



Inside this issue:

Hoverfly lagoon action	1
Pesticides in bee-friendly flowers!	2-3
Help us create a Buzz!	4
Mystery Bee!	4
Upcoming events	4

Welcome to the 8th issue of the Buzz Club quarterly newsletter. It is now the middle of summer and our projects are well underway. In this edition, you will find an update on the progress of our Hoverfly Lagoons project, an article detailing some recent research from Buzz

Club scientists concerning harmful levels of pesticides and other agrochemicals found in 'bee-friendly' flowers sold by garden centres, a request for current members to help us grow and expand our membership, a short piece on a mystery bee and the usual details of our upcoming events. This

issue is edited by Charlie Dance.



Hoverfly Lagoon Action *By Dr Ellen Rotheray*

The Hoverfly Lagoon Project 2017 is off to an exciting start! Leaf litter lagoons from 2016 filled naturally with leaf fall have already attracted 3 species of hoverfly; *Myathropa florea*, *Eristalis pertinax*, & *Helophilus pendulus*. We've been particularly excited to witness *H. pendulus* ovipositing a batch of more than 200 eggs on the underside of an ivy leaf above the lagoon (see photo), and upon surveying just days after, two more batches were discovered on neighbouring leaves. In a different lagoon, containing leaf litter and grass, *E. pertinax* was captured after ovipositing a batch of 200+ eggs, in a much less uniform style than *H. pendulus*, directly onto the surface of the lagoon (see photo). *M. florea* was also observed ovipositing on this lagoon, scattering single eggs seemingly haphazardly over the surface. It's fascinating to observe the different strategies these species use to dispense their eggs into and around their larval habitat, and it's a wonder what advantages each style has. In addition to eggs, we've also found lar-

vae and pupae in the lagoons. So far, eight *H. pendulus* have emerged from collected pupae, presumably individuals that overwintered and pupated in spring. All larvae we found were large, again suggesting they have overwintered, so we will check pupation sites regularly now to try and avoid the degree of parasitisation observed in 2016. We have had new interest in the Hoverfly Lagoons project this year, and have retained most of the volunteers from last year, which is brilliant! Some fascinating observations have been reported; larvae, discovered in an abandoned garden container/water trough (which we refer to as 'accidental lagoons'), were filmed 'diving' into the depths of the lagoon from floating on the surface; an ability previously unheard of, that is, being able to control their buoyancy in this way. Volunteers are also getting enthusiastic and creative with lagoon establishment, including all four of our

suggested organic substrates in their gardens (grass, sawdust, leaf litter and nettles), but also adding new ones such as vegetable waste, and manure! We are encouraging volunteers to establish several lagoons filled with different substrates so they not only get the best chance of attracting a diverse and abundant array of hoverflies, but really help us determine which design is most effective – watch this space!



H. pendulus ovipositing on an ivy leaf.



E. pertinax ovipositing onto the surface of a lagoon, and in a tube after capture.

Pesticides in 'bee-friendly' flowers!

By Prof. Dave Goulson

Take a walk around your local garden centre and you will see a mouth-watering display of gorgeous plants on display. You might note that some are specifically labelled as bee or pollinator friendly, with a picture of a cartoon bumblebee on the label. The Royal Horticultural Society (RHS) provide a "Perfect for Pollinators" logo which can be added to the label of any of the long list of garden plants that they judge to be good for pollinators. If you like hearing the buzz of bees in your garden, and want to do your bit to help our wild-life, you might well be tempted.

If, like me, you've ever succumbed to the temptation to buy these plants, you may be somewhat concerned by the results of our latest research. We have been busy screening the leaves, pollen and nectar of these plants to see if they contain pesticides. We bought flowering plants from a range of major outlets; Wyevale (the biggest garden centre chain in the UK) and also Aldi, B&Q and Homebase. We deliberately bought plants that are known to be attractive to bees and butterflies;



Flowering heather

most of them had a bee-friendly logo, often the RHS one.

We found that most of these plants contained a cocktail of pesticides, usually a mixture of fungicides and insecticides. Only two out of 29 plants contained no pesticides. Seventy six percent of them (22/29) contained at least one insecticide, and 38% contained two or more insecticides. One flowering heather plant contained five different insecticides and five different fungicides – a veritable toxic bouquet. Seventy percent of the plants contained neonicotinoids (insecticides that are notorious for their harmful effects on bees).

Perhaps the concentrations we detected are all too low to do any actual harm? For neonicotinoids, the concentrations typically found in the nectar and pollen of treated crops such as oilseed rape are in the range 1-10 parts per billion (ppb). Exposure to such concentrations has been found to impair bee navigation and learning, reduce egg laying, lower sperm viability, and suppress the immune system. In a study with bumblebee nests we found that giving them pollen with 6ppb of neonicotinoid reduced nest growth and resulted in an 85% drop in the number of new queens produced. In the ornamental flowers, we found imidacloprid at up to a maximum concentration of 29ppb, clothianidin at 13ppb and thiamethoxam at 119ppb. In other words, concentrations far higher than those known to harm bees. Enough detail; you get the picture. Plants sold as 'bee-friendly' plants are usually stuffed full of pesticides.

Just before our results went



public, B&Q (who knew that our study was appearing imminently) announced that they were prohibiting their suppliers from using neonicotinoids on their plants from February 2018. This is of course a great step forwards; well done B&Q. Aldi have declared that they stopped using neonicotinoids in October 2016 (we bought the plants we tested from them in July 2016). Also great news. Homebase and Wyevale have so far declined to make any public comment, despite high profile articles about the work in the Daily Mail and Independent.

Much as the actions of Aldi and B&Q are to be applauded, I think they are missing the bigger picture. Neonicotinoids are undoubtedly bad for bees, but what about all the other chemicals? If I buy a plant to feed to bees I don't want it to have been drenched with a pyrethroid or organophosphate insecticide either. Both are highly poisonous to bees (and organophosphates are exceedingly toxic to people too). Even some of the fungicides have been found to harm bees. If I'm buying plants to encourage wildlife, I don't want the lingering worry that I might be acci-



Flossflower (*Ageratum houstonianum*)

dentally poisoning my bees and butterflies.

It is a shame that the horticulture industry seems largely unwilling to engage over this issue. It is perhaps not surprising, since their track record is not great. They've been continuing to promote and use peat-based composts for many decades despite the ready availability of perfectly good alternatives.

Until the gardening industry gets its act together, I'd suggest the following. If you must buy plants, buy from an organic nursery, or failing that from B&Q or Aldi. Better still grow them from seeds, or if you haven't the patience, plant swap with your friends and neighbours. We really can make our gardens into havens for wildlife, but not by driving to the garden centre to buy pesticide-laced plants grown in peat-based compost inside disposable plastic pots.



Comfrey (*Symphytum spp.*) in flower

Help us create a Buzz!

In order to better be able to help our pollinators, the Buzz Club needs more members! Can you think of any friends, organisations, schools or community groups that have an interest in nature or may be interested in joining the Buzz Club and taking part in our projects? Alternatively, are there any places near where you live that would be happy to display Buzz Club leaflets? Would you like to help promote the club and increase our membership more widely throughout the UK? If so, don't hesitate to email us at buzzclub.uk@gmail.com

for more information about how you can help. Thanks!



If you have any pictures or interesting experiences with insects or pollinators please feel free to send them to buzzclub.uk@gmail.com, or tweet to us @The_Buzz_Club and we will add them into our newsletters.

Mystery Bee!



Taken in Monmouthshire by Phil Savoie, this photo shows a bee that has been flummoxing even the most esteemed bee specialists, including bumblebee expert Professor Dave Goulson, and highest authority on bumblebee taxonomy, Professor Paul Williams from the Natural History Museum. Neither of them have a clue as to the species shown in the photo! If you have any ideas, contact us at buzzclub@gmail.com

Upcoming events



Apple Day, 24th Sept —Stanmer Park

Once again, we will be back in the old Orchard talking about pollinators and what you can do to help them.

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Email: buzzclub.uk@gmail.com

We are a group of scientists and non-scientists, adults and children, working together to find out more about bees and other pollinators. The Buzz Club's goal is to ensure that we look after our wild bees and other insects, giving them a future. We can only do this if we understand more about them; why are some disappearing, how many are left, and where are they? How fast are they declining? What can we best do to help them? Together, we undertake fun nationwide surveys and experiments.

Visit our website

Help us study and save pollinators!!