JUNE 2018 | Issue 18

New Nature

Robert Macfarlane

Alex Pearce talks to award-winning writer Dr Robert Macfarlane about writing, exploring and our writing competition entries

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NEW NATURE WRITING COMPETITION

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Joanna Lindsay tells us why these unloved gastropods are worth conserving

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Images: Sand Lizard, Emily Jordan; Chesnut-sided Warbler, Max Hellicar; Daffodils, Harriet Gardiner; biofouling on frame, Marc Martin; Mud Snails, Scott Shanks; Small Blue Butterfly, Charlie Jackson; Green Tiger Beetle, Nick Goodrum

On the Cover

Our wonderful cover shot this month was taken by Lauren Simmonds. Lauren studied marine and natural history photography at Falmouth University. After graduating she returned to the midlands to work for the RSPB. The outdoors is her natural environment and it inspires her photography.

WELCOME TO

New Nature

This month we celebrate success and feature the winner and runners up for our inaugural writing competition. It was our first competition and we had some incredibly good pieces sent in which gave us a very hard decision. Arabella Currie was the eventual winner with a fantastic piece entitled "Black Cows in a Yellow Field". We offer our congratulations to her and the other featured entries from Conor Gearin and Dara McAnulty. Robert Macfarlane was the guest judge in this competition and is our interview for this month (p.28) where he teaches us some new words and talks about how to make it as a writer.

Continuing with the theme of winners we also speak to Elliot Monteith, the winner of the Cameron Bespolka Trust scholarship, on what it is all about and why it's worth doing. (p.32)

We also have some excellent submission this month as Sophie May Lewis tells us about tiger hunting in Sussex (p.16) whilst Emily Jordan tells us about the sand lizard in "Species Focus" (p.20). That is not all though as we have articles on everything from Brexit (p.26) to book reviews (p.34).

Elsewhere our own Elliot Dowding has his regular articles of "What to look for this month" (p.12) and tells us why the earthworms deserves the accolade of "Underrated Species" (p.14). Please get in touch with us on Facebook or Twitter and tells us if you agree with him!

Scott Thomson
Content Editor

Say Hello

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At the start of the year, *New Nature Magazine* launched its first writing competition. Entitled 'the Embodiment of Spring', the brief asked young writers to tap into their creative streaks and describe the sights, sounds and experiences that best define the spring season.

While myself and the rest of the editorial team were hopeful of a good turnout – our writers are an extremely dedicated bunch – the quality of the articles submitted was nothing short of outstanding. I certainly had a fantastic time reading each one. From exquisite poetry describing screeching swifts and the first colourful blooms of the season, to evocative prose featuring garden birds, crocuses and dancing maybugs; from the streets of British cities to rural wetlands and further afield, to the Prairies of the USA: the pieces submitted as part of the competition were of extremely high quality. As such, I would like to extend huge congratulations to everyone who took the time to send us their writing. I am certainly glad that the final decision was not left in my hands.

Of course, congratulations must also be extended to our winners for their fabulous work. While thanks must go to Robert Macfarlane for dedicating his scant free time as our guest judge – we really appreciate it. Finally, the wonderful individuals and organisations who donated prizes as part of the competition: to Viking Optical, to the British Wildlife Centre and finally, to British Wildlife Gifts. We could not have done it without you, and we greatly appreciate your contribution.

I hope you enjoy the springtime submissions featured in this edition of *New Nature* as much as I did.

James Common
Managing Director

Image: Harriet Gardiner

1st

Black Cows in a Yellow Field

Written by
Arabella Currie

Past a field of cows
lying in dandelions
ears furiously at work. They hulk
patient as shipwrecks
rotating silk flaps
like propellers.

This field seemed
so peaceful.
But as we watch it is a field
of desperate semaphore.
Muscles
primed as piano strings
listen to the spark-plug
and twang. Engine rooms
work the flies
back into orbit back into
occupation of the air.

The cows are aware
of flat-bottomed
absurdity grounded in bulk
among flowers. They don't
seem to mind.
Perhaps the piano strings
strum themselves. Perhaps a spring
hard by the ear flicks on and off
with constant gravity. Or perhaps
in a moment thighs will unhinge

and lock
engine rooms burn
ears generate enough lift
and hulls rise
shedding dandelion burrs
like a blessing.

We'll be watching
brushing flies
from our ears.

2nd

Prairie Smoke

Written by
Conor Gearin

The fire-line crept through tall grass, sneaking uphill against the wind. I lurched forward in a heavy yellow firefighting suit, carrying a long rubber swatter to smother wayward embers along the trail.

The smell of prairie smoke—carrying wildflower spice and something like burnt popcorn—embodies spring for me. Spring renews, resets plant clocks to zero. But spring fire renews in a larger sense: restarting prairie development after several years of lying dormant. An April with fire is a spring among springs, when not just plants but snakes, birds, and insects all change their relationship with their home—a new chapter in the land's natural history.

That April was a new chapter for me, too. I was beginning a study of grassland birds. To learn more about prairie preservation, I volunteered for the Omaha Red List, which helps carry out controlled burns.

Dr. Thomas Bragg, who has managed Glacier Creek Preserve outside Omaha since the 1970s, waited for a day when smoke wouldn't drift into the new subdivision across the street. He wanted to be a good neighbor, but was itching to burn a stagnant prairie. A day came that was good enough—but not perfect. It reached 80° F, a tough day to spend velcro-d inside a flame-resistant suit and helmet.

In the morning, the wind blew away from town. Seizing our chance, we burned the largest tract, 50 acres of densely lodged grass. Dr. Bragg walked calmly along the trail, tossing flames from a metal drip torch. These flames created a backfire that traveled slowly against the wind, burning completely through the litter. Browned grass vanished, revealing basketball-sized ant mounds. Hawks cruised over the ashes for freshly cooked snakes.

A new recruit, my job was swatting stray flames left behind near the firebreak—a mowed trail at the tract's edge. I darted in, whacked at embers, and dashed back for air. I grew to like the smell of the smoke.

The wind became fickle, sometimes creating tame backfires, sometimes headfires that blazed up several feet and raced away. The firebreak snaked up the contours of a hill. Dr. Bragg's research plots, managed with scrupulous care since 1978, lay below us. I was filling in as water-hose-wielder. The wind gusted in our faces. Our new fires grew tall, threatening to jump the firebreak to the research plots. I blasted away with the hose, wetting the firebreak and suffocating feral flames. There were some tense moments—Dr. Bragg, usually jolly, worked slowly and precisely.

But we made it through that difficult stretch, finally reaching the side of the road leading to Omaha. "Hold this," said Dr. Bragg, handing me the driptorch to step over the fence. I obliged, happy to assist in small ways. "Okay, go ahead and light it," he said, to my astonishment. I had been avoiding driptorch duty. I even had an audience: dozens of cars stopped to watch. The wind gusted at our backs. I shook the drip torch nozzle in tufts of bluestem and Indiangrass. The fire rose and roared upslope. The flames seemed to reach ten feet high. It was a fireworks show for the neighbors—perfectly safe yet deeply wild, right across from their backyards.

Fire figures into myths of initiation. That day I entered a new relationship with the land around me. Looking at a field, I saw not just which plants were there but its position in the lifecycle of growth, death, and fiery rebirth. Once I had thought I knew everything about the ecosystems around us, but a new drama within the tallgrass and wildflowers had begun revealing itself.

3rd

Embodiment of Spring

Written by
Dara McAnulty

In the darkness, dreams are interrupted in between swimming to the surface and coming up for air; the flute catches my consciousness, the walls disappear and the space between my bed and the garden becomes one. I rise up without moving and the notes fall on my chest. I can see the Blackbird in my mind as I'm pinned by the still black heaviness, testosterone flying like an arrow to its mate; she harks back and the chorus bursts out.

Engrossed now in the symphony, awakened and thinking; the usual whirring begins. Spring varies from space to space but for me, the sights and sounds which swirl around my everyday from sky to roots, from dawn to dusk. They hold the most magic. Rhythm. The frog that crosses our path at the beginning; our first encounter was a splodge of spawn left quickly on the road, its invisible pathway intruded upon by modernity. Upset, we dug and filled a watery sanctuary with hope. The next meeting the following year was actually seeing it, dancing a jig on the grass. Our excitement could probably be heard from the bottom of the hill, even drowning out the cars travelling to Sligo or Dublin. Our exultant whoops as our amphibian friend was joined by another, piggybacking and leaving us a gift in the refuge. The ebb and flow of time punctuated by the now familiar, brings a cycle of wonder and discovery every year, just like it's the first time. That rippling excitement never fades, that newness is always tender.

Dog violets push through first, just as the Sparrows dig the moss from the guttering and the air is as puffed out as the Robin's chest. Dandelion and buttercup emerge like multiple sunbeams, signalling to bees that it's safe to come out now. Finally. One year, the slurry machines were late because of the incessant rain and when the flowers came, there were no bees for ages. I wrote down my hypothesis and waited patiently. They did arrive, but not too many, not enough and our green beans never flowered at all. Spring is all about watching and lingering for each resurgence. Bláthnaid counts daisies every day and when there's enough to make a crown she becomes the 'Queen of Spring', if there's some left over, a bracelet and matching ring completes the trinity. At some point, like magic, there's enough for a whole weeks' worth and we'll all get a present.

I come back to the song as my eyelids become weighted again. I was told more than once, that I was an aurora baby. Born in Spring I was fed with hooded eyes to the sonata of the male Blackbird, the Lon Dubh nourishing body and mind. Maybe its song was the first lure to the wild, my calling. I think of St Kevin, my third namesake and his outstretched hand cradling the blackbird nest until the single chick fledged. I love that story so much. The richness of the notes though, I can pick them out, even from the most crowded air space. They are Spring to me. They are the start of it all. Spring does something to the inside of you, everything levitates, everything has no choice but to move up and forward. There is more light, more time, more doing. Every past Spring merges into a collage and it is so full of everything. I fade out and in, realising that it's light outside and the chorus has stopped. The spell is broken but the Blackbirds spring song is still clinging on, in me.

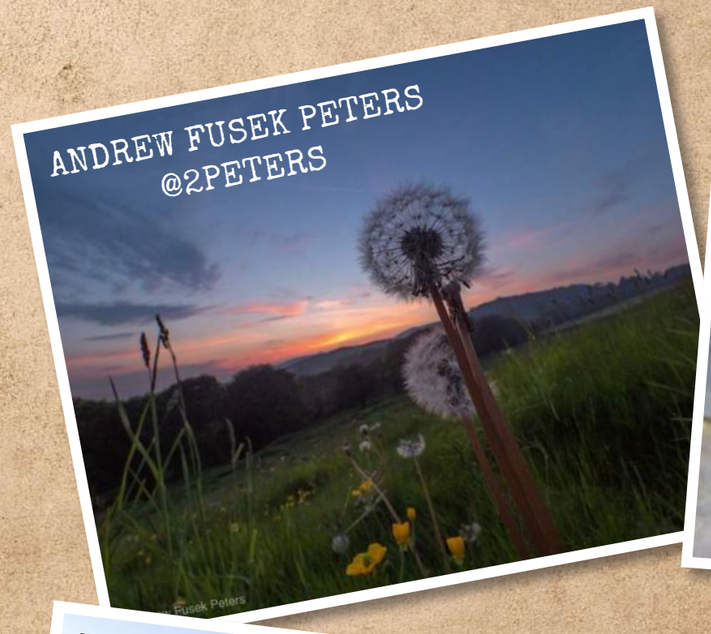
Robert Macfarlane comments on the entries:

First Place: 'Black Cows In A Yellow Field'. Arabella Currie. This is a superb poem, by a writer of real force and vision, that makes strange a common spring sight. The poem 'reads' this seemingly tranquil or pastoral scene, and industrialises it: the cows 'hulk / patient as shipwrecks' (what an image!) in the grass; they have 'engine rooms', they are monstrous machines - and of course we are their manufacturers, breeding and farming these beasts into being. It's vivid, troubling and assured. Shades of William Carlos Williams, shades of Ted Hughes, and plenty that is unique to this writer's own voice.

Second Place: 'Prairie Smoke'. Conor Gearin "The fire-line crept through tall grass..." - instantly we are emplaced as readers, in a strange Anthropocene spring ritual of deliberate prairie burning. The voice here is unfussy, clear, pragmatic, but alert to the complexities of people and landscape. Dr Thomas Bragg is summoned for us in a sentence: 'He wanted to be a good neighbour, but was itching to burn a stagnant prairie'. Yes! And at the close, our speaker him or herself becomes a fire-maker, taking on 'driptorch duty' in a myth of initiation. So much happens here in so few sentences.

Third Place: 'Embodiment of Spring'. Dara McAnulty This is a prose-poem, really, passionate in its voice and deep in its knowledge. What set it apart from other spring-hymns in the entries, for me, was the beautifully complex weaving of rhythms throughout: the whole piece occurs within the liminal space of dawn half-sleep, but within that short unit of human time emerge memories and patterns, both from earlier springs experienced by the speaker and their family, and from the much more ancient patterns of natural behaviour. But this is no blithe dream of cow-parsley and bee-hum; time is kept here also by 'slurry machines' and 'incessant rain'. Sharp-eyed, heartfelt and technically accomplished.

Image: Harriet Gardiner



Readers' Photographs

A big thank you to everyone for all your amazing wildlife photographs! June really has given us a fantastic array of species and behaviours.

Want your photographs featured in next months issue of New Nature?

We love seeing your nature pics and hearing the stories behind them so get in touch! You can email us at editorial.newnature@gmail.com or tweet us @newnature_mag

What to Watch for in JUNE

Words by Elliot Dowding

Image: Small Blue Butterfly, Charlie Jackson

June is a month where there's really no excuse not to be outside as often as you possibly can; with plentiful wildflowers, breeding birds and flying insects to find and enjoy. One of our latest arriving summer migrant birds is the spotted flycatcher, which may not appear on territory until the middle of May, meaning that in June they should be busy raising their first brood. They are a joy to watch as they launch repeatedly from a perch to snap insects out of the air with an audible 'click'. Unfortunately, spotted flycatchers have declined in the UK by 89% since 1967, so any sightings of breeding birds in gardens, cemeteries or woodlands should be recorded on Birdtrack.

If you come across any grassland this month with swathes of yellow kidney vetch flowers, it would be well worth having a look for the small blue butterfly whose caterpillars feed only on this member of the pea family. As the smallest UK butterfly species, it is easy to miss; but can be readily identified by their powder-blue undersides lacking any red spots and dark grey uppersides with a dusting of blue scales. Found predominantly in central-southern England, as well as South Wales and eastern Scotland, this little sprite's distribution has shrunk by 38% since the 1970's but it can still be abundant in good habitat.

You could also make use of the longest days of the year by going orchid-hunting on chalk or limestone grassland. With 56 native UK species, there is a great variety of beautiful orchid species to find through the summer; some common and some super-rare but all enchanting and worth the hunt. Species to find include: bee orchid, fly orchid, pyramidal orchid, fragrant orchid, common twayblade, butterfly orchids, lady orchid, burnt-tip orchid, green-winged orchid and of course the numerous and widespread common spotted orchid.

One of the best aspects of this time of year are the long, warm summer evenings and what better way to spend them than walking around a heathland waiting to hear the strangest song of any British bird? Nightjars are heathland and woodland-edge specialists, nesting on the ground and feeding on moths and other night-flying insects with their huge, gaping bills. The 'churring' song of the male can be heard throughout June as well as their wing-clapping display and with patience you may see the long-winged form of this odd creature flapping around you on mild, still nights.

Sandy beaches will be thronging with sunbathers this month whenever the sun peaks out from behind a cloud, so you may want to give them a pass in favour of a stroll along a shingle beach instead. It may not be easy to walk on, but where shingle has stabilised and is out of the tides reach it can be a superb (and also rare) habitat for specialist plants. In June the pebbles will be lit up with the flowers of sea-kale, sea-holly, sea-beet, sea-pea, yellow-horned poppy, viper's bugloss and wild carrot as well as green-black-blue crusts of lichens. Get yourselves out there!

The Earthworm

Underrated Species

Words by Elliot Dowding

The earthworm (here defined as annelids within the class Oligochaeta, which includes 27 UK species) is traditionally described as a 'humble' animal. Presumably, this is because they live under our feet, wriggling away in the mud, hardly seen and rarely thought of – as lowly as an organism can get. But I think this does them a disservice; it makes light of their hugely valuable roles in ecosystems and I bet that if they could speak they would quite rightly brag about their crucial part in supporting life on Earth.

Most people are aware that earthworms are good for the soil, but few are aware of the true extent of their beneficial activities. The more obvious contributions they make to soil health include the decomposition of surface organic matter, such as fallen leaves; the way that they mix that matter with the soil beneath and also mix nutrients and minerals from deeper soil with the surface humus. They are also clearly an important prey species for many birds and mammals, including buzzards and hedgehogs and even other invertebrates like beetles.

But they have less obvious impacts on soils which are just as impressive. Their numerous, criss-crossing tunnels act like lungs to aerate the soil as well as improving both the drainage and water absorbency of the soil. These tunnels also aid the downward growth of plant roots, and remarkably they also aid the spread of fungal mycorrhizae thanks to the protein-rich mucus which coats the sides of their tunnels and encourages fungal growth. Mycorrhiza is essential to many plants as it attaches to their roots and provides them with nutrients they would otherwise be unable to access, as well as fixing nitrogen from the atmosphere and increasing carbon sequestration.

Earthworms don't just eat the soil, they also clean it as they go, having the remarkable ability to remove harmful bacteria (such as *E. coli* and salmonella) by killing the microorganisms as they pass through their gut, whilst leaving beneficial bacteria unharmed. And it's not just bacteria they can remove from soils – worms can actually metabolise toxins such as DDT and organochlorides and so remove them from the land.

They are even used as a cheap method of cleaning open-cast mines and polluted industrial sites.

Then there are the worm's casts, which are incredibly fertile – containing high levels of magnesium, calcium, phosphate, nitrogen and potassium – all crucial elements for plant growth. When diluted, these casts can be applied as an organic fertiliser to agricultural land, negating the use of artificial fertilisers (most of which is lost to crops anyway, as it attaches to minerals in the soil and is washed away).

But our soils are in crisis across the globe. It is one of the greatest scandals of our era yet it is ignored by the media and unknown to the public. Soils under intensive, chemical-reliant agriculture and pasture are rapidly losing fertility and structure; resulting in vast amounts being lost as it washes out to sea or just becomes dead dirt in our fields. The huge quantities of artificial nitrogen and phosphates, as well as all the pesticides and fungicides, that we pour onto the land every year kill the earthworms, mycorrhizae and other soil organisms outright.

We have spent the last half-century trying to farm the land alone – without and against nature – but it is failing and soon the soil will be dead and useless to us. Yet a solution is clear; to go back to nature, let it in, let it do its job and revive our soils – with earthworms at the forefront. With this in mind, I propose that 'the mighty earthworm' reflects their importance better than 'humble'.

Image: Katja Schulz

SUSSEX FIELDNOTES:

A Beast and a Beauty

Image: Nick Goodrum

Sophie May Lewis

Based in rural West Sussex, Sophie finds inspiration for her writing and photography in the South Downs and the Weald. Introduced to wildlife and landscape history through family walks as a child, she has been hooked ever since.

Twitter: @SophiEcoWild
Website: sussexfieldnotes.wordpress.com

The month of June is all about heathlands in my wildlife-watching year. On my calendar, a red dot marks a date in the middle of the month when I will make the first of many trips to my local patch of heath in search of a very special creature – the most entrancing beauty of them all.

Even before that date, I will return from my lunch break grinning like a fool only to further confuse my colleagues who enquire about where I have been, with the obscure reply, "tiger hunting". I can understand their bewilderment. Of course, there are no actual tigers in West Sussex… but there are green tiger beetles.

In the heat of the noontide sun, the heath hums and shimmers with reflected warmth, invigorating the insects that specialise in life here. Wood ants tiptoe through the forest of wiry heather stems, spiders knit together a tunnel of silk close to the ground to trip unwary foragers, and moth caterpillars hang camouflaged in the low vegetation. Camouflaged, secretive or speedy, nonetheless they all need to watch their step – there are predators at large.

My first sighting of a green tiger beetle (*Cicindela campestris* for any entomologists reading this) each year usually comes one hot day in early summer; a metallic green shimmer, a blur of movement over the hazy sand. The chiffchaff's metronymic call seems to proclaim the passing minutes, but, when 'hunting tigers', time slows to irrelevance. The birch trees, strung with a full adorning of triangular bunting leaves, shift and whisper in the slightest breeze. Down at the tigers' level however, the air is turgid. Bare ground between the islands of rasping heather is the tiger's natural territory; large eyes, rapid reactions and crushing jaws make these centimetre-and-a-half long beetles formidable hunters. It also makes it very tricky to sneak up on one. Patience and perseverance teamed with an inner stillness, will get you close. Your reward is an encounter with a living emerald, bejewelled with yellow markings and defended by strong sickle-shaped jaws. Long legs propel them quickly over open ground, and when disturbed they take to the air and vanish in a buzz of iridescent green.

Attempting to photograph the tiger beetles keeps me amused for numerous lunch hours, and on duller days when the sun is more reluctant to supercharge these micro-beasts, I walk along the firebreak-track listening for the yellowhammer or the willow warbler singing in the gorse scrub.

At last the date I've earmarked on my calendar arrives. Nature doesn't run by our calendars however, and I am sometimes kept waiting for days. The creature I seek is only on the wing for a few short weeks around the end of June, on warm sun-drenched days. *Plebejus argus*, the silver-studded blue butterfly. A dainty insect, it is one of our smaller butterflies, with a wingspan of around 3cm. Roosting communally amongst the heather, silver-studded blues live in close knit colonies, rarely traveling far or flying high. On cooler days they perch quietly in the heather, and laying down I approach at eye level, to marvel at the minute detail of their markings. The thin legs are striped black and white, like the butterfly is wearing long over-the-knee socks, whist the undersides of the wings are decorated with orange sequins. A silvered dusting highlights the baby-blue upper-wing of the males. The caterpillars are equally curious; feeding on the tender shoots of young bell heather and striking up a particularly fascinating relationship with a species of black ant that shares the butterfly's habitat. The ants guard the caterpillar, which then pupates within the ants' nest, only to be escorted back above ground by an entourage of ants when it emerges as an adult.

Whilst the ecology of these intricate insects is endlessly fascinating, it is their beauty, elegance and poetic loveliness that captivates me. There is something so hard to distil into words about a late June afternoon on a lowland heath; the deep warmth of the sand, the scent of wood sage and nectar rich heather. The undersong of rustling birch leaves and the crunch of the pinecone carpet. Grasshoppers singing their zinging songs. The sun creeps out from behind a cloud, bathing all in warm golden light, and butterflies appear almost from nowhere, a movement of silver and blue that seems to dance over the heather. So if you find yourself passing a lowland heath on a sunny afternoon this summer, turn off the road, leave the world and its rush of worries far behind. Take a moment to sit, or lie on the scratchy grass by a sandy path. Listen for the woodlark or yellowhammer's song, marvel at the agility of hunting dragonflies, and trace the journey of the wood ants as they march in lines to and from their pine-needle castles. You will soon discover there are beasts here, and beauties too.

Natalie Welden studied Ecology at Derby, and Marine Environmental Management at York; finally earning a PhD on the impacts of marine microplastics. She currently teaches at the University of Portsmouth where she maintains her passions for citizen science and outreach.

NAT'S MARINE MISCELLANY:

DISTURBANCE AND RECOVERY

Unseasonal storms and volcanic eruptions; the events of this spring have gotten me thinking about the effects of disturbance. From daily changes in the tides or the whipping winds of winter to the passage of a trawler net or the development of a wind farm; marine habitats are defined by the disturbance they experience. Some of these changes may have only a minor effect on the environment, while others – particularly the more extreme and destructive events – can wipe the slate clean; erasing all living material.

Usually, after these catastrophic events, the community returns in a process known as succession. To begin, pioneer species, those that can manage with little in the way of substrate and nutrients, migrate or are moved to the disturbed area. This is followed by the sequential development of different communities, known as *seres*, as organisms change the conditions in which they live. Finally, the community reaches a stable state, determined by local environmental factors such as salinity, temperature, light and nutrient availability.

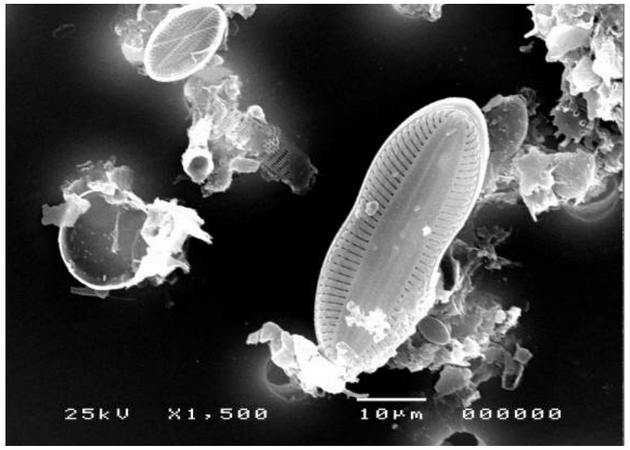


Image: Biofouling Diatoms, Natalie Walden

On land, you can see the effects of disturbance, colonisation and succession very clearly. Just look at sand dunes; the area closest to the sea is disturbed by every tide, and you will see very few inhabitants. Move away from the sea and you will pass over ground that is only disturbed on the highest spring tides. Further back still, maybe the sand is only shifted every ten years in large storms, here you will find fast growing species, and yet further away the sand might not have shifted in a century and the ground is stabilised by larger shrubs and inputs of organic material. In these environments, distance from the waves marks the passage of time.

The same processes happen under the waves, and the type and structure of the community that forms after a disturbance is dependent on a number of factors. What is the substrate; is it sand, rock, or some man made structure? Where can colonisers move from; is it barren three miles across, or a trawl scar twenty meters wide? What are the abiotic factors – the depth, the light level, the temperature, the pressure? These and many other differences define the variety in the marine environment.

On land, our pioneers are the lichens and mosses, which rot down to form the proto-soils in which secondary colonisers might grow. Their appearance is reliant on what is in the surrounding area, a fluke of the wind or the passage of a bird. In the marine environment, the process is quicker. Sea water is a rich soup of potential colonisers, particularly at this time of year, and you can trust the local currents to bring in your intrepid colonisers and for a film which will attract other species.

Many of the commonest pioneers in the marine environment are the biofilms formers. Biofilms are created by colonising microorganisms which rapidly associate with surfaces. They're not solely found in marine habitats, dental plaque (the stuff that forms on teeth) is a biofilm; moisture plus microorganisms plus nutrients equals biofilm.

Image: biofouling on frame, Marc Martin

Common marine biofilm formers are diatoms and bacteria, the composition of which varies between season and substrate. The mix of sugars, proteins and large biological molecules they produce alter the surface chemistry of the surface, making it more hospitable to other organisms. These by-products also form a chemical trail enabling invertebrate larvae in the water column to locate their ideal home.

One of the best ways to observe succession is on man-made structures and disturbed rocky shores. In these environments, secondary colonisers include a fascinating mix of barnacles, mussels, sponges and sea-squirts which filter their food from the water column; then larger, slow growing algae and grazing crustaceans and molluscs, which feed on the growing mass of diatoms and seaweeds.

In natural environments the pace of recovery may be rapid, occurring in a few months in very productive environments, or very slow, such as in deep-water, low temperature or low nutrient environments. Slow growing species or those restricted to only a few small areas, such as sea pens and maerl reefs, find it hard to recover from disturbance and it is often these species that require most in the way of protection form human activities.

Thankfully, few changes are permanent if the community is given the time to recover. So next time there's a big storm or a landslip on a coast near you, take note, there are interesting times ahead.

SPECIES FOCUS

THE SAND LIZARD

Words and Images by Emily Jordan

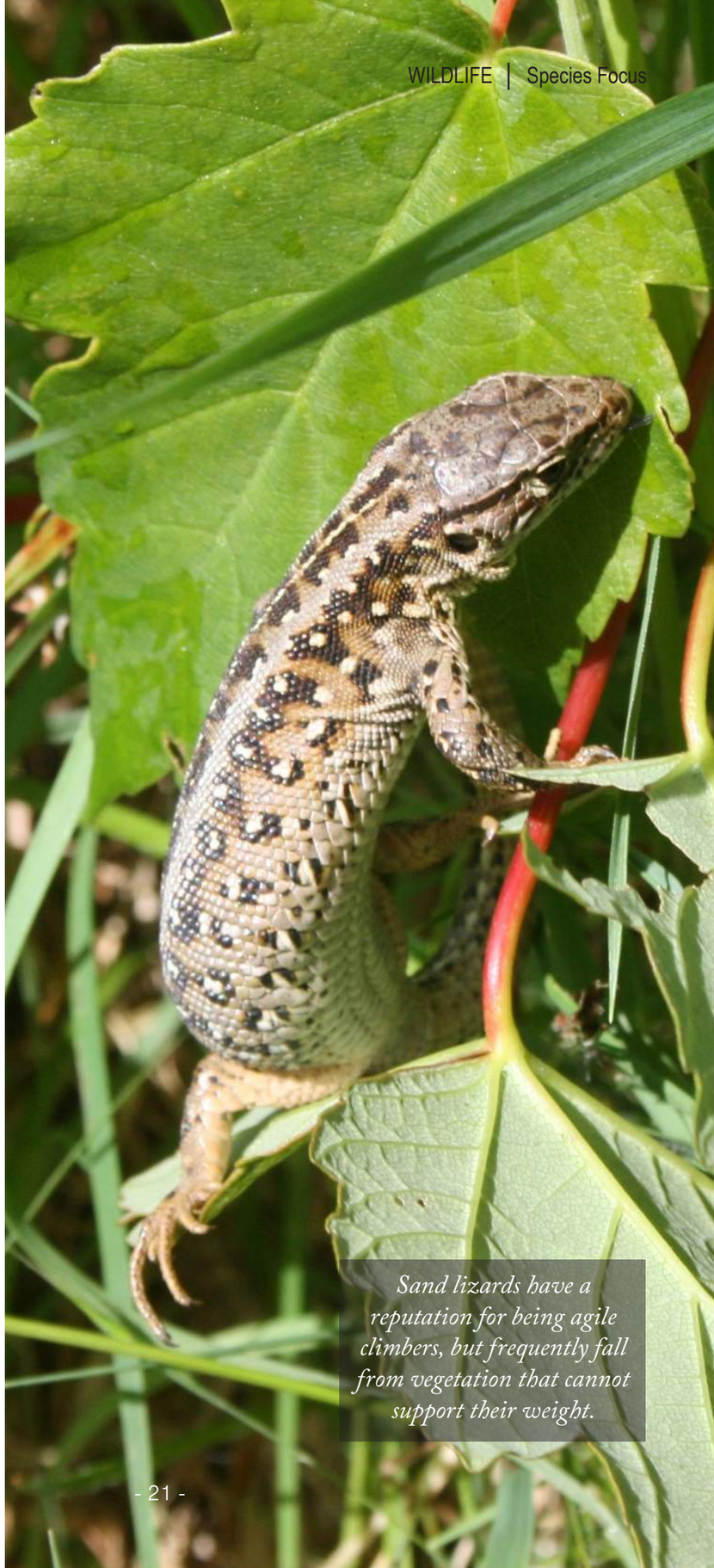
Britain's heathlands are a magical place to visit in summer, alive with colour as its flowers bloom and buzzing with the busy energy of invertebrate life. In amongst the vibrant purples of its heather, sand lizards (*Lacerta agilis*) can be found basking, their winter hibernation far behind them. The UK's rarest lizard, adults average between 16-19cm from snout to tail, and despite the species name '*agilis*' meaning agile, are relatively slow-moving, stocky lizards.

Roughly 95% of our remaining sand lizards are confined to lowland heaths, with the remainder found in coastal dunes. Sandy patches of soil at the edge of vegetation are good places to spot them basking, especially on warm days with intermittent sunshine. However, their rarity and cryptic colouring make sightings difficult, and an encounter with these elusive animals is a truly special experience. Breeding season, between April and June, is arguably the best time

to see them. Males develop vivid green colouration on their sides, neck and belly which may help them to attract a mate. In contrast, females maintain an all over brown that can range from sand-beige to deep mocha, and is decorated with a striking pattern of white and dark spots reminiscent of leopard print. These distinctive markings are unique and allow individuals to be identified.

Males are territorial, and a dominance hierarchy is established through aggressive interactions. Chases are frequent, with males chasing off rival males and pursuing females to mate. During the mating ritual the male bites down on the female at the base of the tail, often resulting in black 'mating scars'. An unimpressed female can dish out solid nips in return, whilst a receptive individual will raise its tail to signal to the male that it is ready to mate. Gravid females then lay their eggs in sandy soil and guard the site of their burrows aggressively, arching their body with wide open mouths to warn off intruders.

Emerging juveniles are predominantly social and tend to aggregate in groups to bask. Basking boosts the metabolic rate of a lizard and provides them with enough energy to undertake daily activities, such as searching for invertebrate prey or evading predators such as kestrels. If a lizard is unfortunate enough to be caught, they do have a back-up – providing they are caught by the tail! Like most lizards, sand lizards can self-amputate their tail, a process known as autonomy; freeing them from the predator's



Sand lizards have a reputation for being agile climbers, but frequently fall from vegetation that cannot support their weight.

grasp and serving as a distraction. The tail can then be regrown, and there have been some incidences of sand lizards sporting multiple tail ends.

Having once occurred in several counties across Britain, severe declines in the latter half of the 20th century lead to the species being found in only 40% of its original range. This dramatic reduction can be largely attributed to habitat loss, and sand lizards are restricted to two of our more vulnerable habitats, which have been increasingly fragmented and degraded. Heathlands have historically been converted for agriculture, timber and housing development, and are currently at risk from poor management and recreational damage. Dunes have increasingly been eroded by factors such as overgrazing, and are under threat from rising sea levels.

These incredibly important habitats are not only rare and beautiful but play host to rare specialist species and rich biodiversity, and their restoration is key to supporting the growth of sand lizard populations in Britain. Reintroduction efforts utilizing captive bred individuals have already played a large part of regenerating populations in the south, and with programmes ongoing we can be hopeful that these charismatic reptiles will become a familiar feature of our countryside.

Sand lizards flatten themselves whilst basking, maximising their surface area to soak up heat.

Words by Joanna Lindsay


Scott Shanks

MARVELLOUS MUD SNAILS

The pond mud snail (*Omphiscola glabra*) is a modest mollusc, by all standards. With its less-than glamorous name and murky brown shell that rarely grows larger than 15mm (roughly the length of your fingernail), many would render this miniscule creature unworthy of attention. At Buglife Scotland, we would argue otherwise and have taken on the challenge of conserving this unloved and overlooked gastropod, which is now only found at seven sites across Scotland.

As the name may suggest, pond mud snails inhabit muddy temporary pools, ditches and marshes, which often dry out during the summer season. During this time, the snails burrow into the mud where they remain inactive until the water returns. Unfortunately, these inconspicuous habitats generally go unnoticed and this ignorance has played a key part in the mud snail's demise. Once widespread throughout lowland England, Wales and as far north as Perth in Scotland, the pond mud snail has declined by almost 50% across its UK range in the last 25 years, with surveys in 2005-06 highlighting a 64% decline in Scotland alone. Habitat loss is the culprit in this crime, as the pools this snail calls home are frequently filled in and altered for human purposes. As a consequence, the lowly pond mud snail has been classed 'near-threatened' by IUCN, is 'vulnerable' in the Red Data Books and is on the Scottish Biodiversity List.

The 'Marvellous Mud Snail' project, funded by the Heritage Lottery Fund and local councils, is a two-year mission started by Buglife in 2017 aiming to tackle the pond mud snail's decline and bring it back to its former glory in Scotland. The three major goals of the project are: to reassess the current population, to double this population through captive breeding and habitat creation and to promote the importance of freshwater habitats through public engagement and education.

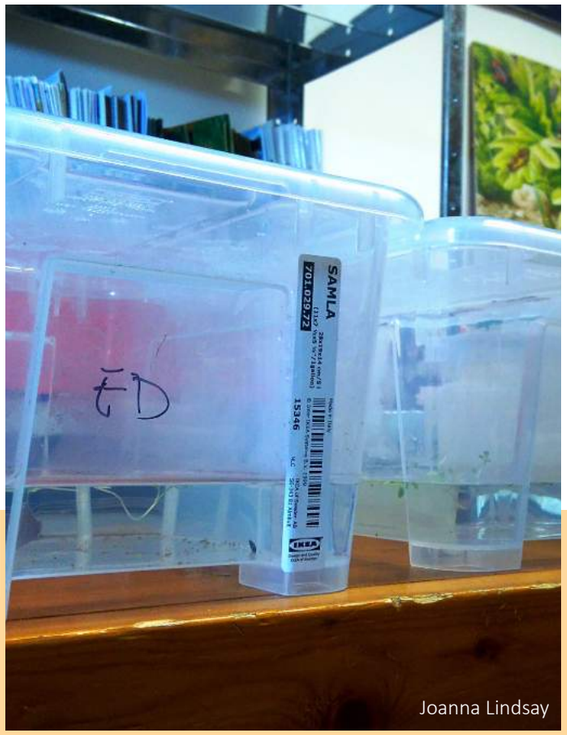
One year in to the project and already a lot has been achieved. Two new populations have been discovered, five new ponds have been created with plans for more new habitats underway and snails are breeding successfully in the Buglife Scotland office, Edinburgh Zoo and in local schools. On top of that, we have created an education pack for teachers, delivered fun and interactive sessions with six primary schools and have engaged with an impressive 1,488 members of the public!

As for me, I joined the mud snail mayhem halfway through and have only been working on the project for the last three months. As a TCV Natural Talent Trainee, my role is to assist Buglife with the different aspects of the project whilst also being able to develop my own skills and knowledge. So far, I have been enjoying getting hands-on in school sessions and at public events, enthusing kids about freshwater invertebrates and opening people's eyes to the wonders of the pond mud snail. I've also been getting out in the beautiful (when it's not raining) Scottish countryside, conducting habitat surveys for the current sites and checking that the populations are still doing well. Over the next few months I will be producing habitat management plans for the seven sites to ensure their survival and after the summer we will begin the exciting task of releasing our captive-bred snails into their newly created homes! Following release, we will be regularly monitoring the new populations and are looking for volunteers to get involved with this, so please do get in touch if you are interested!

In honesty, when I began my Zoology degree six years ago (has it really been that long?) I never once imagined that I would end up working with snails…

TCV Scotland

But learning about the world of these tiny creatures has been endlessly fascinating and I cannot think of a better project to kick-start my conservation career. And it's not just always about snails either. The beauty of a TCV traineeship means I am free to get involved in any other projects, events and training that interest me, from learning about other invertebrate groups to doing practical conservation work, attending workshops on outdoor education and helping run citizen science events – no two days are the same! So if you're an aspiring conservationist wondering how to get your foot in the door, I'd highly recommend a traineeship with a conservation charity as the way to go. If it sounds like something you'd be interested in, you can take a look at what all of the current TCV trainees are up to by following @Natural_Talent on Twitter.



Joanna Lindsay

To find out more about the Marvellous Mud Snail project or to get involved as a volunteer, please contact our office on 01786 447504 or email Joanna.Lindsay@buglife.org.uk or scotland@buglife.org.uk. To keep up with all of our work, head to www.buglife.org.uk or follow @BuglifeScotland on Twitter.

THE CHANGING FACE OF CONSERVATION:

EU OR NEW

The government's struggles to establish post-Brexit environmental protection

In the last month the government's proposed environmental plans regarding Brexit have taken a beating. While a defeat in the House of Lords has meant that the UK is set to retain the environmental protections set out by the EU, The Conservative Party's plans to establish a supposed world-leading independent watchdog to raise Britain's environmental standards have fallen flat.

EU legislation has for decades given Britain the ability to hold the government to account on hitting conservation and environmental targets, as well as underpinned local legislation for environmental protection. The EU has overseen the protection of our endangered species, and the improvement of both air and water quality. With the future of these protections uncertain post-Brexit, Environment Secretary Michael Gove revealed plans to set up an environmental watchdog with the aim of providing Britain with even greater protection for its beautiful natural habitats and environmental wellbeing than it had under the EU. In doing so making Britain a world-leader in environmental regulations.

Gove released further details of the watchdog earlier this month causing dismay and anger as environmentalists felt it would not be able to deliver the greener future that was promised. Instead of a reassuring look at Britain's environmental future, the proposal stoked fears that environmental protections post-Brexit will be flimsy, watered down, and lacking in any ability to pack a punch when it comes to holding businesses and the government accountable with regards to conservation and the environment.

A key element of the new watchdog was a law which would require ministers to hold core national environmental policies in regard. A large number of environmentalists, including representatives from the WWF, RSPB and Green Party, criticised this scheme due to its perceived weaknesses and inability to have an impact on the protection of Britain's environmental future. The government stated that advisory notices may be issued to those who breach set standards. Despite these potentially weak proposals, the government insisted there would be no deterioration of environmental protections in the UK.

Despite the government's previous assertions for a greener Britain post-brexit, there did not appear to be plans to include any kind of soil, plastics, water and air quality targets in legislation. This was worrying considering EU legislation has been used in the past to force the government to act in environmental interests, most recently to ensure the British government complied with air quality standards. Fears that Britain's environmental future may take a bleak turn seemed to become more likely, and Gove's goal to make this government the first generation to leave the environment in a better condition than the last felt quite out of reach if the proposals put forward were to be an indication of the government's commitments to environmental protection.

The lack of ability for the proposed watchdog to be able to legally hold the government accountable for their actions, or inactions, towards the environment unfortunately works in their favour. For there to be any active and legal benefit from the watchdog, the strength of the proposal would need to be ramped up. A leaked letter from Gove to other Cabinet members suggested that various ministers, including Chancellor Phillip Hammond, caused the proposal for an independent watchdog to be voted against. They argued against further environmental protections that the EU currently provides being encapsulated in the proposal, as was the Prime Minister's vision. The Chancellor felt that Gove's watchdog would increase the red tape in place for businesses and thus hamper trade deals and Britain's competitiveness in the market after Brexit.

As a result, when the watered down low-impact proposal was put to the House of Lords, it was defeated as the Lords instead voted to ensure that the EU's environmental protections would be retained. Whilst this was not the greener Britain formed through a world-leading independent body separate from the EU that the government envisioned, it at least provides some peace of mind that environmental standards, as we have become accustomed to, may be retained after we have left the EU. The future is still uncertain, but it seems as though steps are being taken by those in power to at least prevent Britain from becoming a post-EU environmental disaster.

Stephanie is an Assistant Editor for a selection of biological science journals, as well as a freelance science journalist. She will be studying a Masters in Tropical Forest Ecology this year, and plans to work in research alongside science communications.

Dr Robert Macfarlane

Award-winning writer Dr Robert Macfarlane has produced many bestselling books about landscape, nature and language, including The Wild Places, The Old Ways and Landmarks. His most recent book, The Lost Words: A Spell Book (2017) with the artist Jackie Morris is being used in schools up and down the country. He is a founding trustee of the youth conservation charity Action For Conservation (www.actionforconservation.org). His work has been adapted for radio, film and television and Robert also turned his hand to presenting for BBC Two's Natural World in 2010. He has experience as a judge, sitting on the panel for the 2007 and 2013 Man Booker Prize for Fiction. Robert is a Fellow at Emmanuel College, Cambridge University.

Hi Robert. Thanks so much for being our judge for the writing competition. What did you like the most about the entries? What led you to select the winners?

A huge pleasure. I was fascinated by the diversity and impressed by the quality of the entries. The knowledge and passion shown by all the writers were considerable. Two themes in particular emerged across the submissions; the first hopeful and the second unsettling. First - many of the entrants celebrated the deep involvement of the human and the more-than-human worlds, writing of spring as a time when the rhythms of the living world express themselves so charismatically that the consequences can be felt deep in the spirit of people and places. Second, however, and more darkly - many entrants registered a disturbing sense of disruption at work; the seasons shifting, time being out of joint, spring springing early, or not at all. This seems to me a signature of our modern or 'New nature': a powerful recognition of how bound we still are into its rhythms, but how vulnerable those rhythms are to change.

What usually attracts you to certain writers and their styles? Do you have a favourite book/text?

The two lodestar books for me, from this island group of ours at least, are JA Baker's The Peregrine (1967) and Nan Shepherd's The Living Mountain (1977). They could hardly be more different as texts; the first a furious, visionary, lyrical cry of passion and anger at the fate of peregrines in south-east England during the height of the pesticide disaster of the 1960s; the second a gentle, wise pilgrimage 'into' the Cairngorm mountains of north-east Scotland. Both are, in their different ways, political books - Nan's not least because it so beautifully subverted the male-dominated tradition of mountaineering literature.

You promote commonly-unused words a lot. Have you always been interested in words and language? What led you to where you are today in your career?

I would say that language, literature and landscape have been the three criss-crossing paths of my life to date. I teach English literature here in Cambridge (though these days I think of myself more as a geographer disguised as a literary critic), and have always read deeply in the prose and poetry of place, from Beowulf through to Helen Macdonald. It amazed me to meet the work of Seamus Heaney or Gerard Manley Hopkins and realise that words could possess the 'palp and heft' (Heaney's phrase) almost of material things, and also that language could sharpen and clarify vision. This explains partly my investment in the project of recovering and celebrating a rich and, as it were, biodiverse language for landscape and nature in this country: I want us to have a wildflower-meadow of words for our places, not a golf-course fairway.

'Nature' writing has enjoyed a renaissance in recent years; especially since the introduction of the Wainright Prize. Why do you think people are taking more of an interest in reading about the great outdoors?

The Wainwright Prize followed the resurgence rather than creating it; yes, the last 20 years have seen a huge increase in the number of people writing about and reading about what we uneasily call 'nature'. I think the reasons for this are clear enough: a potent mixture of anxiety and love, set within a context of local and planetary scale environmental damage and crisis. We are reckoning what we have, what we have lost, and what we have to lose. The much-discussed 'nature writing resurgence' has been broadly speaking a good thing, but of course it has also produced countless forgettable or unnecessary books, and something of a production-line within publishing. I no longer really refer to 'nature writing', as it has become in effect a brand name, claimed for marketing purposes. And also because 'nature' in its full, complex set of meanings is, really, everything that matters. I tend to call it just...writing.

You do a lot of exploring. Where have you not travelled to yet that is on your bucket list?

Well, one day I'd like my ageing legs to carry me the length of the Cuillin Ridge in Skye, a dragon's back of shattered basalt and gabbro, truly our Alps.

In a piece for the Guardian regarding children's relationship with nature, you discussed your own children's abilities to identify certain species. Has your love of the outdoors naturally transferred to them or have you had to encourage them to take an interest?

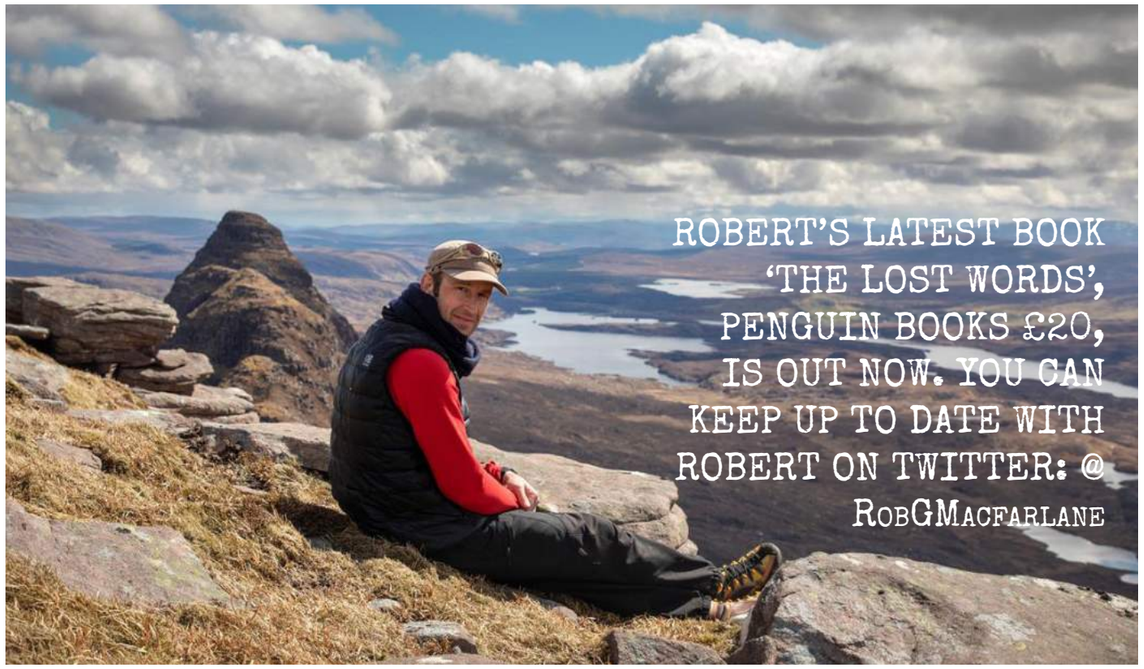
I think in that essay I was slightly rueing their inability to tell an ash tree from a beech, or a lime from a hazel. I was also poking fun at my own failures as an identifier, which include mistaking a piece of discarded watermelon in a pine forest for a fly agaric toadstool (I blame my glasses). Adult nature-illiteracy is much more widespread than in young people, I would say, in Britain; children are natural namers and lookers, even if they don't know their Linnaeans. I do think that good names, well used, can help us to see and respond to the everyday nature with which we share our everyday lives. Without a name in our mouths, as Tim Dee has noted, we find it hard to find a place in our hearts. This was why Jackie Morris and I set out to make The Lost Words: A Spell Book, three years ago now, which has led such a strange and wild life since its publication, and is now being used by hundreds of thousands of children across the country to learn the names of nearby nature, from acorn through to wren.

Given that recent research has indicated the children are losing touch with nature; how do you feel would be the best way to encourage more children to love wildlife and the outdoors?

We need to build access to nature into our planning systems, and into our education system. Green space needs to be written into infrastructure planning more centrally than it already is, to give every young person - regardless of postcode or household income - access to nature. And we need to rewrite the Education Act to place our relationship with the living world at the fountainhead of education in this country, so that it flows through our thinking about friendship, citizenship, history, politics and personal development, as well as 'just' biology and ecology.

What advice would you give to a young person interested in a career in writing?

Write with passion but precision. Concentrate on one thing until it becomes so strange that it looks like nothing else you've ever seen, and like no-one else sees it, then write about that strangeness. Make your language jump around and jink, but also let it lie flat now and again. Find examples of writing and writers you adore, and study how they've achieved what they've achieved. And be prepared to work for years. Writing does not come as naturally as leaves to a tree, to contradict John Keats: it comes through hard, skull-hurting brainwork and dedication. Good luck!



We hear from the winner of the scholarship to attend the Cornell Lab Young Birders Event

For the 3rd year running, the Cameron Bespolka Trust has been offering a scholarship for one British based young birder to attend the Cornell Lab of Ornithology Young Birders Event in Ithaca, New York! In 2016, Rutland based young birder Amy Hall jetted off to the states, followed by Max Hellicar in 2017. Now in 2018, I was utterly over-the-moon to hear I'd been awarded the once in a lifetime scholarship to Cornell, having impressed the Trust's panel with my knowledge, enthusiasm and motivation to help others.

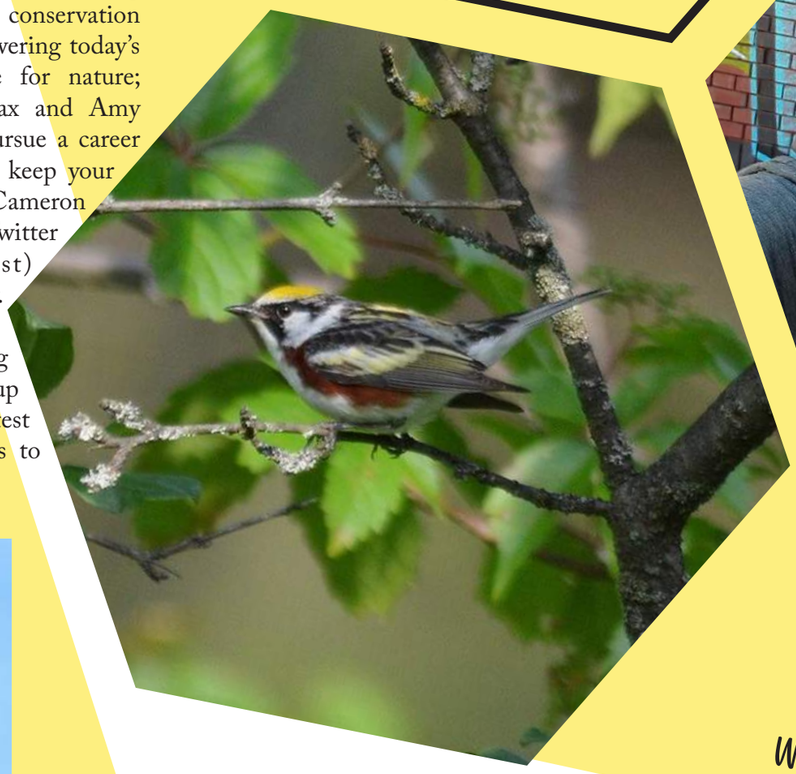
The event will be running from the 12th to 15th of July and hosts a multitude of ornithological based experiences; Cornell's aims being to assemble a flock of 15 teenagers who have a fascination with the world of ornithology and who are all looking to pursue a career in this field. Due to the aims of their program, the experiences which the event offers are of the highest quality: a tour of the Macaulay Library and a range of lectures from John Fitzpatrick (Executive Director), Tom Schulenberg (Avian Taxonomy Specialist) and Irby Lovette (Director of Evolutionary Biology).

In addition to this, there'll be an eBird and Field Notes workshop, a Sound Recording workshop and not forgetting several days birding at sites such as Cayuga Lake and Montezuma NWR, which offer a species list that'll make any Brit birder's mouth water: American bittern, bald eagle, sandhill crane, killdeer, greater and lesser yellowlegs, ruby-throated hummingbird, indigo bunting, American redstart, Blackburnian warbler, cedar waxwing and the list just goes on.

Myself, Amy and Max are all very grateful for the opportunity presented by the Cameron Bespolka Trust. To give us this once in a lifetime opportunity to attend the Cornell Lab of Ornithology which will give us a boost in order to fulfil our desire to work in the ornithological sector and to hopefully make a difference in what is ultimately the darkest time the natural world has seen.

The Cameron Bespolka Trust is a fantastic charity and an unsung hero on today's conservation scene. They're empowering today's youth through love for nature; and if like me, Max and Amy you're wanting to pursue a career in ornithology, then keep your eyes peeled on the Cameron Bespolka Trust's Twitter (@cameron_b_trust) and website (www.cameronbespolka.com), over the coming months to keep up to date with the latest events the Trust has to offer.

CAMERON BESPOLKA TRUST



Words by Elliot Montieth

Chesnut-sided Warbler Image: Max Hellicar

Book Review

Food You Can Forage
by Tiffany Francis

Review By Ben Eagle

Have you ever wondered what sweet cicely or bog myrtle taste like? If so then this book could be one for you. Beautifully illustrated and helpfully structured by habitat *Food You Can Forage* would sit well on the bookshelf or coffee table of any curious aspiring forager. I have followed Tiffany's writing for some time, through her blog tiffanyimogen.com and was therefore excited to see the results of her first book project with the team at Bloomsbury. If you are looking for a detailed, comprehensive review or analysis of the hundreds of edible plants you can forage then you may wish to refer to some of the other foraging books available, as detailed taxonomy isn't the aim here, but this book is certainly a brilliant introduction to inspire anyone, young or old, country or town dweller to get out there and start learning about foraging. Accessibility is the key to the book and making the activity engaging and intriguing was a key aim which I think has been achieved.

Tiffany makes it clear that foraging is an activity that the entire family can get involved in. It's part of a growing selection of books that encourage people to get out there and look at the natural world, slowly and steadily learning more about it and hopefully connecting more with it, leading them to ultimately want to protect it. With this in mind, one of the most successful parts of the book for me is the inclusion of introductions to each section, from meadows to heathland and coast to woodland. Within these sections Tiffany subtly introduces concepts such as conservation grazing and outlines the threats of biodiversity loss without seeming like she is preaching. She also informs readers of campaigns, such as the 'two minute beach clean' and literary works that have inspired her such as the novels of Herman Melville.

Within the description of each plant in the book there are interesting pieces of information on their history or literary links as well as a handy guide to when something might be available to forage, and at the end of the book a useful 'foraging calendar' is included. I can see this book would work well being carried around the field and accompanying families on holiday, the pages gradually getting grubbier and grubbier as thumbs work their way through the book in search of a particular plant. Helpfully, Tiffany also includes a number of recipes using foraged ingredients, such as 'gorse kick mead', 'blackberry and basil syrup' and 'wild garlic and cheese scones'. Although suggestions are made throughout the book as to what the reader might be able to do with the plants they forage, this section I would say is key and perhaps even more recipes could have been included.

This book is colourful, inspiring and accessible and Tiffany's keen interest and knowledge in the subject of foraging comes through strongly. The book is published by Bloomsbury Wildlife and available in paperback format for £16.99.

Our Contributors

Ben Eagle

Ben is an environmental and agricultural writer from Essex. He divides his time between writing and working for his family farm. He also sits on the committee of A Focus on Nature, the UK's largest youth nature network and presents the 'Meet the Farmers' podcast.

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Elliot Montieth

Elliot is an experienced ornithologist situated in Cheshire, who has keen interests in ageing and identification of subspecies. In addition he's an avid entomologist, arachnologist and is an ambassador for Viking Optics and The Cameron Bespolka Trust.

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Emily Jordan

Emily is a research student studying factors that impact the success of reintroductions. She is passionate about conservation and encouraging others to engage with nature.

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Joanna Lindsay

Jo graduated with a BSc in Zoology in 2016 and is currently a TCV Natural Talent Trainee with Buglife Scotland. She loves to share her passion for nature and is happiest when outdoors!

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Let us know what you thought about this issue of New Nature, or what you would like to see in future issues.

We are always on the lookout for young writers, photographers and artists. Please get in touch if you are interested in submitting work.

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