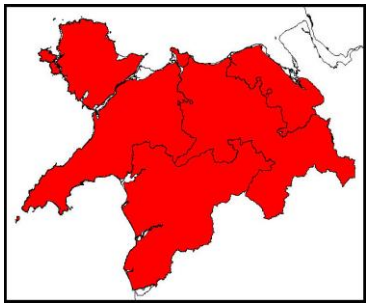

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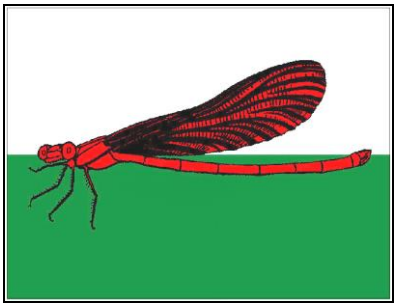


Odonata news and events from across the vice counties of Anglesey, Merionethshire, Caernarvonshire, Denbighshire and Flintshire

Hi all,

With the Winter's cold, wet and windy weather we're experiencing I'm sure dragonflies are a long way from your mind right now. Here are a few items that might remind you that they are still out there, albeit in their larval stages.

Acknowledgements

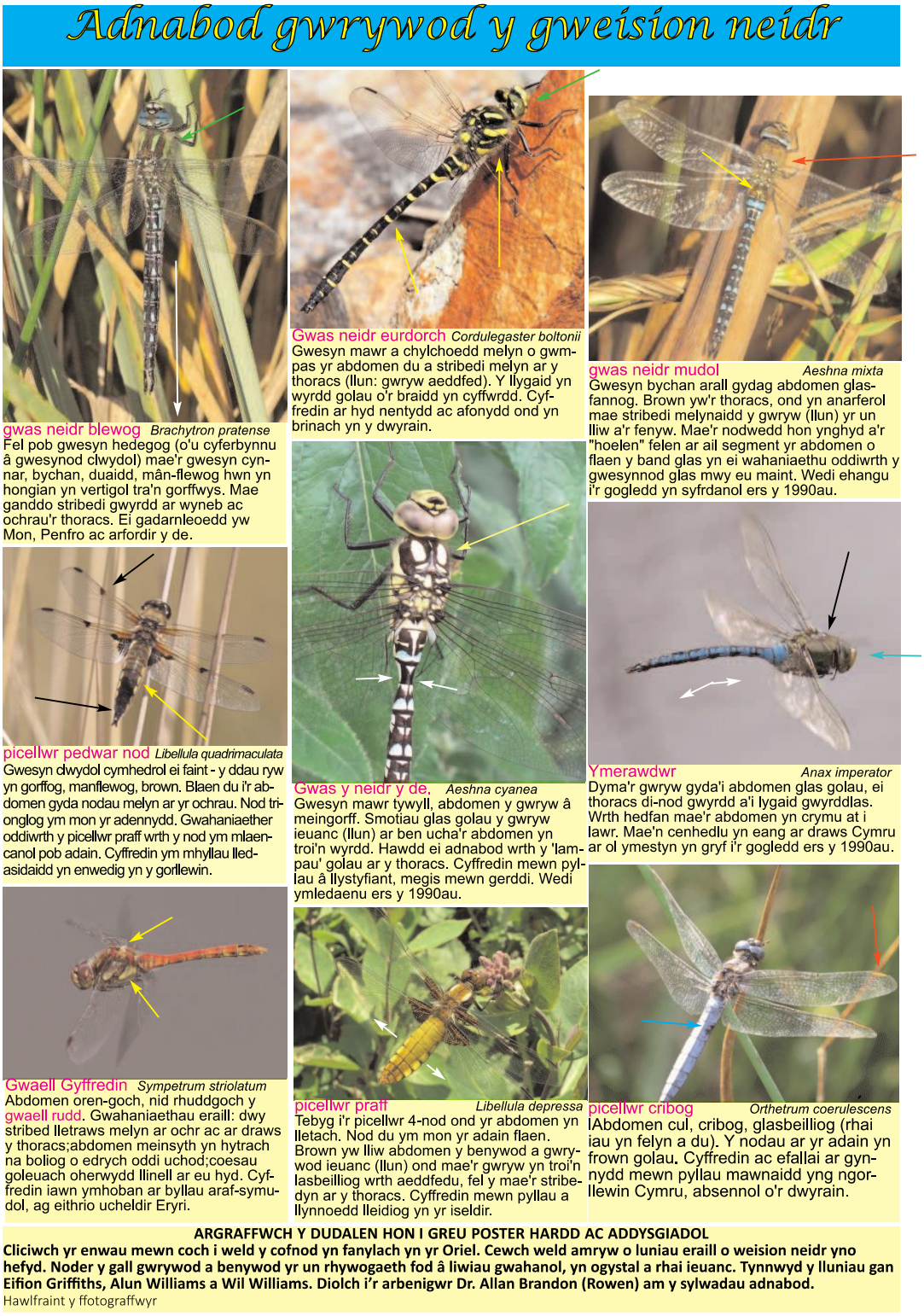
Firstly I would like to thank those who sent dragonfly records directly to me during the last flight season. The records are greatly appreciated, especially as the number of records has tailed off appreciably since the publication of the British and Irish atlas. In no particular order the recorders are: David Hill, Adrian Fowles, Jim Clark, Malcolm Watling, Liz Jones, Ian Hawkins, Eifion Griffiths, Sue Loose, Rhys Jones, David Boyle, Jamie Roberston, Dick Eastwood, Peter Heywood, Lee Wilkinson, Paul Triggs, Margaret Thomas, Neil Frizwell, Alun Williams, David Thorpe, Anita Myfanwy, Dylan Edwards, Geoff Gibbs, Eilleen Carroll, David Kitching, Brian Burnett, William Williams.

A dragonfly's eyes (courtesy of the British Dragonfly Society's e-mail newsletter)
Researchers at the National Institute of Advanced Science and Technology in Japan have discovered that dragonflies colour vision is better than any other seen in the animal world. Opsins in the eye are what provide us with the ability to see colour. Humans, along with most other animals, have 3 of these proteins, providing us with tri-chromatic vision - seeing the world in red, blue and green. A study of 12 dragonfly species has recently revealed that dragonflies have at least eleven such opsins, with some species possessing up to 30 genes for the colour giving proteins. They have also discovered that dragonflies utilise different opsins at different ages. For example, one species of dragonfly, with larvae that hatch in sand, lacked the blue opsin in the larvae. It has been suggested that blue light would rarely reach the larvae through the sand. These opsins are also expressed differently in different areas of a dragonfly's eye.

This new information is thought to go some way to explaining the incredible behavioural and ecological adaptations of dragonflies. For further information see: http://www.pnas.org/content/112/11/E1247

Dragonfly poster

Duncan Brown has produced a lovely colour dragonfly poster in Welsh using the photos sent in to the Llen Natur website over the last year or so. According to Duncan it's a do-it-yourself poster for you to print out yourself.



Madagascan dragonflies

I've just returned from a 2-week trip to Madagascar where I was fortunate enough to be part of a 15-strong international team focusing on the islands severely threatened

dragonfly and damselfly populations. The trip was organized by Phil Benstead's' Odonatours and our leader was the dynamic young Dutchman Klass-Douwe B. Dijkstra, fortunately known as KD! The purpose of our trip was for KD to write a book on the dragonflies of Madagascar using the photos that we took. Having recently moved from the Netherlands Centre for Biodiversity Naturalis to the Department of Conservation Ecology and Entomology at Stellenbosch University, South Africa, he is The African dragonfly guru with a prolific publication record. His most recent joint publication is 'The dragonflies and damselflies of Eastern Africa' but he is probably better known over here for the 'Field guide to the dragonflies of Britain and Europe' illustrated by Richard Lewington; in my opinion, the best book on European dragonflies ever written. With two colleagues, he has recently described 60 new species of African Odonata: https://science.naturalis.nl/media/medialibrary/2015/12/60NewDragonflies_fullsize2.pdf And here he is in the Congo actually discovering a new species of Emperor dragonfly whilst in the process of producing a video: https://www.youtube.com/watch?v=Arr2k7dwzSU&feature=youtu.be

The Madagascan odonate species are poorly researched but some 180 species had been recorded over the years with many very poorly known. We found and photographed 91 species, mostly endemic and including at least 5 species new to science! Sadly, the island's human population is growing, the land intensively farmed and the few pristine forests, home to the rarer endemic species, now reduced to small isolated remnants. I've still to process my photos but here are a few that may add a bit of colour to our bleak Winter scene.

A female *Thermorthemis madagascariensis.* Photo A. Brandon. This giant endemic libellulid is very common at open water habitats. The male is pruinosed blue. The female has large lateral flanges at the end of the abdomen with which it flicks water containing eggs on to marginal banks. The protolarvae then drop down into the water as they hatch.

This is one of several species of endemic *Isomma*, river gomphids that perch on rocks along rivers. Photo A. Brandon.

A male *Anax tumifera*, a common endemic Emperor that looks superficially like our *Anax imperator* but this one has blue costal veins. Photo A. Brandon.

The only Malagassy river macromiid is this endemic *Phyllomacromia trifasciata*. Photo of female, A. Brandon. When not roosting up in the trees it spends the day, like all macromiids, cruising backwards and forwards over a favoured stretch of river.

A male cascader *Zygonyx elisabethae*. Photo A Brandon. This is one of four known endemic Malagassy species of cascade libellulid that inhabit high-energy streams and rivers.

Yours truly sandwiched between KD (left) and Central and North American dragonfly guru Dennis Paulson (right) at Crocodile Lake, Isalo. Photo A. Brandon.

Allan

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