Cranefly News

Dipterists Forum Cranefly Recording Scheme

For Superfamily Tipuloidea & Families Ptychopteridae & Trichoceridae

Newsletter No 36 **Spring 2021**

Editor: John Kramer

Terminal disc of Prionocera larva. Photo. EGH

Editorial

This issue contains a number of articles on cranefly larvae, finding and rearing them. This is a difficult but important activity if we are to understand the ecology of craneflies and for every species we could write a long list of unknown facts. For example, what is the range of habitats they occupy ? what foods do they ingest and digest ? How tolerant are they of dessication? soil pH? temperature ?

When, as at the time of writing, travel to investigate new habitats is discouraged, perhaps now is a good time to rear the cranefly larvae ? There are a lot of suggestions here. Many thanks to all of the contributors.

Bibliography - Literature Guide for the Rearing of cranefly (Tipuloidea) Larvae.

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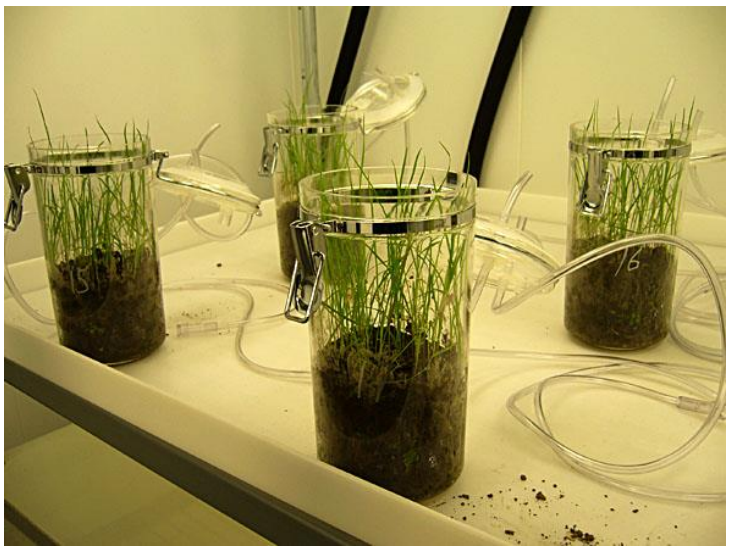
Rearing *Tipula paludosa* and *Tipula subnodicornis*

Stefanie Carter



Introduction

My PhD project, funded by Aberystwyth University's Doctoral Career Development Scholarship, involved the rearing of tipulid larvae in containers, or microcosms, which allowed the development of the larvae to be followed in their appropriate habitats. Two species were investigated, *Tipula paludosa* and *Tipula subnodicornis*, to determine the impact of these tipulid larvae on greenhouse gas fluxes. The methodology and success of larval rearing is described in the following account.

Fig 1. Microcosms with perennial rye grass (*Lolium perenne*)

T. paludosa

Fig. 2. Larvae of *Tipula paludosa*

I collected larvae of *T. paludosa* in the wild (coastal mid-Wales) in January 2016 from the edge of an arable field where I had seen migrating Stonechats gorging themselves on adult craneflies just a few months earlier. I removed the surface vegetation and a few centimetres of topsoil, which revealed the larvae. I introduced the larvae to microcosms (cylinder with ca. 9.5 cm diameter and height of ca. 18 cm, filled with ca. 580 g of non-sterile sandy silt loam) with *Lolium perenne*, which had been freshly sown 19 days previously. A total of 54 larvae were introduced to 12 microcosms with a mean weight ± SD of 0.184 ± 0.0780 g; the full weight range was 0.075 g to 0.448 g. The microcosms were incubated in a growth room at a day/night regime of 16/8 h at a constant temperature of 14 °C. After 19 days 51 larvae were retrieved; three could not be found and I assumed they had died. Weight gain averaged per larva was -0.015 g to 0.138 g or a loss of 7.39% and a gain of 72.58%.

T. subnodicornis

In order to try and obtain sufficient larvae for study, rearing containers were set up in the field. At the end of May 2016 I set up four rectangular rearing containers (40 cm long, 35 cm wide, 25 cm tall) with five small holes at the bottom in the field at the Migneint, North Wales. Peat turves with mixed vegetation (predominantly *Eriophorum vaginatum* (Hare's tail Cottongrass) and species of *Sphagnum* moss, with some *Calluna vulgaris* (Heather)) of approximately that size were removed from the peat bog and placed into the containers. I then inserted the containers into the holes created so that the peat turf surface level inside the containers would be at the same height as the surrounding peat. All rearing containers were therefore subject to natural temperatures, precipitation and water tables whilst drainage through the holes prevented complete inundation.

Fig. 3. Larva of *Tipula subnodicornis*

The four containers were covered with mosquito netting which was held up by five bamboo sticks at approximately 30 cm height. Initially, I intended to collect mating pairs and place these under the netting but I was not able to find any. Instead, I dragged a sturdy aquatic net over vegetation and bare peat and collected five females. I placed these under the netting and added three males per female. In the beginning of November 2016 I searched the upper 20 cm of each container. I found 21 small larvae, two thirds of which were in just one container. Of these I was only able to retrieve eight in the laboratory; their mean weight ± SD was of 0.067 g ± 0.0194.

The growth of these larvae was then studied in a similar way as the larvae of *T. paludosa*.

The containers or microcosms were filled with peat cores; half of the containers received *E. vaginatum* seedlings; to the other half I added *Sphagnum papillosum* mats. These were prepared in October 2016. Larvae were added in November and remained in the containers in a heated glasshouse for 24 days before being removed again. Out of the eight larvae added, I was only able to retrieve three. On average, the surviving larvae had also lost between 6.6% and 25.2% of their original body weight.

Fig 4. Microcosms filled with peat cores

All three larvae were then placed in one of the original rearing containers and kept in the glasshouse under a net. On 7 February 2017, one male adult *T. subnodicornis* was discovered; two additional adults (one a definite female and one probable female) were found in the beginning of April 2017.

Discussion

Collecting and keeping *T. paludosa* was straightforward and the 5.5% mortality rate was probably not higher than in natural conditions; not surprisingly, most thrived on the fresh *L. perenne* grass.

Rearing *T. subnodicornis*, however, was very challenging. A lack of mating pairs and females meant that the numbers at the start were already low. Larvae did not cope well with being handled in the field and in the lab.

Nonetheless, I would recommend my approach to anyone attempting to rear *T. subnodicornis*. In-situ containers allowed near natural conditions, which could be difficult to recreate in an artificial environment. The key to success would be to obtain a large number of mating pairs rather than individual females, which may have already laid most of their eggs.

Probable larvae of the Yellow-rostrum Sawhorn cranefly *Prionocera turcica* (Fabricius, 1787) (Diptera, Tipulidae) - E Geoffrey Hancock

Fig.1 P. turcica pupa showing pair of long resiratory processes.

Some *Prionocera* cranefly larvae were seen on 4 October 2020 amongst iris roots in a 'recycled' cattle drinking trough in the garden, near Strathaven (NGR: NS714425). When disturbed they disappeared rapidly head first into the dense root tangle, leaving behind the two small red curved chironomid blood worms, the only other dipterous larvae visible. Interestingly, I had not seen adults in the garden before although *Prionocera turcica* occurs locally. I have never found larvae of the genus anywhere but that is probably because generally I do not target juvenile stages when recording. It should be said that the species identification is based on an assumption pending adult emergence in the next season. *P. turcica* is the only one of the three British species with records from this part of the UK so its naming is provisional. Two were taken indoors to look at more closely. Four were seen, three of which seemed fully grown (fourth instar) and one a third instar judging from its size.

Fig 2. Spiraclar disc with 6 lobes. Posterior view of living 3rd instar *Prionocera larva*

Fig 3. *Prionocera larva.* 4th instar submerged Lateral view to show the papilla

A remarkable feature of *Prionocera* larvae, in comparison to other tipulines, is the terminal spiracular field with six long thin lobes with equally long hair fringes. These lobes on breaking through the meniscus spread out and with the hydrofuge properties of the long fringe of hairs prevent drowning. It is easily observable with living examples in a small dish of water (Figs 2 & 3).

I did think the species could be named from features within the spiracular field as with the majority of British tipulines but this appears not to be the case. In fact, of the western European species only *P. turcica* has been adequately figured as larvae.

Initial consultation of the literature seemed to show a spiracular field identical with a Nearctic species. However, recent research has shown that this north American cranefly actually belongs in *Angarotipula* Savchenko, 1960, originally described as a subgenus of *Tipula*, although true *Prionocera* do occur in the Nearctic. Its spiracular field is indistinguishable from *Prionocera* but other larval features such as in the vestiture, where the density and distribution of spicules dorsally over the integument varies, and there are detectable differences in the pupae. Adult *Angarotipula* lack verticils, and bare antennae are also a noticeable feature of *Prionocera* but genitalia characters separate them. Analysis by Fenja Brodo (2017, Taxonomic review of *Angarotipula* Savchenko, 1961 (Diptera: Tipulidae) in North America. *Canadian Entomologist* **150**: 12–34) formally elevated *Angarotipula* to generic level, and placed it in a sister group with *Prionocera*. A live *Angarotipula* larva is illustrated from Brodo (2017) showing their similarity (Fig. 4).

Fig. 4 . *Angarotipula* from Brodo (2017)

So far, so good, but where does this leave the British fauna in terms of larval identification? Coronavirus lockdown and restrictions in travel have induced more local scrutiny of wildlife, and resulted in this particular challenge. Larvae of other species of *Prionocera* are required to find specific characters to separate them.

E. Geoffrey Hancock

It may be worthwhile measuring the lobe-to-disc ratio ? Ed.

Additional References

Cranefly News #13, 2006. A Key to Prionocera Larvae ? John Kramer
Cranefly News #27, 2014. Prionocera Pubescens in Highland Scotland. Murdo Macdonald.

Some brief notes on rearing records for craneflies - Martin C. Harvey

These notes are nearly all from the 1990s, and give brief details of cranefly species that have been found as larvae or pupae and reared through to the adult stage. Most of the larvae were found in late instars, close to pupation, and my 'technique' for rearing them has simply been to keep them in a suitable tube or container with some of the substrate in which they were found.

Tipulidae

Dictenidia bimaculata (Tipulidae)
Pupa found in the wood of a beech tree (*Fagus sylvatica*) c. 2 metres above ground, at High Standing Hill, Windsor Forest (Berkshire, SU936744) on 30 May 1998.

Prionocera turcica (Tipulidae)
Not a rearing record, but an observation of females apparently ovipositing into shallow water over peat, at Emer Bog Wildlife Trust reserve (South Hampshire, SU397215) on 17 April 1999.

Tipula flavolineata (Tipulidae)
L1. Larva found in very rotten wood at the end of a branch of a fallen ancient Beech (*Fagus sylvatica*) at Windsor Forest (Berkshire, SU945715) on 25 January 1998. An adult female emerged on 19 April 1998 (the larva having been kept indoors).

L2. Larva found in a small piece of well-rotted wood (possibly from a conifer but identification not certain) at Windsor Forest (Berkshire, SU976734) on 27 March 1999. An adult female emerged on 19 April 1999 (the larva having been kept indoors).

Tipula irrorata (Tipulidae)
L1 .Two larvae were found under the bark of a mossy fallen tree trunk (likely to be Ash, *Fraxinus excelsior*, or Oak, *Quercus*) at Moor Copse Wildlife Trust reserve (Berkshire, SU641738). One of the larvae was subsequently lost, the other produced an adult female on 1 June 1997 after several weeks as a pupa (the larva having been kept indoors).

L2. Larva found under bark of fallen tree trunk at Micheldever Spoil Heaps Wildlife Trust reserve (North Hampshire, SU520444) on 31 March 1999. An adult male emerged on 24 April 1999 (the larva having been kept indoors).

Tipula paludosa (Tipulidae)
Larva found under stones in moorland (at about 360 metres elevation) near Brown Hill, Yorkshire Dales (Mid-west Yorkshire, SD929625) on 9 May 1999. An adult female emerged on 7 August 1999 (the larva having been kept indoors).

Tipula peliostigma (Tipulidae)
Larva found in soil/leaf-litter at Windsor Forest (Berkshire, SU976734) on 27 March 1999. An adult female emerged on 20 April 1999 (the larva having been kept indoors). Identification confirmed by Alan Stubbs.

Tipula selene (Tipulidae)
L1. Larva found under bark on the top surface of a large fallen Beech trunk (*Fagus sylvatica*) at Ashampstead Common (Berkshire, SU584754) on 21 April 1996. An adult female emerged on 13 May 1999 (the larva having been kept indoors). Identification confirmed by Alan Stubbs.

L2. Larva found under bark of dead Birch (*Betula*) trunk, east of Holly Wood (Berkshire, SU529697) on 29 December 1997. An adult male emerged in May 1999 (the larva having been kept indoors). Identification confirmed by Alan Stubbs.

L3. Larva found under bark of fallen dead wood (possibly Oak, *Quercus*) at Windsor Forest (Berkshire, SU976734) on 27 March 1999. An adult male emerged on 17 April 1999 (the larva having been kept indoors).

L4. Larva found under bark of fallen tree trunk at Micheldever Spoil Heaps Wildlife Trust reserve (North Hampshire, SU520444) on 31 March 1999. An adult female emerged on 23 April 1999 (the larva having been kept indoors).

Pupa found by beating dead wood on the standing main trunk of an ancient Oak (*Quercus*) at Chiltern Woodland Burial Park (Buckinghamshire, SU96398996) on 22 May 2012.

Limoniidae
Austrolimnophila ochracea (Limnophilinae)
Larva found in the decaying wood of an ancient beech tree (*Fagus sylvatica*) at Windsor Forest (Berkshire, SU945715) on 25 January 1998. An adult male emerged on 11 April 1998 (the larva having been kept indoors).

Neolimonia dumetorum (Limoniinae)
Larva found in unspecified decaying wood at Windsor Forest (Berkshire, SU945715) on 25 January 1998. An adult female emerged on 23 June 1998 (the larva having been kept indoors). Thanks to John Kramer for identifying the species from a voucher specimen.

Rhipidia ctenophora (Limoniinae)

During a visit to Combe Wood, Frilsham (Berkshire, SU545736) on 4 May 1997, a small piece of recently cut oak (*Quercus*) wood was collected. This was approximately 50cm long and 20cm diameter, and contained a small rot hole within in. The wood was placed in a netting cage, outdoors, and watered occasionally. Two adult craneflies (male and female) had emerged by 01 June 1997.
Martin C. Harvey

***Rhipidia uniseriata* in Northants. John Showers**

Fig. 1.

During the Spring lock-down I started to work through several pots of flies stored in alcohol. These were part of a by-catch from saproxylic beetle monitoring in 2018 at Yardley Chase, Northants. Much of the material was in poor condition and I could not identify it reliably. Most of the remaining material consisted of common species but I did find a female *Rhipidia uniseriata.* This had been taken in a flight interception trap (Fig. 1) set in a decaying oak or ash tree in a former deer park. Unfortunately all the material that had been collected from several traps in the area was stored in one pot so exactly in which tree the cranefly had been caught could not be determined. This is the first record of this species in Northants. The attached photo of the specimen shows the habitus and wing markings.

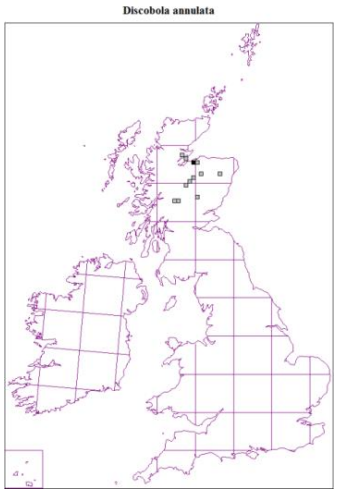
John Showers

Cranefly Recording Scheme Recording Update, 09/12/20 - Pete Boardman

As of the 09/12/20 the Cranefly Recording Scheme received a minimum of 4688 records submitted via iRecord during 2020. These equate to 2575 records made during 2019 but submitted in 2020, and 2113 records made and submitted this year. Obviously there is an in-built lag and a lot of people submit their datasets for the year during the early part of following year, therefore there will be several datasets for 2020 that arrive during the early part of 2021, but I was keen to get some figures out in time for this newsletter. I use the word 'minimum' in the first sentence as I have also received a few datasets via Excel that I am yet to add to iRecord.

A huge thank you to everyone who submitted data in whichever way you submitted it. A large majority of iRecord data that comes in from less experienced recorders has an attached photo (often multiples) and whilst this is incredibly time consuming to verify (imagine 250 individual or multiple photos of *Tipula paludosa* from various angles, each one has to be checked – plus all the late summer *Tipula oleracea* incorrectly identified), it is also incredibly useful for correcting mistakes, sometimes for rare species. For example, each year we receive several records purporting to be the Six-spotted Cranefly *Idiocera sexguttata*, few of which turn out to be that species at all, with most being either *Nephrotoma* species or *Limonia* species submitted by well-meaning but inexperienced recorders. This also works the other way around occasionally too though and this year someone recorded what was identified in their iRecord submission as *Epiphragma ocellare* but was actually on investigation *Discobola annulata* (see Photo 1) from the Highlands of Scotland, and probably the first record of this species received whilst I've been CRS Recorder.

Photo 1.



Map 1 – *Discobola annulata* (black square is the 2020 record)

I won't single out anyone in particular (except a massive thank you to **Jane Hewitt** for submitting the DF Field Meeting Records from 2019), rather here is a (hopefully fairly comprehensive) list of everyone who submitted records in 2019 & 2020 data so far;
Adamson, Sarah; **Albarella**, Umberto; **Aldridge**, Chloe; **Allnatt** Gina; **Allen** Ron; **Christopher**, Ron; **Andrews**, Ian; **Andrews**, Chris; **Appleyard**, Val; **Ashton**, Paul; **Attewell**, Phil; **Averill**, Mike; **Bailey**, Mike; **Bainbridge**, Tanya; **Baker**, Hannah; **Banks**, Martin; **Bantock**, Tristan; **Barber**, Nicholas; **Barron**, Philip; **Barrus**, Joyce; **Bartlett**, Vanna; **Barnett**, David; **Batty**, Samantha; **Baxter**, George; **Beattie**,

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**Cartwright**, R A; **Carverhill**, Sue; **Challinor**, Paul; **Chandler**, Peter; **Chapman**, Margaret; **Charig**, Marcus; **Charlton**, Julie; **Chartron**, Jacques; Marcus, **Cheeseman**; **Adam** Christine; **Claes**, Thijs; **Clark**, Buzz; **Clark**, Ryan; **Clarke**, Peter; **Clemons**, Laurence; **Collins**, Jo; **Collins**, Max; **Common**, James; **Comont**, Richard; **Coombey**, Nicholas; **Cooper**, Barbara; **Cormack**, Duerden; **Cox**, Tim; **Cram**, Mike; **Crampton**, Paul; **Crellin**, Steven; **Creswell**, Jim; **Cron**, Lara; **Crooks**, Bill; **Cross**, Andrew; **Crotty**, Anne; **Crow**, Terry; **Crowley**, Liam; **Culyer**, Paul; **Cunningham**, Andrew J; **Cunningham**, Jill; **Cutting**, Liz; **Daintrey**, Emma; **Dalley**, Genevieve; **Davenport**, Trevor; **Davidson**, Catherine; **Davies**, John; **Davis**, David; **Davis**, Graeme; **Davis**, Tony; **Davis**, Mike; **Davis**, Trevor; **de Wert**, Leoni; **Deakins**, Bill; **Dejardin**, Andrew; **Del Fiorentino**, Anna Maria; **Dennis**, David; **Dexter**, David; **Dickson**, Richard; **Dixon**, Graham; **Doubleday**, Jill; **Draycott**, Ian; **Drewitt**, Allan; **Dunlop**, Stuart; **Dunster**, Jonathan; **Dutton**, Adrian; **Earwaker**, Rosie; **Easton**, Colin; **Edwards**, Rachel; **Elcoate**, Steve; **Elkins** Martin; **Else**, Ric; **Emerson**, James; **English**, Harriet; **Evans**, Lloyd; **Evans**, Mark; **Evans**, Rob; **Eve**, Harry; **Everett**, Colin; **Fahldieck**, Moritz; **Farr**, Gareth; **Fekete**, Krisztina; **Fergus**, Tony; **Fitz**, Tom; **Fletcher**, Trevor; **FMS**; **Foale**, Geoffrey; **Fordyce**, Mark; **Forsyth**, Alastair; **Fotheringham**, David; **Fowler**, Keith; **Fowlie**, Marti;, **Frazer**, Deborah, **Tilston**, Fred; **Freedman**, Simon; **French**, Stephen; **Fretwell-Smith**, Sandra; **Frost**, Teresa; **Fullerton**, Hannah; **Funnel**l, Michael; **Gallis**, Steve; **Gamble**, David; **Gamble**, Gavin; **Gamble**, Kirsty; **Gander**, Lin; **Garland**, Steve; **Garland**, Una; **Garner**, Alan; **Gartside**, Ken; **Garvey**, S; **Gaten**, Ted; **George**, Will; **Gibson**, Seth; **Gilbert**, James; **Gillatt**, Wayne; **Gilligan**, Nigel; **Gilson**, Vicky; **Glanfield**, Chris; **Glanz**, Lyn; **Goater**, Rick; **Goodwin**, Stuart; **Gould**, Carol; **Grace**, Andrew; **Graham**, Karl; **Grant**, Janet; **Green**, Andy; **Greenland**, Martin; **Gregory**, Lee; **Gregory**, Neil; **Gregory**, Steve; **Grieco**, Gi; **Griffith**, David; **Griffiths**, Liz; **Haddow**, Malcolm; **Haldane**, Dave; **Hall**, Mike; **Hall**, Peter; **Halliday**, John; **Halstead**, Andrew; **Hamill**, Barrie; **Hampshire**, Gail; **Hampson**, Perry; **Hancock**, Ros; **Hanratty**, John; **Hardie**, Jim; **Harris**, Paul; **Harris**, Tim; **Harrow**, Matthew; **Harvey**, Martin; **Hattenberger**, Mariska; **Hatton,** Les; **Hawkes**, Will; **Hawkley**, Jim; **Heal**, James; **Hedges**, Gary; **Hedley**, Russell; **Hewitt**, Jane; **Hewitt**, Kevin; **Hewitt**, Stephen; **Hibberd**, Gary; **Higginson-Tranter**, Dave; **Higgott**, Mike; **Hillman**, Peter; **Hislop**, Louise; **Hnatiuk**, Martyn; **Hoare**, Stephanie; **Hodge**, Tim; **Hogan**, Peter; **Holmes**, Allen; **Holmes**, June; **Homan**, Robert; **Hordley**, Mike; **Horne**, Karl; **Hotchkiss**, Alastair; **Hubble**, Dave; **Hume**, John; **Humphrey**, George; **Humphrey**, Roy; **Hunnisett**, Peter; **Hunt**, Ian; **Hutchison**, Alex; **Ingram**, Inward; **David**, Jonathan; **Irwin**, Tony; **Ismay**, John & Barbara, **Jackson**, Phil; **Jackson**, Laurie; **Jackson**, Luke; **Jacobs**, Trudie; **James**, Ronald; **Jarvis**, Gordon; **Jenkins-Jones**, Daniel; **Jennings**, Angus; **Jewels**, Andrew; Jim, **Jobe**; **Johnson** Lee; **Johnston**; Michele; **Jones**, Chris; **Jones**, Oriel; **Jones**, Nigel; **Judd**, Julian; **Derek**, Steve; **Justamond**, Maria; **Kee**, Ai-Lin; **Kelsey**, Adam; **Kennedy** Lauren; **Kennedy**, Paul; **Kenworthy**, Alan; **King**, Emma; **King**, Tony; **Kinsella**, Peter; **Knaggs**, David; **Knight**, Colin; **Knight**, Wendy; **Kolcsár** Levente-Péter; **Knott**, Simon; **Kramer**, John; **Lamb**, Ranald; **Lambert**, Lynda; **Large**, Lukas; **Law**, Andrew; **Lawson**, Francis; **Le Boutillier** Phil; **Leel**, Gordon; **Lee** Colin; **Leigh**, Ceri; **Lerpiniere**, John; **Lewis**, Steven; **Lidgett**, Angela; **Lionnet**, Jessica; **Lloyd**, Evans; **Lloyd**, Tate; **Lomas**, Steven; **Lombard**, Daniel; **Michpix**, **Longe**, Derek; **Loving** Gary; **Lowe**, Sarah; **Lowry**, Roy; **Lucas**, Andrew; **Luff**, George; **Lyden**, John; **Lygo**, B; **Lyle**, Dorothy; **Lynch**, Penny; **Mabbett**, Craig; **Marks**, Neil; **Marriott**, Antony; **Martin**, Helen; **Martin**, John; **Mathers**, Steve; **Maxwell**, Stuart; **Merrifield** Ken; **McColm**, Alastair; **McCulloch**, David; **McCulloch**, James; **McGleish**, Andrew; **McKay**, Clive; **McKenna**, Neal; **McNaughton**, Joan; **Milloy**, Drew; **Mills**, Allison; **Millward**, Chris;

Milner, Mick; **Mitchell**, Ryan; **Moates**, Graham; **Monteith**, Rodney; **Moon**, Adrian; **Morgan** Tom; **Morris**, Roger; **Morris**, Sue; **Mortin**, Jon; **Moss** Laura; **Mousley**, John; **Muir**, Jean; **Mullen**, Ben; **Mullins**, Frank; **Munro**, Deirdre; **Murdock**, Andy; **Murray**, John; **Napier**, Di; **Nebbett-Blades**, Reuben; **Newton**, Sam; **Nicholls**, David; **Noad**, Jon; **Noble**, Simon; **Norman**, Peter; **Norman**, Simon; **Norris**, Sheila; **North**, Steven; **Norton**, Peter; **Notton**, David; **O'Doherty**, Aideen; **Ogden**, Peter; **Okon**, Tara; **Olds**, Liam; **de'Oliveira**, Micha; **Oliver**, Geoff; **Onley**, Neil; **Opie**, Maurice; **Orme**, Jill; **Orridge**, Steve; **Orton**, Richard; **Osa**, Kirsten; **Oswald**, Nicola; **Oughton**, Jack; **Owen**, Christian; **Queree**, Nigel; **Pardoe**, Ginette; **Parfitt**, Alice; **Parker**, Aaron; **Parker**, Adam; **Parsons**, Paul; **Passey** Stephen; **Pearce**, Sasha; **Pearce**, David, **Pearson**, Peter; **Perkins**, Iain; **Peters**, Amanda; **Petley-Jones** , Rob; **Phillips**, Carole; **Pickens**, David; **Piper,** Colin; **Pitt** Sam; **Plummer**, Stephen; **Pochin**, Christine; **Pollitt**, Mark; **Ponting**, Catherine; **Poppleton**, Richard; **Pratley**, Ian; **Prendergast**, Alex; **Price**, Lorna; **Proklov**, Vlad; **Pryke**, Linda; **Queree**, Annie; **Quinn**, Viv; **Rajabali**, Ali; **Ramus**, Andrea; **Rankin**, Charlotte; **Ransom** Tim; **Ratcliffe**, David; **Reed**, Laura; **Rees**, S; **Reid**, Graeme; **Reid**, Tristan; **Richard**, Anne-Marie; **Richards**, Alan; **Richards**, Jonathan; **Richards**, Mo; **Richards**, Paul; **Richens**, Max; **Robert**, Jody; **Robertson**, Janice; **Robinson**, Peter; **Robinson**, Steve; **Robson**, Craig; **Robson**, Iain; **Roenisch**, Saharima; **Rostron**, Glenn; **Routledge**, Stephen; **Rowley**, Kevin; **Rowson**, Ben; **Royle**, Rosemary; **Ruelle**, Bernard; **Rule**, Paul; **Russell**, Val; **Ruthen**, Alannah; **Sabina**, George; **Salter**, Alan; **Savage**, Declan; **Scase**, Roger; **Scott**, Brad; **Selway**, Colin; **Sewell**, Jack; **Sexton**, Stewart; **Colin**, Semper; **Shanks**, Scott; **Sharp**, Annette; **Shillake**r, Alan; **Showers**, John; **Shuttleworth**, Alistair; **Shuttleworth**, Sarah; **Skevington**, Mark; **Skinsgley**, David; **Skinner**, James; **Skinner**, Meg; **Skirrow**, Martin; **Slade**, David; **Slater**, Andy; **Slater**, Fred; **Small**, Julian; **Smart**, Gill, **Smiseth**, Per; **Smith**, Ann; **Smith**, Donald; **Smith**, Matt; **Smith**, Philip; **Smith**; Vince; **Sommerville**; Alastair; **Souter**; Robert; **Southall**; Michael; **Spiller** Robin; **Spilling**, Chris; **Stamp** Chris; **Starling**; **Steele**, Andrew; **Stevens**, Warren; **Stewart**, Thomas; **Stretton**, Tamasine; **Stubbs**, Alan; **Sussex**, Des; **Sutton**, Robin; **Syratt**, Maksymilian; **Taplin**, Gail; **Taylor**, Claire; **Taylor**, Marc; **Taylor**, Sue; **Teale**, Steven; **Thomas**, Jane; **Thomas**, Sam; **Thompson**, Richard; **Thomson**, Tom; **Thornton**, Michael; **Thrasher**; Andrew; **Tilston-Eastaway**, Fred; **Tizzard**, Philip; **Tofts**, Russell; **Tomalin**, Charles; **Tomlinson** Stephen; **Tordoff**, George; **Tordoff**, Martin; **Townsend**, Peter; **Trunecka**, Dennis; **Tuck**, James; **Urgell**, C; **Urquhart**, Calum; **Vandersteen**, Richard; **Venters**, Mick; **Vials**, Tony; **Vincent**, Chris; **Vincent**, Peter; **Wainwright**, Martin; **Walker**, Sally; **Walter**, Barry; **Warrington**, Stuart; **Wasik**, Aneta; **Watchorn**, Andrew; **Watkeys**, Graham; **Watt**, John; **Wells**, Linda; **Whiffin**, Ashleigh; **Whild**, Sarah; **Whitby**, Paul; **White**, Steve, **White**, Tony; **Whiteley**, Derek; **Whitman**, Jan, **Whittaker**, Mark; **Whytock**, Rory; **Wilberforce**, Lizzie; **Wilde**, Gill & John; **Wilding**, Jenni; **Wilby**, Maurice; **Wilkinson** Geoff; **Wilkinson** Myra; **Williams**, David; **Williams** Ian; **Williams**, Lisa; **Williamson**, Gary; **Williamson**, Hazel; **Wilson**, Ellen; **Wilson,** Greg; **Wilson**, Henry; **Wilton**, David; **Winnall**, Rosemary; **Wolton**, Robert; **Wood**, Martin; **Wood**, Nick; **Woods**, Aaron; **Woods**, Kitty; **Worfolk**, Tim; **Wragg**, J; **Wrenn**, J; **Wright**; David; **Wright**, Elaine; **Wright**, Neville; **Young**, Nathanael; **Young**, Paul, and **Zloch**, Rob.
Pete Boardman – 15/12/20

Incidence of two different species of craneflies (Diptera: Limoniidae) swarming at the same time by an isolated oak tree at a site in the Black Country, West Midlands. – Pete Boardman

On the 3rd August 2020 the author visited Clayhanger SSSI (SK033045) to continue to record the cranefly fauna at this under-examined and hugely interesting site. The location, north of Walsall in the Black Country of the West Midlands, sits on gravelly glacial boulder clays which overlay coal measures, and includes a wide range of wetland habitats from open water through swamp and fen communities to species-rich marshy grassland which adjoin areas of neutral and acidic grassland. The wetlands seem to have formed largely from the slump caused by old underlying coal mining. As part of the survey work to date, both the nationally scarce flies *Triogma trisulcata* (Schummel, 1829), and *Pilaria scutellata* (Staeger, 1840) were recorded here in 2019.

A slightly raised trackway traverses through lower lying wetter areas and accommodates a relatively out of place oak tree (see Photo 1). Pausing here at 3.30pm on a day of intermittent warm sunny spells with frequent cloudy, cooler moments, and a very light breeze, it became obvious that there were two groups of craneflies swarming* at different heights adjacent to the tree at the same time. A small group of three

Photo 1 – Swarming locations of *Erioconopa trivialis* (1) and *Erioptera fusculenta* (2) at Clayhanger SSSI on 3rd August 2020

male *Erioconopa trivialis* (Meigen, 1818) were seen to swarm approximately 30 cm off the ground below the tree over a patch of sparsely vegetated muddy area (Area 1 in Photo 1). (The swarm was netted, and all determined as males of this species before being released again). At the same time as this swarm was noted a second swarm of five *Erioptera (Erioptera) fusculenta* Edwards, 1938 was seen (one netted and taken for confirmation under the microscope) approximately 1.5 m above ground level and around half a metre from where the lower swarm was seen (Area 2 in Photo 1). The second swarm was close to the outside of an outstretched oak branch.
The Scottish dipterist Alexander Cuthbertson (1901-1942) published a list of species he observed swarming (Cuthbertson, 1926) and a more detailed account of swarming observations of *Erioptera lutea* Meigen, 1804 (as *E. taenionota* Meigen, 1818). *Erioconopa trivialis* is amongst his list of observations though *Erioptera fusculenta* is not. He suggests swarming takes place close to larval habitat and occurs mostly in calm conditions following a period of wet weather, which echoes the conditions experienced at Clayhanger.

*swarming – Stubbs defines this activity in craneflies as "*a flight pattern that holds an insect within a fairly fixed air-space, with one or more males hoping to attract a female for the purpose of mating."* (Stubbs, in prep)

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Pete Boardman

The northern expansion (and potential southern retrenchment) of *Nephrotoma crocata* (Linnaeus, 1758): Tipulidae during 2020
Pete Boardman (Natural England and UK CRS) & Christopher Andrews (UKCEH)

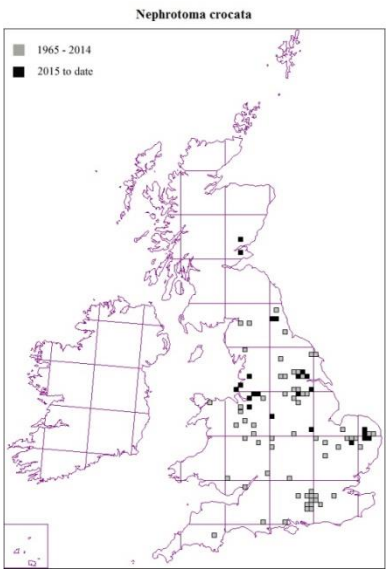
The bright-belted tiger *Nephrotoma crocata* (Linnaeus, 1758) is a stunning cranefly that is instantly recognisable with its black and yellow colouration and the three or four yellow bands


Photo 1. Photo 2 (Photos. C.Andrews)

across the abdomen. Stubbs (in prep) states that in the south of its range it is a much scarcer insect than previously, especially in Surrey where it was once widespread, and the New Forest where it was always apparently scarce. Recent northern and eastern records seem to be more frequent (including PB's colleague Alex Prendergast based near the Brecks of East Anglia who recorded this species egg-laying in loose sand in his front drive, and one emerged in his lounge out of the pot which held his Christmas tree early in 2019). Clusters of recent records are known from The Brecks, Lancashire and Cheshire, and Yorkshire, and Northumbria (Map 1). Breeding habitats include loose sand, well-drained arable soils, sand and gravel extraction sites, woodland edge on sandy soils, damp crumbly peat, and even on an industrial ash dump in Shropshire (Boardman, 2016).

PB received communication from CA on the 30/05/20 that he had found a specimen of *N. crocata* (Photos 1&2) on his garden path in Cupar, NO3613, VC85 Fifeshire the previous day. The specimen was in poor condition, missing all three legs on one side, but was released after identification. Upon consultation of the UK CRS database and the NBN, this was instantly noted as significant. The previous most northerly known record was from close to Morpeth, (VC67 South Northumberland) (between Newcastle-upon-Tyne and Alnwick), some 100 miles south as the crow (or indeed cranefly) flies from Cupar.

Contact was made with Geoff Hancock of the Hunterian Museum in Glasgow to undertake whether any previous Scottish records for this species were extant, however due to Covid-19 restrictions access was not possible to the collections and therefore this remains a little uncertain and confirmation or not of earlier records can only be made in 2021.



Map 1 – UK Cranefly Recording Scheme records 1965 – 2020.

With this plague year coming towards an end PB spent some time verifying records submitted via iRecord and was very interested to see a further record of *N. crocata* from even further north recorded near Glamis, NO3846, VC90 Angus (south-west of Forfar) on the 08/06/20. This location is approximately 40 miles north of Cupar and was recorded by Marriana Cammack.

Given the lack of recent records from the south of England (none from 2015 to current date) and the seemingly burgeoning of records from the northern half of the England and now the expansion into Scotland, might it be assumed that climate change has altered the range of this species? Time will tell.

P. Boardman & C. Andrews.