; Owengarriff River, downstream of Torc Waterfall (V963848) 3♂♂4♀♀ 26 May 2022, all J-R. Baars.

WICKLOW: River Liffey, Ballyward Bridge (O023158) 1♂ 31 May 2022, H. B. Feeley.

***Siphonoperla torrentium* (Pictet, 1841)**

CAVAN: Maudabawn River, south bridge Canningstown (H625038) 2♀♀ 6 July 2022; Maudabawn River, bridge south of Drumcondra (H643073) 1♀ 6 July 2022; Stradone River, 2nd bridge downstream of Lough Alion (H490021) 1♂1♀ 6 July 2022, all H. B. Feeley.

DUBLIN: Owendoher River, Cruagh (bridge on R116) (O137227) 3♂♂ 11 May 2022; River Dodder, Dartry Mills (O160298) 2♂♂ 15 May 2022; River Dodder, upstream of Piperstown (O088238) 1♂2♀♀ 20 June 2022; River Dodder, 1.3km upstream reservoir upstream distributary (O111201) 4♂♂4♀♀ 20 June 2022; River Dodder, Old Bawn Road (O097263) 1♂2♀♀ 20 June 2022; Owendoher River, bridge (R116) southwest of Delamaine Cottage (O134240) 3♀♀ 20 June 2022; Owendoher River, bridge upstream River Dodder confluence (Rathfarnham) (O141289) 2♀♀ 21 June 2022; River Camac, bridge 1km southwest of Saggart (O033261) 1♀ 21 June 2022, all H. B. Feeley.

GALWAY: Clonbur River, Clonbur Woods (Roshill) (M097566) 1♂ 14 April 2022, H. B. Feeley.

KERRY: Galway's River, Derrycunihy Woods (V910810) 1♂2♀♀ 28 March 2022; Owengarriff River, Old Kenmare Road (V959831) 1♂4♀♀ 24 May 2022; Owengarriff River, upstream Torc Waterfall (Old Bridge) (V965838) 2♂♂13♀♀ 24 May 2022; Finoulagh River, Mangerton car park (V984848) 3♂♂4♀♀ 25 May 2022; Owengarriff River, downstream of the Devil's Punchbowl (V975818) 1♂1♀ 25 May 2022; Devil's Punchbowl, Mangerton Mountain (V975817) 1♂1♀ 25 May 2022, 1♂ 27 May 2022 and 1♂1♀ 29 August 2022; Galway's River (Ullauns branch) (V916799) 1♀ 26 May 2022; Galway's River, upstream of Cummenslaun Lake (V925774) 1♂ 26 May 2022; Nambrackdarrig Lake (V945783) 1♀ 26 May 2022; Owengarriff River, downstream of Torc Waterfall (V963848) 1♂1♀ 26 May 2022, all J-R. Baars.

KILDARE: Hartwell stream, bridge at Rathmore (N962198) 2♂♂ 13 June 2022, H. B. Feeley.

MAYO: Finny River, bridge southwest of Finny (M010586) 1♀ 5 June 2022, H. B. Feeley.

WICKLOW: River Liffey, 2km northwest of the Sally Gap (O109127) 7♂♂1♀ 30 May 2022; River Liffey, bridge east of Ballysmuttan (O056148) 11♂♂4♀♀ (1♂ with crumpled wings) 30 May 2022; Brittas River, bridge NNE of Moanaspick (O030207) 1♂2♀♀ 31 May 2022; Ballydonnell River, Ballylow Bridge (O060129) 7♂♂4♀♀ 31 May 2022; Ballylow Brook, bridge upstream Ballydonnell River confluence (O067133) 8♂♂3♀♀ 31 May 2022; River Liffey, Ballyward Bridge (O023158) 2♂♂1♀ 31 May 2022; Cock Brook, northwest of Kilmore

(O021088) 1♂5♀♀ 1 June 2022; Ballinagee River, Ballinagee Bridge (O056018) 4♂♂7♀♀ 2 June 2022; Glashaboy tributary, Glashaboy Bridge East (O066016) 1♂5♀♀ 2 June 2022; King's River, upstream Ballinagee River confluence (O033020) 6♂♂5♀♀ 2 June 2022; Annalecka River, Annalecka Bridge (O056018) 4♂♂11♀♀ 2 June 2022; Glashaboy Brook, Glashaboy Bridge (small stream) (O065016) 4♂♂3♀♀ 2 June 2022; King's River, bridge northwest of Lockstown Upper (N978034) 8♂♂4♀♀ 6 June 2022; Douglas (Liffey), Granamore Bridge upstream King's River confluence (N977031) 1♂4♀♀ 6 June 2022; Lemonstown (Toor Brook), bridge east of Athgreen (N933034) 2♂♂2♀♀ 6 June 2022, all H. B. Feeley.

LEUCTRIDAE

Leuctra fusca (Linnaeus, 1758)

CAVAN: River Annalee, 2nd bridge upstream of Lough Sillan (H726861) 1♂3♀♀ 22 August 2022; River Annalee, bridge near Ann's Fort (H657103) 2♂♂1♀ 22 August 2022; Dromore River, Killycreeny Bridge (H557131) 4♂♂ 22 August 2022; River Annalee, Ballynallon Bridge (H500115) 1♀ 24 August 2022; Larah River, bridge west southwest of Knockataggart (H541020) 3♂♂1♀ 25 August 2022; River Annalee, 0.2km downstream of Cavan River confluence (H402101) 3♂♂1♀ 22 August 2022, all H. B. Feeley.

These are the first published adult records of this species from County Cavan, although several larval records have been published previously (see Feeley (2022) for full details).

DUBLIN: River Dodder, Old Bawn Road (O097263) 1♂1♀ 20 June 2022, H. B. Feeley.

KERRY: Owenreagh River, upstream of confluence with Gearhameen (V876799) 2♂♂1♀ 10 August 2022, H. B. Feeley; Owengarriff River, downstream of Devil's Punchbowl (V975818) 16♂♂9♀♀ 28 August 2022; Finoulagh River, Mangerton car park (V984848) 7♂♂ 28 August 2022; Owengarriff River, downstream of Torc Waterfall (New Bridge) (V965847) 10♂♂14♀♀ 28 August 2022; Owengarriff River, upstream Torc Waterfall (Old Bridge) (V965838) 10♂♂17♀♀ 28 August 2022, all J-R. Baars.

KILDARE: River Liffey, Carnalway New Bridge (N869099) 1♀ 3 November 2022, J-R. Baars.

MAYO: Trimoge River, bridge south west of Rinn Lough (M392909) 1♀ 10 August 2022; Shanwar, Foxford (G298037) 1♂ 3 November 2022, all collected by B. Kennedy, identified by H. B. Feeley.

SLIGO: Bellawaddy River, bridge upstream of Knocknagower Bridge (G317285) 1♂1♀ 29 September 2022, collected by B. Kennedy, identified by H. B. Feeley. Union Wood stream, Collooney (G680281) 1♂ 10 September 2022 and 3♀♀ 2 October 2022; Lough Gill, Sliswood (G739313) 1♀ 30 October 2022, identified by R. Mitchell, verified by H. B. Feeley.

WATERFORD: Glenshelane River, Glenshelane Wood (S116009) 1♂ 20 October 2022, identified by R. Mitchell, verified by H. B. Feeley.

WICKLOW: River Liffey, 2km northwest of the Sally Gap (O109127) 3♂♂2♀♀ 12 September 2022, H. B. Feeley. Glencullen River, Knocksink Woods (O218179) 1♂ 15 October 2022, identified by R. Mitchell, verified by H. B. Feeley.

***Leuctra hippopus* Kempny, 1899**

DUBLIN: Owendoher River, Cruagh (bridge on R116) (O1371422767) 1♂1♀ 6 March 2022 and 8♂♂9♀ 15 March 2022, H. B. Feeley. Glencullen River, Boranaraltry Bridge (O168206) 1♀ 6 March 2022, H. B. Feeley, and 1♂ 23 March 2022, J-R. Baars. Cot Brook, O'Rourkes Lane (O108200) 3♀♀ 15 March 2022, H. B. Feeley and 2♂♂1♀ 23 March 2022, J-R. Baars. Owendoher River, opposite car park (R1115) (O122222) 1♂ (crumpled wings) 15 March 2022, H. B. Feeley. River Dodder, bridge on Springfield Avenue (O135289) 1♀ 21 June 2022, H. B. Feeley.

KERRY: Owengarriff River, downstream of Torc Waterfall (New Bridge) (V965847) 1♂3♀♀ 28 March 2022; Galway's River, Derrycunihy Woods (V910810) 1♂ 28 March 2022; Galway's River, tributary of Galway's River (V909805) 1♂ 28 March 2022; Galway's River (Ullauns branch), (V916799) 1♀ 26 May 2022; tributary of Owengarriff River (V977824) 1♂ 26 May 2022; Devil's Punchbowl, Mangerton Mountain (V975817) 1♂ 27 May 2022; Owengarriff River, downstream of Devil's Punchbowl (V975818) 1♂1♀ 27 May 2022, all J-R. Baars.

MAYO: Finny River, bridge southwest of Finny (M010586) 2♂♂8♀♀ (1♂1♀ with crumpled wings) 16 April 2022, H. B. Feeley. Goulaun River, Srahmore, (F967069) 1♂1♀ 29 March 2022, identified by E. de Eyto, verified by H. B. Feeley. Gweedaney, bridge south east of Curraunboy (F851405) 1♂ 27 April 2022, collected by B. Kennedy, identified by H. B. Feeley.

SLIGO: Union Wood stream, Collooney (G680281) 2♂♂ 2 April 2022, 2♂♂3♀♀ 18 April 2022, 1♂5♀♀ 23 April 2022, 4♂♂3♀♀ 1 May 2022 and 1♀ 2 May 2022, all collected by R. Mitchell, identified by H. B. Feeley. Lough Talt shore/outflow (G403145) 1♀ 26 April 2022, collected by B. Kennedy, identified by H. B. Feeley.

WICKLOW: Toor stream, bridge on L8361 (south of Hollywood) (N933034) 1♀ 8 March 2022; Glenamore River (O021012) 1♂8♀♀ 13 March 2022 and 1♂ 23 March 2022, all J-R. Baars. Lough Bray outflow (tributary of Glencree River), Military Road (O141164) 17♂♂15♀♀ (1♀ with crumpled wings) 15 March 2022, J-R. Baars and H. B. Feeley. Cloghoge River (Avonmore), near Sally Gap (O144098) 6♀♀ 16 March 2022; Avonbeg River, Drumgoff Bridge (T105907) 2♂♂3♀♀ 18 March 2022; Annalecka Brook, Annalecka Bridge (O055018) 1♂ 23 March 2022, all J-R. Baars, Three Trout stream, Glen of the Downs (O258114) 2♂♂6♀♀ (1♂ with crumpled wings) 27 March 2022; Glashaboy Brook, Glashaboy Bridge (small stream) (O065016) 1♀ 7 April 2022; Glashaboy tributary, Glashaboy Bridge East

(O066016) 1♂ 7 April 2022; River Liffey, bridge east of Ballysmuttan (O056148) 1♀ 8 April 2022; River Liffey, 2km northwest of Sally Gap (O109127) 1♀ 8 April 2022, all H. B. Feeley.

***Leuctra inermis* Kempny, 1899**

GALWAY: Clonbur River, Clonbur Woods (Roshill) (M097566) 2♂♂1♀ 14 April 2022, H. B. Feeley.

WICKLOW: Cock Brook, northwest of Kilmore (O067133) 5♂♂2♀♀ 2 April 2022 and 14♂♂4♀♀ 1 June 2022; Annalecka River, Annalecka Bridge (O056018) 1♂4♀♀ 7 April 2022 and 4♂♂10♀♀ 2 June 2022, Glashaboy tributary, Glashaboy Bridge East (O066016) 2♂♂7 April 2022 and 4♂♂7♀♀ (1♂ with crumpled wings) 2 June 2022; River Liffey, bridge east of Ballysmuttan (O056148) 2♂♂1♀ 8 April 2022 and 1♀ 30 May 2022; Ballydonnell River, Ballylow Bridge (O060129) 1♂ 18 March 2022 (J-R. Baars); 1♀ 8 April 2022 and 3♂♂10♀♀ (1♂ with *Entomophthora* infection) 31 May 2022; River Liffey, 2km northwest of Sally Gap (O109127) 1♀ 8 April 2022 and 1♂5♀♀ (1♂ with crumpled wings) 30 May 2022; Ballylow Brook, bridge upstream Ballydonnell River confluence (O067133) 5♂♂2♀♀ 8 April 2022 and 5♂♂2♀♀ 31 May 2022; Brittas River, bridge northeast of Talbotstown (O055212) 1♂ 31 May 2022; Ballinagee River, Ballinagee Bridge (O056018) 1♀ 2 June 2022; King's River, upstream Ballinagee River confluence (O033020) 1♂3♀♀ 2 June 2022; Glashaboy Brook, Glashaboy Bridge (small stream) 10♂♂11♀♀ 2 June 2022; King's River, bridge northwest of Lockstown Upper (N978034) 1♂1♀ 7 June 2022; Lemonstown (Toor Brook), bridge east of Athgreen (N933034) 10♂ 7 June 2022, all H. B. Feeley, unless otherwise stated.

***Leuctra nigra* (Olivier, 1811)**

KERRY: Owengarriff River, downstream of Torc Waterfall (New Bridge) (V965847) 1♀ 26 May 2022, J-R. Baars.

WICKLOW: Three Trout stream, Glen of the Downs (O258114) 1♀ 27 March 2022, H. B. Feeley.

Only confirmed as an Irish species after several adults were discovered in County Cavan in June 1996 by O'Connor and Costello (1997). Since then only one further published adult record exist for this species, from County Kerry (O'Connor, 2005). Despite this *L. nigra* is considered to have a widespread, if a locally restricted, distribution across the island based on larval records, with populations more concentrated in the west and northwest in small, low-order, streams (Feeley *et al.*, 2016)

Several male specimens of *Leuctra nigra*, collected by Ryan Mitchell at Union Wood in Sligo in 2022, exhibited aberrant features. Previous observations of aberrant features were reported for male specimens of this species collected in County Kerry by O'Connor (2005). Additional steps, including genetic sequencing, are warranted to determine the identity of the Union Wood specimens. As a result, they are not included here.

NEMOURIDAE

***Amphinemura sulcicollis* (Stephens, 1836)**

DUBLIN: River Dodder, upstream of Piperstown (O088238) 1♂1♀ 20 June 2022; Owendoher River, bridge (R116) southwest of Delamaine Cottage (O134240) 2♀♀ 20 June 2022; River Dodder, 1.3km upstream of reservoir upstream distributary (O111201) 1♀ 20 June 2022; Owendoher River, bridge upstream River Dodder confluence (Rathfarnham) (O1413628971) 1♂1♀ 21 June 2022, all H. B. Feeley.

KERRY: Owengarriff River, downstream of Torc Waterfall (New Bridge) (V965847) 3♂♂1♀ 25 May 2022; Owengarriff River, upstream Torc Waterfall (Old Bridge) (V965838) 1♀ 26 May 2022; Galway's River, Derrycunihy Woods (V910810) 1♂3♀♀ 27 May 2022; Galway's River, upstream of Cummenslaun Lake (V925774) 1♂ 26 May 2022; Nambrackdarrig Lake (V945783) 1♂1♀ 26 May 2022; Galway's River (Ullauns branch) (V916799) 6♂♂4♀♀ 26 May 2022; Ownegarriff River, downstream of Devil's Punchbowl (V975818) 2♂♂4♀♀ 27 May 2022, all J-R. Baars.

WICKLOW: River Liffey, 2km northwest of the Sally Gap (O109127) 2♂♂3♀♀ 30 May 2022; River Liffey, bridge east of Ballysmuttan (O056148) 5♂♂3♀♀ (1♂ with crumpled wings) 30 May 2022; Ballydonnell River, Ballylow bridge (O060129) 7♂♂11♀♀ 31 May 2022; Ballylow Brook, bridge upstream Ballydonnell River confluence (O067133) 11♂♂4♀♀ 31 May 2022; Cock Brook, northwest of Kilmore (O021088) 13♂♂11♀♀ 1 June 2022; Glashaboy tributary, Glashaboy bridge east (O066016) 4♂♂9♀♀ (2♀♀ with crumpled wings) 2 June 2022; King's River, upstream Ballinagee River confluence (O033020) 1♂ 2 June 2022; Annalecka River, Annalecka bridge (O056018) 3♂♂ 2 June 2022; Glashaboy Brook, Glashaboy bridge (small stream) (O065016) 5♂♂1♀ 2 June 2022, all H. B. Feeley.

***Nemoura cinerea* (Retzius, 1783)**

CLARE: Blackwater River, Ardnacrusha (R594620) 1♂ 11 April 2022, J-R. Baars.

GALWAY: Clonbur River, Clonbur Woods (Roshill) (M097566) 1♀ 14 April 2022, H. B. Feeley.

KERRY: Owengarriff River, upstream Torc Waterfall (Old Bridge) (V965838) 1♂ 28 March 2022; Galway's River (Ullauns branch), (V916799) 1♀ 26 May 2022. all J-R. Baars.

MAYO: River Deel, Knockadangan (G157191) 1♀ 2 April 2022, collected by B. Kennedy, identified by H. B. Feeley.

SLIGO: Union Wood stream, Collooney (G680281) 2♂♂ 18 April 2022 (1♂ with crumpled wings (Plate 1)), 1♂1♀ 1 May 2022, 1♂ 2 May 2022, 1♂ 25 May 2022, 1♂ 28 May 2022 and 1♂ 6 June 2022, all collected by R. Mitchell, identified by H. B. Feeley.

***Nemurella pictetii* Klapálek, 1900**

MAYO: Finny River, bridge southwest of Finny (M010586) 1♀ 16 April 2022, H. B. Feeley.

***Protonemura meyeri* (Pictet, 1841)**

CLARE: Blackwater River, Ardnacrusha (R594620) 1♂ 11 April 2022, J-R. Baars.

DUBLIN: Owendoher River, Cruagh (bridge on R116) (O137227) 1♂ 6 March 2022, H. B. Feeley and 3♂♂5♀♀ 15 March 2022, J-R. Baars and H. B. Feeley. Glencullen River, Brockley Lane (O190194) 1♂ 6 March 2022, H. B. Feeley. Glencullen River, Boranaraltry bridge (O168206) 1♂ 6 March 2022, H. B. Feeley and 6♂♂6♀♀ 23 March 2022, J-R. Baars. Cot Brook, O'Rourkes Lane (O108200) 6♂♂6♀♀ 15 March 2022, H. B. Feeley. Glencullen River, Boranaraltry Bridge (O168206) 3♂♂1♀ 15 March 2022, H. B. Feeley. Brittas River (O075220) 1♂1♀ 23 March 2022, J-R. Baars. River Dodder, 1.3km upstream of reservoir upstream distributary (O111201) 1♀ 20 June 2022, H. B. Feeley.

KERRY: Owengarriff River, downstream of Torc Waterfall (New Bridge) (V965847) 1♂ 28 March 2022 and 3♂♂2♀♀ 25 May 2022; Owengarriff River, upstream Torc Waterfall (Old Bridge) (V965838) 1♀ 28 March 2022 and 2♀♀ 25 May 2022; Galway's River, Derrycunihy Woods (V910810) 1♀ 28 March 2022; Galway's River, tributary of Galway's River (V909805) 1♀ 28 March 2022; Devil's Punchbowl, Mangerton Mountain (V975817) 1♂ 28 May 2022, all J-R. Baars.

MAYO: Callow Lough Upper (G318033) 1♀ 3 April 2022; Callow Lough Lower (G312039) 1♀ 3 April 2022, all collected by B. Kennedy, identified by H. B. Feeley.

WICKLOW: Glenamore River (O021012) 1♂ 13 March 2022, J-R. Baars. Lough Bray outflow (tributary of Glenree River), Military Road (O141164) 21♂♂22♀♀ 15 March 2022, J-R. Baars and H. B. Feeley. Clohoge River (Avonmore), near the Sally Gap (O144098) 10♂♂3♀♀ 16 March 2022; Avonbeg River, Drumgoff Bridge (T105907) 4♂♂2♀♀ 18 March 2022; Knickeen stream, Slaney Ford (S986948) 1♂ 18 March 2022; Toor Brook, Athgreany (N941033) 4♂♂1♀ 23 March 2022; Athdown Brook, Kippure Bridge (O079144) 3♀♀ 23 March 2022; Glenree River (O141180) 3♀♀ 24 March 2022, all J-R. Baars. Avonbeg River, Meeting of the Waters (T189830) 3♂♂1♀ 27 March 2022; Cock Brook, northwest of Kilmore (O021088) 1♂ 2 April 2022; Annalecka River, Annalecka Bridge (O056018) 5♂♂1♀ 7 April 2022 (1♂ with crumpled wings) and 1♀ 2 June 2022; Glashaboy Brook, Glashaboy Bridge (small stream) (O065016) 1♂ 7 April 2022 and 1♂1♀ 2 June 2022; River Liffey, bridge east of Ballysmuttan (O056148) 1♂ 8 April 2022; Ballydonnell River, Ballylow Bridge (O060129) 1♂2♀♀ 8 April 2022 and 1♂ 31 May 2022; River Liffey, 2km northwest of Sally Gap (O109127) 1♂ 8 April 2022; Ballylow Brook, bridge upstream Ballydonnell River confluence (O067133) 1♂3♀♀ 31 May 2022; Glashaboy tributary, Glashaboy Bridge East (O066016) 3♀♀ 2 June 2022; King's River, upstream Ballinagee River confluence (O033020) 1♀ 2 June 2022, all H. B. Feeley.

***Protonemura praecox* (Morton, 1894)**

DUBLIN: Owendoher River, Cruagh (bridge on R116) (O137227) 1♀ 6 March 2022, H. B. Feeley, and 10♂♂16♀♀ 15 March 2022, J-R. Baars and H. B. Feeley. Glencullen River, Boranaraltry Bridge (O168206) 1♀ 6 March 2022, H. B. Feeley and 4♀♀ 15 March 2022 J-R. Baars and H. B. Feeley, and 2♂♂2♀♀ 23 March 2022, J-R. Baars. Cot Brook, O'Rourkes Lane (O108200) 3♂♂1♀ 15 March 2022, J-R. Baars and H. B. Feeley. Brittas River (O075220) 2♀ 23 March 2022, J-R. Baars.

WICKLOW: Athdown Brook, Kippure Bridge (O079144) 1♂ 18 March 2022; Glencree River (O141180) 2♀♀ 24 March 2022, all J-R. Baars.

The adults collected at Cots Brook, Brittas River and Athdown Brook are new location records for this species (see Feeley, 2021 for more details) which is extremely rare in Ireland and was recently categorised as critically endangered under the International Union for the Conservation of Nature criteria (Feeley *et al.*, 2020). It appears restricted to a small geographical area in the Dublin-Wicklow Mountains (Feeley, 2021) and these are the first male specimens reported for the island in over 40 years. The last report of adult males, published by Costello (1988b), was by James O'Connor and Mary O'Connor collected at a stream [Three Trout stream] beside Glen of the Downs (O260114) 3♂♂ 28 March 1982. These specimens are available at the National Museum of Ireland and recently viewed by H. B. Feeley. Despite visiting the same location, almost 40 years later to the day, on 27 March 2022, the primary author failed to collect any *P. praecox* specimens. Continued work is required to establish the geographical distribution of the species in Ireland after Feeley (2021) questioned the validity of several previously published records from outside of the Dublin-Wicklow Mountain area. Both male and female specimens of *P. praecox* collected from Owendoher River, Cruagh (bridge on R116) (O137227), detailed above, were delivered to the National Museum of Ireland on 28 October 2022 by H. B. Feeley.

PERLIDAE

***Dinocras cephalotes* (Curtis, 1827)**

KERRY: Galway's River, Derrycunihy Woods (V910810) 2♂♂1♀ 27 May 2022, J-R. Baars.

***Perla bipunctata* Pictet, 1833**

KILKENNY: Dinnin River, Uskerty Bridge (S574694) 8♂♂14♀♀ 3 June 2022, J-R. Baars.

MAYO: Finny River, bridge southwest of Finny (M010586) 4♂♂ 5 June 2022, H. B. Feeley.

WICKLOW: River Liffey, Ballyward Bridge (O023158) 27♂♂9♀♀ (1♀ with crumpled wings) 31 May 2022, H. B. Feeley.

Originally British and Irish *Perla* were considered a subspecies *P. maxima carlukiana* (Klapálek, 1907) but then separated into a standalone species, *P. carlukiana* (Klapálek, 1923),

owing to the consistent brachypterous nature of the males, amongst other traits; however, Illies (1966) subsequently synonymised *P. carlukiana* with *P. bipunctata*. In recent years Sivec and Stark (2002) suggested that *P. carlukiana* may indeed be a valid species based on the characteristics of their eggs. Similarly, Jean-Paul Reding (pers. comm.) has suggested *P. carlukiana* should be reinstated for the species found in Britain and Ireland. More work is required to determine the identity of Irish, British and European *Perla* species.

PERLODIDAE

Diura bicaudata (Linnaeus, 1758)

KERRY: Devil's Punchbowl, Mangerton Mountain (V975817) 5♀♀ 25 May 2022, collected by O. Flynn, K. O'Leary and H. Swanwick, verified by J-R. Baars, and 2♂♂3♀♀ 27 May 2022, J-R. Baars, Owengarriff River, downstream of Devil's Punchbowl (V975818) 2♂♂2♀♀ 25 May 2022 (1♂ with crumpled wings) collected by O. Flynn, K. O'Leary and H. Swanwick, verified by J-R. Baars.

All males collected were micropterous, while all females were macropterous.

MAYO: Lough Mask, shore at Paddy's Bar, Cappaghduff West (M086658) 1♂1♀ 16 April 2022, H. B. Feeley.

All females collected exhibited brachyptery, while males exhibited microptery (see Feeley *et al.*, 2021 for more information).

WICKLOW: Glahaboy tributary, Glashaboy bridge east (O066016) 1♂ 7 April 2022, H. B. Feeley.

This male was micropterous.

Isoperla grammatica (Poda, 1761)

DUBLIN: Owendoher River, Cruagh (bridge on R116) (O137227) 1♀ 11 May 2022; River Dodder, 1.3km upstream of reservoir upstream distributary (O111201) 2♂♂ 20 June 2022; River Dodder, Old Bawn Road (O097263) 1♂ 20 June 2022; River Dodder, upstream of Piperstown (O088238) 1♀ 20 June 2022; River Camac, bridge southeast of Baldonnell House (O049292) 1♀ 22 June 2022, all H. B. Feeley.

KERRY: Owengarriff River, upstream Torc Waterfall (Old Bridge) (V965838) 1♂ 25 May 2022; Owengarriff River, Torc Waterfall (V966844) 1♀ 26 May 2022, all J-R. Baars.

KILDARE: Lemonstown (Toor Brook), bridge north of Ballybought (N914082) 2♂♂1♀ 7 June 2022; Painstown River, Painstown Bridge (N940243) 1♂1♀ 13 June 2022; Hartwell stream, bridge at Rathmore (N962198) 1♀ 13 June 2022, all H. B. Feeley.

MAYO: Srahduggan stream, ford northwest of Srahduggan (F866071) 1♂ 27 April 2022, collected by B. Kennedy, identified by H. B. Feeley. Finny River, bridge southwest of Finny (M010586) 1♀ 5 June 2022, H. B. Feeley.

WESTMEATH: River Brosna, Ballinagore (N356396) 1♂ 5 May 2022, H. B. Feeley.

WICKLOW: River Liffey, bridge east of Ballysmuttan (O056148) 1♂1♀ 30 May 2022; Ballydonnell River, Ballylow Bridge (O060129) 1♀ 31 May 2022; Brittas River, bridge northeast of Talbotstown (O055212) 1♂ 31 May 2022; Ballylow Brook, bridge upstream Ballydonnell River confluence (O067133) 1♂2♀♀ 31 May 2022; River Liffey, Ballyward Bridge (O023158) 3♂♂2♀♀ 31 May 2022; Cock Brook, northwest of Kilmore (O021088) 1♂ 1 June 2022; Brittas River, Kilbride Bridge (O027180) 1♂1♀ 1 June 2022; Ballinagee River, Ballinagee Bridge (O056018) 1♂ 2 June 2022; Glashaboy Brook, Glashaboy Bridge (small stream) (O065016) 1♂ 2 June 2022; Glashaboy tributary, Glashaboy Bridge east (O066016) 1♂ 2 June 2022; King's River, upstream Ballinagee River confluence (O033020) 1♂ 2 June 2022; Douglas (Liffey), Granamore Bridge upstream King's River confluence (N977031) 1♂1♀ 6 June 2022; King's River, bridge northwest of Lockstown Upper (N978034) 4♂♂7♀♀ 7 June 2022, all H. B. Feeley.

There is some doubt over the true identity of *Isoperla* in Ireland. British (and Irish) specimens were originally described as a separate subspecies, *Chloroperla grammatica subarmata* Despax, 1936 (Despax 1936), but Illies (1952) subsequently synonymised it with *Isoperla grammatica*. However, it is suggested that *I. subarmata* is a valid species based on the shape of the penal armature (Jean-Paul Reding, pers. comm.). Therefore, further work is required to determine the taxonomic status of *Isoperla* in Ireland (and Britain) and whether both *Isoperla grammatica* and *I. subarmata* are present here.

TAENIOPTERYGIDAE

Brachyptera risi (Morton, 1896)

DUBLIN: Owendoher River, Cruagh (near bridge on R116) (O136228) 1♀ 15 March 2022; Brittas River (O074220) 1♀ 23 March 2022, all J-R. Baars.

SLIGO: Union Wood stream, Collooney (G680281) 1♂2♀♀ 1 May 2022, 1♀ 28 May 2022, and 1♀ 6 June 2022, collected by R. Mitchell and identified by H. B. Feeley.

The adult records for this species from early June support previous observations by Feeley *et al.* (2019), based on larval specimen records, of an extended adult emergence period into the early summer period. Interestingly, no adults were recorded in Wicklow in June despite extensive surveys suggesting the presence of this species into early summer is rare.

WICKLOW: Lough Bray outflow (tributary of Glencree River), Military Road (O141164) 1♀ 15 March 2022; Clohogue River (Avonmore), near the Sally Gap (O144098) 1♂1♀ 16 March 2022; Avonbeg River, Drumgoff Bridge (T105907) 1♂ 18 March 2022; Toor Brook, Athgreany (N941033) 1♀ 23 March 2022, all J-R. Baars. Three Trout stream, Glen of the Downs (O258114) 2♂♂1♀ 27 March 2022; Annalecka River, Annalecka Bridge (O056018) 3♂♂2♀♀

7 April 2022; Glashaboy Brook, Glashaboy Bridge (small stream) (O065016) 5♂♂6♀♀ 7 April 2022; Glashaboy tributary, Glashaboy Bridge East (O066016) 1♀ 7 April 2022; River Liffey, bridge east of Ballysmuttan (O056148) 3♂♂3♀♀ (1♂ with crumpled wings) 8 April 2022; Ballydonnell River, Ballylow Bridge (O060129) 2♀♀ 8 April 2022, all H. B. Feeley.

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PLATE 1. Crumpling in hind wing of *Nemoura cinerea* (Retzius). Union Wood stream, Collooney, County Sligo, ♂ 18 April 2022. Collected by Ryan Mitchell. Photograph: Hugh B. Feeley.