



WINGHAM WILDLIFE PARK

**CONSERVATION PLAN & IMPACT
STATEMENT**

2023 (V1.0); "EYES FIXED ON VIETNAM"

Wingham Wildlife Park

Conservation Plan & Impact Statement

2023 (V1.0)

2022; Eyes Fixed on Vietnam

Compiled 23rd May 2023

By Markus Wilder

Due for review and renewal by end of May 2024

(Previous document released 27th March 2022)

Wingham Wildlife Park

Working in association with

Wingham Wildlife Park Animal Welfare

(reg. charity no. 1162346)

Other partners:



Introduction

Last year we spoke a lot about re-shuffling the way in which we do conservation and the things which we are focussing on. This change saw us bring things in, a little closer to home, with our flagship project, the white clawed crayfish hatchery. It also made us look a lot more closely at what we are doing right here in our home at the park. However, having been able to reflect inwards for the past year we have also had a chance to slow down and properly replace our Ugandan project from a couple of years ago. That is why we have our eyes set on Vietnam with a new direct partner.



In true Wingham Wildlife Park style however this Vietnamese project isn't going to be something we work on as a small cog in a conservation funding machine, nor is it a high-profile flagship species. This is going to be something a little bit different, but we won't spoil that here. Work in Vietnam will not start until 2023 as there is a lot of bureaucracy and planning to take care of first, and that was one of our big tasks for this year.

Our work here in the Kentish countryside in fact has been hampered slightly in 2022 due to staff changes within other components of the East Kent Stour White Clawed Crayfish Partnership, however we have continued to keep our hatchery stocked with individuals from Bristol, to ensure that we continue to learn, improve and make a difference to wild British crayfish.

And what an exciting difference we have been able to make to the population around Bristol since starting this amazing journey with these little British creatures.

We have even been getting more of our staff involved in hands on conservation as part of the wider European zoo community through our work with studbooks. So why don't we start our conservation round up right there and focus first on what our team have been doing to help with captive populations of conservation sensitive species in Europe as part of the wider EAZA (European Association of Zoos and Aquariums).

We work tirelessly as a team shedding blood, tears and a lot of sweat... at least when we're working on a new state of the art Reptile House... to do the best we can for conservation.

Our new Reptile House uses technology, animal training techniques and the latest methods to build an area which is going to be safe, secure and comfortable for our animals and staff alike, to allow them to work as a team and start making a difference to reptile conservation.

Our new Reptile House will allow for more fragile and sensitive species to be kept at the park, allowing us to make a more meaningful contribution to the various reptile breeding programmes which EAZA offers.

This includes a state of the art frog breeding room, space for a second amphibian room (both of these being set back slightly from the public but still visible), plenty of off show housing for rescue & emergency housing work and bigger, more natural exhibits for all the animals which call our Reptile House home. We hope that you will be as impressed as we are proud of this new part of Wingham Wildlife Park.





Ex Situ Conservation

Ex Situ conservation refers to those projects which are not carried out in the wild, so instead are those which take animals out of their natural habitat and focus on conserving them outside of that bubble. The biggest example of this is breeding and keeping in captivity.

We can keep conservation-important species in captivity for a few reasons spanning across protecting a certain population / gene pool or rescuing individuals put in harm's way, through to conservation breeding for eventual release back to the wild or even to allow us to better educate about the plight of a species in the wild. In these cases, it can be very important to closely monitor the species and their captive populations and eventual aims for those individuals. As such we participate in a few different studbooks run by EAZA. The species covered by these programmes are as follows:

- African dwarf crocodile (ESB)
- Aldabra giant tortoise (EEP)
- Amur leopard (EEP)
- Annam leaf turtle (EEP)
- Asiatic black bear (ESB)
- Barbary macaque (EEP)
- Binturong (EEP)
- Black howler monkey (EEP)
- Blesbok (EEP)
- Blue crowned pigeon (ESB)
- Bornean orangutan (EEP)
- Chattering lorikeet (ESB)
- Chimpanzee (EEP)
- Clouded leopard (EEP)
- Colobus (EEP)
- Common squirrel monkey (EEP)
- Cotton-top tamarin (EEP)
- Cuban crocodile (ESB)
- Emperor tamarin (EEP)
- Gila monster (EEP)
- Giraffe (EEP)
- Goeldi's monkey (EEP)
- Gooty sapphire ornamental spider (EEP)
- Humboldt penguin (EEP)
- Invasive marmosets (EEP)
- Jaguar (EEP)
- Lemur leaf frog (ESB)
- Linne's two-toed sloth (ESB)
- Lowland tapir (EEP)
- Mandrill (EEP)
- Mexican beaded lizard (EEP)
- Northern Luzon cloud rat (ESB)
- Northern galago (EEP)
- Pink backed pelican (EEP)
- Pygmy marmoset (EEP)
- Red handed tamarin (EEP)
- Red panda (EEP)
- Rhinoceros iguana (ESB)
- Ring tailed lemur (EEP)
- Savu Island python (ESB)
- Southern cheetah (EEP)
- Spiny hill turtle (ESB)
- Vietnam pheasant (EEP)
- Visayan warty pig (EEP)
- Yellow crested cockatoo (EEP)

However, that's not where our involvement in the international conservation community ends. We also have several members of staff who participate in studbook committees or even run their own programmes.

Markus Wilder

Is the Animal Collections Curator here at the park and has got 20 years of experience working with a wide variety of reptiles and amphibians. He has used this experience and love for paperwork to become the current studbook keeper for the **Savu Island python** ESB as well as recently having been appointed as a member of the ESB committee for the **lemur leaf frog**.



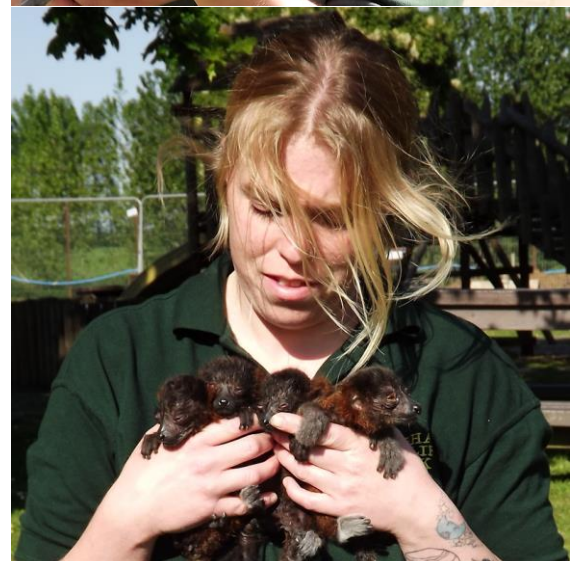
Becky Johnson

Is our Head Of Birds and has worked with the pink backed pelicans here at the park for as long as they have been here. As well as this she also spends much of her free time involved in British bird (and other species) conservation and tracking. This all made here the perfect candidate for joining the EEP committee for the **pink backed pelican** and **spot billed pelican**.



Ruth Wilder

Is our Head Keeper and has been working with primates for around 17 years, with much of this work being the delicate balance involved in hand rearing baby primates rejected by their mothers and nursing sick animals, she is even a qualified veterinary nurse assistant. Her knowledge made her a great candidate for joining the EEP committee for **mandrills**.





2022 was a great year for us when it came to white clawed crayfish work as we saw the first fruits of our labour. When bringing our last batch of crayfish to be released to the Bristol area we did some basic surveying in the release site and were able to find a couple of crayfish there. The area was unexpectedly dry due to the dry weather in weeks leading up to this, and the release was then postponed by some days. However, one of the crayfish we found (a female) was one of the ones we reared in our very first year of working with Bristol.

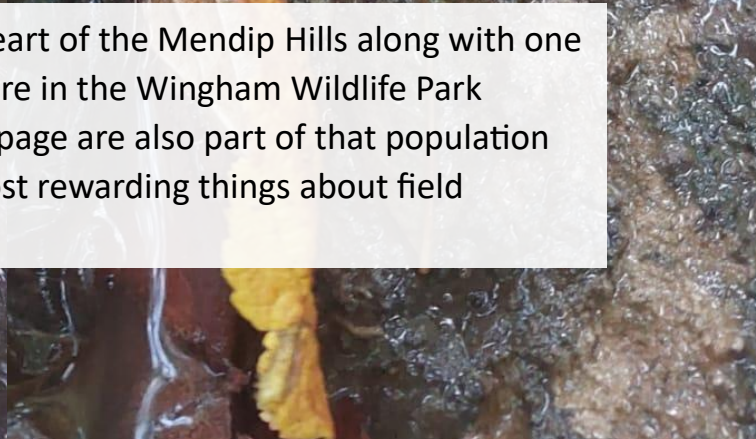
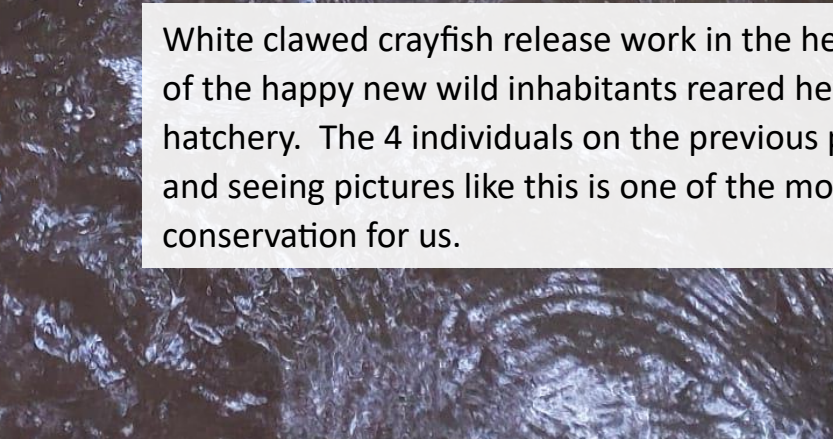
The released stock individuals are mostly tagged so that they can be identified later on in circumstances such as this, to allow us to see that individuals being reared here in Wingham are surviving once they go out in to the wild, which of course is exactly what we want.

While caring for them in our hatchery we give them a varied diet, which includes native pond and river weeds along with some of the other invertebrates which also feed on these plants naturally. This perfectly sets them up for easily being able to transition to a wild diet. Equally we change the hatchery temperatures throughout the year to better mimic what they will go through from one season to the next once they enter our natural river systems.

Crayfish update



White clawed crayfish release work in the heart of the Mendip Hills along with one of the happy new wild inhabitants reared here in the Wingham Wildlife Park hatchery. The 4 individuals on the previous page are also part of that population and seeing pictures like this is one of the most rewarding things about field conservation for us.



Lemur Leaf frog



NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	< CRITICALLY ENDANGERED >	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX



Working with the EEP for this species, which we are a committee member for, we brought a group of 14 of these frogs to the park, to live in our newly refurbished Reptile House.

The way in which we designed and built this exhibit took some inspiration from our crayfish exhibit, in that it is separate from the rest of that area, in a room which is totally temperature controlled and home to no other animals. Even the water is filtered through RO filters to ensure that it is crystal clear and free from any chemicals.

This is a very sensitive species, and their temperature and humidity must be just right. An air conditioning unit ensures that the temperature is always right (something which must fluctuate a few degrees from day to night and from one season to the next). The same applies to the rain system which runs on a timer, giving them both a dry season and a wet season.

The room contains a total of 7 enclosures, each of which is designed to house between 3 and 5 individual adults.

Just like with the crayfish exhibit we decided to keep everything in this room on display for our visitors so that they can see what goes into the care of these animals, including the RO water harvesting tank, the RO filter system, air pump for the sponge filters, heaters, air conditioning unit, rainwater system, the whole lot. We feel that when it comes to ex-situ conservation it is an important lesson to show people what really goes into the care of some of these very sensitive species.

It is thought that their population underwent a decline of as much as 80% over just a 10 year period (Solís et al., 2008) starting just prior to the new millennium and not much is known about the causes, but what we do know is that this is a very important species that needs to have a safety net built up in captive settings to ensure that it can endure as a species well in to the future.



In Situ Conservation:

Eyes Fixed on Vietnam

We have been working in Vietnam for a number of years now, however just through the support of a World Land Trust project based at a reserve in the Annamite Mountain Range called Khe Nuoc Trong. This is an area which is home to a wide range of species and will hopefully one day become the new home of the Vietnam pheasant, a species which used to thrive here.

So many animals have been hunted to extinction or the brink of extinction in this country. This has been due to a number of factors, many of which surround the topic of the Vietnam War which decimated the habitats in this once lush country but also during and after the war (in sanction times) forced its people in to hunting wildlife for food. This is a practice that continues today in what is a very poor country.

I spoke briefly about the Vietnam pheasant, and if it is able to be re-introduced in this area in the future then it too will benefit from the work being done with this project, as well species such as red shanked douc langurs, Bengal slow loris, stump tailed macaque, Siki southern white cheeked gibbons, Annamite striped rabbits, Sunda pangolins, Asian black bears, saola, Austen's brown hornbill, Blyth's kingfisher, tokay geckos, Burmese pythons, banded kraits and many more. The target species for the programme however is going to be the Vietnamese crested argus.

A mixed approach including camera trap analysis to aid with lobbying, snare removal to help with indiscriminate hunting techniques and work with local communities on both education about the animals as well as supporting alternative livelihoods will be the backbone of this project. As we had done previously with the chimpanzee project in Uganda, a multifaceted approach to conservation is always going to be the most effective. Usually a species in decline is declining due to a number of issues and it is important to address all symptoms when looking for a cure to bring the species back to a healthy population.

We will be funding specific parts of this work including equipment, consultant involvement with the project, staff contributions, bills associated with the project and even the living costs of the conservation interns helping to ensure that the project can be run successfully.



CHINA

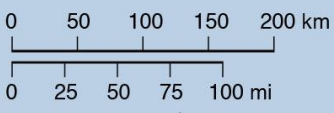
LAOS

THAILAND

CAMBODIA

VIET NAM

- ⊛ National capital
- Major city
- Town, village
- ✈ Major airport
- International boundary
- Main road
- Secondary road
- - - Railroad



WWP as a Bird Habitat

In 2021 we started making it part of the bird teams' job to record the wild birds in the park and in 2022 they did very well collecting 198,867 records (almost 150,000 more sightings than the previous year which only collected 6 months worth) between the team. Some of these may well be duplicated birds counted twice by 2 different people however we are interested to see which species come to us, where they go in the park and what they do here. We can see that 47 different species came to us in 2022 which is 1 less than the previous year, however this includes 3 species not recorded here before (blackcaps, swifts and coal tits). Species recorded in 2022 were:

Black bird	Blackcap	Black headed gull
Blue tit	Chaffinch	Carrion crow
Chiffchaff	Coal finch	Collared dove
Common buzzard	Coot	Cormorant
Dunnock	Field fare	Garden warbler
Goldfinch	Great spotted woodpecker	Great tit
Green woodpecker	Grey heron	Grey wagtail
Herring gull	House martin	House sparrow
Jackdaw	Jay	Kestrel
Kingfisher	Linnet	Long tailed tit
Magpie	Mallard	Mandarin duck
Mistle thrush	Moorhen	Pied wagtail
Redwing	Ring necked parakeet	Robin
Rook	Song thrush	Sparrow hawk
Starling	Swallow	Swift
Wood pigeon	Wren	

The list above shows all 47 species with their UK conservation status being indicated by the text colour. Species listed in black are invasive, green are not endangered, amber are declining in the UK and Europe, whilst red species are seeing a severe decline and are globally threatened (Stanbury et al., 2021).

This year we have 12 amber list birds at the park rather than the 14 spotted here last year however that's not all bad news because the grey heron has come off our list because they have been removed from the amber listing (we still had them in the park this year), the common gull however hasn't been seen at the park this year. The number of Red List species recorded at the park remains the same as last year. It is good that we can give them refuge here

with some of these such as the house sparrow and starlings being some of our most spotted birds. Amongst birds feeding at the park, we have recorded 3 of our Red List and 11 of our Amber List species (although I am not sure about the validity of the feeding records for the sparrow hawk and kestrel so may be 9 species out of 12).

The much lower but more exciting number of course is that of breeding sites and we were able to record nesting sites for 4 Amber species (and 4 recorded with juveniles being reared on site) and 2 Red species nesting on site (and 3 species bringing their juveniles here).

With 28 sightings in the park this year was a record year for Kingfishers at our site as they come in to feed on our top lake, usually circling round and entering the park & lake from a north-westerly direction.



Citizen Science

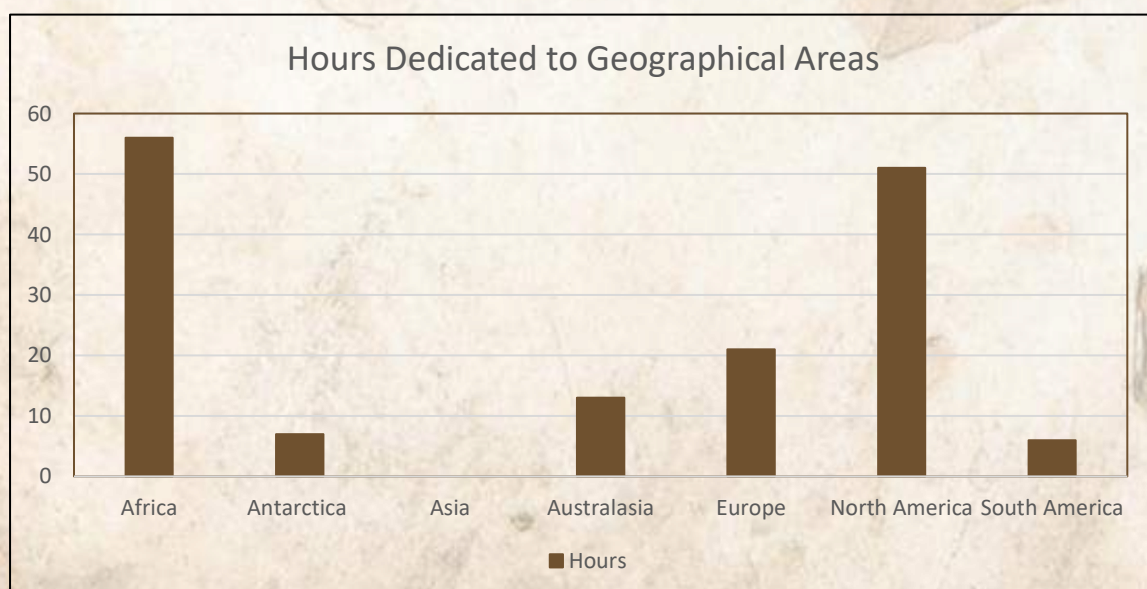
As well as providing staff time for helping run very important ex-situ conservation breeding programmes, we also provide staff time for the research side of conservation. We provide this as allocating 1 hour per week, for each of our animal records & education staff to dedicate to citizen science projects. These projects must be conservation based but can be in any country, focused on any species and either in-situ or ex-situ projects.

Whilst we give our staff a fairly free hand in which projects they choose, we do like them to be in either areas we work in ourselves or focusing on giving our expertise for projects which are equally important but less attractive than things such as camera trap image interpretation.

So you're probably wondering what citizen science is and why we think that our contribution to these projects actually makes a difference to the scientific community and conservation as a whole.

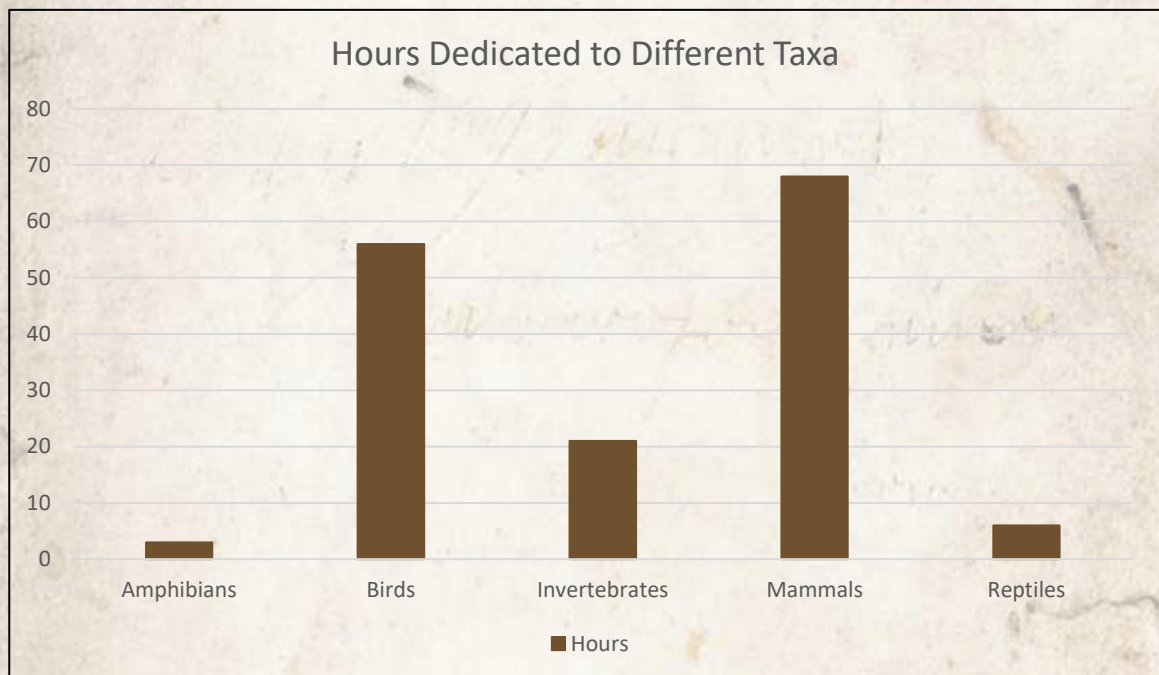
And that's a very valid question!

Citizen science has been a growing area in the scientific community with more and more institutions taking it up. There is always the concern that there will be data entry issues because that is essentially all these projects are. However, research has shown that there is not a significant increase in severity or regularity of data entry mistakes for citizen science projects over those entered by paid for professionals (Kosmala et al, 2016). It's also a very valuable resource for the scientific community with a set of 388 citizen science projects having been assessed in 2014 which accounted for a researcher wage saving for data entry of as much as \$2.5 billion in total (Theobal et al, 2015).



We try to ensure that our time is spread across a wide range of taxa and geographical areas, however it is natural for people to be drawn to various iconic areas and species, as well as these iconic species and areas often being more popular for researchers to begin with. An example of this is African safari studies which are most popular amongst our staff, however for the future we will have to try and seek out some more South American and Asian projects.

Around 50% of the world's species of plant and animal can be found in Asia (Suneetha et al, 2010) and Latin America (Moyer, 2018), so it seems strange that we were only able to spend around 7 hours on these areas.



It's always a similar story when looking at different taxa purely because mammals are more appealing than reptiles for example. This applies to the public but also researchers (perhaps because that's where the funding money is more easily accessible).

We did cover 86 hours looking at mixed species projects. However, most of these are camera trap projects in places like Africa and the USA, where the vast majority of things distinguishable on a camera image will be mammals and birds (although mostly mammals). As such we have taken this number and divided it equally between mammals and birds to reflect the more appropriate spread of hours. It is unlikely that in such images people would be able to distinguish any invertebrates and seeing things such as ground frogs and geckos etc is very unlikely. We were pleasantly surprised by the number of hours spent on invertebrate research however.

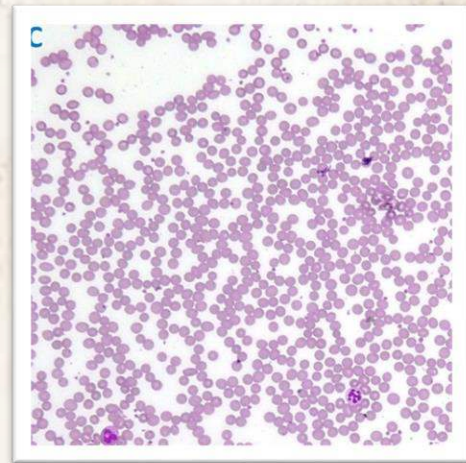
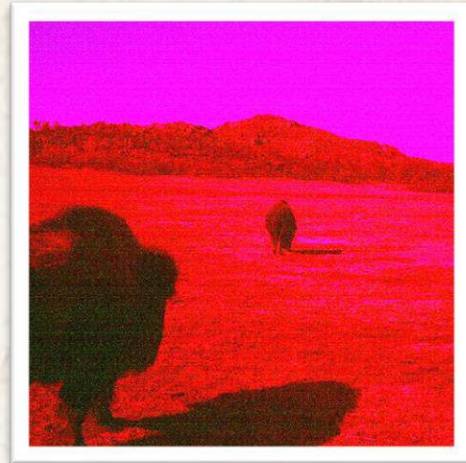
Organiser	Title	Focus	Hours
Amazon Cam	Amazon Cam Tambopata	Terrestrial and arboreal biodiversity monitoring along the Tambopata river in the Peruvian Amazon.	1
ASPIRE Center	The Wild Southwest	Help wildlife managers in the southwestern US assess populations of native and invasive species!	1
Birdlife Australia	South Coast Threatened Fauna Recovery Project	Identifying the unique and wonderful wildlife and feral predators that occur within south coast of Western Australia.	3
Butterfly Conservation	The Big Butterfly Count	Butterfly census count for the British isles taken part as part of the national event and results submitted.	3
Chicago Wildlife Watch	Chicago Wildlife Watch	Biodiversity monitoring in urban Chicago, USA	3
CREA Mont-Blanc	Wild Mont-Blanc	The Research Center for Alpine Ecosystems (CREA Mont-Blanc) wishes to identify all the different animals caught in hundreds of thousands of camera trap images across France's Mont-Blanc massif.	1
eMammal	eMammal Project	Data entry checking, identifying and confirming species ID to allow for behaviours to be attributed to these species for different times of the year comparing wild to captive animals.	3
Frog Find	Frog Find	Frog Find uses frog sounds recorded from streams, ponds and wetlands to work out who is calling where.	2
Georgia Costal Research Site	Marsh Explorer	The goal of this project is to advance our understanding of salt marsh ecology by providing researchers with large amounts of data on the distributions of marsh plants and animals.	2
Iberian Camera Trap Team	Iberian Camera Trap Project	Population change and biodiversity monitoring in Parque Nacional de Donana, Spain.	7
Iguanas from Above	Galapagos Aerial Pics	Population size estimates for marine iguanas along the Galapagos coastline.	4
JAWF	Cache Creek Study	Habitat and policy improvement through identifying biodiversity near wildlife trails in Jackson, Wyoming, USA.	6
London Natural History Society	London Bird Records	Digitising historical bird data within a 20 mile radius of St Paul's Cathedral, London to improve knowledge of bird numbers and biodiversity including the effect which the development of London has had on these.	5
Monkey Health Explorer	Monkey Health Explorer	Counting cell types in rhesus macaque blood from individuals from Cayo	1

		Santiago, Puerto Rico to see how health impacts their behaviour.	
Mpala Research Centre	Prickly Pear Project Kenya	By classifying the animals in our camera trap photos, you are helping us to understand the impacts of Opuntia so that we can predict and manage them more effectively.	5
Myall Lakes Project	Dingo Bingo	Dingo behaviour and movements in the Myall Lakes area.	5
Nature up North	North Country Wild	With the North Country Wild project, we seek to know more about the wild animals in northern New York State	1
Notes from Nature	Big Bee Bonanza	Transcribe, measure, and document important bee data.	11
Notes from Nature	Digitizing Biological Collections in Canada	Agriculture and Agri-Food Canada (AAFC) maintains collections of living and preserved biological material. These add up to millions of physical holdings of insects, plants, fungi, bacteria, and nematodes. The aim is to transcribe the labels from our collections, to bring this biodiversity data online and available for research and discovery.	1
Notes from Nature	Terrestrial Parasite Tracker	Digitally capture vector and parasite collections to help build a picture of parasite host-association evolution, distributions, and the ecological interactions of disease vectors which will assist scientists, educators, land managers, and policy makers.	3
NRS	Snapshot Stebbins	Biodiversity monitoring in the Stebbins Cold Canyon Natural Reserve, USA.	1
PCNAF	Chimp & See	Chimpanzee social and behavioural study to support evolutionary science.	14
Penguin Watch	Wild Egg Hunt	Monitoring global penguin population levels in over 100 sites.	7
Project Rattlecam	Rattlesnake Behaviour	Female and young rattlesnake observations to identify social behaviours, water sources and predators.	2
PSMSL	UK Tides	Assessing tide data starting from 1860 to monitor tide levels and potential natural impacts around the UK coasts.	1
Samo Fund	Wildlife of LA	To identify biodiversity and population density of wildlife in relation to levels of urbanization around the Santa Monica Mountain National Recreation area.	7
Seabird Watch	Seabird Watch	Images taken throughout the year to determine chick survival, breeding success, causes of chick mortality and how environmental conditions affect	1

		things like arrival dates and fledging dates of British Seabirds.	
Smithsonian	Invader ID	Tracking marine invertebrates to help identify changes in coastal environments.	1
Snapshot Hoge Veluwe	Hoge Veluwe	Biodiversity and population change monitoring in the Hoge Veluwe National Park, Netherlands.	1
Snapshot Mountain Zebra	Snapshot Mountain Zebra	Biodiversity monitoring in the mountain zebra national park, South Africa	1
Snapshot Safari	Snapshot APNR	Biodiversity monitoring in the Associated Private Nature Reserves adjacent to the Kruger National Park in South Africa.	3
Snapshot Safari	Snapshot Grumeti	Biodiversity monitoring to strengthen support for the continued existence of the Singita Grumeti Game Reserve and Serengeti National Park, Tanzania.	3
Snapshot Safari	Snapshot Karoo	Biodiversity monitoring in Karoo national park, South Africa	2
Snapshot Safari	Snapshot Kruger	Biodiversity monitoring in the Kruger national park, South Africa	3
Snapshot Safari	Wildcam Gorongosa Camera Traps	Biodiversity and population monitoring in the Gorongosa area being re-wilded.	10
Snapshot Wisconsin	Snapshot Wisconsin	Biodiversity monitoring in woodland located in Wisconsin, USA	5
The Cricket Wing	The Cricket Wing	Understand the evolutionary causes and consequences of parasitism in crickets on Hawaii, and how urbanization may threaten the livelihood	3
The Greater Bilby Sanctuary	The Greater Bilby Sanctuary	Bilby use of feed sites and water sources during drought periods to allow conservationists to find ways to support threatened species during such times.	1
University of Saskatchewan	The Arctic Bears Project	Mapping behaviour and movement of polar bears, black bears and brown bears in the USA and potential changes associated with climate change.	1
Wesselman Woods	Wesselman Woods Wildlife Watch	Monitoring urban wildlife throughout the seasons at Americas largest urban woodland.	2
Western Shield	Western Shield Camera Watch	Nocturnal biodiversity monitoring in the jarrah forest of Western Australia.	4
Wildwatch Kenya	Wildwatch Kenya	Giraffe monitoring in Kenya including movements, numbers, behaviour and other biodiversity around them.	15
Yooper Wildlife Watch	Yooper Wildlife Watch	Biodiversity monitoring in the upper peninsula of Michigan, USA.	3
Total Hours			159

A total of 159 hours were spent this year on 43 different projects!

We mostly use the Zooniverse website to carry out our projects and all of the following images are from that site, with the respective projects owning the rights to them, however they are great examples of the variety of projects on offer and that they might not always be as fun or straight forward as they might sound!



Conservation Research

Citizen science isn't the only way in which we support the scientific community in trying to benefit conservation. We also support a wide range of research projects through a number of different approaches. This is best seen by looking at the range of different research projects by students and professionals which we supported in 2022:

Institution	Title	Level
University of Suffolk	Trends in Venomous Snake Holdings in UK Zoos and Causes	Student
University of Nottingham	Giraffe Nutrition in Collections within the United Kingdom	Student
Universite de Montreal	Anonymous retrospective study about the conservation of chameleons in zoological institutions	Post graduate
Nottingham Trent University	An investigation into how enclosure usage for a group of captive mandrills (<i>Mandrillus sphinx</i>) based on social ranking affects behaviour	Student
Randers Regnskov	Reproduction in jaguars with a focus on the male	Professional
WWP	Can long term social network analysis be used to aid with implementing pre-emptive captive management processes and husbandry alterations to combat seasonal stressors in a group of captive giraffes, including but not limited to animal movements, losses and introductions	Professional
WWP	Can long term social network analysis be used to aid with implementing pre-emptive captive management processes and husbandry alterations to combat seasonal stressors in a group of captive chimpanzees	Professional
WWP	Food preferences of the scarab beetle (<i>Scarabaeus sacer</i>) in captivity	Professional



EAZA BIOBANK

As well as this direct research we also continued our support of the EAZA BioBank project which sees us taking biological samples whenever we perform an autopsy at the park or are already taking a sample for medical reasons (in the form of blood only). In 2022 we submitted 55 samples spanning across 25 different species including giraffe, tiger, pygmy marmoset, barbary macaque, howler monkey, orangutan, chimpanzee and more.





Considering the EAZA biobank has become an important step in our veterinary practices and ensures that we can send a set of samples to Scotland for storage once every year. It is an extra cost added to our veterinary programme, however when ever we have an animal under anaesthetic it is a very important opportunity to be able to take a little extra blood for the biobank. Equally when ever an animal sadly passes away we have to perform an autopsy and when doing so, while harvesting samples for further testing we can also use this opportunity to take a liver sample for the biobank.

We keep these samples in a dedicated freezer in our veterinary room until we have a decent number of items to send off, which is done using specialist packaging making it, usually, our most expensive postage consignment of the year.

Conservation & Our Ethics

Conservation is something which we must do as part of our zoo licensing process, however it is far deeper rooted than this within the ethics of who we are and how we work as a whole, from animal care and building practices through to energy production and gift shop stocking.

When you strip back everything we do, we are at our heart still a family run business and as such need to make regular decisions to juggle profitability and sustainability because we can't explore and improve the latter without the former. However, we strive to be as sustainable as the business allows because we cannot preach those same messages, saving the environment or protecting the oceans if we do not always strive to do what we can to also "walk the walk".

Waste Management

Zero to landfill

Most of the commercial recycling companies available to us, do not take "contaminated" recycling which could be as simple as just having 1 sandwich or full bottle of fizzy drink in a bag of recycling waste. As such we do not try to split recycling here, instead sending it to Veolia waster services who are able to sort and re-direct all the waste to ensure that 0% of the waste we produce goes to landfill.

Composting

Due to the very nature of our work, our residents produce a huge amount of biological waste, from uneaten fruits & vegetables, discarded feed ingredients like eggshells, through to bedding and animal waste. What this does mean, is that we are able to produce a compost heap which we can use to create usable compost for our gardens.

Bug garden watering

Our Bug House uses a lot of water (with the majority of this being rainwater as we will explain later) however even once this runs through our aquatic systems it is not then discarded without thought. We use this water to irrigate part of the bug gardens outside the building, with most of it being used to feed the ivy and rose bushes. These are 2 very important plants in the gardens for providing habitats as well as feeding opportunities for many different species.

Infrastructure

Sustainable heating & energy

We continue to use a lot of sustainable heating and energy systems and practices here at the park, always looking to improve on these. In fact we installed a new solar energy system on the roof of the refurbished Reptile House which was commissioned in the middle of December to help power this beautiful new building. Reptiles naturally are a species which require a lot of electricity in their care, so this system will make a big difference to how this building can run.



Other systems which we use are biomass boilers for heating, ground sourced heat pump system for heating in the Reception Building and more solar power on the Play Area Building.

Sustainable building practices

The Reptile House build is an excellent example of this pledge we make to ourselves too, ensuring that when we undertake a new build, we do not cut corners which could help a building be more sustainable both at the time of building and in the long term operation.

We always use timber which is FSC certified and ensure that we use a high-quality insulation in all builds for the floors, walls and ceilings. Especially for a build like the Reptile House which has to use a lot of power to heat it throughout the whole year, it's important to ensure that we don't waste power by having used sub-standard building materials. Each enclosure in there also has its own power supply and thermostatically controlled heating with timers for the lighting. This way it is all run as automated and efficiently as possible.

We have even mastered the art of making fake trees and rocks using cement and other materials in order to avoid having to take natural materials.



Recycled park benches

A number of years ago we made a commitment to no longer use wooden benches in the park. This is for 2 reasons. The first is to ensure that even though we use FSC certified suppliers, we reduce timber use as much as possible and second because each bench we buy from Marmax has been made from recycled plastic bottles. In 2022 we purchased 37 new benches.

Rainwater usage

To ensure that our crayfish have the cleanest water, especially when it comes to chemical contaminants, we use rainwater for their tanks. This way allows us to easier and more efficiently treat the water. It is better to add minerals in to rain water than chemically remove things from tap water. We can then also use this same water a second time during water changes to ensure that it is not wasted, instead being used to irrigate the Bug Garden.

Buying

Palm oil

Palm oil is such a big conservation topic, and it's such a misunderstood one too. Whilst in an ideal world we wouldn't cut down any forests to grow vegetable oils, the damage has already been done and of all the vegetable oils, this one actually yields the most oil per acre of plantation. As such, as far as destructive oils go, this is actually the least destructive and the key is to supporting sustainable and well managed plantations rather than cheaper sources working against or at the edges of the law. We try to make people aware of this with a poster available for free to local businesses.

Sustainable toys

The toy industry is still lagging quite a bit when it comes to sustainable toys, especially outside of the plush market. We are making good progress with the sustainable plush products but still struggle to fill the shelves with good quality, affordable products that are sustainably produced in the plastic / vehicle / pocket money markets etc.

Sustainable forestry products

We use a lot of wood during building however ensure that all of our timber is FSC certified or similar, and have also started to adopt this practice in to other forestry products, such as paper, packaging, animal bedding and biomass fuel.

PALM OIL: THE LESSER EVIL



Palm oil is the world's most widely used vegetable oil, found in around 50% of supermarket shelves & has been around for over 5,000 years. Demand grows as the human population grows so let's learn how to use it sustainably!



KNOW YOUR **RSPO** CERTIFICATES & LOGOS

RSPO (Roundtable on Sustainable Palm Oil) is the leading authority on ensuring that palm oil is produced in a responsible manner, however their certificates can be a little bit difficult to follow. If you ever want to be certain - members submit their palm oil figures each year, including sustainable volume.



If you want your supply chain to be truly sustainable when it comes to palm oil then this is the level you want. It is for Identity Preserved and Segregated supply chains which insures that 100% of the product is from sustainable suppliers and that at least most of the process is traceable.



Mixed certification applies to the mass balance system of procuring sustainable palm oil. In this system, as long as 95% of the palm oil is sustainable, it does not matter where the other 5% comes from. For a large international producer of ice creams, this 5% may still be as much as 70 tonnes per year.



The Green Palm initiative supports the book and claim system where by a company can buy their palm oil where ever they like, pay a premium and thereby off-set their bad Palm Oil. This oil is 0% sustainable.

A palm oil boycott is *not* the way! What we all need to strive for is products with less oils & fats in them, while ensuring that those oils and fats are produced in the most sustainable way.

In 2020 around *60 million* tonnes of palm oil products were used from *21 million* hectares of plantation. The second most productive oil is sunflower which would need *84.5 million* hectares to produce 60 million tonnes.



Environmental Sustainability Policy

Wingham Wildlife Park is committed to promoting sustainability, concern for both the local environment & the consequences of our actions further afield and ensuring that these same principles which we preach govern our own actions and the management of the park.

Where ever it is practicable for us to do so, we aim to follow and to promote good sustainability practice, to reduce the environmental impacts of all our activities and to help advise our visitors to do the same, giving them a truly encompassing educational experience.

Principles

Our Sustainability Policy is based upon the following principles:

- To comply with, and exceed where practicable, all applicable legislation, regulations and codes of practice.
- To integrate sustainability considerations into all our business decisions.
- To ensure that all staff are fully aware of our Sustainability Policy and are committed to implementing and improving it.
- To minimise the impact on sustainability of all office and transportation activities.
- To make our visitors aware of our Sustainability Policy, and encourage them to adopt sound sustainable life practices.
- To review and continually strive to improve our sustainability performance.

Practical steps

In order to put these principles into practice we will strive to follow the actions below. However due to the nature of our business it can be difficult in some cases to uphold all the principles below. For example whilst travel by road across Europe to bring a new animal to the park may not be the most environmentally friendly way to do so (versus train travel for example), what is going to be most secure and comfortable for the animal will need to take precedence over this.

Travel and meetings

- Walk, cycle and/or use public transport to attend meetings, site visits etc. apart from in exceptional circumstances where the alternatives are impractical and/or cost prohibitive.
- Include the full costs of more sustainable forms of transport in our financial proposals, rather than the least cost option which may involve travelling by car or air. Where the only practical alternative is to fly, we will include costs for full air fares rather than budget airlines in our financial proposals. Where possible such flights are to be picked primarily on the distance covered (with direct flights where possible), in order to lessen the carbon footprint of any one trip.
- Avoid physically travelling to meetings etc where alternatives are available and practical, such as using teleconferencing, video conferencing or web cams, and efficient timing of meetings to avoid multiple trips. These options are also often more time efficient, while not sacrificing the benefits of regular contact with partners.

Purchase of equipment and consumption of resources

- Minimise our use of paper and other office consumables, for example by double-siding all paper used, reusing spent forms etc. as scrap paper (for telephone messages etc) and identifying opportunities to reduce waste.
- As far as possible arrange for the reuse or recycling of office waste, including paper, computer supplies and redundant equipment.
- As far as possible arrange for the reuse or recycling of restaurant waste, including paper serving trays & plastic cutlery and redundant equipment.
- Reduce the energy consumption of office equipment by purchasing energy efficient equipment and good housekeeping.
- Outdoor benches and picnic tables to be purchased from suppliers producing them from recycled plastic – new wooden benches are not to be ordered.

Construction and refurbishment

- WWP ensures that new buildings and refurbishment projects comply with relevant building regulations and where possible are compatible with sustainability principals and best practices such as BREEAM. This includes the continued use of:
 - Floor, wall and ceiling insulation.
 - Eco roof beams (with reduced wooden components).
 - "Eco-board" made from recycled plastic to replace wooden boards where possible.
- As many new builds as possible are to be connected to new or existing bio mass pellet burning heaters.
- Where appropriate new builds are to be planned with a planting aspect in mind as well.

Working practices and advice to visitors

- Undertake voluntary work with the local community and / or environmental organisations and make donations to seek to offset carbon emissions from our activities.
- Make our environmental sustainability policy available to view on our website.
- Even though all of our waste on the customer side goes in to single unsorted bins, our waste contractors sort this waste with 0% going to land fill. It is important for us to use signage to explain to visitors of this process, to encourage recycling.

Sustainable Palm Oil Usage Policy

It is thought that palm oil is represented in around 50% of packaged food goods, and thanks to EU legislation in 2011, companies must state in their ingredients not only that they are using vegetable oil, but to specify which type. However it is still possible for palm oil usage to be disguised using terms such as:

Palm oil kernel, palmitate, cocoa butter equivalent (CBE), cocoa butter substitute (CBS), palm olein and palm stearin.

If terms such as the above are used, there is a fair chance that their attempts to disguise their use of palm oil will equate to them not using a sustainable source of palm oil. Sadly most companies don't advertise clearly that they use palm oil from sustainable sources and as such it can be difficult to make an informed decision.

This is however a subject which we are passionate about and as such in 2018 changed our policy to actively seek out documentation from all of our food suppliers to be able to trace our palm oil usage.

As a result we are able to confidently claim that as of 2018 our catering facilities use sustainably sourced and certified palm oil in 100% of our products. Please read our sustainable palm oil use policy below to see how we have done this:

Sustainable Palm Oil Use Policy

Last Updated 25th August 2019

What is palm oil?

Palm oil is a vegetable oil which is derived from the fruit of the oil palm (usually the African oil palm, American oil palm or maripa palm). The two types of palm oil are palm kernel oil which is extracted from the central seed / nut of the fruit and palm oil which is extracted from the pulp of the fruit.

Why is palm oil considered to be so bad?

Palm oil is considered to be a negative by various organisations and people, for a variety of reasons. We will just be looking at the environmental impact.

As demand for this oil has increased as both a cooking oil and as a bio diesel, plantations have been popping up and replacing the rainforest in all tropical countries. When you fly into places such as Kuala Lumpur for example, from the sky you approach a beautiful, lush green paradise, and it is only on closer arrival that you notice that it is palm plantations as far as the eye can see. You wonder to yourself why it is so bad to have this lush vast landscape, until you realise that barely anything nests in these trees and barely anything can eat the fruits and leaves. Having stood in such plantations ourselves, just a few miles away from the rainforest, the difference in the sounds you can (or can't) hear is astounding. Oil palm plantations look beautiful but are devoid of most wildlife.

It is not just the long term affects of the plantations being where they are which are a negative associated with the process, but to plant these palms, acres upon acres of rainforest are cut or burned to the ground with no regard for the animals which may still be in these areas of the forest.

How is sustainable palm oil different?

Sustainable palm oil is exactly the same product however it must adhere to a number of rules to be classified as being sustainable including being given specific licenses by the government for the land use, minimising environmental impact, supporting wildlife crossing through or living around the plantations and using old farmland rather than converting areas of forest. This last one is the most important and impactful.

Shouldn't we just ban palm oil?

This seems like the logical step if production is so harmful for the environment, however it is possible that other vegetable oils could be even more harmful. In terms of productivity levels per hectare of crop, oil palm is the most productive vegetable oil crop available today with the next one behind this being coconut, which is only 45% as productive as oil palm. Soybean oil (which has around 23% of the vegetable oil market, often grown in the USA) fares even worse, being only 7% as productive as oil palm.

There is the argument that these crops can be grown elsewhere in the world and as such production would not be limited to tropical countries, however if palm oil were banned, these producers would need to grow something else instead, taking up even more rainforest space.

Finally it is such a huge part of the economy in the countries who produce it that even if the UK, Europe or even a combination of Europe and the USA were to ban the products, the Asian market is still the largest in the world for the consumption of palm oil, and this market is unlikely to be banned locally.

Palm oil is the lesser of many evils, and the focus needs to be on making current palm oil practices as sustainable, controlled, accountable and productive as possible to ensure that the damage which the industry has made remains stable where it is and does not get worse.

What is Wingham Wildlife Park doing to help?

Wingham Wildlife Park only uses products which contain either sustainably sourced and produced palm oil, as certified by the RoundTable on Sustainable Palm Oil or which use alternative (and still sustainably sourced – such as local alternatives) vegetable oils.

However, we go one step beyond this and not only look at the certificate but also at the application which these companies send to RSPO where they have to declare how much of their palm oil is sustainable and how much is not. We do not assume that because a company is certified that 100% of their palm oil is sustainable, as this is not the case.

What we do is look at the RSPO Annual Communications of Progress and find section 2.2.5 which will tell us all of the palm oil and palm kernel oil which they used for that year. We then go to the next page and look at the table 2.3 and add up the figures in rows 2.3.3 and 2.3.4 (telling us how much mass balanced palm oil & palm kernel oil and how much segregated palm oil & palm

kernel oil they used in that year). This number should be equal to the number in 2.2.5. If it is not, then it means that less than 100% of their palm oil is sustainable.

Example:

Nestle in 2017 submitted a report which stated that they used 459,236 tonnes of palm oil and palm oil products in that year (315,099 tonnes of palm oil and 144,137 tonnes of palm kernel oil). They then said that they used 82,801 tonnes of segregated palm oil and 6,430 tonnes of palm kernel oil making a total of 89,231 tonnes of sustainable RSPO certified palm oil in that year. This only accounts for 19% of their palm oil used.

As a result we do not stock any products by Nestle which contain palm oil and why we stopped selling our best selling chocolate bar, the Kit kat.

We are also supporting a campaign by Wingham Wildlife Park Animal Welfare (WWPAW), registered charity number 1162346 to firstly encourage the UK's major supermarket chains to only use 100% sustainable palm oil in their products using the method given above, and secondly encourage the RoundTable on Sustainable Palm Oil to change their certification standard to make it easier for consumers to know how sustainable their purchases are.

This campaign is done using an online form which people can complete and automatically send an email to these organisations on behalf of members of the public. We host this online system for them on our website.

What more does Wingham Wildlife Park aim to do for the future?

At the moment we count mass balance as acceptable in our sustainability policy however feel that it is simply an excuse which does not tackle the problem. It allows companies to use a mix of sustainable and unsustainable palm oil, paying an extra levy on the unsustainable palm oil allowing that sustainable palm oil to be used elsewhere at a lower rate, again as mass balanced. It is thought that this way all of the sustainable oil is still used to encourage sustainable growers, however also does not do anything to discourage the unsustainable palm oil, allowing users of palm oil products to take the "easy route" as opposed to the "moral route".

Once more work has been done to make people and companies aware of this through our work with WWPAW we wish to remove mass balance from our stocked items, however at present this is proving too difficult to do, especially when working alongside our plastic policy. We are trying to decrease our single use plastic usage and at present the only companies selling cakes with only certified segregated palm oil for example are those which are individually wrapped.

Balancing business and sustainability is a difficult juggling act and we hope that through our advocacy work with WWPAW that this juggling will become easier and more practical.

What can you do to help?

For the average consumer it is very difficult to know just how sustainable your goods are, however, a great place to start is to look for the RSPO logo on items you're buying or to search for RSPO members on their website.



Look out for this logo next time you do your shopping!

World Land Trust reforestation site in Vietnam as a product of the funding we already provide and a model for what we can achieve in Khe Nuoc Trong



Our Achievements & Impact Summarised for 2022

Whilst the body of this reporting document no longer puts the impacts we have or the work we have carried out over a year into headings, we will splice the impact summary in to these original headings we always used. These were habitats, communities, animals and ethics. In many instances each individual project is unlikely to fit neatly in to just one of these headings, however the summary report is a much easier to follow list when a broader category is used. We did however also this year decide to combine the habitats and communities categories as there is always a major cross over between the two.

Habitats & Communities

Our bird team spend part of their day documenting all of the birds which they see in the park throughout the day, which is information we collect to count species and activity as well as passing this information on to visitors on an information board allowing them to see the types of species they can expect to see at the park on any one day.

This was our first full year of carrying out bird surveys at the park with a total of 198,867 records collected this year (meaning in the past 18 months we have made just over quarter of a million records of birds at Wingham Wildlife Park.

In 2022 we had 47 species visit the park including 8 species listed in the Red List of British birds and 2 species in the Amber List. Some of these species even fed, bred and reared their young here on our site. Some of our most common species in fact are Amber and Red Listed species including the herring gull, house sparrow, starling and moorhen, all of which had sightings in the 10s of thousands while species such as the dunnock, song thrush, wren and field fare racked up 4 digits.

We make it our mission to help bird and insect life in the local area by providing refuge, feed areas and plenty of flowering plant life to support these species on our grounds.

At the park (in the back of house area, behind the wolf enclosure and also mostly in our Bug Garden) we have 29 bird boxes & roost areas (increased by 1 since last year although we have also sadly lost a damaged owl box), 2 bird baths (same as last year), 2 bird feeders (same as last year), 13 bat boxes and 8 mixed insect houses, with these latter 2 not being recorded but having been present last year.

Whilst the impact these have on birds in particular can be seen above in the bird count review, our efforts were substantially hampered in 2022 due to the length of time the country had bird flu restrictions placed upon it, which meant that we had to do the opposite of what we usually do, by discouraging birds from the site.

For a number of years now we have worked in Vietnam, doing so with the World Land Trust. They work in this area with a local partner and whilst we have continued this work in 2022 through fund raising as always, we have also been in touch with that local partner ourselves to add another dimension to our work in the country.

Whilst work has not yet started on this project we have laid all of the groundwork for a new conservation initiative for the Vietnamese crested argus in the area of the Khe Nuoc Trong reserve. We have signed a memorandum of understanding with Viet Nature and work is due to start in 2023 to help this beautiful bird species in the wild, a first for this species.

We continue to fundraise for World Land Trust, specifically for their project at Khe Nuoc Trong reserve through the Silent Aviary exhibit here at the park. Since COVID restrictions have been lifted people are spending less time turning left at the end of the Rainforest SOS exhibit, instead heading right and going into the Orangutan & Giraffe House. As such there are less people seeing this fund-raising opportunity. We were however still able to raise £513.32 during 2022 for this project.

Animals

We continue to increase our efforts to aid with the running of international breeding programmes to improve the genetic diversity of species in captivity. By doing so we are always striving to increase our support for the wider conservation community, especially through our work with associations such as EAZA and BIAZA.

Markus Wilder continues to be the studbook keeper for the Savu Island python and in 2022 we helped facilitate the movement of a number of individuals within mainland Europe. The European population has a very skewed age pyramid and many of the animals originate from just 1 or 2 locations. As such a lot of thought is going in to where the different animals are best off going. Most of the requests have by now however been fulfilled and much of the future success depends on nature taking its course and the population increasing.

In 2021 we had just 1 person who was a member of an EEP committee which was Becky Johnson on the pink backed pelican committee. However, in 2022 we had 2 more members of staff join EEP committees with Markus Wilder joining the lemur leaf frog committee while Ruth Wilder joined the Mandrill committee. Between them they are aiding in the effective running of the studbooks for 2 species of bird, 1 species of amphibian and 1 mammal species.

Between both the EEP and ESB style studbook programmes run by EAZA we currently hold 44

different species in both breeding and non-breeding capacities. During 2022 we had the following births within these programmes:

- 1 barbary macaque
- 2 black howler monkeys
- 4 Senegal galagoes

In 2021 we had planned to improve our conservation signage around the park as a way to better explain our sustainability and conservation work. We have done this in a variety of ways to focus on various topics.

In 2021 we planned to improve our conservation signage around the chimp collection box, to ensure that we make better use of an area which contained some out-dated information. It now covers all the major topics which we look at with our charity work to better inform visitors where their money goes. This also includes the addition of a new contactless donation payment point. This contactless technology is a great way to complement the collection box. Especially children like to drop pennies in to boxes and research has shown that these kinds of boxes aren't impacted by contactless payment points, which help to capitalise on people wanting to give but these days simply not having cash on them (Wilson, 2022), after all it has also been shown that cash payments have since 2011 dropped from around 21 million transactions to just 6 million by 2021, and make up only 15% of payments in the UK. As a result most people just do not carry cash with them any more (UK Finance, 2022).

We increased our sustainability signage by adding a new sign about plastic waste (particularly single use plastic bottles) to show the damage this type of waste makes while also giving examples of what we are doing to try and help. Each minute in 2017 a staggering 1 million plastic bottles were used around the world, with this number supposedly as high as 1.2 million by now (Bruchmann et al., 2021), with only about 7% of these being recycled (even though almost half are collected for recycling) (Aslani et al, 2021). Whilst our impact is seemingly insignificant, it won't be if we all try our hardest. Being totally plastic free is difficult, even we haven't managed to get there yet, but we edge closer all the time, and that's what we all need to strive towards.

As planned during the 2021 report we erected signage for our bird counts in the bug exhibit. This exhibit has a wildlife garden with signage about how to best support native wildlife and as such seemed like the best place to put this signage. It is mounted on a glass sheet with the sign being on the back so that we can easily change the content every day using paint markers allowing people to see the kinds of birds they might expect to see at the park on any one day based on what was spotted the day before.

Our flagship British species which we continue to work with is the white clawed crayfish and for 2022 we have continued our partnership supporting Bristol Zoo. At the end of the year this became very important to support one of their populations as the Bristol Zoo site was closing and their new hatchery was not yet ready to take them.

In 2022 we acquired 86 individuals from Bristol Zoo, or had them arrive late in the previous year. Out of these we had 10 die through the year. They all come to us as hatchlings and some are more fragile or damaged than others from being reared in large groups before coming to us to be separated somewhat in to smaller groups. As such we were able to grow on and release 76 individuals back in to the river systems around Bristol. During this process we also carried out some basic surveying with the team from Bristol Zoo before releasing this latest batch and were able to find 1 tagged individual from our batch which we released the previous year in 2021. This shows that the individuals we are rearing are able to go on, survive and make a difference once they are released. Towards the end of the year when that batch was released we also took in a new batch of 146 hatchlings to grow on for release in 2023.

We have a licensing commitment towards carrying out meaningful research and contributing to this field, and actually it is something which, while fulfilling in our own way, we actually enjoy spending some time on. The EAZA biobank is an important resource for researchers allowing them to carry out work with biological resources. As with every year we have also continued to give our office staff time to carry out conservation related citizen science projects.

In 2022 we sent a total of 55 samples to the Edinburgh Biobank made up of blood, liver and a couple of full specimens too. This is 19 more samples than in 2021. They covered 25 different species including 11 vulnerable to critically endangered species, which is the same number as in 2021. The EAZA biobank is credited in a number of peer-reviewed publications and as such is getting used. This biobank and similar ones are useful tools for developing things such as new genomic technologies (Segelbacher et al., 2021), disease treatment development such as for chytridiomycosis (Zimkus et al., 2018), developing assisted reproductive technologies (Bolton et al., 2022) and even to develop tools

used in the fight against wildlife crime (Perez-Espona, 2021).

During 2022 we dedicated 159 hours to citizen science projects covering a variety of species from mammals to birds and reptiles & amphibians to invertebrates. We covered a total of 42 different projects on all continents except for Asia. This means that we spent an extra 53 hours compared to last year on just over double the number of projects (42 instead of 20).

In our bid to get more involved with breeding projects, especially with our Reptile House being refurbished in 2022 we joined 3 more programmes.

For the main Reptile House, we took on a pair of utila spiny tailed iguanas, which are one of the most endangered of all iguana species. This is a relatively small iguana species and whilst the pair is older, we hope that a new exhibit may encourage some new breeding from this pair. This is an important species with low numbers in Europe and a rapidly decreasing population in the wild. Only between 3,000 and 6,000 individuals remain in the wild on an island less than half the size of Thanet, which is quickly being developed (Maryon et al., 2018).

The main Reptile House collection also saw us take on a new turtle species which is covered by an EEP in the form of the Annam leaf turtles. We took on 4 females and hope that we may be able to bring a male on board to allow us to breed this species which may even be extinct or certainly on the verge of being so in the wild, having suffered a shocking decline of as much as 99% in the last 45 years. There are thought to maybe be 50 individuals left although it has been seen once by scientists in the wild in around 65 years (McCormack et al., 2014), occasionally turning up in illegal markets (McCormack & Nguyen, 2009).

In the Reptile House, but housed in a specialist room, where most of the animals are relatively "off show" or hard to see, we brought in 14 lemur leaf frogs for a bio secure breeding programme in a fully temperature controlled room for this very sensitive species.

Ethics

We have continued to uphold our pledge to recycle and reduce waste in the park through several different projects.

In 2022 we had a waste flow into the Veolia waste management system of 49,200Kg of which 10,010Kg was cleaned and recycled, however not all waste can be recycled. The remaining 39,190Kg were diverted away from landfill, mostly for energy production.

During the year we purchased a total of 37 new recycled benches for the park.


14 of these were 3 seat sloper benches which each are made from 910 x 2-pint milk bottles, making a total of 12,740 x 2-pint milk bottles. 23 of these were picnic benches with each of them being made from the equivalent of 2,731 x 2-pint milk bottles, making a total of 62,813 x 2-pint milk bottles.

As a result, we saved the equivalent of 75,553 x 2-pint plastic milk bottles, which is a massive saving of 2,681.7 Kg of plastic diverted through recycling from landfill (Marmax, 2022).

In 2021, while looking into different methods of reducing our single use plastic on site with our catering department, we sold 69,952 bottles of drink. We have however now moved over to a mixture of reduced plastic bottle lines and using dispensers and cups for other beverages such as Coca Cola. As a result, in 2022 we sold 58,659 bottled drinks and 33,543 fountain drinks. This means that we have removed at least 11,293 plastic bottles from our waste cycle. This period included a switch over period where we were still selling both fountain and bottled drinks, but still managed to decrease the bottle consumption at the park by 16%.

We have continued our strong progress started in the previous year when we pledged to replace 100% of the plush stock in our gift shop with recycled plush products. Our pledge was to do this by the end of 2025 and we are still working to ensure that we reach that deadline with ample time. The main thing holding back the distribution in our shop at current is previous in stock items, personalised stock and the toy industry itself which is still being slow to adopt this ethic.

The numbers below are only those items in our shop which were stocked and sold during 2022 where 100% of the production materials are recycled (whether it be plastic fibre or even recycled cotton from old clothing). During this time, we stocked 250 different lines of plush toys in our gift shop (6 more than last year) and of these 156 lines were 100% recycled (92 more than last year), making this 62.5% (36.5% more than last year) of our plush lines in 2022. The eco ranges are not necessarily the most popular lines so when drilling down to actual products sold the



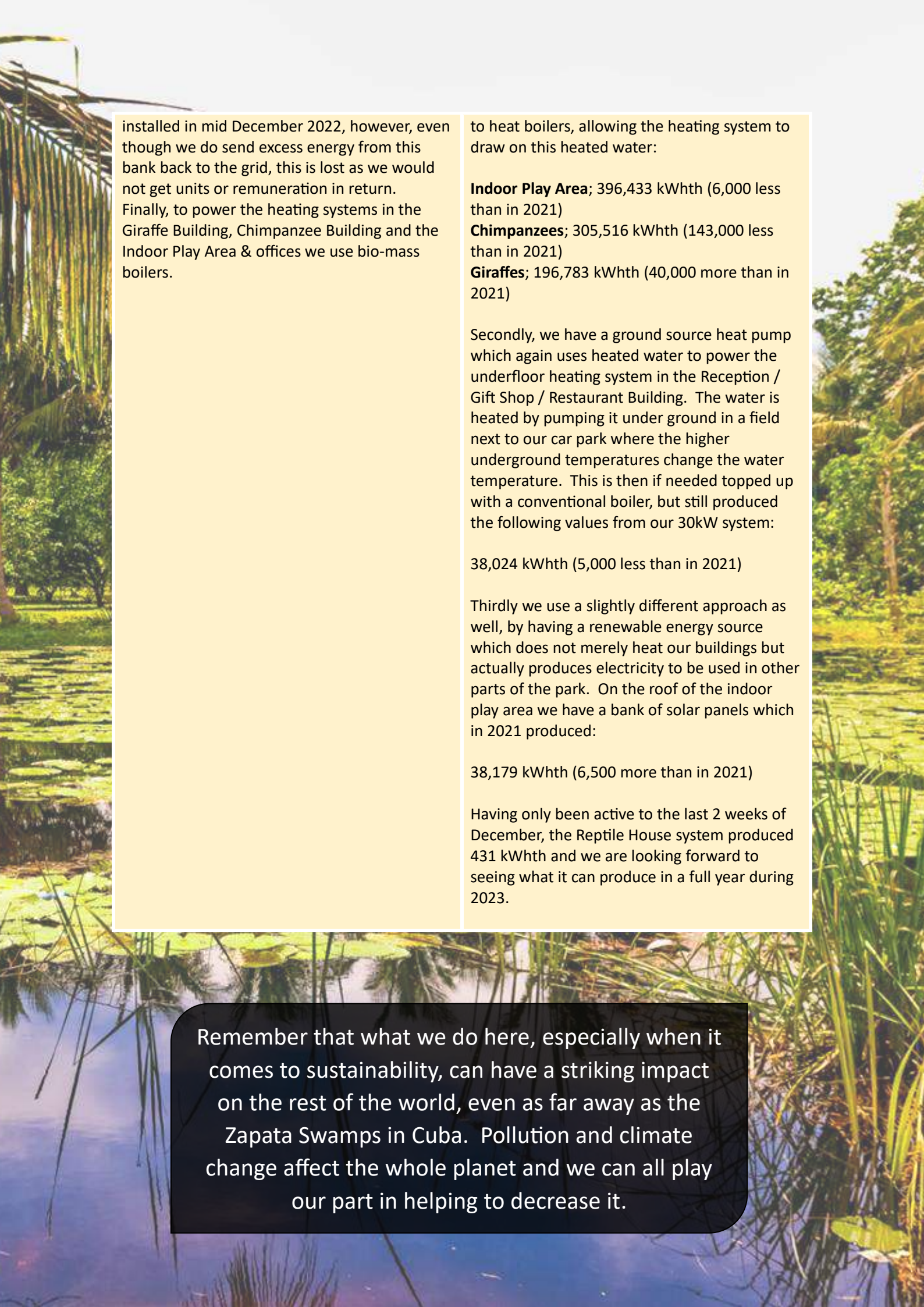
percentage drops to 9% of our total sales which was 274,469 individual plush items. As a result however we were still able to pull 24,469 individual products out of the virgin material market and in the process helping to recycle a huge volume of plastics and fabrics. This however is 1% less than the percentage which the eco range made up last year. After checking the numbers and ranges stocked we believe that this could be a cost issue as non-sustainable plush toys are still cheaper than the eco ranges for the end customers.

We are able to save water which would usually have to come from the mains water system, by instead harvesting it in barrels for use in our crayfish hatchery. When this water is then changed out periodically (as long as we do not have any signs of disease in the system), it is used to water some of the plants in the garden, which would otherwise be watered using mains water.

With this combined water saving method which cycles the rainwater which would usually be lost to the ground water any way, through 2 separate purposes here at the park and is then sent back to ground water where it would have ended up with the rain anyway. In doing so in 2022 we started with approximately 1,985 litres of water in the hatchery system carried over from 2021, however each week this was freshened up with a 10% water change over a 12 month usage period. In doing so we put a further 9,525 litres through the system. All of this water going in was then each time replacing the same volume of water coming out which was being used to irrigate the gardens. Taking this into account (a job which would usually use mains tap water) we saved a further 9,525 litres from coming out of the mains this way. In total, the volume of water which was saved from coming from mains water and being wasted, by double recycling rainwater was equal to approximately 19,050 litres which is equal to around 43,150 small cups of drinking water saved.

We have continued to use and maintain renewable energy sources at the park with 3 main types being used: In our Reception Building we use ground source heat pump to power the under floor heating. For the park as a whole we use solar energy with any unused remainder being sent back to the national grid. This bank of solar panels is located on the Indoor Play Area. We do also have a second bank of solar panels which were

A combination of modern sustainable building techniques and these heating systems means that we have managed to produce our own energy for heating, with the following consumption values having been produced in this way through 2022, rather than from non-sustainable external fuels: First we have the biomass heating systems which use sustainably produced wood pellets



installed in mid December 2022, however, even though we do send excess energy from this bank back to the grid, this is lost as we would not get units or remuneration in return. Finally, to power the heating systems in the Giraffe Building, Chimpanzee Building and the Indoor Play Area & offices we use bio-mass boilers.

to heat boilers, allowing the heating system to draw on this heated water:

Indoor Play Area; 396,433 kWhth (6,000 less than in 2021)

Chimpanzees; 305,516 kWhth (143,000 less than in 2021)

Giraffes; 196,783 kWhth (40,000 more than in 2021)

Secondly, we have a ground source heat pump which again uses heated water to power the underfloor heating system in the Reception / Gift Shop / Restaurant Building. The water is heated by pumping it under ground in a field next to our car park where the higher underground temperatures change the water temperature. This is then if needed topped up with a conventional boiler, but still produced the following values from our 30kW system:

38,024 kWhth (5,000 less than in 2021)

Thirdly we use a slightly different approach as well, by having a renewable energy source which does not merely heat our buildings but actually produces electricity to be used in other parts of the park. On the roof of the indoor play area we have a bank of solar panels which in 2021 produced:

38,179 kWhth (6,500 more than in 2021)

Having only been active to the last 2 weeks of December, the Reptile House system produced 431 kWhth and we are looking forward to seeing what it can produce in a full year during 2023.

Remember that what we do here, especially when it comes to sustainability, can have a striking impact on the rest of the world, even as far away as the Zapata Swamps in Cuba. Pollution and climate change affect the whole planet and we can all play our part in helping to decrease it.

Plan changes since 2021

Things don't always go as we plan and as such there will be times when things we had planned to do might not end up being feasible, or the timing might be off, so here are some of the things we had planned in the last year which may not have come to fruition or which might just be delayed.

~~Hedgehog Hospital~~

X - The Hedgehog Hospital is still planned for the future however due to building work within the park over the past year and waiting for funding to come in for this project we have not yet continued with these plans.

~~Crayfish Habitat Searches in Wingham~~

X - We have not had the staff time available to carry out our own environmental testing in the Wingham area to check for potential white clawed crayfish habitats.

~~Invertebrate Recording~~

X - Whilst the bird recording system is going well we have not been able to extend this to invertebrates. This is likely going to be cancelled altogether because of a lack of time for recording the results and also due to a lack of expertise of native species to correctly identify the species.

~~Carbon Footprint~~

X - We made a start on carbon footprint recording by getting a very basic level survey started however a lot more detail could be sought with more time and investment.



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Crested Argus

(Rheinardia ocellata)

Geographical Range:

Diet:

This species has a very varied diet which contains a mixture of fungi, leaves, fruits, seeds, invertebrates and bamboo shoots, but also includes amphibians and small reptiles.

Size:

2.39m long for males (however 1.75m of this can be tail) and 75cm for females, with both weighing up to 1.5kg.

Habitat:

Primary forest preferring thick vegetation. When nesting they are usually found on steep slopes and rocks.

Threats & Conservation:

Encroachment in to their habitat by agriculture and roads is adding to their decline but their biggest threat comes from indiscriminate snares and hunting with dogs for food.

Interesting Facts:

This species, has the longest tail (train) of any bird, and within that tail it contains both the longest and widest feather of any bird species. It is only the males who have this long tail. They do not use them as a display like other peafowl do.

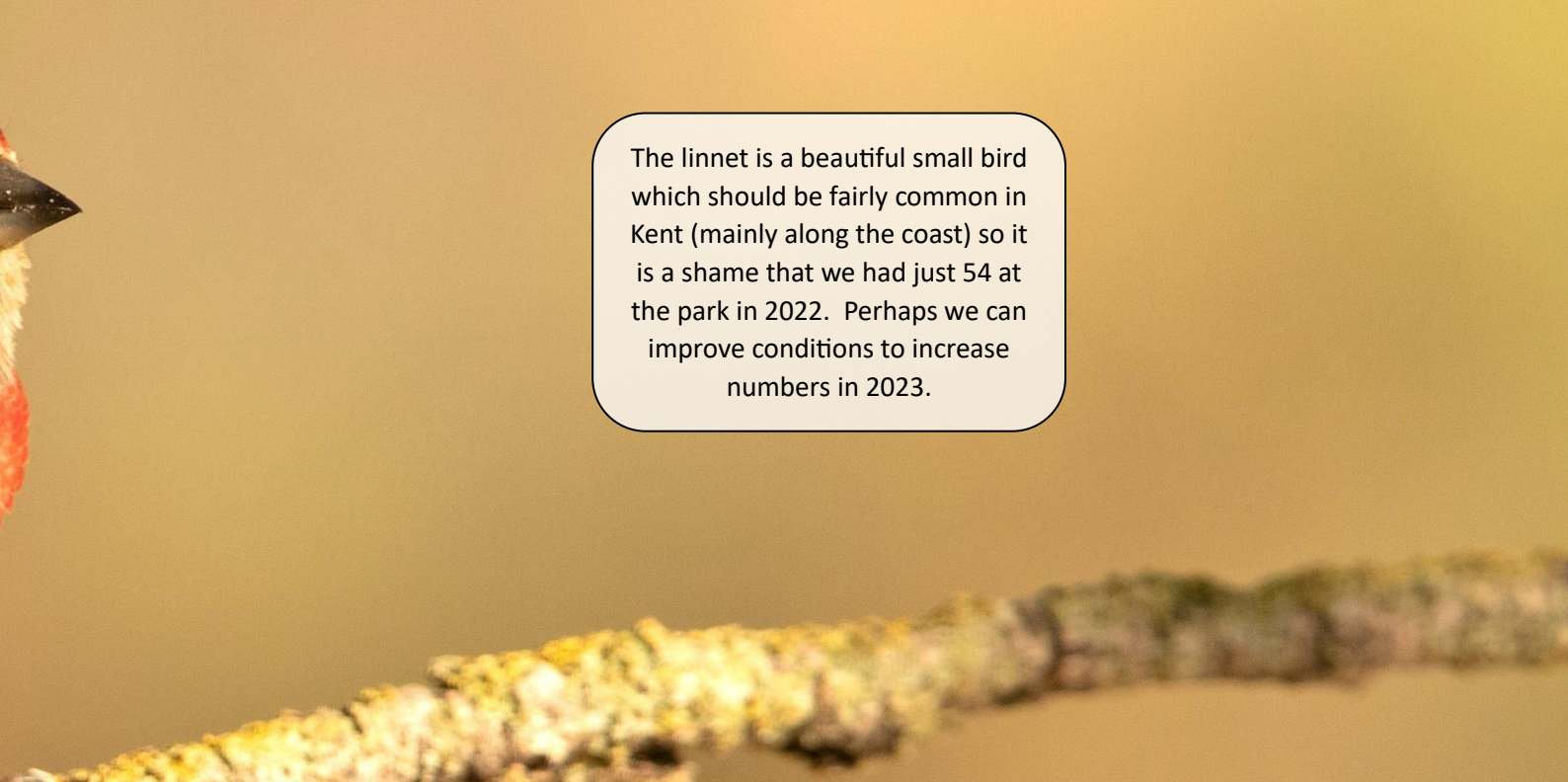


Our main conservation plans for 2023 and beyond:

1. Begin the work we have planned with Viet Nature for the crested argus, including a trip to the country to document the struggles for conservation in this area. Work to be carried out in 2023 to get this project off the ground should be as follows:
 - i. Procure 25 new camera traps to be used in the focus area.
 - ii. Each of these cameras should be retrieved, checked and replaced twice in the first year, however due to time constraints from the project starting in this year, once may only be possible.
 - iii. 6 Snare removal trips (totalling 24 days).
 - iv. Paying for 1 consultant, 1 supervisor and 4 assistants to carry out the camera trap retrieval work and supporting living costs for 3 interns for 6 months to carry out the day to day activities of the project.
2. Continue our work towards using only sustainable forestry commodities, however by the end of 2023 may be too optimistic a target and the work may be a little slower than first imagined. Certification for this is not as widely advertised as it is for things such as fair trade or sustainable palm oil, and there are more certification partners than for other industries too. We will still aim for end of 2023 but may need to extend next year.
3. Continue fund raising for the Hedgehog Hospital to allow this to be built when work within the park slows down. A higher priority project first must be the building of a new tiger enclosure to bring the cats from Sandwich Wildlife Park to Wingham. A basic plan for this building to go in the car park "Farm Shop" building is already in place.
4. Continue to work with Bristol Zoo and their crayfish hatchery while they move their work to Wild Place Project just outside of Bristol. This will likely continue until at least 2024 and will include at least 1 release cycle in 2023.
5. Carry out our own feasibility work in the areas surrounding Wingham Wildlife Park for potential ark sites for the white clawed crayfish. Areas we would like to look in to currently include the following, however as yet we do not know if any would be suitable for this species:



- i. Wingham River near the Dambridge Waste Water Treatment plant
 - ii. Wingham River near St Mary the Virgin Church, Wingham
 - iii. Little Stour near Wickhambreaux Weir
 - iv. Blackhole Dike
6. Carry out at least one Bioblitz event.
7. Continue our bird recording system and put together a plan for improved bird habitat work for 2024 on beyond, ensuring that more species can be supported at the park, while also taking in to consideration any changes to such work which may be needed to account for avian influenza.
8. Ensure that a Savu Island python studbook is released, preferably in time for the 2023 EAZA conference.
9. Continue to carry out more carbon footprint surveys. This should become something we carry out once annually, or potentially every 2 years if annually is not possible, to ensure that even at a most basic level our carbon footprint does not dramatically increase.
10. Continue our aim to stock 100% sustainable plush products in our gift shop by the end of 2025, and also to continue our work on trying to source ways to make the rest of the giftshop range more sustainable.
11. Continue our work to decrease the number of single use plastic bottles we sell in the park, or at a very least the number of lines which we stock.
12. Breed the lemur leaf frogs housed in our Frog Room.
13. Select a second amphibian species to be housed in the Reptile House for conservation breeding.
14. Make changes to our support for wild birds, especially Red and Amber List species to allow us to improve the number of these visiting the park and more specifically nesting and feeding here. The birds which we would most like to improve conditions for are grey wagtails, redwings, song thrushes, wrens, house martins and linnets. These are all species which had under 1,000 sightings in 2022, in some cases such as the linnet and house martin less than 100.



The linnet is a beautiful small bird which should be fairly common in Kent (mainly along the coast) so it is a shame that we had just 54 at the park in 2022. Perhaps we can improve conditions to increase numbers in 2023.



How you can help

If you want to help us continue to do the work we do and continue to find new ways for us to get involved with conservation, the best way to do so is to continue to support the park. What better way to support wildlife conservation than by enjoying some wholesome family time surrounded by the beautiful, happy animals at the park. By purchasing day entry tickets, membership passes, animal experiences, animal adoptions and getting involved while at the park, you help us with every pound you spend.

However, if you wanted to do more there are plenty of ways to get involved:

- Get involved in a fund-raising event of your own (such as a fun run, sponsored silence, 24-hour live stream, 3 peaks challenge etc. the number of things you can get involved in is limited only by your imagination).
- Adopt an animal at the park.
- Sponsor an animal or enclosure in memory of a loved one.
- Leave a legacy donation in your will.

In the past year the park has been busy developing and running in a post COVID lockdown season and as a result our team have sadly not been able to do much fund raising themselves, with this having been the first non-COVID year that they have not done an extended walking challenge or mud run. Hopefully next year there may be more opportunities for fund raising.



**IN 2023 YOU'LL BE ABLE TO SEE OUR SENEGAL BUSH BABIES
AND ALL OF OUR OTHER NOCTURNAL SPECIES WITH EASE IN
THE NEW NOCTURNAL HOUSE!**

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