Micropezids & Tanypezids

Stilt & Stalk Fly Recording Scheme

Newsletter 5 Spring 2023

Fingered Strider (*Neria commutata*) photo ©Darwyn Sumner

Recording Scheme - News

A fairly intensive few sessions on data-gathering throughout the UK and Europe and even a brief foray into the Nearctic has led to both an improvement in Open Data contributions and biogeographical perspectives.

NBN Atlas now has the Open Data, up from 5373 to 6409 as shown opposite. Clearly I'm able to do the maps long before the data upload gets processed (takes about a month), starting with a few selected ones for this newsletter.

The website gets those maps too, check it and you'll find both old and new ones.

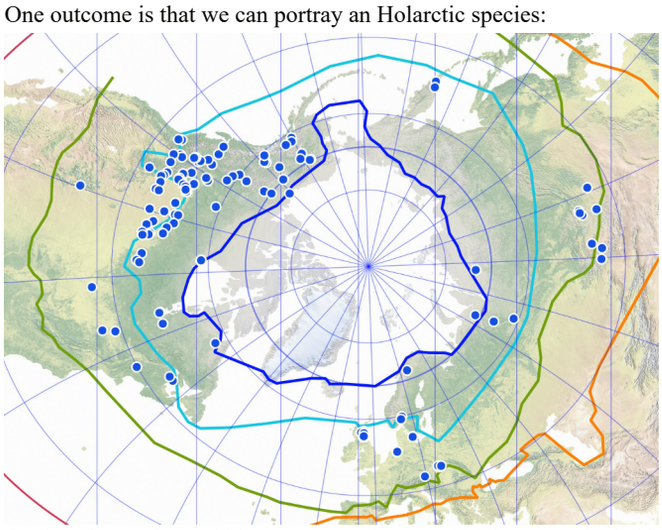
The European Atlas gets an update too, this time with points distributions rather than being country-based (as in my Researchgate preprint at https://doi.org/DOI: 10.13140/RG.2.2.34834.99529 with ~250 reads) If you've any work scheduled in this group then the website maps are the most current.

World Atlas. Again just the Calobatinae. The rest of the Palaearctic was a little tricky; papers in Russian, Korean and Japanese languages stretched the abilities of the OCR in my pdf reader and my use of online translators but I think I got them all. In contrast the Nearctic data was a breeze, half their museums seem to have uploaded to GBIF and the missing stuff I scanned from the maps in:

Merritt R.W. & Peterson B. V. 1976. A synopsis of the Micropezidae (Diptera) of Canada and Alaska, with descriptions of four new species. Can. J. Zool. 54: 1488–1506.

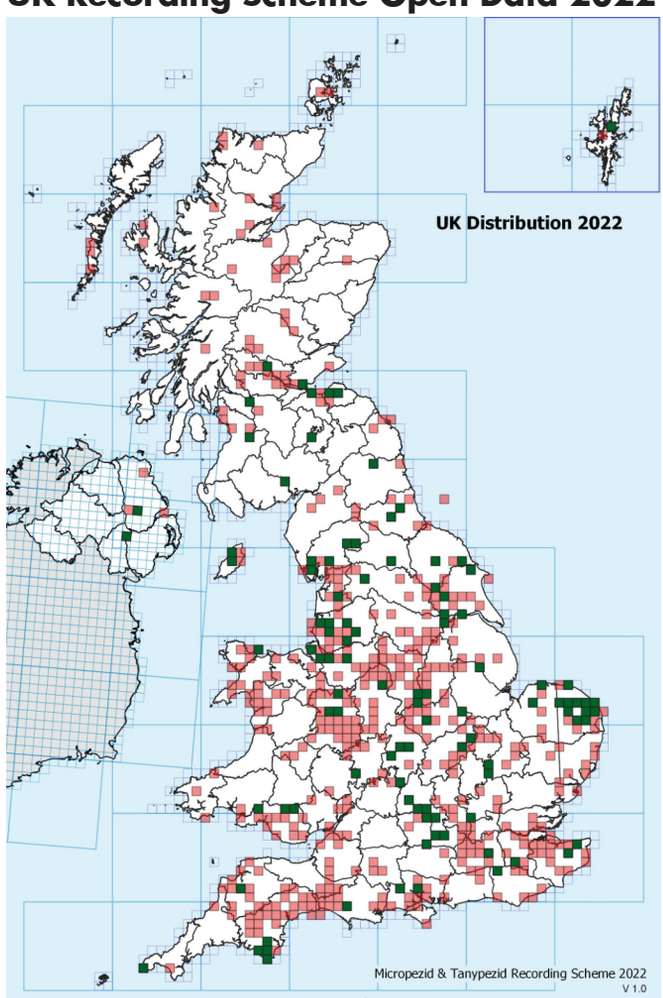
All these world atlas maps are to be found on the Scheme's website at https://micropezids.myspecies.info/node/385

One outcome is that we can portray an Holarctic species:



Cnodacophora stylifera which, according to Ozerov (1990) is synonymised with the Nearctic *Cnodacophora nasoni* Making this a Boreal (teal line) or high altitude Temperate species. The block to the right is Mongolia, the rest of the eastern Palaearctic is even more inhospitable for entomologists

UK Recording Scheme Open Data 2022



Recent records to 2022. All are publicly accessible through NBN Atlas. Dark green 10km squares are 2021/22 records, mainly through iRecord & iNaturalist. Pale red squares are from the 2011-2020 decade. Recent hotspots due to a Dipterists Forum field week in Norfolk. Plenty more promising old and new ground to explore. Thanks to everyone for their contributions so far.

Contact the Recording Scheme if you've any more or simply add them to iRecord or if images then iNaturalist is preferred.

European Micropezids & Tanypezids at http://micropezids.myspecies.info/

DIPTERA: Superfamilies NERIOIDEA (Micropezids) - Families Pseudopomyzidae & Micropezidae + DIOPSOIDEA (Tanypezids) - Families Diopsidae, Tanypezidae, Strongylophthalmyiidae, Megamerinidae & Psilidae

Darwyn Sumner

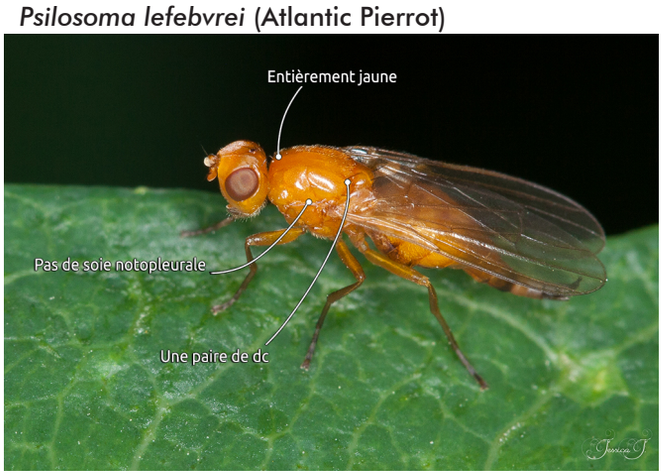
Online version of this newsletter (with hyperlinks) on the Newsletters page

Note that the Scratchpad website for this scheme has now been closed to further editing

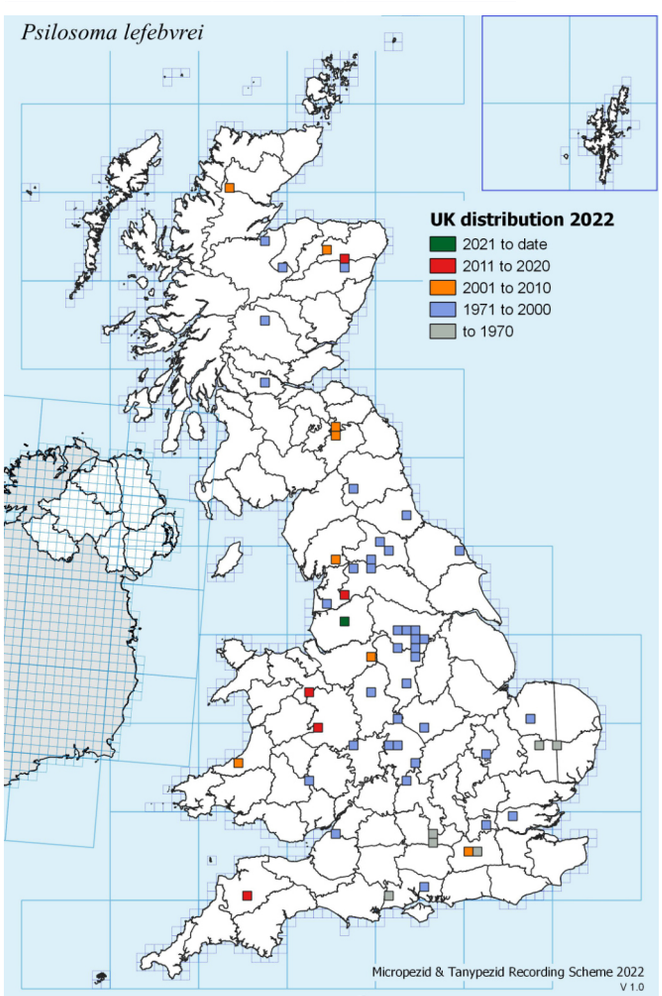
Featured species

Whatever happened to the Atlantic Pierrot?

Psilosoma lefebvrei (Atlantic Pierrot)



Identification tips from Jessica Joachim on her 2018 blog https://jessica-joachim.com/insectes/dipteres/psilidae/psilosoma-lefebvrei/



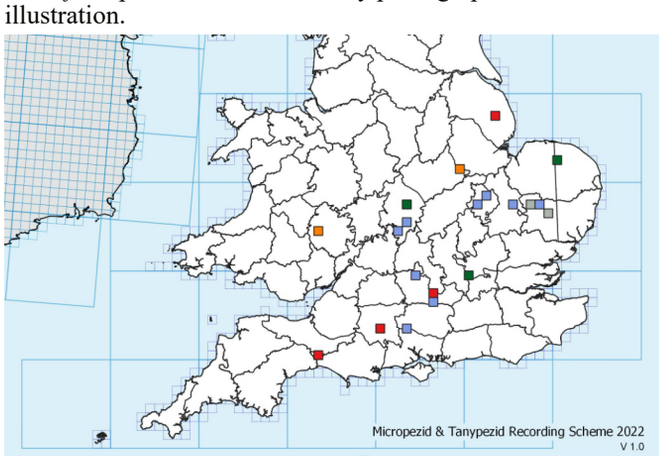
The map suggests a disturbing decline in *Psilosoma lefebvrei*, at one time widespread its range has now shrunken considerably to only 6 sites in the last decade and only a couple of records on iNaturalist.

Peter Chandler (1975) reported it as frequent in Scotland and the north of England. Peter collected it on Foxgloves (*Digitalis purpurea*). Check your finds carefully and don't mix this up with *Psila spp*. (1 notopleural bristle), it can be confirmed using the keys of either Jocelyn Claude or Paul Beuk. Post suspects on iNaturalist so that Jocelyn sees them.

Tanypeza longimana (European Harlequin)

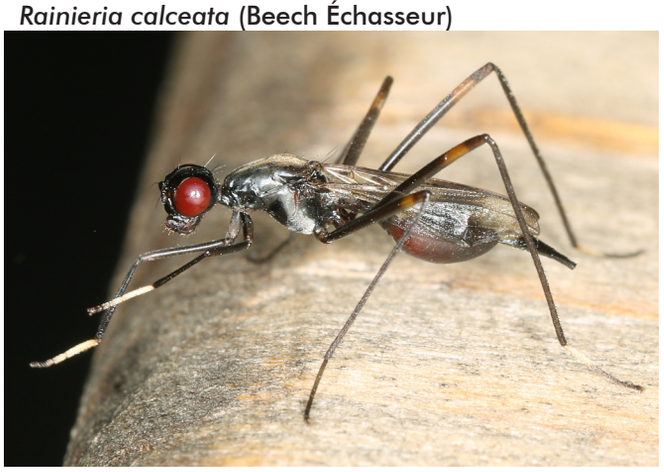
The fifth occasion I've found this species, my first from the UK, at Whitwell Common SSSI in East Norfolk last year.

Alan Stubbs included this discovery in his regular *British Wildlife* Diptera column and so my photograph was used as an illustration.

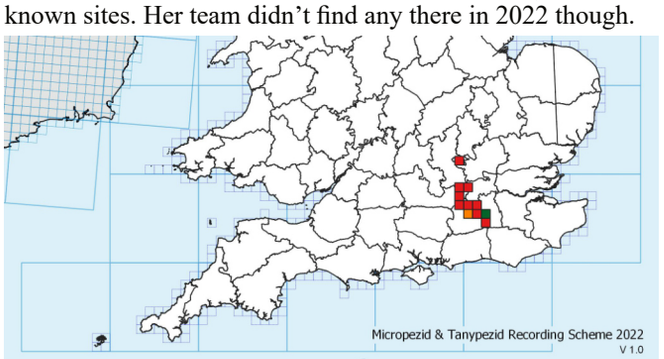


In mid June 2023 it was additionally recorded in Jersey by Jody Robert.

Rainieria calceata (Beech Échasseur)

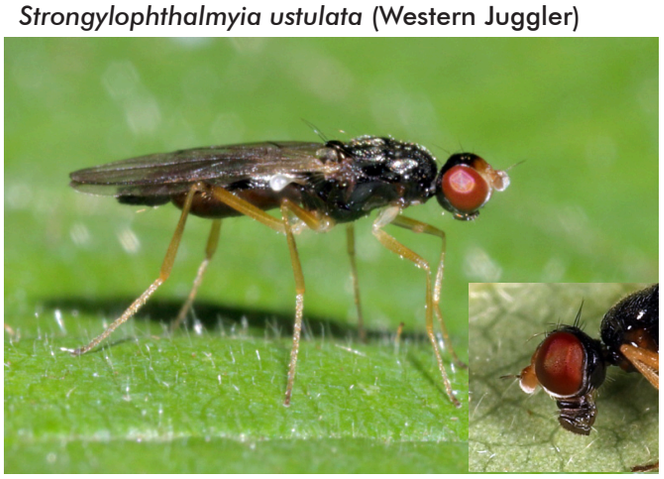


Though commonly encountered in certain parts of Europe, this remains a UK prize due to the scarcity of its habitat here. Just two additional UK records this year (Paul Brock on Flickr & Paul Davis on iNaturalist), both from its known stronghold in the Windsor Forest region. The publicity we give to this species was tracked down by Helen Read, an environmental consultant on veteran trees at Burnham Beeches, one of its known sites. Her team didn't find any there in 2022 though.



It was however refound on Corse in 2023, the first record since Séguy reported it in 1934.

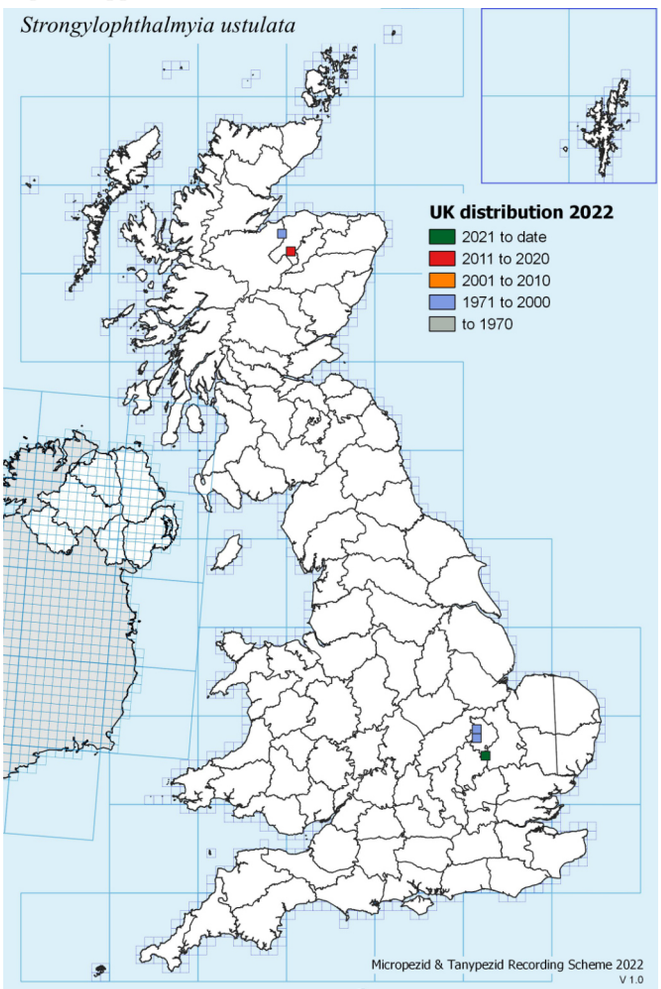
Strongylophthalmyia ustulata (Western Juggler)



A good year for this species in Europe with 5 records, one in France by Marie Lou Legrand (*renko*), another in the Netherlands by Rob Westerduijn both on iNaturalist. On Diptera.info a Spanish one (pictured) by *picotverd* in the Pyrenees is at the southern end of its range and the Saxony one is by Marion Friedrich. Thanks to Jere Kahanpää for help in confirming them.

The UK record was by Ivan Perry (reported in the latest Dipterists Digest) a career "one-off" by an experienced dipterist so don't expect to emulate them.

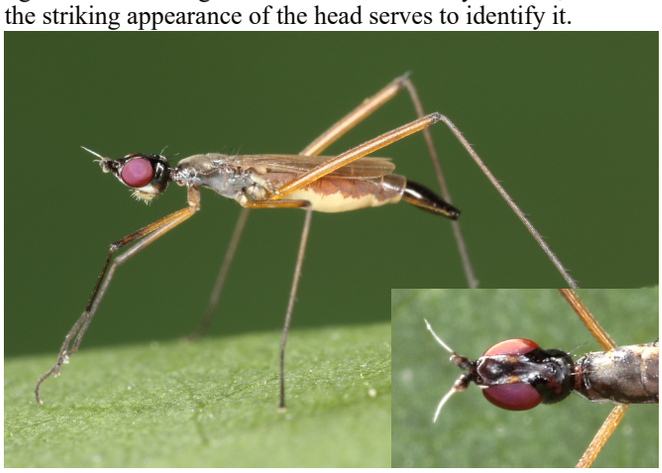
It's an unremarkable beast, the only distinguishing feature being the nominative "ball-shaped" eyes though I observe in *renko*'s superb images that the mouthparts are distinctive and the wing tips are infuscated. Keys in Krivosheina (1982), specimens amongst your sweepings near Aspen or other *Populus* spp..



Austria

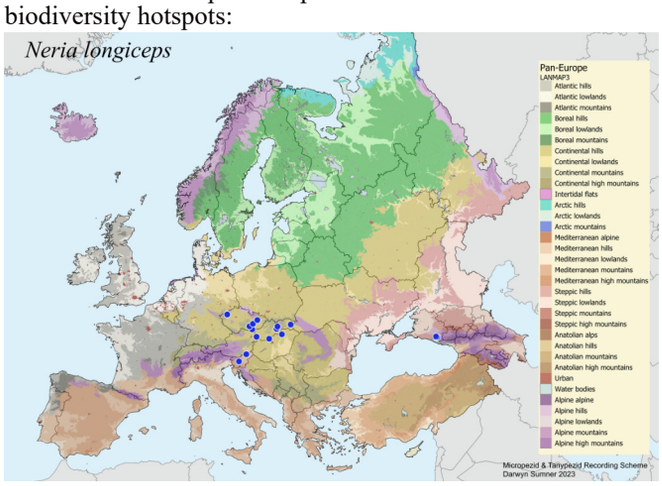
Neria longiceps (Long-headed strider)

An exceedingly rare species, so much so that only nine papers refer to it, and five of those are country checklists. There are no figures of the male genitalia to be found in any of them, however the striking appearance of the head serves to identify it.



Neria longiceps female [Gernot Kunz on iNaturalist]

Restricted to the Alpine-Carpathian corridor and the Caucasus biodiversity hotspots:



An Austrian checklist?

Considerable interest was shown by several Austrian dipterists in the above find by Gernot Kunz on iNaturalist, so much so that the discussion there (https://www.inaturalist.org/observations/160211655) resulted in them all chipping in with lists of species they knew from Austria. Validating them all and collecting them together for a list on the Scratchpad site is not feasible any longer but the potential exists for a most valuable paper in the future.

Palaeobiogeography

The Schizophora are the most recently evolved group of Diptera, recent DNA work can trace them back to 80-60mya. The Micropezidae arose soon after South America and Africa separated and probably before South America's connection to Antarctica (60-40mya) was lost (perhaps accounting for the presence of *Calycopteryx mosleyi* on the Heard Is. & *Badisis* in Western Australia.) Later, when Africa met Eurasia and various mountain ranges arose, the Calobatinae diversified in hotspots evidenced by the finding of an early Oligocene (25-23mya) fossil: *Calobata (Neria) rottensis* Statz, 1940, in Chattian lacustrine shale in Germany.

Intriguingly *Neria longiceps* seems to have stuck close to its origins in the Alpine-Carpathian corridor + Caucasus biodiversity hotspots whilst other Calobatinae have spread much further, across the Palaearctic with one getting across to the Nearctic and becoming Holarctic (*Cnodacophora stylifera*) whilst others may have diversified in the New World or their eastern Palaearctic progenitors are lost or undiscovered. Perhaps there are yet others awaiting discovery in the European hotspots.

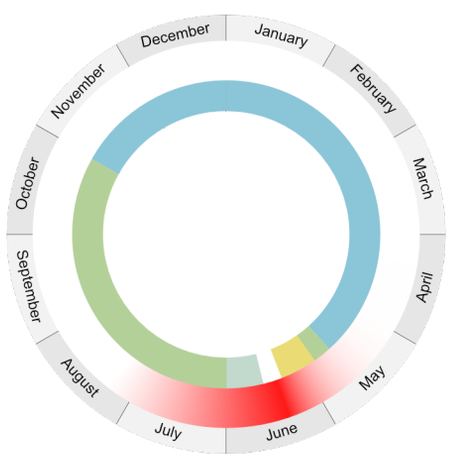
My **World Atlas of Calobatinae** maps them all.

G. Statz. 1940. Neue Dipteren (Brachycera et Cyclorhapha) aus dem Oberoligozän von Rott. Palaeontographica Abteilung A 91:120-174

Life-cycle investigations

For clues as to where the Micropezids & Tanypezids might be breeding it's difficult to do better than Peter Chandler's 1975 account of plant associations in the Psilidae. Though a number can be tracked down due to host-plant specificity (e.g. *Chyliza, Chamaepsila*) or fungi/tree associations (*Rainieria*), many are simply generalised feeders on decaying plant material in wet situations (not aquatic) such as riparian wetlands. Innumerable diptera species favour that life style so the chances of narrowing down any of the Calobatinae (for example) to anything specific are remote. By the time their larvae have dispersed in their favourite "soup" the chances that any extraction method will have of detecting them will be low, the same proportions as that of the adults amongst most other diptera in that particular habitat - and far less obviously identifiable.

Outer wheel: red = sightings of adults (*Neria sp.* UK)



Inner wheel immature stages: Blue = diapausing instar 3 larvae, green active instar 3 larvae, yellow = puparia. White = ova, pale green are the instar 1 & 2 larvae. Estimated from Barnes, 2016.

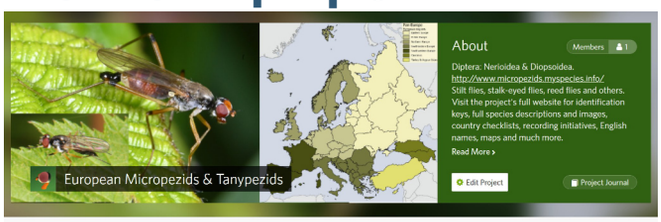
The above diagram shows a typical life-cycle, based on research by Barnes. Much of the larval (inner circle) cannot easily be investigated but observations of adults may give clues. Ovipositing is rarely observed, mating pairs scarcely seen either. Early and mass emergences can be detected though, *Neria commutata* for example was observed freshly emerged in the UK this year (a hot June) on the 3rd, then in considerable numbers (>50) a week later with numbers declining only a little over the next few days. The opportunity to further study dispersal and life-cycles is feasible given well-timed observations of the adults in appropriate sites (https://tinyurl.com/4y7eeprv) where metapopulations can be located.

Chandler P.J. 1975. Observations on plant associations of the Psilidae (Diptera). Entomol. Rec. J. Var. 87: 13–17.

Rotheray G.E. 2016. Fieldcraft and closing the knowledge gap between immature and adult stages of Diptera Cyclorrhapha. Dipterists Dig. Second Ser. 23: 85–96.

Barnes J. 2016. Biology and Immature Stages of Compsobata univitta (Walker, 1849) (Diptera: Micropezidae: Calobatinae). .

iNaturalist projects



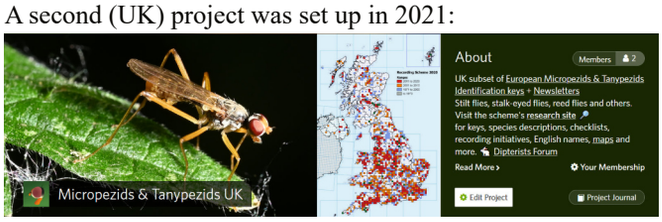
This Scheme's iNaturalist project, set up in May 2020 is steadily growing. It now has 22 members, users signed up to keep an eye specifically on this group. By the end of June 2023 the number of observations across Europe had risen from last year's 1100 to 2620 and the list of species stood at 51.

The project is clearly encouraging more recording. More than 50% of UK (image) recording is now through this site. There has also been a good deal of positive feedback occasioned by my habit of providing a link to each taxon on my Scratchpad site when confirming an identity. Hopefully contributors go and read that before confirming my ID.

I'm indebted to Jocelyn Claude (France), Sam Rees (UK), Erikas Lutovinovas (Lithuania), Nikola Szucsich (Austria) & Jere Kahanpää (Finland) for showing an interest and helping to raise many to Research grade, a good example of the effectiveness of international collaboration. Thanks too to others such as Katja Schulz (USA) and Gernot Kunz (Austria) and several more for the many interesting and informative exchanges there.

Do participate by joining the project as a member, there are always many unconfirmed ("needs ID") records and plenty of creatures out in the field waiting for you to find.

A second (UK) project was set up in 2021:



Many thanks to those confirming my personal records so that I could process them through iRecord (and thus get them on to NBN Atlas). Thanks too to Jocelyn who stepped in to do the many trickier *Chamaepsila*

By the end of June there were 364 observations of 24 species via 151 observers, 55% of them identified by 53 identifiers. Membership rose to 6, presumably those in the UK with a particular interest in this group. Do feel free to join, every project you join shows up alongside your posted image so that you can see which Recording Scheme you've contributed to - join as many Dipterists Forum RS projects as you wish.

https://www.inaturalist.org/projects/dipterists-forum

I check the iNaturalist project pretty much daily (a bit like checking email but with the potential of exciting new discoveries) and that team of 53 identifiers do so somewhat less frequently. The records all get fed into iRecord. but images simply uploaded to iRecord alone are infrequently checked by their sole verifier. There's no team in i(Record)

Previous Newsletters

1. Stilt & Stalk Fly Recording Scheme Newsletter 1
2. Stilt & Stalk Fly Recording Scheme Newsletter 2
3. Stilt & Stalk Fly Recording Scheme Newsletter 3
4. Stilt & Stalk Fly Recording Scheme Newsletter 4

Identification

Online keys

There are a number of methods of constructing dynamic online keys; some, such as Paul Beuk's online keys to Psilidae seem to be text and couplet based. Others are somewhat more complex to build as they are based upon weighted matrices of characters. One such was developed by the UK's Field Studies Council, the FSC Identikit

FSC's Biolinks Projects funding has ended and the project consequently discontinued. Thus some of the support facilities are no longer available and some links broken (e.g. the help forum) due to FSC's revision of their website and staff redeployment.

The GitHub pages at the above link still appear to be functional however and presumably the downloadable kit still operates. Developing such matrices results in a desktop version which can be endlessly modified then recompiled to produce a satisfactory key (see their Opiliones key). It can also be shared between collaborators. To make that key then available online requires that it then be hosted somewhere.

This scheme has developed two which FSC kindly hosted (and still do) since the Scratchpads were not suitable vehicles for such hosting.

They are as follows:

1. **European Psilidae**
   An initial experiment so not as good as those of Beuk or Withers & Claude
2. **European Micropeza**
   Adequate but the Visual key below is an improvement

A third one has now been begun:

3. **World Calobatinae**

Collaborators are invited, workers across the Holarctic may be contacted when any progress has been made. Many illustrations and images yet to be found or drawn and I'll need somewhere to host it to demonstrate a first version.

Visual keys

The following were included in previous newsletters:

1. Micropeza (European) in Newsletter 3
2. Loxocerini, Chylizinae (European) in Newsletter 4

Scheme Publications

Preprints: Though I've had offers from journals to publish items arising from this Recording Scheme, the decision to publish them as preprints on **ResearchGate** seems to have been prudent. Anything containing distribution maps or phenology reflects the state of knowledge at a particular point in time and so such fast publishing has proved valuable. The recent 20% increase in our UK records underlines this.

The following preprints are now accessible …

Sumner, D. P. (2018). Vernacular names: European Micropezids & Tanypezids (Diptera, Nerioidea & Diopsoidea). Preprint, A 3(3 V2), 1–14. https://doi.org/DOI: 10.13140/RG.2.2.10298.31688

Sumner, D. P. (2018). Observations on Phytomyza orobanchia Kaltenbach, 1864 (Diptera, Agromyzidae) and Chyliza extenuata Rossi, 1790 (Diptera, Psilidae), both new to Wales, on Ivy Broomrape (Orobanche hederae). Preprint, 1(2:V1), 7. https://doi.org/DOI:10.13140/RG.2.2.31761.35686

Sumner, D. P. (2018). Biogeography, population dynamics and status of Micropeza lateralis Meigen, 1826 (Diptera, Micropezidae) in Europe. Preprint, 1(3 V1). https://doi.org/DOI: 10.13140/RG.2.2.15823.00160

Sumner, D. P. (2018). European Atlas: Micropezids & Tanypezids (Diptera, Nerioidea & Diopsoidea). Preprint, A 1(1 V5), 1–94. https://doi.org/DOI: 10.13140/RG.2.2.34834.99529

Sumner D.P.. (2021). Biogeography, Phenology & Status of Micropezids & Tanypezids (Diptera, Nerioidea & Diopsoidea) in the UK. Dipterists Forum Report: Stilt & Stalk Fly Recording Scheme, A(11 V1), 48 http://dx.doi.org/10.13140/RG.2.2.35312.38407

The above ResearchGate preprints have been consulted widely by researchers and cited a few times.

Online: Updates to Atlases both European & UK as maps with occurrences as points, some extending to Palaearctic and Holarctic regions. Publishing online is no longer as feasible due to Scratchpad closures though most maps are available on this scheme's site. A Researchgate update to atlases may be possible in the longer term.

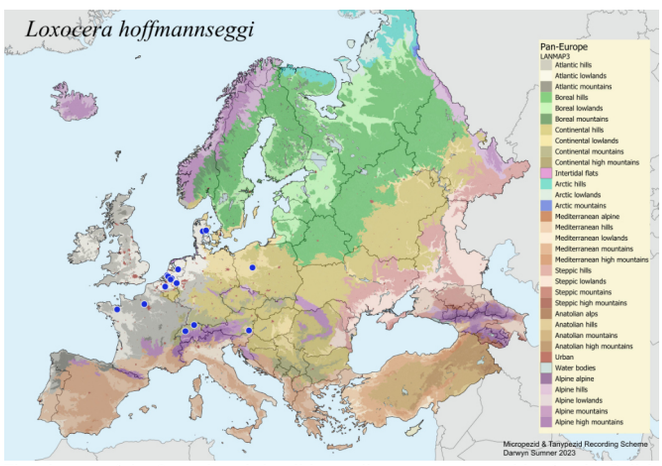
In prep. A number of keys and articles on the biology, ecology, biogeography, palaeogeography and morphology of various taxa, notably the Calobatinae & *Tanypeza longimana*.

Recent Publications

Claude J. & Beuk P. 2023. The Psilidae of the centennial Botanic garden Jean Massart (Brussels-Capital Region , Belgium): five new species of Belgian Diptera with an updated Belgian checklist. Belgian J. Entomol. 134: 197–203.

Milkowski M. & Tatur-Dytkowski J. 2022. Rediscovery of the Rust Fly Loxocera hoffmannseggi Meigen, 1826 (Diptera: Psilidae) in Poland. Dipteron. 38: 32–37.

In Polish. Some valuable habitat and occurrence observations, though lacking lat/long geospatial coordinates. The authors observe that Poland was omitted from Fauna Europaea (2013)*. Some Polish records are on iNaturalist (and GBIF) and the species is referenced in the European Atlas (Sumner 2018) and current work on this scheme's site:



The closure of the Scratchpad site did not allow any opportunities for the Polish author's records (not on GBIF) to be interpreted and included in the above map. Their map adds three more locations in Poland, one from a Fauna Polski paper (not Open Access.)

*Fauna Europaea is "outdated" (Martinez *pers. comm.*, 2023) and does not cite published sources of species occurrences which clearly extensively mismatch with published data (Sumner, 2018)

Scratchpads scratched

In many ways the ideal format for Recording Scheme websites the Scratchpads lost their support from the UK's Natural History Museum (London) much to the dismay of hundreds of site owners across the world. The sites themselves will remain functional to enquirers as usual but they will be frozen for continued amendment by their managers and operators.

Though alternative website templates (e.g forums, blogs, galleries) have been investigated, none provide the taxonomic backbone to such a complex content management system. Indeed rebuilding such a template may take years and a considerable amount of money. A small international consortium is currently investigating options amongst the biodiversity informatics community and though it may well be that a less sophisticated model of low cost may deliver around 80% of the capabilities of Scratchpads it is likely that a full implementation may take one or two big funders and some crowdfunding.

About the consortium

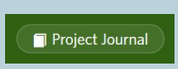
This "SOS" (Save our Scratchpads) group was initiated and led by John P. Sullivan (USA) and joined by many others, including 3 UK Diptera Recording Schemes, others studying fish, spiders, plants, beetles, myriapods and several others throughout the world together with a couple of developers and individuals involved in some pretty hefty international biodiversity informatics projects. The group, all anxious to explore possible ways forward so as to continue their research, has met several times and canvassed various interested or involved parties. In the stories being told the picture emerged that Scratchpads were one component of a multi-million euros enterprise that achieved a great deal.

Sustainability was one budget element they overlooked though, one could hardly apply the term "successful" to an enterprise that recruits free amateur expertise then expects these unwaged naturalists to also shoulder the costs of their continued endeavours.

GBIF Forum discussion at https://tinyurl.com/2p8xb3fz

In the meantime this Recording Scheme has no alternative taxonomic content management website to transfer its focus to. Nor, given the short notice of 6 months to 1st September, is there any longer a place to store resources such as images, atlases & other biogeography, phenologies, bibliographies, newsletters, publications, keys and guides etc.

There remains one location though for any messages regarding progress: the **Project Journal** on this Scheme's iNaturalist project at https://www.inaturalist.org/projects/european-micropezids-tanypezids



News regarding sustainable solutions and free hosting costs (unwaged volunteer!) will ultimately be placed there. It's just a simple blog but it's an editable spot right now.

***Countries and regions are thirsty for summarized data and insights for policy-making but we are running short of tools for managing the data* (Martinez *pers. comm.*, 2023)**