



# **The Riverfly Monitoring Initiative**

## **public engagement and riverfly monitoring**

### **Craig Macadam**



**Freshwaters for the Future:  
A Strategy for Freshwater  
Invertebrates**



## 8 Broad principles

- Aquatic invertebrates: understood, cherished and properly valued
- Reducing pollution and improving water quality
- Tackling the threat of non-natives
- Resilience to climate change
- Halting the use of peat in horticulture
- Conservation of small water bodies
- Monitoring of freshwater invertebrates
- Targeted conservation action for some freshwater species



**Freshwaters for the Future:  
A Strategy for Freshwater  
Invertebrates**



## 8 Broad principles

- Aquatic invertebrates: understood, cherished and properly valued
- Reducing pollution and improving water quality
- Tackling the threat of non-natives
- Resilience to climate change
- Halting the use of peat in horticulture
- Conservation of small water bodies
- **Monitoring of freshwater invertebrates**
- Targeted conservation action for some freshwater species

# The Riverfly Partnership

Network of over 60 supporting organisations representing anglers, conservationists, entomologists, scientists, water course managers and relevant statutory bodies.

Established following concerns in river water quality.

Collaborating to:

- **protect the water quality of our rivers**
- **increase our knowledge of riverfly populations**
- **actively conserve riverfly habitats**





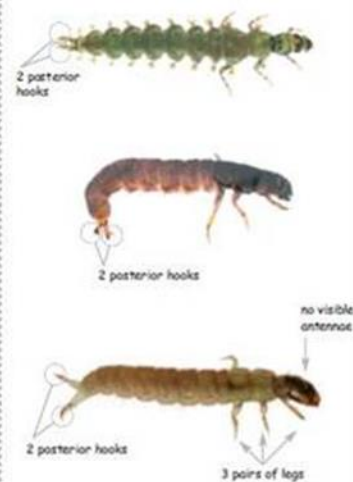
# Target groups

## Cased caddis



- Body within case
- Case made of small stones, sand grains, plant material or shells
- Not firmly attached to a surface
- Case may be round, square or flat in cross section

## Caseless caddis



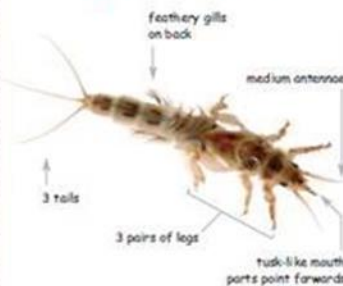
- 3 pairs of legs visible
- May be inside web

### Avoid confusing with:

- Chironomid midge larvae, which have no legs but walk using a soft peg near their head
- Beetle larvae, which have no hooks on the posterior appendages

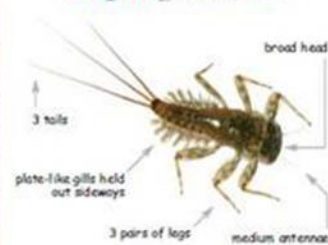
Note: caddis pupae are not recorded

## Mayfly Ephemeroidea



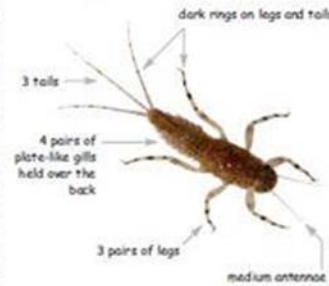
- Burrows in silt or sand or crawls

## Flat-bodied Heptageniidae



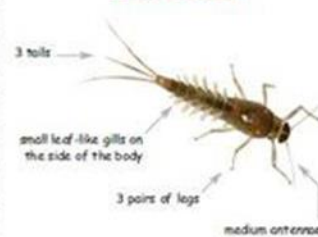
- Body flattened
- Clings to stones
- Swims slowly, flexing body up and down, more commonly seen scuttling on a surface

## Blue-winged olive Ephemerellidae



- Swims slowly with a rocking motion, body flexing up and down

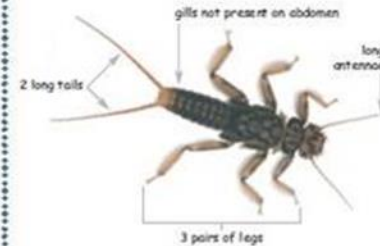
## Olivines Baetidae



- Fast swimmer
- Agile darters
- Body tapered

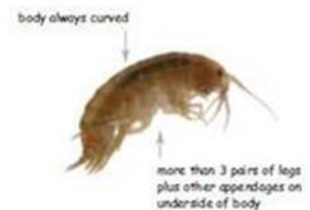
Note: not all up-wing fly families are included in the Target Group, for example Camidae and Leptophlebiidae are not recorded.

## Stoneflies



- Crawls or reluctantly swims flexing the body from side to side

## Gammarus



- Body flattened side to side
- Swims on side

# Recording and reporting

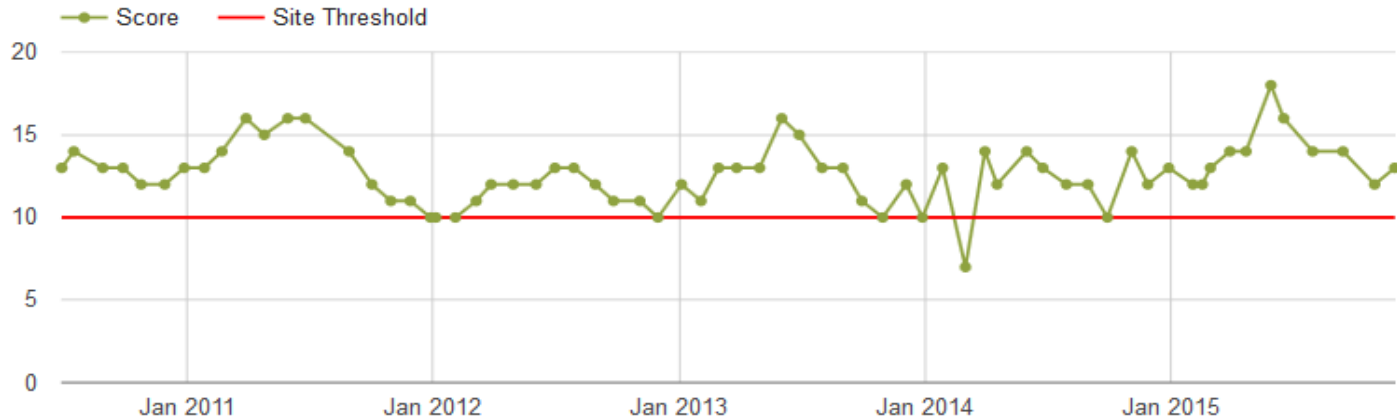
Chess Survey

View Site Results

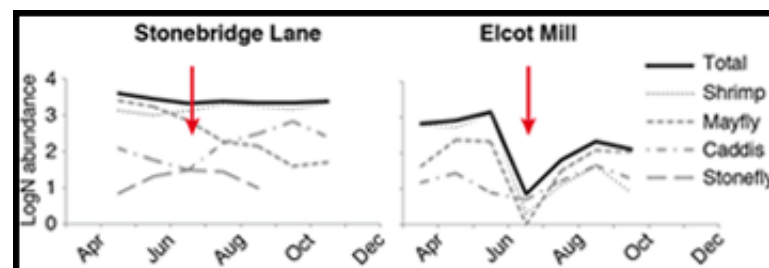
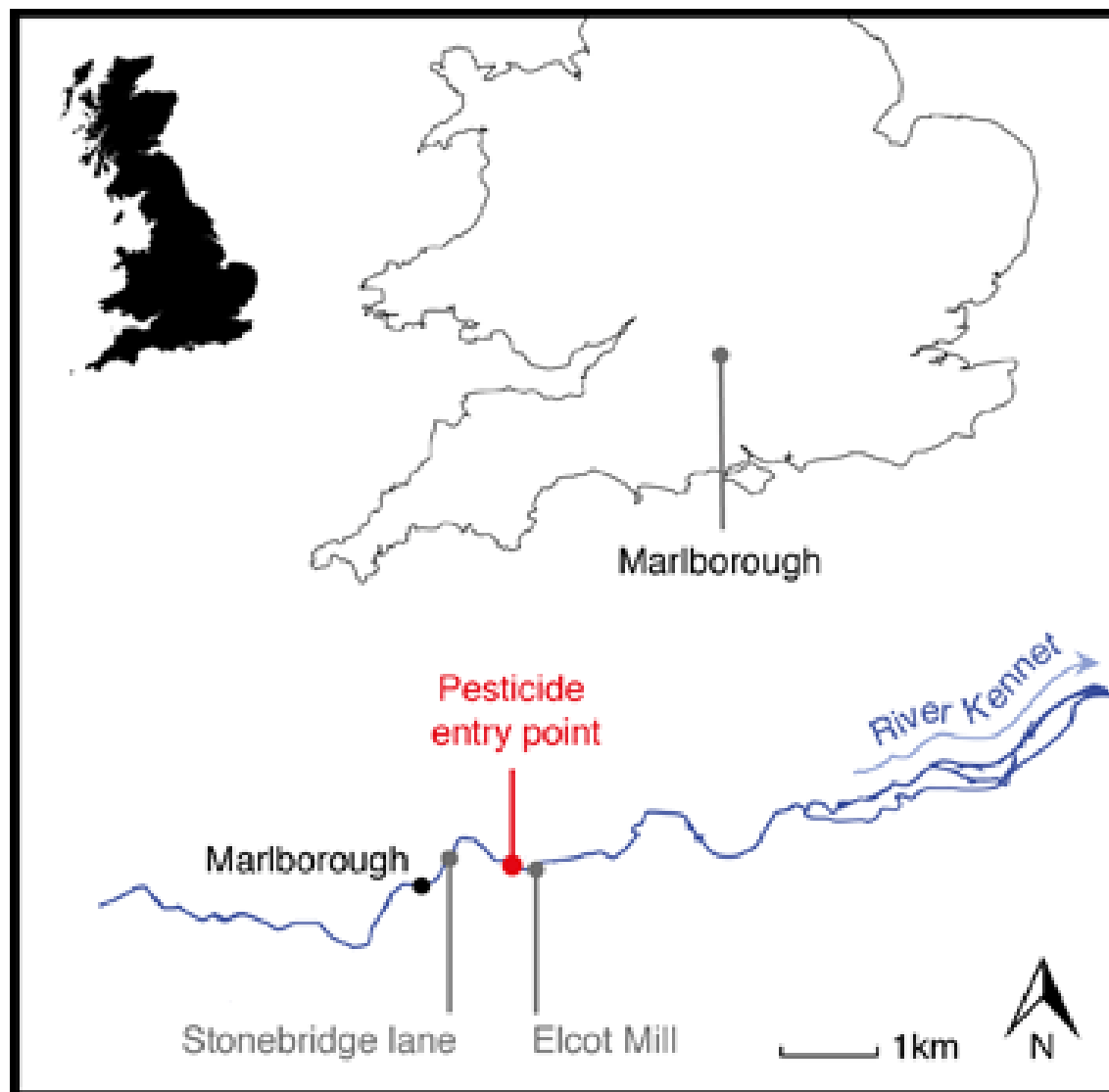
Chess ▾

Site name Latimer Bridge ▾

Selected Site and Target Group Abundance over time



	Score	Site Threshold	Site name	River name
2010	13	10	Latimer Bridge	Chess
2010	14	10	Latimer Bridge	Chess
2010	13	10	Latimer Bridge	Chess
2010	13	10	Latimer Bridge	Chess
2010	12	10	Latimer Bridge	Chess
2010	12	10	Latimer Bridge	Chess
2010	13	10	Latimer Bridge	Chess
2011	13	10	Latimer Bridge	Chess
2011	14	10	Latimer Bridge	Chess
2011	16	10	Latimer Bridge	Chess
2011	15	10	Latimer Bridge	Chess
2011	16	10	Latimer Bridge	Chess
2011	16	10	Latimer Bridge	Chess
2011	14	10	Latimer Bridge	Chess
2011	12	10	Latimer Bridge	Chess
2011	11	10	Latimer Bridge	Chess
2011	11	10	Latimer Bridge	Chess





# riverfly recording schemes



- Act as 'champions'
- Produce identification guides
- Provide training opportunities
- Encourage recording
- Research and Conservation



Ephemeroptera (Mayflies)



Trichoptera (Caddisflies)

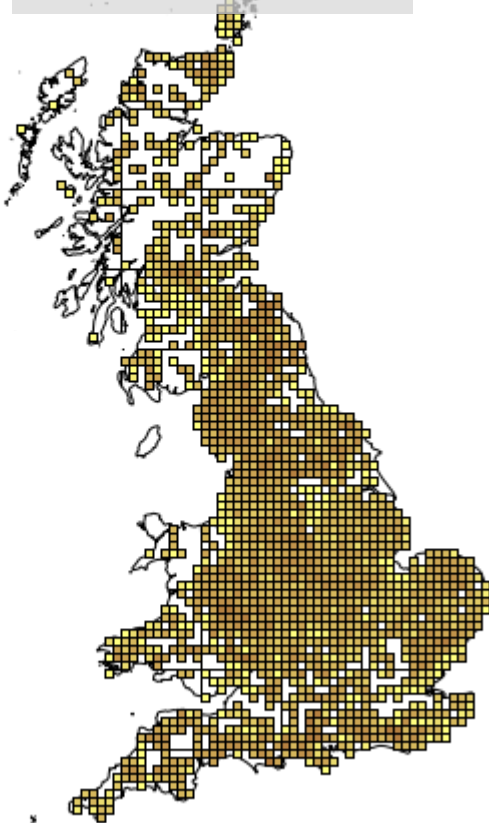


Plecoptera (Stoneflies)

# Riverfly Recording Schemes

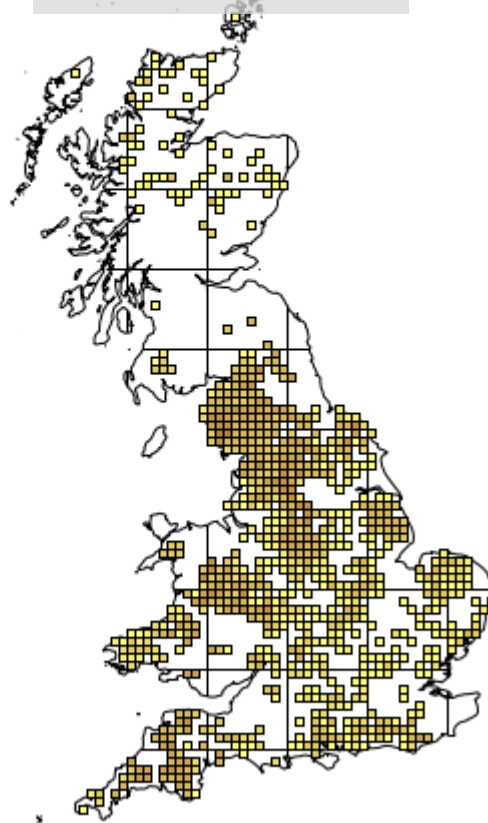
## Ephemeroptera

Est. 2000  
51 species  
c. 210,000 records



## Plecoptera

Est. 2003  
34 species  
c. 66,000 records



## Trichoptera

Est. 1976  
199 species  
c. 380,000 records



# Collecting evidence

Have you seen the Yellow May Dun?



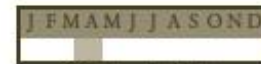
Have you seen the March Brown?





# March brown survey

## Have you seen the March Brown?



Months in flight

Mottled wings

Two tails

'Spot' on all legs



Female dun © Cyril Bennett



# March brown survey



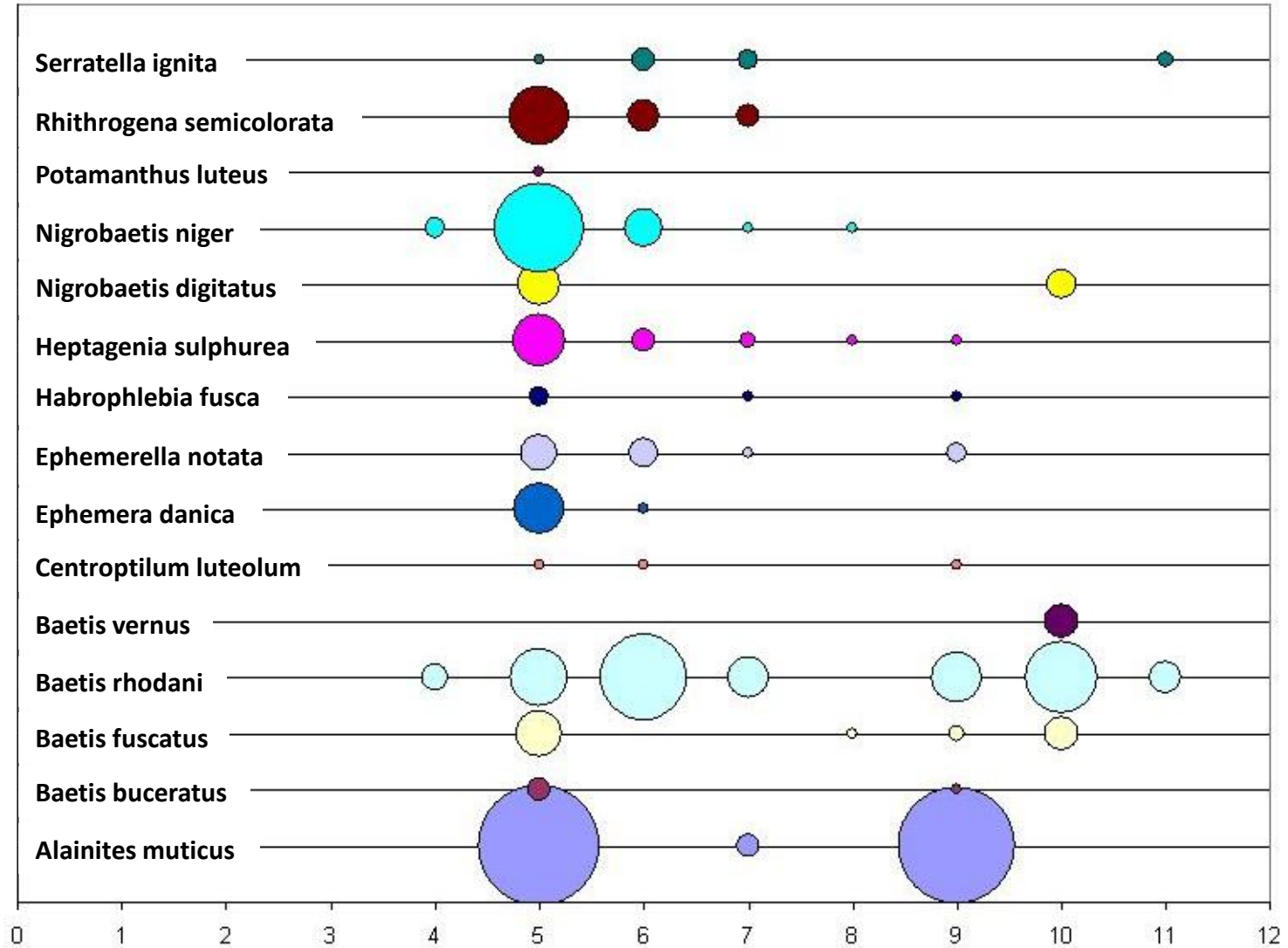
- Targeted survey of anglers between 2010 and 2012
- Over 100 new records
- Confirmed that the species still occurs in the River Usk
- First records for Wharfe and Eden
- Also first records for Cornwall
- Most records submitted online with photos
- Many records come from Twitter



# Investigating flight periods



# River Test, Hampshire





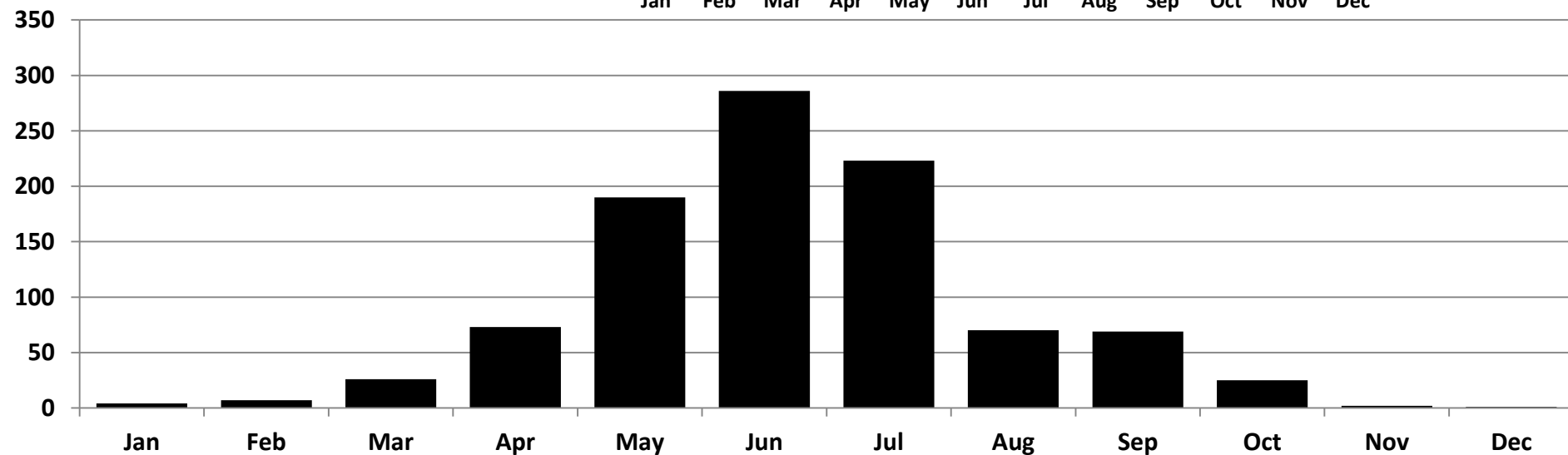
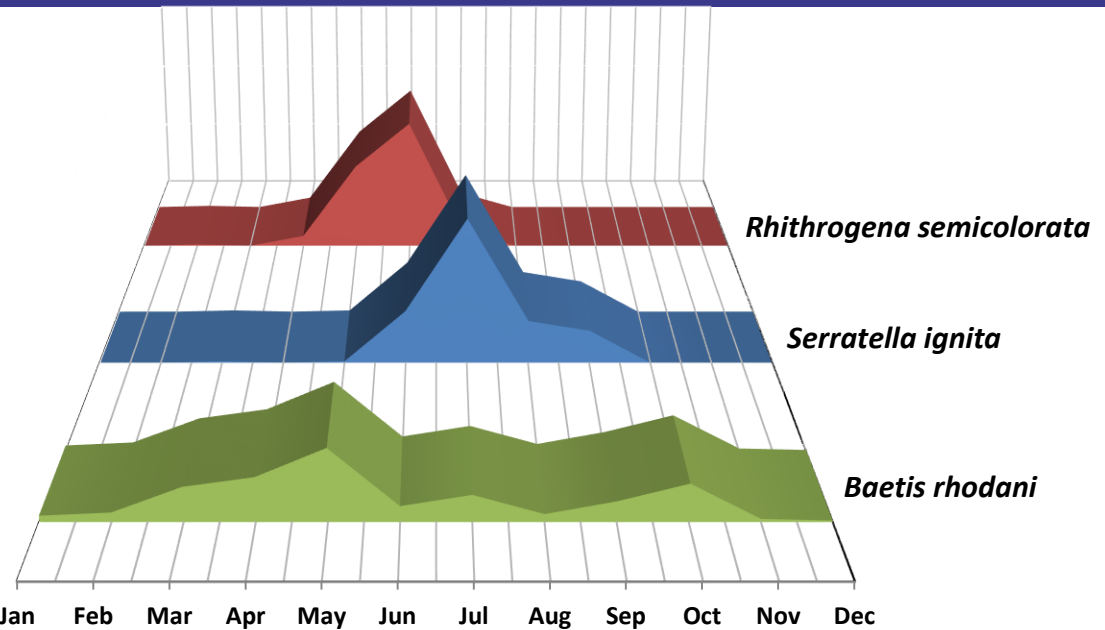
# Adult mayfly survey

2 years (2008/2009)

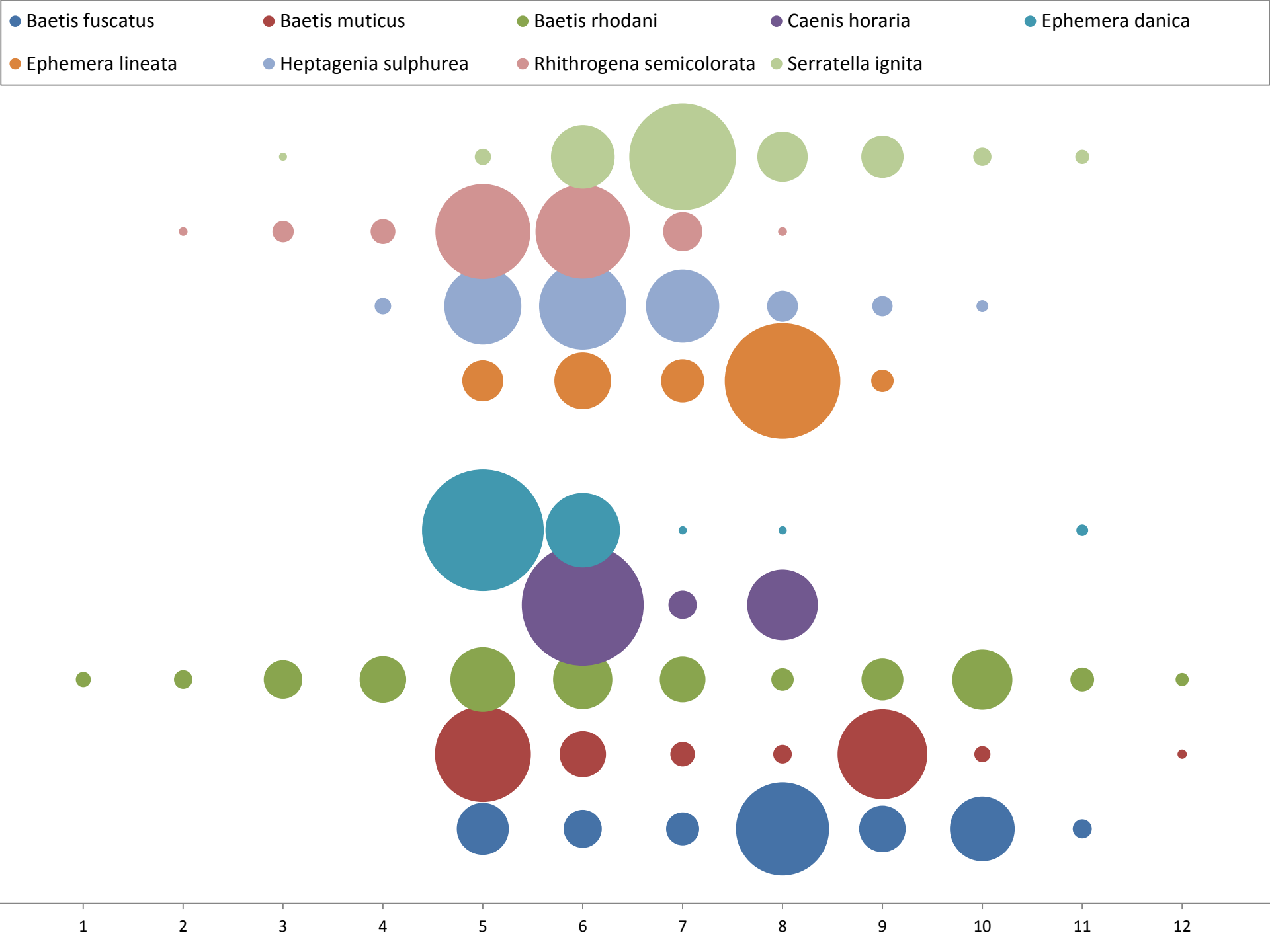
27 participants

1186 specimens

34 species (67%)







# Have you seen the Yellow May Dun?



Female dun © Stuart Crofts

# Adult caddisfly scheme

- Established in 2006
- Over 11,000 new records
- Increased our understanding of distribution and flight periods
- *Synagapetus dubitans* new to the UK





# Keep your eyes peeled for the Orange-striped Stonefly



The Orange-striped stonefly, *Perlodes microcephalus*, is widespread in Europe. However due to differences between British and other European populations, the British Orange-striped stonefly has now been classified as a separate species, *Perlodes mortonii*.

The most recognisable difference is that in Britain the adult males are flightless with wings reduced to a stub, whereas elsewhere they have a variety of wing length, some having fully formed wings. Note – the adult females in all populations have fully formed wings.

Please send specimens of any Orange-striped stoneflies that you find to the Riverfly Recording Schemes. Your records are important and will contribute to research on the species status, and inform conservation action.





# Identification guides



# Species postcards





Welcome back Craig. You've 1 unread [notification](#).

## Recent sightings

The following list of records includes verified records and those awaiting verification of species groups you are interested in which have been recently added in your area.

Species	Site name	Grid Ref	Date	Recorder
Leuctra fusca	Oaken Clough	SK06448561	08/08/2000	flint, Sharon
Leuctra moselyi	Oaken Clough	SK06448561	09/09/2000	flint, Sharon
Leuctra moselyi	Oaken Clough	SK06448561	09/09/2000	flint, Sharon
Brachyptera risi	Oaken Clough	SK06558569	05/05/2000	flint, Sharon
Brachyptera risi	Oaken Clough	SK06558569	05/05/2000	flint, Sharon

Approx. 1385613 records of 22339 species, with 267083 photos. [Explore records...](#)

## Recently added photos



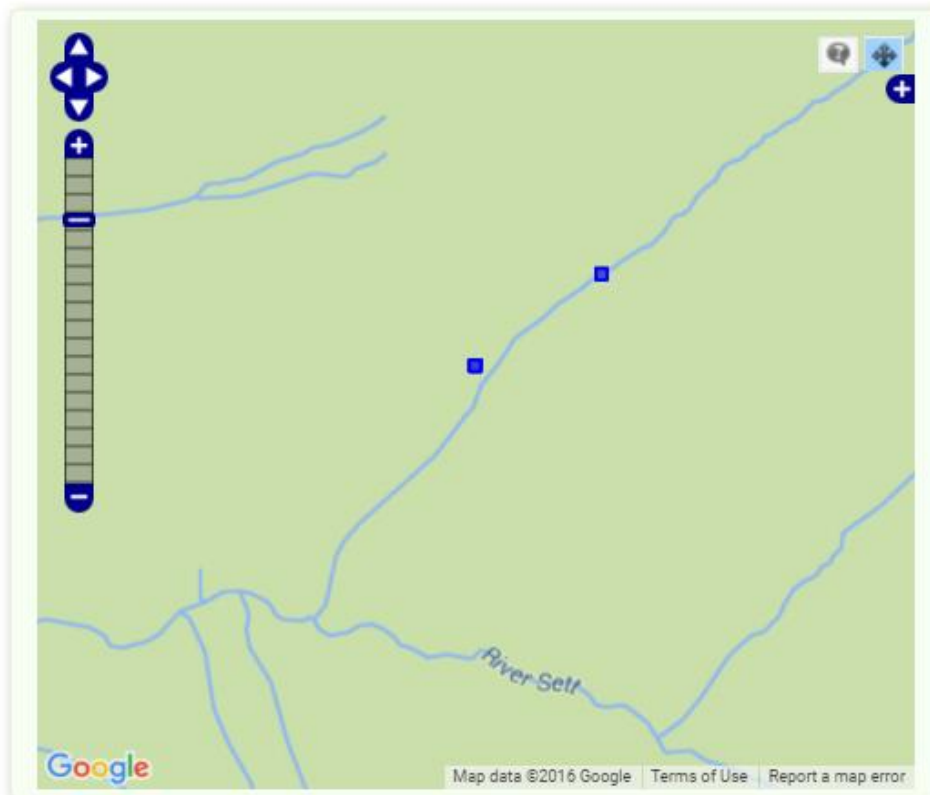
Leuctra fusca



Leuctra fusca



Leuctra moselyi





## Verify

New report

Context: Mayfly+Stonefly; Macadam

Review grid Review tick list

3099403	23 42	Leuctra m
3099399	23 42	Brachypter
3099394	23 42	Brachypter
3099381	23 42	Leuctra ge
3099379	23 42	Dinocras cephalotes
3095965	23 42	Habrophlet
3095964	23 42	Rhithrogena semicolorat
3095963	23 42	Baetis rhod
3095953	23 42	Baetis vern
3095952	23 42	Baetis rhod
3095886	23 42	Baetis rhod
3095885	23 42	Taeniopteryx nebulosa
3095884	23 42	Ecdyonurus venosus
3095853	23 42	Ephemera
3095852	23 42	Ecdyonurus torrentis
3095851	23 42	Paraleptophlebia







**Craig Macadam**  
@bugsymac1

The Brown May dun (*Kageronia fuscogrisea*) with distinctive pointed gills and body markings  
#mayflies



RETWEETS 5  
LIKES 7



6:15 PM - 28 Apr 2016



**Paul Procter FlyFish**  
@paulprocter



Following

Good numbers of these today...side by side - the iconic Iron Blue Dun and significantly larger, Large Dark Olive




RETWEETS 15  
LIKES 55



Mostly about Mayflies....

[Home](#)
[Collecting](#)
[Identification](#)
[Species](#)

RSS Feed 

Search

## Archives

[January 2016](#)  
[December 2014](#)  
[November 2014](#)  
[October 2014](#)  
[September 2014](#)  
[August 2014](#)  
[July 2014](#)  
[June 2014](#)  
[May 2014](#)  
[April 2014](#)  
[March 2014](#)  
[February 2014](#)  
[January 2014](#)  
[December 2013](#)  
[November 2013](#)  
[October 2013](#)  
[September 2013](#)  
[August 2013](#)  
[July 2013](#)  
[June 2013](#)  
[May 2013](#)  
[April 2013](#)  
[March 2013](#)  
[February 2013](#)  
[January 2013](#)  
[December 2012](#)  
[November 2012](#)  
[October 2012](#)  
[September 2012](#)

## Tips for identifying Ecdyonurus larvae 3 comments

If there's one thing that I get asked more than anything it's how to separate larvae of the four British *Ecdyonurus* species. I'm not surprised though as most keys rely on the shape of the head and the pronotum and while with practice (and enough specimens) you can begin to separate out species using these features it is rather subjective and rather difficult even for the experienced. There are however some other features that can be used on fully mature larvae. Of course *Ecdyonurus insignis* can be quickly separated by the pattern of dark lines on the pale underside of the body.



*Ecdyonurus insignis*: markings on the underside of the body

It should be noted that the absence of a tuft of filaments on the last gill is not always reliable as occasionally there can be a small tuft alongside the plate-like gill.

To separate the other *Ecdyonurus* species we must first look at the markings on their tarsi (feet).

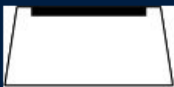


Tarsi with one dark band:  
*Ecdyonurus venosus*



Tarsi with 2 dark bands:  
*Ecdyonurus dispar* or  
*Ecdyonurus torrentis*

*Ecdyonurus dispar* and *E. torrentis* can then be separated by the markings on the underside of the body.



Dark line at front of  
body segment:  
*Ecdyonurus dispar*



Inverse pattern of  
dots and lines:  
*Ecdyonurus torrentis*

**[www.buglife.org.uk](http://www.buglife.org.uk)**

**[www.riverflies.org](http://www.riverflies.org)**


**<https://mostlyaboutmayflies.wordpress.com>**

**[www.brc.ac.uk/irecord](http://www.brc.ac.uk/irecord)**

**[@bugsymac1](#)**



# Any questions?

[www.buglife.org.uk](http://www.buglife.org.uk) Tel: 01786 460360  @buzz\_dont\_tweet

Buglife is a registered charity at Bug House, Ham Lane, Orton Waterville, Peterborough, PE2 5UU  
Registered Charity No: 1092293, Scottish Charity No: SC040004, Company No: 4132695