



Welcome to the 30th WWBIC Bulletin. The leaves are falling and the starlings have returned, autumn is upon us. Inside this edition; new ways of recording, exciting finds and updates from around our region.

© Toni Henwood Common Dolphin (*Delphinus delphis*)



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And more . . .

Buglife Cymru's Autumn Oil Beetle Hunt

Oil beetles are incredible insects with unusual and fascinating life cycles. Their large, glossy black bodies, long fat abdomens and stunted wing-cases make them almost unmistakable as they amble along on the ground. Adults are flightless, large and slow moving, their bodies (especially of females) swollen. Oil beetles get their name from the toxic oily secretions that they produce as a defence against predators when threatened.

Under threat

Oil beetles are reliant on solitary bees to complete their life-cycles. The health of oil beetle populations is therefore dependent on the health and diversity of wild bees. Declines in the quality and quantity of wild bee habitat, particularly wildflower-rich grasslands, has contributed to a decline in wild bees and along with them, oil beetles. Three of the UK's native oil beetles are now extinct, and the remaining five species have suffered drastic declines in their distributions due to changes in the way our countryside is managed. Oil beetles have been identified as a priority for conservation action in Wales through Section 7 of the Environment (Wales) Act 2016 - meaning work needs to be done to conserve them and their habitats.

Oil beetles are under threat and we need your help in recording oil beetles in Wales. Buglife Cymru are asking people to keep a look out for oil beetles when they are out and about this autumn and winter, during which period Wales' rarest oil beetle - the Rugged oil beetle (*Meloe rugosus*) - is active. It is one of three species of oil beetle found in Wales – the daytime and spring active Black oil beetle (*Meloe proscarabaeus*) and Violet oil beetle (*Meloe violaceus*) being the others. This autumn and winter, we need your help in finding the Rugged oil beetle! In Wales, the Rugged oil beetle is known from just two locations in South East Wales - Penallt, Monmouthshire and Cwmdru, Crickhowell, Powys. The latter of these sites has only just come to light thanks to a vigilant naturalist who spotted an adult in her garden – this species often turns up in gardens! Given that the beetle is most active at night and during the winter months, it is likely that its presence has been overlooked in Wales – it may be more widespread. Please let us know if you spot a Rugged oil beetle as there is every chance that your sighting could be a new discovery!

Bizarre lifecycle

Rugged oil beetles are primarily nocturnal and the adults can be active between late September until early April in grasslands on chalk, limestone and sandy soils. All known Welsh and UK sites are in calcareous areas. The best way to find them is to search by torchlight in suitable sites from dusk onwards. Look for wildflower areas or sandy soils where solitary bees may nest – these are hotspots for oil beetles.

After mating, the female oil beetle selects a suitable place to dig a nest burrow, often in bare ground near footpaths, into which she lays her eggs.

They can lay up to 1000 eggs, usually in 2-3 burrows dug into the soil near to solitary bee nest burrows. In spring, these eggs hatch into rather bizarre, long-legged larvae known as triungulins. Upon hatching, the young larvae climb up flower stems and lay in wait within a flower. When an unsuspecting solitary bee visits the flower to collect nectar and pollen for its own nest, the triungulin attaches itself to the bee and hitches a ride back to its nest. Once inside the nest, the triungulin changes into a more maggot-like larvae and devours the bee's egg and the protein-rich pollen stores that the bee intended to provide for its own larvae. The beetle larva develops in the bee burrow until it emerges as an adult Rugged oil beetle the following autumn, ready to mate and start the whole cycle again.



Rugged oil beetle (*Meloe rugosus*) © John Walters

We need your help!

If you see any large, conspicuous black beetles on your travels, please send details of your sightings, along with a photograph(s), to wales@buglife.org.uk. The following information should ideally be provided:

- Date;
- Location (preferably a 6 to 8 figure grid reference);
- Recorder name (optional);
- Brief description of where (e.g. garden; grassland) and when (e.g. daytime/night) the beetle was spotted; and
- Photograph(s) to allow us to confirm your identification.

Please ensure attachments are no greater than 6MB in size. Our [Oil beetle Identification guide](#) and [John Walters' oil beetle identification page](#) will help you identify your beetles, but even if you're unsure please send in your record anyway as we have experts at hand to identify them from your photographs.

Taking photos of oil beetles

We would like to use your photos to identify the species of oil beetle that you have found. Here are some tips for taking photos of oil beetles:

- Please try and take pictures as close as you can get to the beetle (use the macro setting on your camera if you have it), and make sure the beetle is in focus!
- One of the best identification features of oil beetles can be found at the base of the thorax (the middle bit of the beetle's body) - please try and focus on this part of the beetle from the top down.
- Taking a beetle photo in shade rather than direct sunlight can help us to see the different parts of the beetle clearly.
- If your beetle won't stay still try giving it some flowers to eat - it might stop for a snack!

Diolch!

Buglife Cymru

Local scientist wins prestigious agricultural award

Dr Sarah Beynon, founder of Dr Beynon's Bug Farm in St Davids was this year's winner of the Royal Agricultural Society of England's Research Medal.



The annual awards recognise excellence in science and technology, the environment and land and business management. The Research Medal is presented for research work of outstanding merit carried out in the UK, which is proven or likely to be of benefit to agriculture. Sarah's specific achievement was her work showcasing the importance of beneficial insects through a combination of academic research, outreach and innovation, culminating in the development of Dr Beynon's Bug Farm – research centre, working farm and visitor attraction.

Sarah's work with the University of Oxford, where she is a Senior Research Associate, on beneficial insects in agricultural systems, particularly dung beetles and pollinators, was highlighted. In particular, her collaboration with Aberystwyth University, which put a value of £367 million per year on British dung beetles, was seen as being of direct importance to UK farmers and farming policy.

For more information on Sarah's work as well as downloadable fact sheets on how to look after dung beetles, see www.thebugfarm.co.uk

Marsh Fritillaries on WTSWW reserves

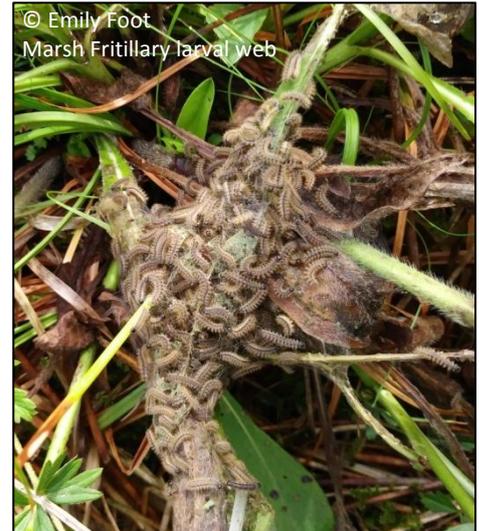
We had to conduct the Marsh Fritillary larval web surveys, on our rhos pastures, earlier than usual this year due to the odd weather. We spotted some webs at Rhos Glyn yr Helyg whilst we wandered through to pull the balsam at the start of August. This was very early but already the webs were big and had previous webs nearby ("splurge"), so we did the surveys about a month early!

It was a great year at Rhos Glyn yr Helyg with an amazing 818 webs counted along our transects, spread across the whole reserve! A new record for the reserve!

It was also a positive result at Rhos Fullbrook where we found 14 webs. A single web was found at Rhos Pil Bach; this was actually great news after many years of not finding any. One of my volunteers also did a survey at Rhos Marion, in my absence, and found a couple of webs there too! And reported the scabious was looking fabulous. A good year overall!

Emily Foot

Wildlife Trust Officer, Ceredigion



Ceredigion lichen news

A species new to Britain recorded in Ceredigion

In August I collected the lichenicolous fungus *Didymocyrtis foliaceiphila*¹, new to Britain, on *Cladonia chlorophaea* s.lat on *Salix cinerea* in a mire near Angler's Retreat/New Pool (Llyn Plas-y-Mynydd, SN746922, altitude 395 m) in the Cardiganshire hills. Sadly no photos – it was at least 0.1 microns across!

A species new to Wales

I found the lichen *Catillaria fungoides*, from Ash *Fraxinus excelsior*, near Ffostrasol in Ceredigion/Cardiganshire. This species was described new to science from Iberia in 2001 and was subsequently found in Britain in 2016 in S.E England, where it is known from about six sites currently but is probably very under-recorded.

Lichen species new to Wales discovered at WWBIC Ceredigion recording day

I've just received back from Dr Brian Coppins in Scotland a specimen collected on the Ceredigion recording day at Brynecerddin Fach on 23 August 2018 off *Populus tremula* Aspen in the meadow. Dr Coppins determined it *Lahmia kunzei* Korb. (1961), a non-lichenised bark saprobe fungus (ascomycete) sometimes loosely associated with a thin layer of *Trentepohlia*, hence my attempt to 'turn it into' a lichen. It was on the trunk of the main central tree in the clonal thicket in the field just NW of the house, altitude about 248 m, just in SN34 tetrad T by a few metres. It was exciting to get a definite determination for a tiny fungus without the need for 'molecular surgery'! Aspens are known to carry many specialised lichen associates in Scotland and they are probably under-scrutinised in Wales, hence I spent some time with the tree. No photo alas, too tiny! - c. 0.1-0.3 mm diameter black, 'top-like' turbinate apothecia.

Until last year, when it was found on a planted Poplar in England (VC 29, Cambridgeshire), it was known in Britain only from Aspen in native stands of the tree in Scotland. It is new for Wales, though is probably 'under-detected', as so many small fungi are, but an exciting find all the same.

Steve Chambers

¹ Diederich, Kockourk. & Etayo Ertz & Diederich (2009) [syn *Phoma foliaceiphila* Diederich, Kokourk. & Etayo (2007)]

WWBIC Training

Recording Reptiles



3 October saw the Reptile Training Day, a free event run by WWBIC and led by Dr Sam Langdon at the Welsh Wildlife Centre in Cilgerran. It was a well attended and enjoyable day, with plenty of myths around these incredible species being dispelled. In the morning there was an interesting and useful presentation on all things reptiles; from identification to monitoring, threats to habitats. Adders were particularly highlighted, as an extremely misunderstood species that has been showing a worrying decline in recent years. The sun came out in the afternoon in time for a reptile walk around the beautiful nature reserve at the Wildlife Centre. Sadly no grass snakes or adders, but several slow worms and common lizards did make an appearance. WBP funding covered the room hire costs.

Sophie Pope

Wildlife Recording Training

Fourteen people attended the WWBIC Wildlife Recording day led by Colin Russell. The day was held at Oriel y Parc, St Davids and participants were rangers, wardens and volunteers from the Pembrokeshire Coast National Park Authority and Pembrokeshire County Council.

The day started with an interactive presentation of learning the who, what, where and when of wildlife recording. Then the group headed to St David's Cathedral for some wildlife spotting. Thanks to our local experts Annie and Bob Haycock and Trevor Theobald we recorded a wide array of species ranging from birds to ferns, flowering plants, lichens and invertebrates. After lunch everyone learned how to accurately input their sightings onto the WWBIC online recorder and through the new LERC Wales App. In all, the session helped us gain 32 new records of 24 species, including a type of leech *Erpobdella octoculata!*

Toni Henwood



Bioblitzes



WWBIC attended and contributed to two Bioblitzes over the summer. One at Pembrey County Park in June and one based at Cardigan Bay Marine Wildlife Centre, Newquay in July. At both events we input and collated the records from the day and provided record and species totals.

The New Quay Bioblitz was part of Chris Packham's UK Bioblitz tour and during the day Emily had the opportunity to speak to Chris and demonstrate the new LERC Wales App.

WWBIC Recording Days

Winllan, Talsarn, the Coronation Meadow for Ceredigion, was the location for the first Ceredigion recording day of 2018. The meadow looked beautiful in the June sunshine, so many orchids looking their best. In a wetter corner of the meadow was a population of Heath Spotted-orchid (*Dactylorhiza maculate*) and Pale Sedge (*Carex pallescens*). Clumps of Great Burnet (*Sanguisorba officinalis*) were scattered through the meadow. A freshly emerged Emperor Dragonfly (*Anax imperator*) gleamed in the sunshine as it clung to a stem of grass. The garden pond was a hive of activity and there were even orchids growing on the lawn.

Bryncerdin Fach, Ffostrasol was the location of the second Ceredigion recording day. Two meadows made up the majority of this approximately 4 acre site. Among the plant species recorded were Welsh poppy (*Meconopsis cambric*), Heath Spotted-orchid (*Dactylorhiza maculate*) and Northern Marsh-orchid (*Dactylorhiza purpurella*). The meadows were full of invertebrate life, 7-spot Ladybirds (*Coccinella septempunctata*) were abundant. Two Elephant Hawk-moth (*Deilephila elpenor*) caterpillars were seen on Willowherb (*Epilobium sp.*). As mentioned earlier in the newsletter a species of fungus, *Lahmia kunzei*, new to Wales was recorded by Steve Chambers on Aspen (*Populus tremula*).



© Emily Shaw
Emperor Dragonfly (*Anax imperator*)



© Toni Henwood
Four Spot-Orbweaver (*Araneus quadrates*)

Carnau, Penybont was the first of two WWBIC Carmarthenshire recording days this year. This 10 ha farm consists of grazed pasture, hay meadows and arable land. Trailing St John's wort and bog pimpernel were two of the plant species recorded on the day. The hay meadows were busy with invertebrate life including several hoverfly and bee species. A Green Tortoise Beetle (*Cassida viridis*) covered in orange mites was photographed in one of the grazed fields.

We then moved to a small area of neighbouring land at Nantyrólcha, Talog. There were several spikes of Greater Butterfly-orchid (*Platanthera chlorantha*) and Heath Spotted-orchid (*Dactylorhiza maculate*) in this small area. Chimney Sweeper (*Odezia atrata*) moths were abundant.

The second Carmarthenshire recording day was held at Sarn-gining, near Llanybydder. The farm had a mixture of habitats; oak woodland, acid grassland and a stream with a pond. There was an abundance of fungi in the woodland recorded by Colin Jones. As we made our way towards the stream a Dipper (*Cinclus cinclus*) took flight. The sunny day brought out plenty of Common Darters (*Sympetrum striolatum*) and a Common Frog (*Rana temporaria*) was spotted hopping in the grass. The garden also sported some interesting finds, including a white-flowered Herb Robert (*Geranium robertianum*).



© Emily Shaw
Green Tortoise Beetle (*Cassida viridis*)



© Toni Henwood
Richard & Kath Pryce, Sarn-gining

The second WWBIC Pembrokeshire recording day was held at Keeston Moor and was well attended by county recorders. Robin Taylor set a moth trap the previous evening which captured a lovely array of species. This included Poplar Hawk-moth (*Laothoe populi*), Brimstone (*Opisthagraptis luteolata*), Gold Spot (*Plusia festucae*) and Setaceous Hebrew Character (*Xestia c-nigrum*) to name a few. There were more invertebrates out on the moor itself; Buff-Tailed Bumble Bee (*Bombus terrestris*), Dock Bug (*Coreus marginatus*), Speckled Wood (*Pararge aegeria*), Small White (*Pieris rapae*) and Painted Lady (*Vanessa cardui*).



We received a warm welcome at each recording day location and would like to express our gratitude to everyone who hosted a WWBIC recording day in 2018. Thank you.

Kate Smith & Toni Henwood

LERC Wales App

The LERC Wales App was launched in July. The app is designed for wildlife recording on the go and can be used offline once downloaded. The app uses the GPS of a smart phone/tablet to record wildlife locations and the records are sent directly to your Local Environmental Record Centre. The app is available from Google Play or the Apple App Store by searching for "LERC Wales". Set-up instructions can be viewed on our website:

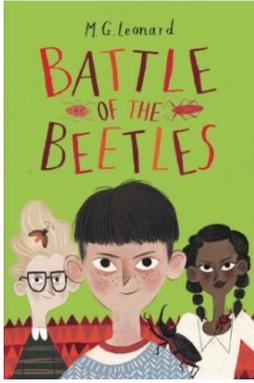


<https://www.wwbic.org.uk/wildlife-recording/lerc-wales-app/>.



Toni Henwood

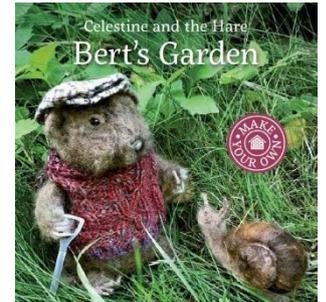
What's been going on at The Bug Farm?



The 2018 season at The Bug Farm kicked off with a packed-out Welsh launch of M G Leonard's book 'Battle of the Beetles' (left). This book is the final instalment of the multi-award-winning 'Beetle Boy' series, on which Sarah Beynon was the scientific advisor. In addition to new exhibits, The Bug Farm has also expanded its programme of events and activities this year. Workshops have ranged from pizza-making with Torth y Tir to mosaic workshops with Maddie Janes and make your own clay bug with Nadia Bowie. 'Hoppers, Swimmers & Sliders' workshops with Sam Langdon (ARG), marine invertebrate safaris with Dr Lou Luddington and in-house bug hunts have been big hits with families, while expert workshops this year have focussed on oil beetles, bumblebees and wildflowers.

The workshops will continue during the school holidays throughout the winter months, with October half term themed for Halloween! Look out for spooky face painting, pumpkin carving and more! Do keep your eyes open for the upcoming autumn-winter 2018 flyer or check out our brand new website for more information.

The next literary launch at The Bug Farm is Karin Celestine's 'Bert's Garden' (right), part of the Celestine and the Hare series of children's books featuring needle-felted characters with ecological messages (27 October).



Linking art and science has been a main theme for 2018. Ninety-year-old St David's resident Richard Hellon's 'Beautiful Beetles' photographic exhibition (far left) adorned the walls of the Art Gallery throughout the summer months, followed by Dr Lou Luddington's awe-inspiring 'The sea from within' photographic exhibition (left). To coincide with the Visit Wales Year of the Sea, this exhibition is in situ until November, with Lou delivering a talk about how she captured the images on 6 October. The next exhibition, on show from November, is local textile artist Deborah John's 'British butterflies and moths'. In

addition, the St David's Pollinator Trail is now open for locals and visitors alike to enjoy – do pick up a free spotter sheet and map from The Bug Farm.

Grub Kitchen's popular 'Feast & Magic' evenings are proving to be a big hit for a night out with a difference: delicious, local food, combined with awe-inspiring magic from Tom Luddington (of Seriously Good Magic), a member of the prestigious Magic Circle. Keep an eye open for the Halloween feast, music and magic night (27 October) alongside themed magical feasts on 30 November, 21 December, 18 January, 22 February, 1 March and 29 March. We are thrilled to say that Grub Kitchen's famous Sunday roasts are back every Sunday and Grub is taking bookings for Christmas parties (3 courses for £26.95 including complimentary focaccia, insect nibbles and festive fizz)! *"We would like to thank the residents of Pembrokeshire for their unwavering support during 2018 and look forward to seeing everyone over the autumn and winter months"* – Sarah

A list of events and workshops can be found here: <https://www.thebugfarm.co.uk/visit-us/events-workshops/>



The Bug Farm

Thermal Imaging for Dormice in Pengelli Forest

An exciting project to discover the incidence and distribution of the hazel dormouse (*Muscadinus avellanarius*) in Pengelli Forest nature reserve has taken place this year. The reserve has been part of the National Dormouse Monitoring Programme since 1997 and has had boxes erected in stands of hazel since this time. There are currently 100 boxes in the reserve and every month between the months of April and October they are checked to see if dormice are using them. Despite a good number of boxes being erected, fewer and fewer of them are being used. There were concerns that numbers are decreasing through factors such as poor weather or predation. However, after a visit from the Vincent Wildlife Trust it was thought that the natural habitat and vegetation in the woodland is so good that they may not need the boxes.

To put this hypothesis to the test, the Wildlife Trust managed to purchase a thermal imager scope with financial help from a legacy and grant funding. This scope allows anything warm blooded to be seen at night. This year, Nathan Walton, the Wildlife Trust Office for Pembrokeshire along with several volunteers undertook a number of night time visits to the reserve to survey areas of the wood where boxes are not located yet a good habitat of brambles, hazel and other scrub exists. Dormice are also generally more active at night and so should be easier to locate. Although initial forays were not successful due to getting used to the scope and new survey methodology, slowly things started to improve, and dormice were spotted in areas where we thought they should be.

It is a real relief and very encouraging to know that the reserve has a greater number of dormice than originally recorded from the box scheme and to also know that years of sensitive woodland management is helping provide a suitable habitat for this species. Although it is impossible to get a true idea of population size, it is good to know that they are found where they are to be expected.

Den Vaughan, an ecologist in Pembrokeshire, is undertaking the same thermal imaging surveys for this species in the wider countryside and is also having some real positive results. The advances of technology in helping with surveying for a number of species is certainly providing more meaningful, accurate and true data. In time the cost of equipment such as thermal imagers will fall and be more attainable for greater survey effort elsewhere.

Nathan Walton
Wildlife Trust Officer, Pembrokeshire



© Nathan Walton
Hazel Dormouse (*Muscadinus avellanarius*)

Sea Trust survey

WWBIC joined Sea Trust for a *Cartlett Lady* small boat survey on 27 September. West Wales was shrouded in thick mist during the morning but had cleared when we sailed from Neyland at 10am. The survey started off quietly with gannets (*Morus bassanus*) flying overhead and a couple of Manx shearwaters (*Puffinus puffinus*) swimming nearby. Around lunchtime we had sighted a small group of ten common dolphins (*Delphinus delphis*). After a short break in sightings we came across a large pod of common dolphins which numbered 150-200 individuals including some calves. It was very exciting being on the boat surrounded by so many dolphins. As the afternoon went on we were treated to some whale sightings. They were a long way off and were surfacing one at a time in opposite directions so it was confusing viewing for all of us on the boat. After a quick consultation of who saw what the total whale count was 2 minke whales (*Balaenoptera acutorostrata*) and 1 fin whale (*Balaenoptera physalus*) recorded out in the Celtic Deep.

Toni Henwood



© Toni Henwood
Common Dolphins (*Delphinus delphis*).

Rare Moths in Ceredigion in 2018

This summer we have seen some moths species which are rarely recorded in Ceredigion.

In June we had the first ever county record for Obscure Wainscot (*Leucania obsoleta*) from Cors Fochno, followed three days later by a second from Aberporth. Also in June we had the first county record for Waved Umber (*Menophra abruptaria*) in Aberystwyth and the tenth for Silky Wainscot (*Chilodes maritime*) on Cors Fochno.

In July we had a V-moth (*Macaria wauaria*) recorded from Rhos Llawrcwrt, this was the first since 1988. In 2013 this species was reported to have declined by 99% in the 40 years to 2007. Its preferred habitat is gardens and allotments where it finds its larval food plants, Black Currant, Red Currant and Gooseberry. The decline is probably due to fewer people growing these fruit bushes in their gardens, and possibly the use of insecticides.

After some searching, as I was convinced they should be there, Bilberry pugs (*Pasiphila debiliata*) were found in woods at Talybont. Despite the abundance of its larval food plant in Ceredigion this was only the fifth county record.



© David Woolley V-moth



© Tony Allenby Bilberry Pug

The Red Data Book species Rosy Marsh Moth (*Coenophila subrosea*) had a good year in 2018, with 57 individuals caught on Cors Fochno in one night at the beginning of August.

Early September saw the arrival of a Scarce Bordered Straw (*Helicoverpa armigera*) in Aberystwyth. There are 22 county records for this migrant species, 10 of which were in 2006, another unusually warm summer.

The Nationally scarce Black-banded (*Polymixis xanthomista*) seems to be established along the coast, with 12 records since 2000 including 11 individuals recorded on 13th September this year at Wallog.



© Simon Cox Scarce Bordered Straw



© Ina Smith Black Banded



© Sarah Bebb The Delicate

Another migrant moth, the Delicate (*Mythimna vitellina*) was caught at Aberporth in mid September. There are 15 county records of this moth, the previous four records were twelve years ago in 2006.

Tony Allenby
County recorder, VC46

Long Forest Project App

Help survey our Welsh hedgerows

Hedgerows form a vital part of our landscape, but they're at risk from neglect, damage and removal. As part of the Long Forest Project's plan of action to address this decline, we plan to survey over 50,000m of hedgerow across Wales, gaining vital information about their condition and the tree species within them.

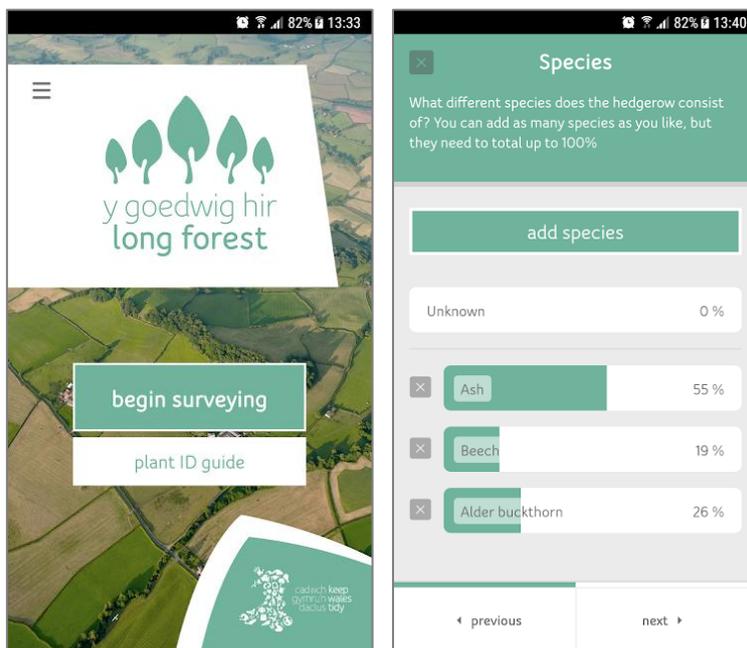
We have developed the Long Forest App to allow you to survey the hedgerows and identify hedgerow species quickly and easily whatever your level of experience. The app can be used in all areas of Wales, even where there is no mobile phone signal.

Why not check out our handy Species ID guide to see what is in your hedgerows today?

Be a Long Forest Surveyor!

The app is available on Google Play and Apple App store for Android and IOS.

Visit our website for more info the app and ideas for using it as part of an education day or community group event.



Nia Lloyd

Staff changes at WWBIC

We are pleased to welcome two new members of staff to our team. Toni Henwood has joined us as our new GIS Officer and Sophie Pope as Biodiversity Information Assistant.

Toni has experience using GIS in the environmental sector working in research and for a commercial consultancy. Recently she took some time out from work to volunteer with a shark conservation trust in Indonesia.

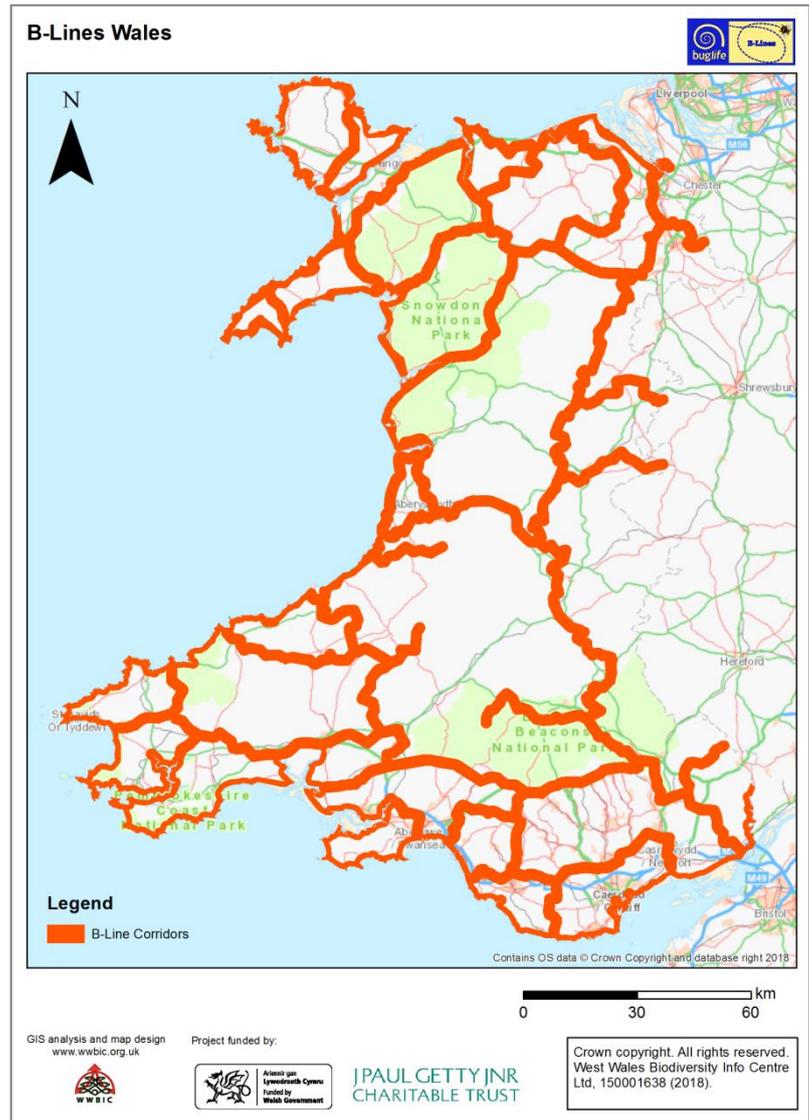
Sophie has previously volunteered with WWBIC as well as several other organisations in the conservation sector. She has a degree in geography and this is her first job in the sector since graduating.

B-Lines

Following completion of the South Wales B-Lines project, which we mentioned in Issue 25 of the newsletter, Buglife was awarded further funding to complete these pollinator corridors for the remainder of Wales. Three LERC regions were involved, Cofnod, BIS and WWBIC and as we had done the GIS analysis work for the South Wales project, we agreed to do the work on the other LERCs behalf.

The method is to identify and map core habitat areas beneficial to a range of pollinator species. These maps are then taken to a wider group of partners with local knowledge of the habitats on the ground and where initiatives are working to preserve and improve habitat for pollinators. This information is then fed back into the GIS analysis to produce a series of lines where there is high connectivity and can help to identify where there may be opportunities for enhancement. The complete B-lines map is available on the Buglife website at www.buglife.org.uk/b-lines-hub/map and showing the final 3km wide corridors.

Colin Russell



And finally. . .

LERC Wales is one of nineteen groups and individuals to have been shortlisted in the 2018 UK Awards for Biological Recording and Information Sharing. Short listed in the Lynne Farrell Group Award for recording wildlife award, the winners will be announced at the NBN Conference on the evening of Wednesday 21 November 2018.

Thanks to everyone who has contributed to this newsletter. If you have any feedback or comments please email kate@westwalesbiodiversity.org.uk



@wwbic1



West Wales Biodiversity Information Centre