



THE GREEN FUSE

A natural history magazine created by young naturalists for naturalists young and old

Issue 7
Summer/Autmn 2022

Welcome

Welcome to the joint Summer/Autumn 2022 issue of The Green Fuse Magazine. It has been a busy time for the team with some of us taking our first GCSEs so we thought a joint issue would be best for all of us.

If you want to subscribe to the The Green Fuse you can sign up on the website. Or you can simply download any past issues from www.thegreenfusemagazine.com

This issue is looking at some ways we can all contribute to living in a way that is more sustainable and conscious of our impact on our environment. The theme throughout is of individuals and how we can each make a difference through doing something small, learning and caring about our natural world or by accidentally starting a global movement!

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About Us



Rose Fulton (14)

Editor, Illustrator, Journalist, Graphic Designer

I am home educated and a keen naturalist. I have always loved nature and would like to pursue a career in zoology when I am older. I particularly enjoy birdwatching and woodland walks.



Megan George (12)

Photographer, Journalist

I am a young naturalist living on a farm in the beautiful countryside of Carmarthenshire and my favourite activity is horse riding. I love photography and watching wildlife, particularly birds.



Heidi

Writer, Journalist, Photographer

I love nature and capturing its beauty through art, stories, poems and articles. I enjoy finding out about all of the incredible species that are out there and why they do the things they do.



George Fulton (11)

Illustrator, Photographer, Journalist, Puzzle-master

I love entomology and aquatic life. I would like to work in conservation. I have my own museum with lots of natural history exhibits. I love drawing and creating things. I am currently trying to grow my own food and tropical plants.



Libby Greenhill (13)

Writer, Poet, Journalist, Web-designer

I am an enthusiastic naturalist who loves going on walks through the woods and spending time with my pets. I have always loved writing and have started writing more stories and poetry about nature.



Photograph by Rose Fulton

Skomer Island Puffins

(*Fratercula arctica*)

By Megan George

The amazing Skomer Island is one of the best places in Britain to experience puffins and is also home to a huge number of other sea birds. Skomer is a small island off the coast of Pembrokeshire and with just a short boat ride you can visit yourself as I did this year! When I first approached the island on my visit by boat, I could already see the puffins gathered in rafts floating on the sea and when climbing off the boat and up the steps, the puffins were flapping onto the island searching out their burrows.

The whole island takes about 2.5 – 3 hours to walk around, with many spots to admire different wildlife including the seals that can be spotted in the surrounding sea, the short-eared owl that can be viewed near the old farm buildings, the razorbills and guillemots that nest on the jagged cliffs and so much more.

The highlight of my visit was a part of the island where the most puffin nests are found and the burrows are completely surrounding the footpath. I visited in May when they were still preparing their burrows and got amazing views of their little bottoms disappearing down holes quickly followed by a spray of dirt, flung out by their busy feet as they dug deeper. They scrabbled across the footpaths right by my feet to reach their burrows allowing a super close-up experience that's hard to beat.

It's hard to believe it when walking around the island, surrounded by the noise, smell and sight of so many puffins, but these little birds are on the red list. There are an estimated 25,000 – 30,000 breeding puffins on the island which makes Skomer a really important site for the future survival of puffins in the wild.

There are actually four species of puffin: Tufted, Horned, Rhinoceros Auklet and our own Atlantic puffin.

Atlantic puffins come to Skomer Island to breed and raise their young in April and usually leave in August. After breeding, they leave the island to go to Iceland or Greenland, while some stay around the Atlantic near the UK and Ireland. During the winter their plumage changes from the bright colours we know to a darker, duller coat and beak. Each breeding pair will dig a burrow up to three feet deep, digging with their sharp beaks and shovel-like feet. In the burrows they will lay only one egg and both male and female will take in turns incubating the egg until it hatches six weeks later and then both continue feeding the puffling for another six weeks.

A puffin's diet consists mainly of small fish and sand eels but they will happily eat molluscs, octopus, shrimp, squid and even crab as well as many other types of seafood. An adult puffin has been recorded carrying more than 80 sand eels in its specially adapted beak at one time, to feed its young in the burrow.

If you ever get an opportunity to visit Skomer Island, I would highly recommend it as a perfect puffin paradise!





The Repair Café

Interview with Philip Hughes by George Fulton
Article by Rose Fulton

The idea of ‘reduce, reuse and recycle’ is certainly a step in the right direction for a more sustainable future, but is that really the best we can do? The short answer is “no” but first let’s look at why we need to become more sustainable. The area of the Earth’s surface required to provide us humans with the food, water and energy needed to support our lifestyles leaves a mark on the planet. This is called an ecological footprint. It is believed that if the world’s natural resources were shared equally between everyone, the ‘fair share’ would be just below 2 hectares of the globe. The UK’s ecological footprint is dramatically higher, at approximately 5.5 global hectares per person. Therefore, if the rate of consumption in the UK was matched by everyone else in the world, to sustain the present population we would need two more planets. We only have one. This sentiment is perfectly illustrated in the quote by Mahatma Gandhi: “earth provides enough to satisfy every man’s need, but not every man’s greed”. At the root of it all, so to speak, is resource consumption. Essentially, when people buy less stuff, it leads to direct drops in pollution, habitat loss, greenhouse gas emissions (and by extension, global warming), the extinction or endangerment of species, and resource depletion, to name just a few.

Repair Café is a volunteer-run organisation that seeks to reduce the amount of objects entering landfill by offering a more appealing alternative. Namely, repairing broken household items (such as kettles, clothing, garden spades) free of charge, therefore eliminating the need for a replacement to be bought and at the same time making a space where knowledge can be shared, skills passed on, social cohesion created and a community spirit developed. Repair Café is part of the grassroots movement with a bottom-up (rather than top-down) decision making system, encouraging citizens to get involved with the action. It also aims to reduce waste, overconsumption, and planned obsolescence as well as reigniting do-it-together and do-it-yourself principles. Martine Postma (a Dutch journalist and environmentalist) created the concept of the Repair Café, opening the first in Amsterdam on the 18th of October 2009 and it was a great success! Besides the Netherlands, there are now Repair Cafés in Belgium, Germany, France, the United Kingdom, India, Japan, the United States and in many other countries around the world, making it a worldwide movement. In 2017, the first International Repair Day was announced, with the intention of it becoming an annual event which takes place on the third Saturday of October each year.

Repair Cafés – 2,400 (approx.)

Estimated number of volunteers involved – 36,050 (approx.)

Estimated number of items repaired per month – 43,260 (approx.)

Philip Hughes is a great example of someone taking the initiative to bring a Repair Café to his local area. Mr Hughes opened a branch in Carmarthen.

George Fulton (from The Green Fuse team) went to the Carmarthen Repair Café to have a look around: “the atmosphere in the Repair Cafe was upbeat and friendly. There was a wide variety of things being mended, from a 1980s singing and dancing chameleon telephone (my own contribution), to a strimmer, a hedgecutter, clothes and an old audio recording device with reels of tape. The volunteers were cheerfully embracing all manner of challenges in the name of giving things a second chance or a new lease of life and stopping them from being sent to landfill. There was a sense of community and connection between the volunteers and those in need of their skills. I very much enjoyed the whole experience.”

Photographs by George Fulton



Listen to the Sun



By Libby Greenhill

The sun is hovering at her absolute midpoint.
Bathing trees in rays of warm.
She makes the birds sing,
The grass twirl,
She makes everything lit and bright.

The sea is whispering to the shore,
Telling of the sun.
It preaches its beauty,
It soaks up the warmth,
The sand absorbs the sun.

The sand tells the cliffs
All about the joyous sun,
It sings of all the beauty, in just one body of light.
The sand tells us the sunny love
Falling in rays from sky.

The cliffs tell the birds,
Tell the birds of loving sun,
Of all the glory the sun carries,
Of all the love it shares.
The cliffs make the birds see the joy that comes from sun,
The birds adore the sun now,
As all do.

The birds tell wispy clouds,
All about the sun.
They talk of light and warming rays.
Of how the sun always stays.

The clouds part.
Letting through the sun.
Now sun can bathe the trees in warmth,
She can spread her joy,
Her love,
Her warmth throughout the world.



Jane Goodall

By Libby Greenhill

Jane Goodall is an inspiring conservationist who has been incredibly important for the study of chimpanzees across the world. However, she is also an important figure for feminism, as she achieved so much in what, at the time, was considered a man's world.

Jane Goodall was born on the 3rd of April 1934, and little did her parents know then, but she would later become a key figure in the future study of apes. When Jane was very young she was given a toy chimpanzee named Jubilee by her father. Why? Because for the very first time a chimp had been born in a zoo in London, before then all of the chimps were born in the wild and then taken into captivity. Many people had criticised Jane's father for giving her such a toy, saying it was too lifelike and would scare young Jane. They couldn't have been more wrong. Jane adored the toy, it never left her side, even to this day Jane still has Jubilee. Do you think it might have even sparked her interest in apes?

Jane showed signs of her interest in animals from a very early age, once she even took some earthworms from the ground and put them under her pillow! She was planning to sleep beside them and learn about them by doing so. However, her mother put an end to it, explaining to Jane that they needed to be in their natural habitat. When Jane was four, her little sister was born, her name was Judith. She and Jane got along very well, and they later made a nature group together with some of their friends. At the age of five, Jane did something that tells us just how keen she was on the subject of nature. She spent five hours lying still in her grandmother's chicken coop so that she could see the laying of an egg. She came back to a very worried family, who, not knowing where Jane was, had called the police! You'd think that they were angry at Jane for wondering off, but no, her mother understood that Jane simply had to learn.

When Jane was older, she moved from Hampstead to the city of London, and got a job as a secretary. She was miserable. There was very little nature in London, and she wrote to her mother telling her about how boring her job was. Luckily for Jane, she wasn't bored for very long as, through one of her friends, she managed to get a job making documentary films. Although she was much happier with her new job, Jane never stopped dreaming of the wild, she was determined to one day go to Africa and be with the animals.

When Jane had dreams about Africa, she did not imagine herself as who she was, instead, she saw herself as a man, this is because women were not given the same opportunities as men at that time. Women were expected to raise the children and keep the house clean. Men were the people who could go out into the world.

One day, the unthinkable happened. One of Jane's friends, called Clo, had moved to Kenya in Africa with her mother and invited Jane to come and stay with them for a while. Did Jane think twice about going? No! The only problem was that a ticket to Africa was expensive, and so was living in London. Jane moved back with her family and got a job as a waitress. She saved up her money and finally she had enough. Jane was ecstatic, was her dream finally coming true?

She boarded a ship to Africa and three weeks later arrived in Kenya. From the first moment, Jane loved Africa, there was always something to see or do. On her birthday she even saw a giraffe walking down road. Jane knew that she couldn't go back to England, not yet. She also knew that she was a guest at Clo's house and couldn't overstay her welcome. Jane needed a job and she was in luck. She was introduced to the scientist Lewis Leakey. He liked Jane from the start and sent her to Gombe with a job. This was going to end up being one of the most important encounters of her life.

Once in Gombe, Jane started working with the chimps. At first she had to go into the forest with a guide, which she hated. She knew that the only way to ever have a chance with the chimps was to be on her own, that way she would be more quiet, and could stay in the forest for as long as she liked, sometimes she would even stay overnight! You might be thinking at this point that Jane was afraid of nothing, but there was one thing that terrified her. Leopards. She sometimes could smell that they were around her. Can you imagine how scary that must be? Still though, Jane carried on, trying not to think of the leopards.

Jane would sit in trees for hours, just watching the chimps, she would have to use binoculars, as the chimps were too far away. She thought at the time that the chimps would never come close to her, that if she tried to move forwards they would run. But then, one day, a certain chimp walked up to her, was she finally accepted into the group of chimps?

Over time, Jane named each of the chimps, the first to be named was David Greybeard, who was the first chimp to come close to Jane. He also became her favourite, he was confident, calm and caring. He was easy to identify because of the grey hair around his chin. He was the first non-human to ever be recorded using tools. He was also the first chimp to come to Jane's camp! David Greybeard wasn't the alpha chimp, but he was respected. Flo was the alpha female chimp, which meant that she was higher ranked than all of the other female chimps, however she was below all of the male chimps. When Jane met the chimps Flo had three children, whom Jane named Figan, Faben, and a baby who was given the name Fifi. Later on Flo would have another child called Flint. Through Flo, Jane learned how chimps raised their young very similarly to how humans do. However, not all of the apes were so kindly, one called Frodo was a dangerous bully. Once he attacked Jane, beating her and then throwing her off a cliff! He might have killed her if it weren't for there being some bushes for Jane to fall onto. Goliath was the alpha chimp, he was given this highly important role because of his strength and size. Although the role gave him great power, he also had a lot of responsibility as he had to protect and guide the community.

Jane would sometimes see Goliath and David Greybeard fishing for termites together! The final chimp I will mention, as there are far too many chimps to talk about all of them, was one called Passion. Passion was a horrible chimp, she did not care about her own children, and even ate the child of another chimp! Can you imagine having your child snatched away from you and eaten before your eyes? Passion was one of the only chimps that Jane truly despised, and can you blame her?

After Jane found out about the chimps using tools, a National Geographic photographer by the name of Hugo came to record her success. At first Jane didn't like him at all, thinking he would disrupt her research and make the chimps afraid. In order to stop him being the photographer, Jane got her sister to join her in Gombe to do it, their looking very alike meaning the chimps might mistake her for Jane. But the photos weren't good enough for the National Geographic, so Hugo had to go into the forests. However, the chimps did not run away like Jane suspected, in fact, they liked him! Hugo was able to take beautiful photos of them, and at the same time became good friends with Jane. They became very close, and Jane started to feel like she might be falling for him, did he feel the same way? Yes. A few days after he left Africa, a telegram came from Hugo asking if Jane would marry him and she said yes straight away. They soon got married, and had a little boy with the same name as his father. Jane was living her best life, discovering more and more about the chimps with every day. The only problem was, no one would respect her, she hadn't been to university, so her work wasn't taken seriously. Luckily, Lewis Leakey got her sent to university and she was able to get her PHD, even though she had never got a degree, before returning to the place she loved so dearly, Gombe.

Jane has made so many incredible breakthroughs in the study of chimps. Without her we wouldn't truly understand how many characteristics they share with humans. She hasn't just discovered crucial information for our understanding of these creatures, but has also inspired so many others to learn more about the natural world and help protect it. Jane Goodall has also proven that age isn't important, as even at the age of 88 she is still studying chimps and helping us to gain more knowledge of our closest relative in the animal kingdom. She has set up charities, such as the Jane Goodall Institution and the Roots and Shoots youth group to ensure that all the work that she has put into conservation continues.

Ruderal Bumblebees

(*Bombus ruderatus*)

Interview with Lawrence Harris by Megan George, George Fulton and Rose Fulton

Article by Rose Fulton

Did you go for a walk on Sunday morning? Did you discover an insect supposedly lost from the area? Lawrence Harris did!! Lawrence, who is Project Development Officer for the Bumblebee Conservation Trust in Wales, recently discovered, on a Sunday morning walk from his home, a rare species of bumblebee thought to be extinct in Wales since 1973. To find out more about his extraordinary find, we met up with him near the village of Brechfa in Carmarthenshire in the very place where he first caught sight of a Ruderal bumblebee (*Bombus ruderatus*) queen. Lawrence began by showing us how to identify the bumblebee, pointing out “giveaway” characteristics on a queen that he had been lucky enough to catch on a foxglove just before we arrived. The ruderal bumblebee is one of the largest UK species and has a long, “bullet-shaped” body – in contrast to other white tailed bumblebees which are often “fat and puffy” in shape and mostly smaller in size. The much more common Garden bumblebee (*Bombus hortorum*), Lawrence went on to explain is virtually identical to the ruderal bumblebee in terms of its markings – and is very easily confused. However, there are three main differences in the appearance of the two species: the haircut, the thoracic (middle part) yellow bands and the metasoma (hind part). The first two are relatively easy to spot whereas it is quite hard to see the third. The haircut of a Ruderal bumblebee is extremely neat and tidy, unlike the garden bumblebee whose hair is fluffy and uneven in length. On the thorax of the ruderal bumblebee, there are two bands of yellow separated by one of black. The thickness of these yellow bands is equal on the Ruderal bumblebee whereas on the Garden bumblebee, the second band is a lot thinner than the one closest to the bee’s head (called the ‘collar’). The third feature is to do with the metasoma. The Ruderal bumblebee’s tail is white and has, as Lawrence told us, “little tufts of white hair on the sides of the abdomen above the tail”. On the Garden bumblebee the tail is white, but doesn’t have these white tufts. The buff-tailed bumblebee (*Bombus terrestris*) is another large but very common species of bumblebee that is also black and yellow with a white tail. However, the buff-tailed bumblebee doesn’t have the second band of yellow on its thorax.

Examples of the white hair on the metasoma (left) and the neat haircut and even band widths (right).



Photographs (above) by Lawrence Harris.

As Lawrence released the Ruderal bumblebee queen we had been studying onto a foxglove, he told us that bumblebees can be divided into two categories: long and short tongue bumblebees. The long tongue bumblebees (like ruderal bumblebees) have tongues that are almost the same length as their bodies. This means that they can reach into the long tubular flowers of foxgloves to find the sweet nectar at the bottom. Other favourite garden plants of the ruderal bumblebee include honeysuckle, lavender, squash flowers and broad beans. In its natural wildflower meadow habitat it loves red clover, teasel and knapweed – and is partial to a bramble flower too. Short tongued bumblebees (such as the buff-tailed bumblebee) don’t have tongues long enough to drink from some of these flowers. The buff-tailed bumblebee’s solution is sometimes to bite the end off the flower, stealing the nectar without pollinating the flower – ‘nectar robbing’. We now know that the Ruderal seems to gravitate towards red clover, knapweed, brambles and the invasive Himalayan Balsam on our verges once the foxglove is gone here in Carmarthenshire! The fact that, once the foxglove season is over, no-one knows what the ruderal bumblebee will feed on here piqued my interest, making me realise that there truly is no limit to what there is left to learn.



Photographs of Lawrence Harris and a Ruderal bumblebee on a foxglove by Megan George

Libraries

By Rose Fulton

To most people, a library is a building or room containing a collection of books from which any number can be borrowed, read and returned. To all intents and purposes, this is true. However, in some cases, other things can be kept in a building or room for people to borrow, use and return with the aim of reducing the amount of objects going into landfill. Library of Things is exactly that! It offers a wide range of items that would only be used occasionally (such as drills, popcorn machines and wallpaper strippers) to be borrowed for a reasonable cost. You can find out more about Library of Things on their website at www.libraryofthings.co.uk. Other types of library include seed libraries. These are where a variety of seeds are available for members of the community to use and grow on the condition that they return an equal or greater number of the same seeds at the end of the harvest season. This helps to reduce the reliance on supermarkets for fresh fruit and veg whilst at the same time promoting the consumption of seasonal produce and reducing air miles. If you want to find a seed library near you please visit www.seedlibrarian.com. The third and final library lends toys to families, helping to save parents money and keeping children from becoming bored with the toys they have. This again reduces waste as a single toy can, over time, be hired by multiple families instead of being thrown away when a child is no longer interested in it. All of these libraries help to educate us about the future of our planet, either by giving us the relevant information to go away and do something for the cause (like a book library) or by actively helping us to make a difference (like a library containing things other than books). However, it is important to keep in mind that the planet will survive, regardless of whether or not we are still here to enjoy it. So, to those who do not believe that Earth, and everything that depends on it, isn't enough of an incentive to change our ways, remember that the human race is at risk as well as, if not more than, the world we live in.



The Art of Nature

By Rose Fulton

Over the many millennia since the first artists made art, humans have sought to represent nature in one form or another, from stone age depictions of bison in France to Carel Fabritius's *The Goldfinch* (1654). In my opinion, art began as another form of storytelling, created to aid our understanding of the world around us and why things are the way they are. Art has evolved since then into, among other things, a recognised medium of teaching and learning, in this case, about nature and wildlife.

Lil Tudor-Craig, a contemporary artist, uses her paintings to clearly illustrate ecological principles (i.e. the relationships between different organisms and their environments) in specific British habitats. She also provides educational species lists alongside her paintings to help the viewer correctly identify the subjects. Tudor-Craig's paintings help to remind us of the role played in our survival by those at the lower end of the food chain (namely insects) through their pollination of plants and breaking-down of organic matter. She describes her paintings as being about the "interconnectedness and interdependence of life, our connection and our loss".

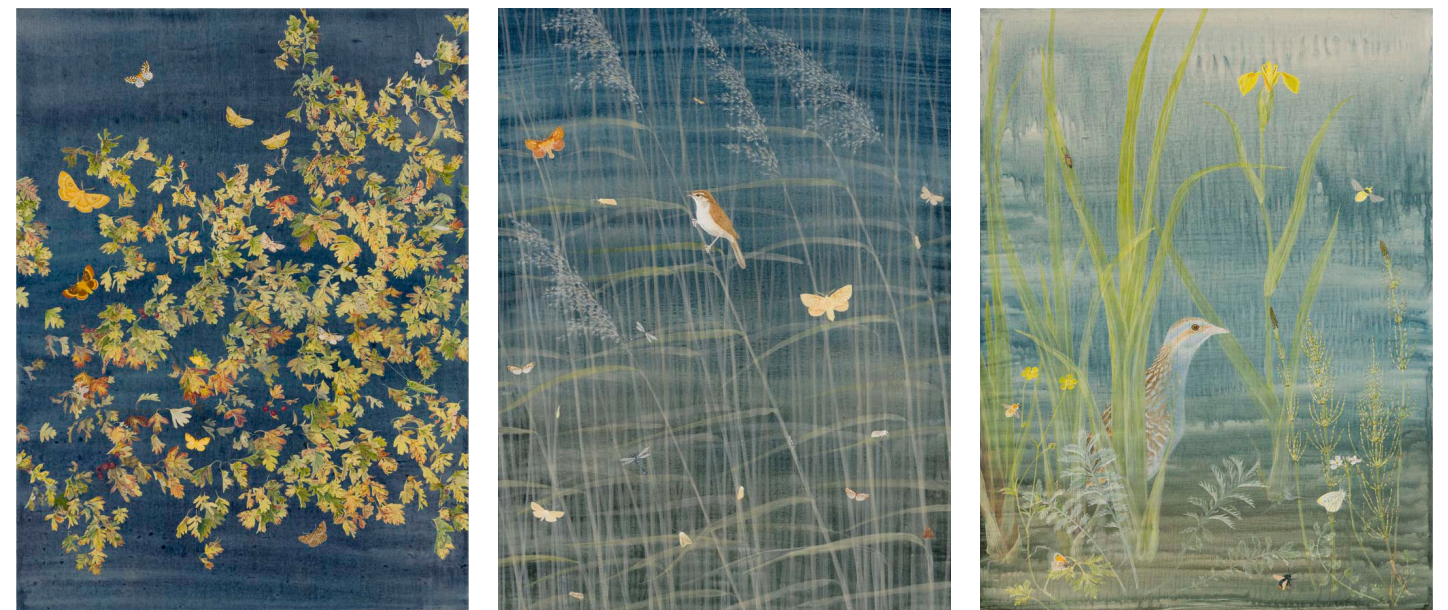
I find a certain beauty in the fact that Tudor-Craig's paintings take the same length of time (around four months) to complete as does the life cycle of a dragonfly (such as those in her work entitled *Hogweed*). Each piece is made using egg tempera (a homemade paint mix of pure pigments and egg yolk) on high quality gessoed plywood boards. This medium allows Tudor-Craig to combine vibrant colour with precise detail to create stunning life-size copies of the flora and fauna she sees around her. My personal favourite (*Hawthorn*) is a brilliant example of how intricate and diverse her paintings can be, with moths so small and numerous you need a magnifying glass to fully appreciate their unique wonder.

Although I feel the paintings sometimes lack a focal point, Tudor-Craig has definitely managed to capture the diversity of each habitat in her paintings, drawing the eye to every bird and insect in turn. She chooses to paint environments that are often overlooked, like stinging nettle beds and reedbeds, carefully selecting the associated wildlife based on the time of year and their diet as well as the colour palette. This renders her message even more powerful as people are often surprised at the amount and diversity of life that can be found in a patch of brambles.

Postscript:

Having read my article, Lil Tudor-Craig elaborated further on her "at least partly deliberate" choice to paint with a more fluid narrative. She says, "nature can seem rather homogenous and repetitive – only when we look closely do we see the bright jewels of insects and other creatures, punctuating the repeating pattern of leaves and stems. I like the fact that engaging with the paintings can be rewarding in finding surprises almost hidden – mirroring in a small way the immense rewards gained by observing nature more closely. Another aspect is that, when looking at a painting which does not have a focal point, you look in a more broad way using more of your peripheral vision. Interestingly, this can bring about a receptive state of alertness which is often conducive to noticing things both in a painting but, more importantly, out in nature".

To view more of Lil Tudor-Craig's work, please visit her website at: www.tudor-craig.co.uk



The Song That Sings Us

By Libby Greenhill

'The Song That Sings Us' is the gorgeous novel written by the extraordinary Nicola Davies. It sings the deep and moving story of Harlon, who is set on a journey to protect her brother and sister from the nature-hating tyrants known as the Automators. You might be thinking that this is a story about those who plunder nature, and yes, it does tell of these people, but I think that this story is more about the idea of hope, and how there is a great magic in nature. I believe that magic is truly what this book is about. It has an element of fantasy, through the gift of being a 'listener', where you are able to hear an animal's thoughts, sense their feelings. I do not believe that that is where the magic ends, though. For there is hidden magic within the confinements of the book. I believe that that magic comes through a message, a message to protect nature, for it is of greatest importance. However, it also says that after all we have done it is not too late to save our beautiful world, as long as we all come together and show nature just how much we love it.

One of the things I loved most about this book were the characters. My favourite of them being the Gula, a wolverine that mothers Ash, Harlon's brother. She seems to have a simple nature at first, but truly is packed with love and kindness, she warms my heart every time she speaks her beautiful words. I also adore Jackie Morris's beautiful front cover illustration, which gains deeper meaning with the progression of the novel.

One of the things that I find so extraordinary about this book is how clearly it explains what we are doing to the world. Even though we do not have magical islands or ruthless Automators, we still have hope to fight against those who destroy nature. I believe that sometimes we forget what we do every day to nature, we say that we love it and think that's enough. But if we carry on this way, feeding into the lies that whisk around us, we will not even have that love, and then how will we forgive ourselves for the catastrophe we have caused? But as I have said before, the main message of this book isn't the chaos we are causing, it is the hope we still have. It is not too late.

This book is based around a young adult age, but I don't think you can be too old for a book like this. It has such beautiful language to be absorbed by, but also a brilliant storyline full of adrenalin. I don't think age matters with this book, for as long as you love nature, this book is perfect for you.

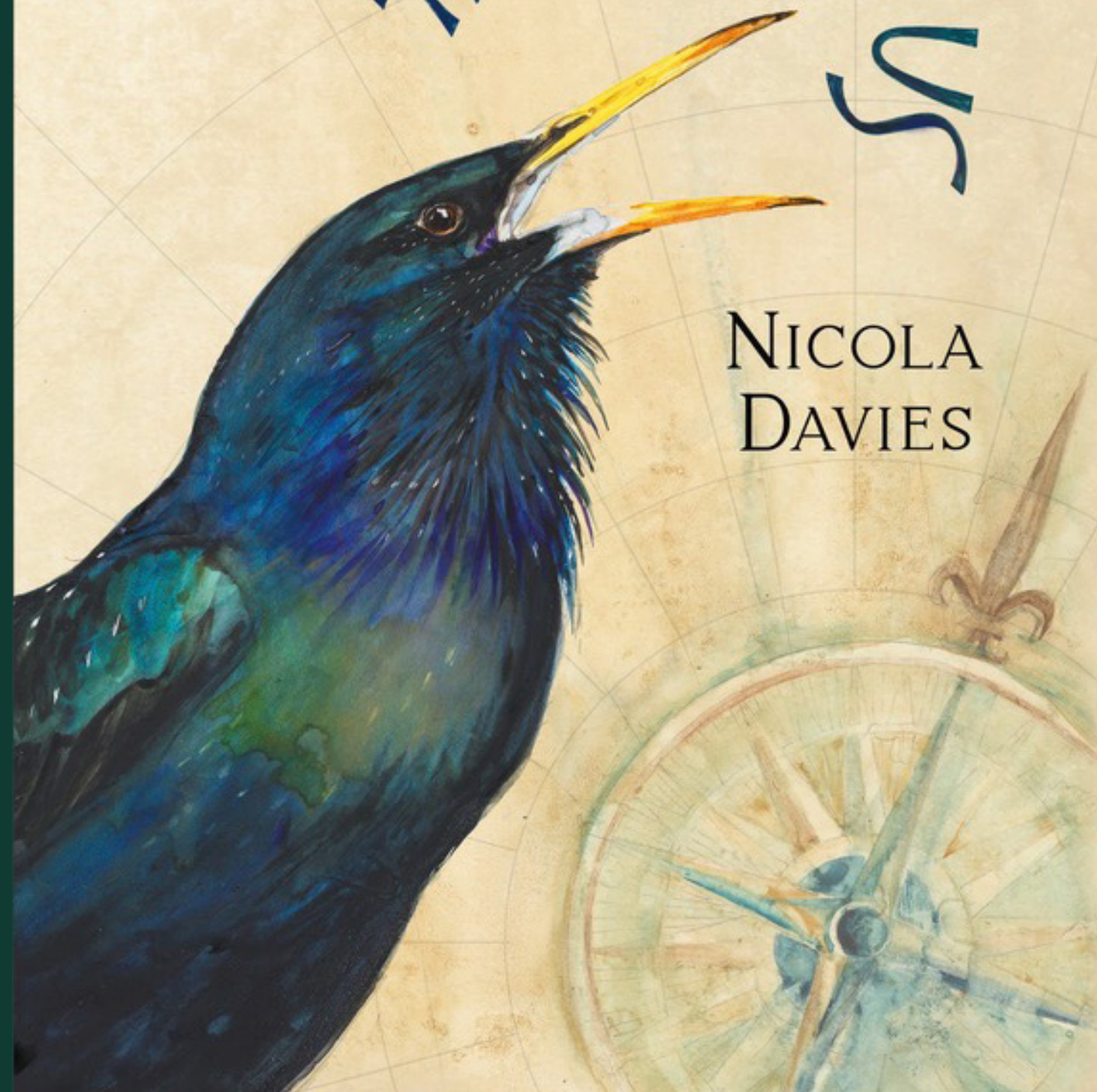
You have to read this book! You certainly won't regret it. But be prepared to cry, whether with joy or with sadness. And once you have picked up the book, turned the first page, you will not be able to put it down again until you have finished it all.

'Storytelling on the most poetic scale – strange, bloody, grand and unforgettable.'

The Guardian

THE SONG THAT SINGS US

NICOLA
DAVIES



Nicola Davies Interview

By Libby Greenhill

Nicola Davies is the incredible author who has written over eighty books! She has always loved nature and has travelled all over the natural world, seeing as many sights as she can.

When did your interest in the natural world begin?

I think I was born with it. I don't remember a time when it wasn't the ruling force in my life. My earliest memories are of flowers and sunlight, ants and worms and birds.

I know you studied zoology, can you explain a little about the journey this has taken you on?

I really wanted to be a painter but at 16 I decided that painting was supported by the rich so I couldn't morally be a painter. So, I did three science 'A' levels – biology was easy but I struggled with physics and chemistry. Luckily, in those days state school kids did their Oxbridge entrance exams before 'A' levels. I did the exam and the interview at my first choice college and they gave an offer of 3 Es! But they said go away for a year and grow up a bit. My degree course was a bit of a let-down really, although there were some wonderful lectures – but I met a Phd student called Hal Whitehead and ended up being a research assistant for his study on humpbacked whales in Newfoundland. That friendship led me to Sri Lanka to study sperm whales and has endured for more than 40 years. I've worked on Hal's boats in Mexico and in Dominica and finally got to hear humpbacks singing ten years ago in the Caribbean. I also did fieldwork on greater horseshoe bats. I was for a few years a part-time lecturer on an expedition cruise ship which took me to the Arctic, the Seychelles and Madagascar. My association with the conservation organisation World Land Trust has allowed me to travel to see their projects in Armenia, Mexico and Vietnam.

What was your biggest thrill to do with the natural world?

Oh, so hard to choose! Seeing my first humpbacks at 20 in Newfoundland, their white flippers showing turquoise through the green water. Magpie geese in Australia. Sifakas in Madagascar. Leaf cutter ants in Mexico, Emperor angel fish cruising the reef in Indonesia (I learned to scuba a few years back – my 60th birthday gift to myself) ...so many things close to home: the Manx shearwaters we see skimming the waves here in Pembrokeshire, the common dolphins that sometimes bow ride and the choughs that fly over me when I'm kayaking.



What is your favourite animal and why?

I couldn't really choose one and the list changes all the time but today here are my top 5:

1. Fin whales...big, enigmatic and super-cool with their asymmetric colouring and white jaw on just one side.
2. Rosy footman moths ...tiny and perfect, really heart-singing little beasts.
3. Wolverines ...because they will take on anything and are utterly determined. I gathered great

stories about them before writing 'Song', including an account of one seeing off an axe that someone had thrown at it.

4. Hyacinth macaws...I've only seen them in captivity but their size (they are MASSIVE) and that gorgeous combination of lavender and lemon.

5. Giraffes....seeing these in the wild was a massive thrill...they move so gracefully and are strangely hard to spot amongst the acacia trees...I also had one right next to my teeny hire car in Nakuru National Park. It drank from a puddle by my car door, then put its head through the window to look at me...ah, those eyelashes!

What was your motivation for writing 'The Song That Sings Us'?

I've written a lot of non-fiction celebrating the natural world and hoping that people would take the hint about the need to take care of it. I wanted to be more direct, and oddly writing a fantasy novel allowed me to say things about politics, about our culture and how it damages nature, that I couldn't have said in non-fiction. So the story is part love song, part battle cry, its message is of the unity of all life and that we should not see ourselves as separate from nature.

When did you realise your interest in writing?

I was a passionate reader as a child, I lived in the pages of books and between the leaves of trees. I loved poetry because my dad recited it to me all the time. I still remember the Keats and Longfellow that he knew by heart. So, I've always liked the magic tricks that words can perform. But there were no writers or artists in my family – miners, steelworkers, my mum a physiotherapist and my dad a food technologist. So artists and writers were like beings from another world. I didn't think I could really BE one. But when I worked in television, I began to write bits of script, and then a lovely TV producer gave me my first shot at a whole kids TV series (Superbods) and that started me on the road to books, also via short pieces for BBC Wildlife magazine.

Do you have a favourite book you have written and if so, why?

I've written more than 80 so it's hard to choose! 'The Song that Sings U's would have to be a contender because all my soul went into that story and into the way I wrote it. 'Every Child a Song', a picture book about children's rights, and 'The Day War Came' would compete for a place too because of the material they deal with for small children and the understanding they have brought for adults too. But with a gun to my head and just one choice, it would have to be 'The Promise' because it encompasses care for nature with personal transformation and hope, and has a child in a desperate situation at its heart. It seems to speak to people across ages and cultures and has been published in multiple languages and has a life in animation now and opera.

Who was your childhood role model?

Jane Goodall, the legendary conservationist. She is still my total hero. And Gerald Durrell whose books I devoured as a child and whose work for conservation was extraordinary.

What advice would you give to a young naturalist?

When I was 16 my parents bought me a book about all the animals that would be extinct by the year 2000. I think just one of them is actually gone. So, hope, and keep fighting. Remember that even if we lose 40 % of all species then we still have 60% and every single one of them is fascinating and lovely. Look at the small things as well as the big things and take delight in the way things fit together and how life is resilient. Also... learn to identify plants! Every year I say 'I'm going to learn my British grass species' and I never do...maybe next year?



The Ten 'R's

By Rose Fulton

You have probably heard of the three 'R's – reduce, reuse and recycle – but did you know there are actually ten? The ten 'R's (as listed below) are all ways of minimising waste and becoming more sustainable. You don't have to do them all at once, maybe start with one or two and add the others in slowly so there aren't too many changes to your daily routine. One drop of water can't sustain a plant but a bucket full can sustain many. In the same way, one person striving to become sustainable won't change much, but if we all work together we have the potential to make the world a better place.

Regift

If you are decluttering and have a boot full of stuff for the tip, think twice, and 'regift' it to a local charity shop or wrap it up for a birthday or Christmas. Don't be scared of letting things go – if you have been given a birthday present that you don't need or want, pass it on to someone else who might find it useful. By reducing what goes into landfill, we reduce what is made new, and so fewer resources are being taken from the environment, benefiting both the planet and the population (that means you!).

Reduce

Cutting down on the amount of things we buy wrapped in plastic can also help. Once you start looking, there are so many alternatives to plastic such as tooth-paste tablets in a metal box instead of paste in a plastic tube, or milk in glass bottles from your local dairy farmer.

Refill

When you have finished your plastic bottle of water, refill it instead of throwing it away. It's as simple as that!

Repair

If something breaks, don't bin it, fix it! (See 'The Repair Café' article in this issue).

Refuse

Go shopping prepared with reusable cloth bags so, if you are offered a disposable plastic one at the till, you can just say 'no'!

Repurpose

Is your step ladder too wobbly to use? Do you need somewhere to display your pot plants that are currently taking up way too much space? Repurpose and put the plants on the ladder – space-efficient, easy to water and nice to look at! Or, when a t-shirt has lived out its days, you could cut it up and use the pieces as dish rags (for example). The list goes on!

Reuse

Reusable cloth shopping bags, reusable water bottles, reusable lunch boxes, reusable pens, reusable mugs...

Revamp

Revamp your holey old jeans with funky patches and stitching, or paint the kitchen chairs if they're looking a bit tired. There are so many opportunities to revamp and stop something going to waste!

Rethink

Rethink how you shop and try to buy items that are (1) organic, (2) plastic-free, (3) have fewer air-miles, and (4) are from a local shop. Compostable dog poo-bags are also a good idea!

Recycle

If in doubt, buy something recyclable so as not to increase the demand for 'plastic tat' (as my mum calls it)!



Photograph by Rose Fulton

Simple Switches

By Rose Fulton

Imagine a room filled with light switches, covering the door and the walls, the floor and the windows, all the furniture too. If you walked into this room, you could turn one of those switches on, maybe two, maybe more. A switch can be turned on by making a ‘switch’ in your life by, for example, switching your plastic toothbrush for a bamboo alternative or switching to longer lasting clothes instead of throw-away fashion. But first, think of a different room, one filled with every possible kind of light – ones with lampshades, ones without; some anglepoise, some not; a few warm lights, a few cool – everything from bedside lamps to chandeliers. This room is our future, our world, and these lights are us, the people ready to make a difference. At the moment, the room is almost completely dark apart from a small corner where a dim yet persistent glow shines across the floor. This little beacon of hope is fuelled by those willing to try and save our planet by turning on a switch. Just remember that lights can go out as, indeed, some of them do, and it is a job of work to keep them switched on, to keep the hope shining through the darkness. We must take care because carelessness, if left unchecked, can result in broken bulbs, never to bring light again. However, the possibilities (the unbroken light bulbs) are, for now, endless and massively outweigh the broken ones. Help light up our future and keep it bright for those who come after us by making a couple of simple switches. Here are some examples:

Switch from...	To...
Chemical air freshener	No air freshener!
Chemical disinfectant	Natural disinfectant eg Ocean Saver, vinegar
Chemical laundry detergent in a plastic bottle	Laundry detergent sheets eg Earth Breeze
Disposable nappies	Reusable cloth nappies
Disposable party cutlery and plates	Wooden cutlery and reuseable or recyclable plates
Disposable plastic bags	Reusable cloth bags
Disposable plastic razor	Reusable/eco razor
Disposable sanitary products	Reusable period pants
Kitchen roll	Reusable cloths
Normal loo roll	Loo roll made from recycled material
Milk in plastic bottles	Milk in glass bottles
Chemical deodorant in a plastic container or aerosol	Natural deodorant in reusable/cardboard container
Paper and notebooks	Recycled paper and notebooks

Paper cups	Reusable mugs
Normal pillowcase	Organic pillowcase
Plastic chopping board	Wooden chopping board
Plastic clothes pegs	Bamboo/metal clothes pegs
Plastic cooking utensils	Wooden/metal cooking utensils
Plastic dental floss	Plastic-free floss in a glass/reusable container
Plastic food container	Stainless steel lunch box reusable/beeswax sandwich wrap
Plastic hairbrush/comb	Bamboo hair brush/comb
Plastic rubbish bags	Biodegradable rubbish bags
Plastic straws	Reusable bamboo/metal straws
Plastic toothbrush	Bamboo toothbrush
Plastic toothbrush holder	Glass jar/bamboo toothbrush holder
Plastic water bottle	Glass/stainless steel water bottle
Shampoo/conditioner/shower gel in plastic bottles	Shampoo/conditioner/shower gel bars
Shaving foam aerosol	Shaving soap bar
Single-use pens	Refillable ink pens
Sticky tape	Masking tape
Toothpaste in a tube	Toothpaste tablets



Photograph by Rose Fulton

A Visit to a Seed Library

By George Fulton

It is worth finding out about your local Incredible Edible group. George Fulton from the Green Fuse Magazine met up with Maggie Carr to find out more. We met her in her amazing garden in Llanelli in Carmarthenshire. Maggie explained that Incredible Edible Carmarthenshire have a number of small gardens and they also support small groups who want to set up their own local garden.

Maggie is passionate about seed collecting. She collects 'open pollinated' seeds. She explained this is important because, looking at the global situation, just three seed companies own the patents of 75% of the seeds in the world. In the past, farmers would save their own seeds every year, plant them and then sell the crops the next year, again saving the seed. Seed companies are now selling something called f1 hybrids, which are crossed seeds. The plants that grow from these f1 seeds do not produce any seed that can be saved and used the following year. Seed companies have encouraged farmers, many of whom are among the poorest people in the world, to stop saving their own seed and instead to buy the f1 hybrids, with the result that the farmer no longer has seed to plant the following year but must buy f1 hybrid seeds every year. In addition, the local distinctiveness and adaptations of the farmers' traditional crops, suited to their particular locality, are irretrievably lost. Maggie explained that the farmers also have to buy petrochemical-based fertilisers, pesticides and certain chemicals because these f1 hybrids only grow well with these added. This is a serious global issue.

As a gardener, Maggie explained that she doesn't want f1 hybrids as f1 hybrids are designed specifically to all crop at the same time, so that they can then be harvested by machines. But as a gardener, she wants something that actually crops over a period of time, so that she has a rolling supply of fresh fruit and vegetables over the course of the growing season. For this reason, years ago Maggie started growing open pollinated seeds, often the old heirloom varieties. Some of the varieties have a named provenance, which means you actually know whereabouts the seeds come from, it's like a little bit of history about the seeds.

When lockdown happened because of Covid-19, Maggie explained it became really difficult to buy open pollinated seeds. She told us about a company called Real Seeds who are based in west Wales. Real Seeds sell open pollinated seeds, however when lockdown happened they were so overwhelmed with orders for seeds that in the end they opened their website for orders for only one hour a week. In that single hour, they would receive as many orders as they could deal with that week!



As Maggie was already saving her seeds, she decided to give some of them away so she set up the Incredible Seed Library Facebook page. At that time, during lockdown, her motivation was simply to give seeds away for free. In all of the 'doom and gloom', Maggie felt it was a bit of good news, a bit of a 'smile'. She said if people sent her a self-addressed stamped envelope then she would send them some seeds. Maggie explained that it 'just kind of exploded' and people started sending her seeds to give away and she soon had more people offering seeds than asking for them! Maggie described it as 'such a generous time'.

After starting the Incredible Seed Library, Maggie decided that one of the things she needed to do was teach people how to save seeds. The notion behind the Incredible Seed Library is that you are given seeds, you grow them and then you save some seeds and donate some back to the library. Maggie set up the Incredible Seed Library YouTube channel to help teach seed collection.

The Incredible Seed Library is now in its second year and will open in spring for three months when people on the mailing list will be sent a list of the available seeds. The list has all the information, including scientific names and the provenance of the seeds and who donated them. The beauty of a local seed library is that the seeds are from plants already growing successfully in your local area. Maggie and others are now part of a Seed Guardian programme to help protect seeds.

Photographs by George Fulton



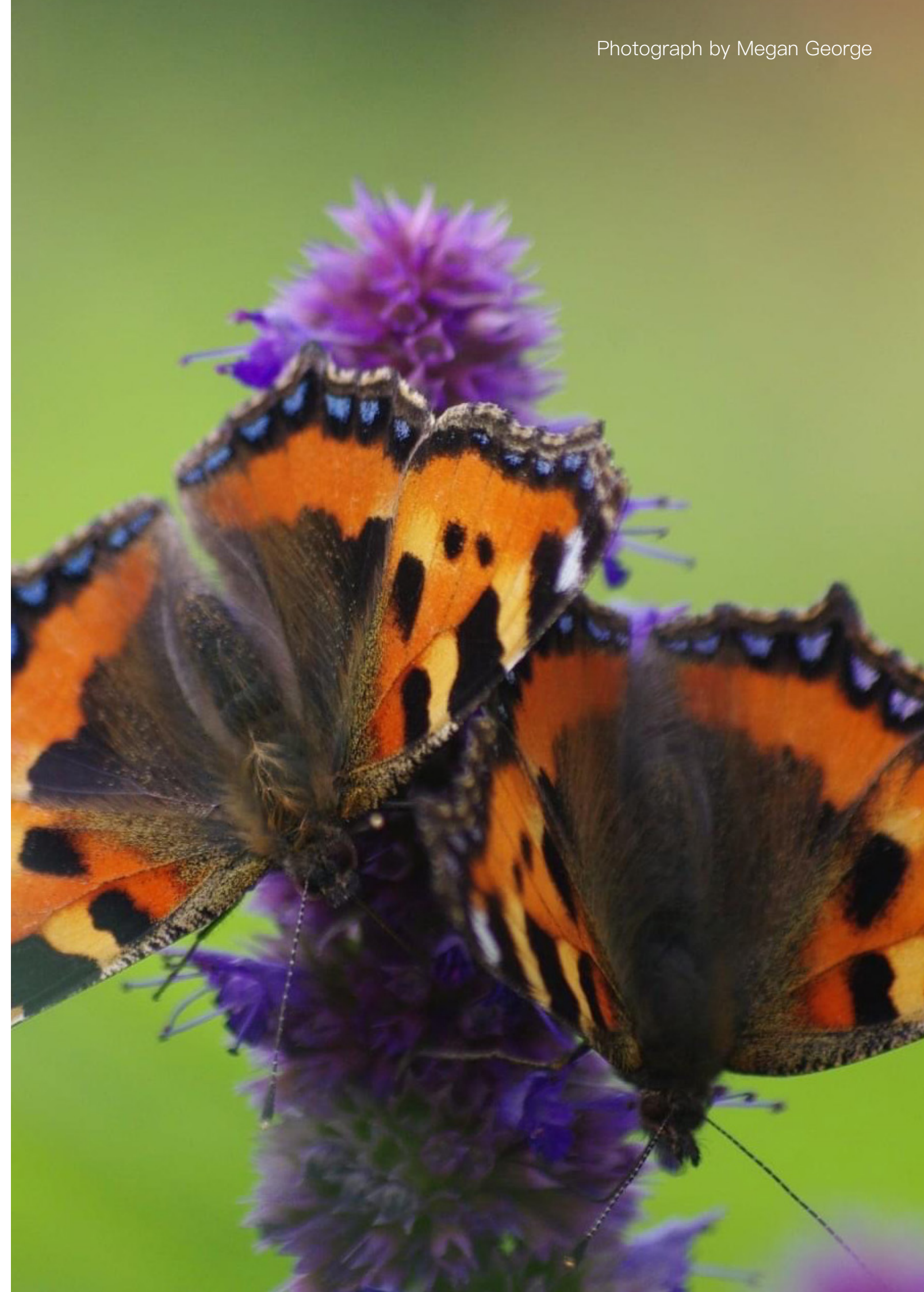
Search for Sustainability

By George Fulton

Can you find ten words related to sustainability? They can be diagonal, horizontal or vertical, but not backwards – thankfully!

1. Reuse
2. Solar power
3. Sustainable
4. Hydropower
5. Environmental
6. Green electricity
7. Wind turbine
8. Renewable
9. Recycle
10. Reduce

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Search for Sustainability Answers

s	p	e	d	b	r	r	o	l	c	s	f	v	n	b	j	a	s	o
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o	f	b	y	p	m	z	w	q	h	t	g	r	g	n	s	m	i	r
l	e	f	d	d	b	h	o	d	d	v	i	v	f	h	m	o	l	n
r	i	w	i	n	d	t	u	r	b	i	n	e	z	c	o	l	t	n





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