NATURE MATTERS

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CONTENTS

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REGULARS

FEATURES

FOREWORD

Welcome

Hello and welcome to issue 30 of NATURE MATTERS.

These are extremely difficult times because of Coronavirus pandemic and all its effects on everyday life. I hope that this issue finds you well.

This edition of Nature Matters has a great range of news items, press releases and features on wildlife and environmental issues. As ever, you can still find additional news stories on News & Media pages online.

I'm grateful to the organisations and individuals who have kindly contributed to this issue. Special thanks to Maddie Stannard for providing the cover story on Armadillos and photo of young armadillos. Thanks, too, to Victor Miyata for the cover photo.

Mike

EDITOR
NATURE MATTERS

photograph:
© VICTOR MIYATA

Armadillos

BY MADDIE STANNARD

Meaning ‘little armoured one’ in the Spanish language, their name sensibly gives rise to a range of conclusions that can be made about the armadillo, of which all species are native to the Americas. Their armour, as it is known, consists of plates of dermal bone with scutes, sections of bone covered in small horns. The bands of dermal bone plates are separated with flexible skin, although it is important to note that the underside of an armadillo is never armoured. Armadillo armour is aptly named, considering it provides protection against predators who may try to prey on these typically small to medium sized animals. The plates of bone are so strong and reinforced that armadillos actually have a lack of natural predators, allowing them to thrive and live a life of security, one would hope, across both North and South America.

It wasn’t always this way. Armadillos originated in South America, but over 2.8 million years ago, changing lands and geographical alterations meant that they spread out and populated in places they had never been before. The Isthmus of Panama, a piece of land linking South America with its northern counterpart led to the migration of some species of armadillos towards a new life in what we now know as the United States of America. Despite their progressive change in scenery, all extant species of armadillo are still living in South America, particularly in Paraguay where large numbers of these extraordinary creatures reside.

Nine-banded armadillos are prominent in the United States, despite the challenges they face as a result of their unique anatomy. Often travelling along roadsides and crossing over, when startled, they launch themselves into the air as a unique defence mechanism; unfortunately, this leaves them vulnerable to the underside of cars, meaning that many of these creatures are killed each year due to human traffic. It’s a common misconception that all armadillos can roll up into a ball to remove themselves from harm’s way, when in reality only the Brazilian and Southern three-banded species have this capability. Sadly, the armadillo’s unusual defence mechanism is what ends up putting them in danger. Although not listed as endangered in southern US states, it is a challenge facing the nine-banded armadillos and even worse, it’s not their only problem.

Interestingly, armadillos are the only animal known to be able to contract and transmit the Mycobacterium. leprae to humans; also known as leprosy. This is speculated by scientists to be possible due to their low body temperature of around 34o C; harbouring the disease. A potentially fatal disease, one that many people will go to extreme lengths to avoid being infected by. Handling or consuming their meat can cause the bacteria to be spread to humans and other animals, with serious implications. Straight away, it’s clear to see why armadillos might not

be regarded in the same esteem up close, as that which we give them from afar. What are the issues caused by these ‘pests’ for landowners and farmers, as well as their impact on populations of native animals?

There are a range. Digging up ground to create channels for themselves to travel along, and scrabbling in the earth to find insect larvae to eat creates obvious problems for landowners. They compete with animals native to the States for sources of food, potentially interfering with ecological chains of being, and have also been known to raid the nests of quails for their eggs, damaging the populations of these ground-dwelling birds. Instead of making use of local pest control services, which can humanely trap and release armadillos, some American citizens have been taking matters into their own hands…

Shotguns. These haven’t proved very useful in the direct rampages against armadillos by American homeowners and in many cases, residents have been advised by police to make use of handguns instead. What baffles animal enthusiasts is why this is necessary in the first place. There have even been reports of people being shot by their own bullets, after they forcefully ricocheted off the armour of armadillos on their land, in one case resulting in a 74 year old woman in Georgia being taken to hospital, after a bullet bounced off the armour, the mobile home behind her and finally piercing straight through her reclining chair. The bullet was fired by her son-in-law; clearly the injury to her back wasn’t directed at her, but it was a lucky escape for the armadillo at whom the bullet was aimed, and for the woman herself. It truly is a testament to the strength of their plates of armour, which allows them to survive these means of pest control. Many will perhaps share the belief that armadillos are a pest that need to be removed, and that shooting to kill is a quick and convenient way to rid their land of these animals, and minimise suffering. But when you consider that these mammals are simply living and behaving in the way they are designed to, really through no ‘fault’ of their own, it seems a senseless act when there are more humane and sensible options out there.

Animals are sentient, and it leads to questions about why humankind chooses to purposefully kill another being, often perhaps for the thrill of it. American gun laws are a topic of mass controversy, for far more sinister reasons than the one presented here. And yet, the easy accessibility to firearms for those with a license, and the legality of shooting on your own property, means that the likelihood is, shooting pests is more convenient and less expensive than turning to pest control to ethically remove armadillos. After all, why buy, when you can do it yourself?

In some senses, you can almost understand why people choose this method; but that doesn’t make it right. The hunting of animals, outside of survival needs, dates back all the way even to the Assyrian Empire, in 600 BC. Slaughtering animals for the amusement of royals, and as displays of power and strength, has traversed throughout history, with lasting effects. So many creatures, perhaps most famously the dodo, have been hunted to extinction. Though nine-banded armadillos are not listed as endangered, the fine line between stable and unstable ecosystems can quickly be crossed, and we should be doing all we can as the human race to preserve the species we have left, whilst simultaneously balancing our social and economic needs. The ideologies behind hunting are rooted in colonialism and often the patriarchy; do we get a sick satisfaction out of exerting our dominion over ‘lesser’ animals?

At the top of the food chain, humans are untouchable, but peering down the barrel of a gun presents the idea of a warped sense of superiority. Shooting armadillos is dangerous for everyone involved, and killing them as a method of pest control when there are ethical alternatives, needs to be left firmly in the past as armadillos continue their northwards expansion.

photograph: © MADDIE STANNARD

Maddie Stannard is a young wildlife enthusiast, aspiring zoologist and science communicator, with a passion for conservation, writing and activism. Her aim is to share her passion and engage people with the natural world, providing easy ways for people to do their bit for the planet and get people inspired by the wildlife around us.

Maddie has her own website and blog where she writes on a variety of topics: www.maddiestannardwriting.wordpress.com

Extinction: The Facts

Sir David Attenborough explores how with a million species at risk of extinction, loss of biodiversity has consequences for us all, threatening the supply of food and water and damaging our ability to control our climate and potentially putting us at greater risk of pandemic diseases.

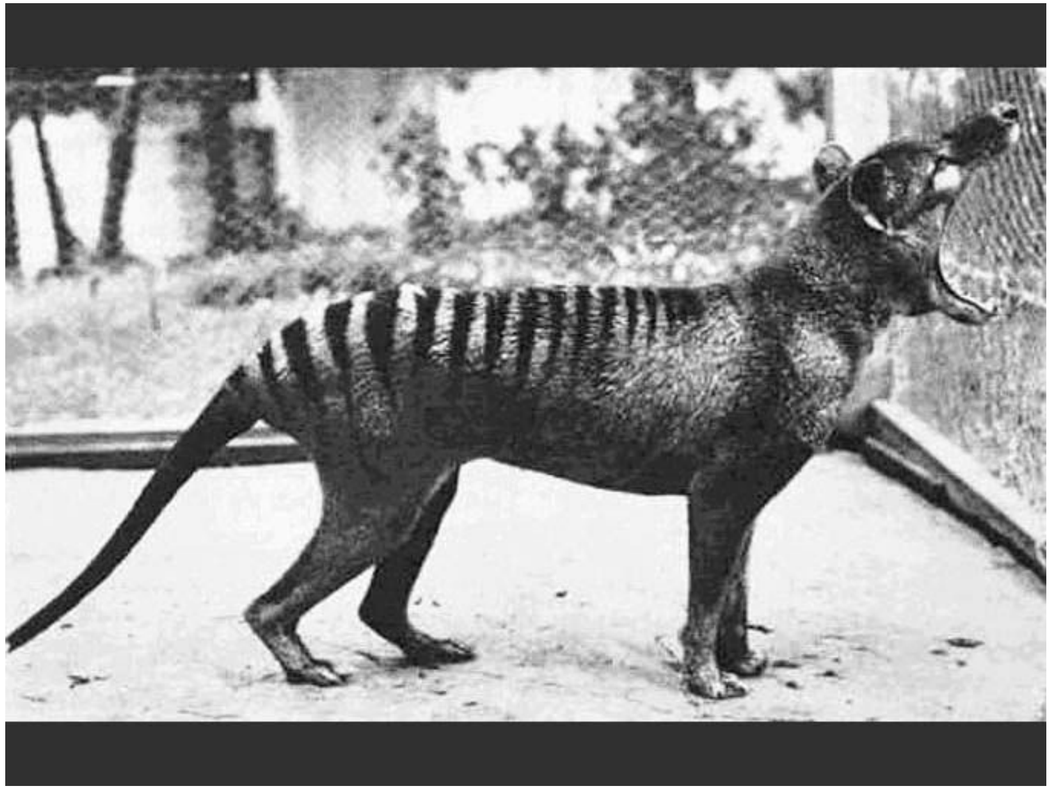
Evolution would naturally lead to some extinctions, but experts estimate that it is now happening as much as 100 times faster than this.

Everything in the natural world is connected in networks that support the whole of life on Earth. This means that many of the benefits that nature provides are also being lost to humans. The loss of insects means that crops are not pollinated, while the loss of biodiversity in the soil also threatens plants growth. Plants provide many of the things that we humans need, and yet one in four is now threatened with extinction.

Last year, a UN report identified some of the main agents of biodiversity loss, including over-fishing, Climate Change and pollution. But the single biggest driver of biodiversity loss is the destruction of natural habitats. 75% of Earth's land has been altered by humans, often for agriculture, and as consumers we should realise that species loss can occur because of the produce we choose to buy in the supermarkets.

Human activities like the trade in wild animals and the destruction of habitats can also drive the emergence of diseases and some ecologists believe that if humans fail to heed the warning signs, this year's COVID-19 pandemic will not be a one-off event.

NATURE MATTERS
ISSUE 30 | OCTOBER 2020



The largest carnivorous marsupial in modern times (standing about 2 feet tall and 6 feet long, including the tail), the thylacine once lived in mainland Australia and New Guinea. By the time of European settlement it was already nearly extinct due to human activity. In Tasmania (which provided the tiger the more common names of Tasmanian tiger or Tasmanian wolf) it lived on, with the last confirmed animal killed in the wild in 1930.

The last thylacine in captivity, pictured above, died in 1936. Throughout the 1960s, people suspected that the thylacine may have held on in small pockets, with the final declaration of extinction not occurring until the 1980s. Occasional reports of sightings of the thylacine throughout Australia continue, though none have been substantiated.

Population Matters

The United Nations has produced a series of 17 Sustainable Development Goals (SDGs) which aim to achieve decent lives for all on a healthy planet by 2030.

However, most of them are likely to be missed for the most part because of human population growth.

As editor of Nature Matters, I have regularly highlighted the issue of the high and ever increasing human population. It is the root cause of many of the planet's problems but, strangely, is almost never mentioned by polititians.

Governments the world over should be promoting smaller families and a reduction in the consumption of resources, pollution and waste.

The charity, Population Matters, considers population growth as a major contributor to environmental degradation, biodiversity loss, resource depletion and Climate Change. Its patron is Sir David Attenborough.

> more info
https://populationmatters.org

UN Fifth Global Biodiversity Outlook report

The fifth Global Biodiversity Outlook report published by the United Nations Convention on Biological Diversity (CBD) in September 2020, warns starkly that the world has so far failed to halt the destruction of wildlife and life-sustaining ecosystems.

The report provides a global summary of progress made towards the Aichi Biodiversity Targets and is based on a range of indicators, research studies and assessments (in particular the IPBES Global Assessment on Biodiversity and Ecosystem Services), as well as national reports provided by countries on their implementation of the UN CBD.

This summary highlights the key headlines from the Global Biodiversity Report, the relevance of the report for companies, and how we are working to make sure that business has a coherent and consistent voice which can help to shape the new framework at CBD COP 15.

> more info
https://www.wbcsd.org/Programs/Food-and-Nature/Resources/Fifth-Global-Biodiversity-Outlook-report-by-the-United-Nations-Convention-on-Biological-Diversity-CBD-Business-Summary

Dormice reintroductions

PTES

Dormice have become extinct in 17 counties within their historical range. They disperse slowly so even when woodland and hedgerow management improves, they're highly unlikely to naturally recolonise. So we set up a reintroduction programme to help dormice return.

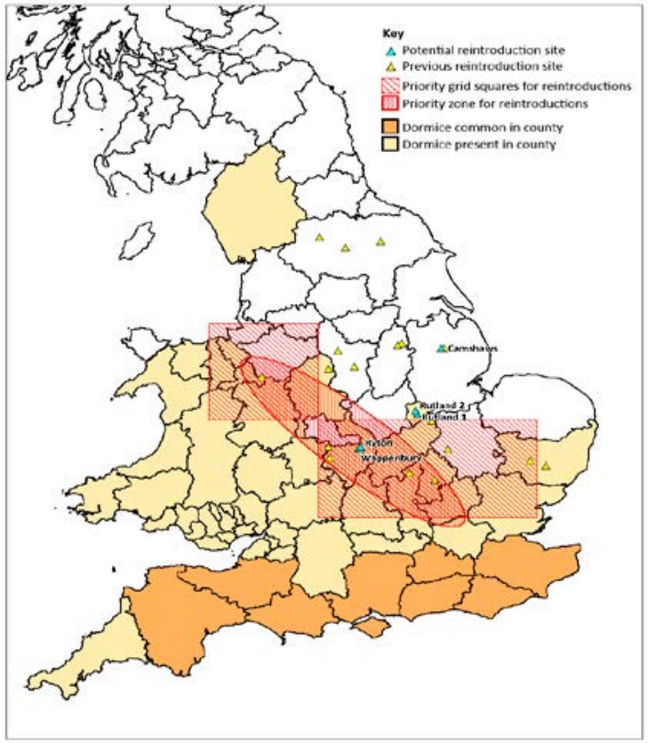
The dormouse reintroduction programme started as part of the English Nature Species Recovery Programme. The first reintroduction took place in 1993 and a reintroduction takes place approximately every year. The aim of the programme is to restore dormice to counties and areas where they have gone extinct.
The programme uses captive-bred animals supplied by the Common Dormouse Captive Breeders Group. A key member of the CDCBG is Wildwood in Kent, which breeds a significant number of dormice for the programme and maintains the Dormouse Stud Book. The Zoological Society of London (ZSL) and Paignton Zoo quarantine the animals for six weeks.

In June, after quarantine around 40 animals are placed in mating pairs in large release cages sited in the woodland and allowed to familiarise themselves with their new home. After 10 days, small openings are made in the cages so the dormice can leave their release cage. Food is supplied for two months after which they should be able to find their own.

Suitable reintroduction areas are ideally a hedged and wooded landscape of at least 100 hectares with at least two suitable reintroduction sites within it. The woodlands selected for a reintroduction will have a long-term management plan to support dormice, the potential for the dormice to disperse into the wider countryside once established, and a committed volunteer group to assist the release and do long-term monitoring.

We aim to focus the geographical location to the edge of the current range as shown on the map below.

>more info
https://ptes.org/house-a-dormouse/dormouse-reintroductions/



NATURAL ALTERNATIVES TO PLASTICS

Most of us have been blissfully unaware that microplastics are commonly added to fabric softeners, shampoos and cosmetics.

We have all seen how plastics end up in the ocean, where they are ingested by marine life, blocking digestion, affecting nutrition and working their way up the food chain, potentially to humans. Every year, Europe alone releases an amount of microplastics into the environment equivalent to 10bn plastic bottles.

Most natural alternatives to plastic require chemical additions and are based on plant polysaccharides.

There is however a company based in the UK that has found a way to replace these with plant proteins. This company is called Xampla. Its engineers have produced the next generation of bio-based material, made entirely from plant protein, enabling companies to produce products that meet changing consumer and regulatory requirements. Our science is Supramolecular Engineered Protein (SEP), developed over fifteen years at the University of Cambridge.

photograph:
© MIKE ARMITAGE

The new Environmental Land Management Scheme

Editor Mike Armitage

The Countryside Stewardship Scheme was introduced in 2015 and £85 million was set aside for it in 2016 by Environment Secretary Liz Truss.

A new scheme, called ELMS (the Environmental Land Management Scheme) will replace it and its rollout is planned over four years (2024 to 2027).

Defra aims to have enrolled 82,500 farmers and landowners by the time it is fully in place in 2028.

However, it is really important that the scheme is managed to ensure that farmers change the way they farm in favour of fostering wildlife and the environment. Funding needs to be closely linked to delivering strict and measurable targets and making a sea change in increasing levels of wildlife and biodiversity.

HydroFLEX train technology

A prototype model of hydrogen cell train has been tested on a 20 mile round trip in the Warwickshire. It was a first for the UK and the journey produced absolutely no emissions. Before now the issue has been that hydrogen has traditionally come from fossil fuels. However, it is now possible to produce it from green and suatainable sources.

The fuel cell unit is powered by hydrogen from the tanks, while oxygen is sourced from ambient air. The fuel cell converts the mixture and generates pure water and electricity up to 100kW. Electricity generated by the fuel cell will be sent to the lithium-ion battery pack. A total of 20kg of hydrogen is stored in four high-pressure hydrogen fuel tanks whose pressure is regulated and maintained at a constant pressure.

The flex traction system is connected to Class 319 traction equipment and is powered by the fuel cell and battery. Electric motors fitted on the underside of the train then drive it.

A control system is installed to oversee the management of power supply and functioning of the system.

HydroFLEX can also be operated using power from a 750V DC third rail or a 25kV overhead supply without a change in its operating system, offering a smooth transition.

The project is expected to decarbonise the British railway network by replacing diesel-only trains with HydroFLEX hydrogen cell technology.

Record year for roseate terns

RSPB

The roseate tern - the UK's rarest nesting seabird - has had a record-breaking year with 130 breeding pairs on Coquet Island, the only breeding colony in the UK.

This is the fifth year in a row that numbers have increased on Coquet Island, a steady increase from 104 pairs in 2016.

Roseate terns almost went extinct back in the 19th century because of the demand for their feathers in ladies' hats. In 1989 there were only 467 pairs in the UK and Ireland, but dedicated conservation efforts have brought them up to 2028 pairs in 2020.

This year, the RSPB celebrates 50 years at Coquet Island. Since taking over management of Coquet Island in 1970, the RSPB has used a wide range of methods to bolster roseate tern numbers such as installing nest boxes, trialling new techniques such as gull-scarers and 'aerolasers' to deter predation by other birds, minimising disturbance, and building up lost habitat.

Paul Morrison, RSPB Northumberland Coast Site Manager, said: "When I first started working on Coquet Island 36 years ago there was barely a roseate tern in sight, so it brings me real joy to see scores of them flocking back in the spring to have their chicks. Earlier this year we were able to install webcams again so people could see this wonder for themselves, and there have already been an incredible 375,000 views! We're planning to install the webcams again next year, so if you'd like to see the antics of these wonderful terns do check back next spring.

"A record-breaking year is a fantastic 50th birthday present for Coquet Island, and I want to say a huge thank you to the staff and volunteers who have worked tirelessly to help these special birds. I am truly optimistic that, with such continued commitment, we can bring roseate terns back from the brink of extinction in the UK."

These conservation efforts have been bolstered by the EU-funded Roseate Tern LIFE Recovery Project. This five-year partnership project between the RSPB, North Wales Wildlife Trust and BirdWatch Ireland focused on protecting the three remaining roseate tern colonies in the UK and Ireland while restoring five of its historical sites for potential re-colonisation, and has laid the foundation for further roseate tern recovery.

In September, the RSPB launched a new campaign to Revive Our World, pushing for legally binding targets to restore nature and deliver a green recovery across all governments of the UK. To join our mission to build a healthier, happier, nature-filled world for us all to live in, sign up to the campaign and call for targets to revive our world.

>more info
www.rspb.org.uk/ReviveOurWorld

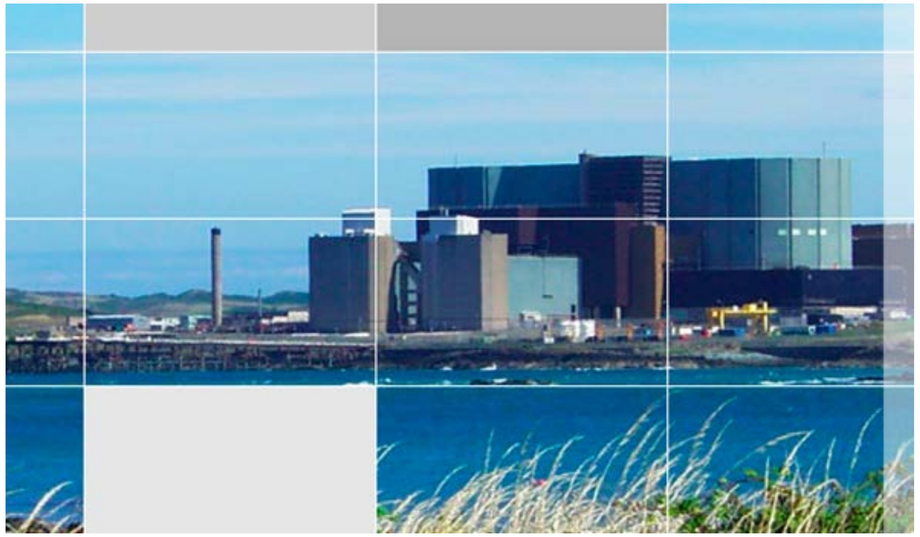
(I worked for a season as a voluntary warden on a local tern colony and found the experience incredibly rewarding - Mike, Editor).

SPOTLIGHT

NATURE MATTERS
ISSUE 30 | OCTOBER 2020

photograph:
© CHRIS GOMERSALL
(rspb-images.com)

Nuclear at Wylfa Scrapped



photograph/artwork:
© MIKE ARMITAGE

Plans for Anglesey's new nuclear power station - Wylfa Newydd - have been cancelled.

Horizon Nuclear Power (owned by Hitachi) had invested £2bn in the scheme, which, it was claimed, would have brought up to 10,000 jobs to North Wales.

As well as the huge investment, the scheme was touted as bringing opportunities for young people to get highly skilled work.

It had been said it would bring £5.7bn to the Welsh economy and Welsh Secretary Alun Cairns described the scheme as the "biggest infrastructure project in Wales for a generation".

Energy is not devolved to the Senedd, so Hitachi had been in talks with the UK government. The main sticking point was the price it would be paid for energy from Wylfa Newydd and Horizon is understood to have been at loggerheads with the UK government over the price, which had been set significantly lower than the price being paid to EDF energy from the new Hinkley Point nuclear power station.

(Since this announcement was made, there has been talk of reviving the project or considering other alternatives on the site - Mike, Editor).

photograph:
© MIKE ARMITAGE

Renewable record and new green future

RenewableUK

New figures released today by the Government show a record increase in renewable energy generation in the first half of this year, providing 46% of the UK's power needs. Wind alone generated 26% of Britain' electricity in the first half of this year, with 14% coming from offshore wind (21 terawatt hours) and 12% from onshore (18.9TWh).

The "Energy Trends" report published by the Department for Business, Energy and Industrial Strategy (BEIS) shows renewables provided 45% of Great Britain's electricity between April and June up from 36% in Q2 2019. The report states while overall demand was lower in Q2 due to the effects of Covid, renewable generation increased and non-renewable generation decreased during this period.

The Q2 stats follow the highest ever quarterly share of renewable generation (47%), recorded in Q1 this year. Renewable electricity generation was 70.9 TWh in the first half of 2020, an increase of 22% on the 58.2TWh in the first half of 2019. Low carbon (renewables plus nuclear) accounted for 62.1% of electricity generation in the first half of the year.

Coal production fell to a new record low of 0.5% in the second quarter of 2020, and accounted for just 2.4% of generation in the first half of the year.

The UK Government has just set a target that within 10 years every home in the country will be powered by offshore wind.

A green recovery with renewables at its heart will be good for consumers and jobs, as well as helping to meet the UK's 2050 net zero emissions target.

Support for new floating wind projects will ensure the UK stays at the forefront of global innovation in renewables, and provides new opportunities in the low carbon transition.

>more info
https://www.renewableuk.com/page/WindEnergy

NATURE MATTERS