



## 2018 ZOO REVIEW

Annual Review of the North of England Zoological Society

[www.chesterzoo.org](http://www.chesterzoo.org)



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Chairman: Bruce Ursell

## CHAIRMAN'S STATEMENT



**2**018 was a year of records, disappointments and disruption. Despite our best efforts and our research work with the University of Surrey and the Animal & Plant Health Agency we lost young elephants to the elephant endotheliotropic herpesvirus (EEHV). We continue our research to try to find a solution to this problem which is a growing threat not just to elephants in zoos but to the wild population. On a more positive note, the skill and dedication of our various animal teams was demonstrated by the notable breeding successes we have had and which are mentioned later in this review.

The professionalism of our teams was further shown in the manner in which they coped with the fire in Monsoon Forest. The emergency services were certainly impressed by them. Although we lost some of our collection, we were fortunate that the damage did not harm more of our iconic species. The zoo continued with scarcely any interruption with The Lanterns opening as usual the next evening and Islands within two weeks. Sadly, Monsoon Forest, our largest investment, which had matured into a spectacular rainforest habitat, will be out of commission during all of 2019.

We are grateful to all of those supporters who, unbidden by us, have made donations following the fire. We are fully insured so those donations will go towards various conservation projects that we will undertake to commemorate those species that perished.

Despite Brexit uncertainties, disappointing trading results on the high street and at some tourist destinations, Chester Zoo enjoyed another successful year in terms of visitor numbers, ratings and revenues. We ended the year well on track in our campaign to make the city of Chester a Sustainable Palm Oil City. We do not sit on our laurels though and whilst our main planned development goes on as in our Strategic Development Plan we have a number of notable events and openings planned for 2019. In addition to those that visitors will see, we have commenced work on a significant off show facility that is required to allow us to move species around as we develop new areas, including Grasslands. As part of those plans I am sorry to say that the monorail, after 28 years, is reaching the end of its life.

In common with my Trustee colleagues, I remain excited by our plans, proud to be involved with one of the best conservation zoos in the world and ever grateful to our superb team who continue to impress us with their dedication and professionalism.



# OUR TRUSTEES



## Chair of Trustees - Bruce Ursell

Bruce lived for five years in West Africa at the start of his career and then was based in London eventually heading two merchant banks and joining the board of a FTSE 100 company. Most recently he was a non-executive director of Standard Bank plc, during which time he was also chairman of entities managing government, World Bank and private investments into emerging markets, mainly in Africa.



## Edwin Christmas

Edwin is a property consultant and Fellow of the Royal Institution of Chartered Surveyors practising in the commercial and rural property sectors. Formerly the Estate Director at Eaton Estate, Chester, and Agent to the 6th Duke of Westminster, he was responsible for the stewardship and management of this 4,000-hectare diverse estate.



## Russell Newton

Russell was Professor of Biochemistry at Swansea University until retirement in 2008, when he was elected Emeritus Professor. He was also Lead Director of the Biomolecular Analysis Mass Spectrometry Facility. He is currently Chair of the Scientific Advisory Board of Endocrine Pharmaceuticals.



## Simon Venables

Simon is Group Financial Controller at Renold plc, having trained as a Chartered Accountant at KPMG in Liverpool after graduating from the University of Cambridge. After 13 years in audit at KPMG Simon spent four years as Group Financial Controller at Bibby Line Group. Simon chairs the Audit & Risk Management Committee at the zoo.



## Vice Chair (Mission Enabling) - Malcolm Ardron

Malcolm is a company managing director and Fellow of the Institution of Mechanical Engineers. After studying Engineering Science at the University of Oxford a career in both public and private sectors followed. He is currently Managing Director of a company providing engineering and construction services.



## Penny Coates

Former Managing Director of the Manchester Airports Group, Director of Asda and Non Executive Director of the Cooperative Society Specialist Businesses, Penny has held senior roles in retail, aviation, manufacturing and financial services. Penny is now semi-retired to allow her to focus on Non-Executive Director and Trustee roles.



## Professor Richard Griffiths

Richard is based at the Durrell Institute of Conservation and Ecology (DICE) at the University of Kent. An advocate of the powerful role that zoos can play in conservation, education and applied research, he is a member of the IUCN Reintroductions Specialist Group, and has chaired several working groups on translocation and reintroduction themes.



## David Macdonald

David is the Director and founder (1986) of the world renowned Wildlife Conservation Research Unit (WildCRU) at the University of Oxford, the world's first university-based institute focusing on wildlife conservation research. David has a strong record of public service, having been on the Board of almost every major conservation body – WWF, FFI, ZSL, WWT, RSPB and Chairman of Earthwatch. He was the founding Chairman of Natural England's Science Advisory Committee and was the Chairman of the UK Government's Darwin Initiative for a decade. Currently he is Chairman of Action for Conservation, a new education charity taking conservation into schools.



## Vice Chair (Mission Delivery) - William Beale

Will is Head of Network Operations Development, WWF UK. After working for 10 years with Unilever as a Chartered Chemical Engineer in various innovation, development and manufacturing roles, Will joined World Wildlife Fund (WWF UK) in 2003. His work focuses on developing the organisation, its processes and people, to achieve increased impact and value for money from conservation programmes.



## Sandra Donnelly

Director of Teaching & Learning and Head of Economics at William Hulme's Grammar School in Manchester, Sandra is also a senior examiner and previously served as the Chief Executive of the Economics, Business and Enterprise Association. She has co-ordinated partnerships with schools in South Africa, China and Australia.



## Angela Pinnington

Angela was a Management Consultant for almost 20 years, being a partner in a US based global organisation. She is experienced in the design and delivery of strategy, project management, business improvement and people development projects. Now working part time, she specialises in executive coaching and training with a wide variety of clients.



Dr Mark Pilgrim

## CHIEF EXECUTIVE'S REVIEW

**A** record number of visits to the zoo in 2018, just short of the 2 million mark was a fantastic achievement by everyone involved and was just reward for the enormous effort that has gone into improving the zoo, the service to visitors and promoting our reputation as a tremendous visitor attraction and global conservation charity.

Our number of yearly visits is of course an extremely important measure of our success, as our visitors provide 97% of the income we require to invest in developing all aspects of the zoo further and increasing our impact in our regional field programmes. We also hope that many of them become advocates for wildlife.

This is incredibly important as the future for wildlife continues to look bleak, the global human population has grown from 1 billion in 1800 to around 7.6 billion in 2018. This is placing an enormous pressure on wildlife and wild places. Additionally it is now widely recognised that during the last few years a tipping point was reached when for the first time in history, more the half of the world's human population live in urban rather than rural areas. While there may be many advantages to this, one major disadvantage is more and more people losing their connection to nature. Progressive zoos around the world, which are well placed in urban areas, have a pivotal part to play in reconnecting people to nature, encouraging a respect and love of wildlife and empowering people to make positive changes to protect it. This is vital, not only for wildlife but for all of us. We all ultimately depend of clean water, clean air and a healthy thriving environment in which to live; we cannot achieve this without conserving the natural world in all its complexity.

It's certainly not all doom and gloom however, we are seeing people around the world becoming ever more concerned about environmental issues including plastics in our oceans, the loss of forests and young people uniting to demand action on climate change. This growing movement will inevitably push

politicians and decision makers to ensure that environmental issues are high on the political agenda.

While the challenges may appear overwhelming at times, it is extremely important that we recognise our successes. Working in partnership is crucial to us having an impact and our highest award, the Gold medal, recognises a long term partnership with people who assist us in preventing extinction. I was absolutely delighted that our partners and founders of the Philippine Cockatoo Conservation Programme, Dr Peter and Indira Widmann, were our 2018 recipients. Peter and Indira implemented the Philippine Cockatoo Conservation Programme in 1998 focussing on a critical breeding site for the species, Rasa Island. Through their dedicated work, the Philippine cockatoo is now secured at a national level.

Throughout the pages of this annual review there are many other examples of how we are achieving our strategic objectives towards delivering our mission of Preventing Extinction.



Dr Peter and Indira Widmann receive the North of England Zoological Society's Gold Medal



Jamie Christon

## CHIEF OPERATING OFFICER'S REVIEW

**2**018 was a year of many significant highs and some low points. To exceed the 2016 record of visitations to the zoo with 1.9m of you being welcomed onto the site was a credit to all of the staff at the zoo and your continued support in our mission of Preventing Extinction.

The value of the work done here at Chester and the richness of the experience was proven yet again in 2018 with another increase in the number of members. At one point it peaked at over 115,000 but at the year end has settled at well over 114,000.

There were some significant areas of building work around the zoo throughout 2018. Oakfield House went through a major refurbishment during the winter and spring and adjacent to that we continued working on the development of a Madagascar Forest habitat.

The Oakfield, which opened in July as a pub/restaurant, has been applauded by visitors and stakeholders, and has recently won an award for its refurbished state. Madagascar Forest will open in the spring of 2019 and make a significant difference to the area of the zoo it is in.

The zoo's strategic plan continued to develop in 2018, with significant work being undertaken in the planning stages of Grasslands. This large-scale project, due to begin in 2020, has involved input from many of the zoo team.

The long, hot summer helped attract consistently high numbers of visitors and members to the zoo. This coupled with new arrivals to the animal and plant collection and the season long campaign – Wild Worlds meant many parts of the site were thronged with visitors enjoying new experiences. The prolonged periods of very warm weather tested many of our teams but as usual they rose to the occasion.

After some detailed changes in the route and content we opened The Lanterns in late November. It's sometimes difficult to get a true feeling of its success until the first visitors have walked the route, but there were some rather large sighs of relief when we saw the first sets of amazingly positive feedback on social media and in person. The capabilities of both the zoo team and our partners Wild Rumpus

ensured a special experience after every turn on the route around the zoo. The improved food and beverage offer and the opening of The Oakfield ensured a very magical night for the 90,000 people who attended the event at the end of the year.

On 15 December, a large fire broke out in Monsoon Forest. As a large visitor attraction, we often train our teams to manage both large-scale incidents and the subsequent aspects of business continuity.

Despite the training, the sight of the building, arguably the jewel in the crown of Islands, which we opened in 2015, with smoke and fire billowing from the roof was sickening.

What was text book though was the dynamic and immediate response of the our teams in ensuring the safety of the public, our staff, our animals, our reputation and our assets.

Our response teams, in conjunction with outside services including Cheshire Fire and Rescue, worked tremendously well in difficult circumstances within a complex building which housed many animals and plants. The media interest was intense and ran into the days after the fire broke out.

What was clear however was the love for the zoo and our mission. A JustGiving page was set up to respond directly to those individuals who were in touch with the zoo almost immediately pledging money and support to our cause. With over £200k raised, these funds will help develop work we do here at Chester and in the field tackling issues related to some of those species affected by the fire.

Before we ended the year, work had already begun in planning the rebuild of Monsoon Forest and although this is likely to take some time, we look forward now to reopening this amazing habitat in the future.

The fire was a significant low in what was a year of some considerable highs, and its impact has been felt by the team here at Chester, however we are determined to ensure it doesn't affect our mission and I am confident 2019 will be yet another year of achievement and progression.

Our Mission: Preventing Extinction

# STRATEGIC OBJECTIVES

Our strategic objectives continue to inform and guide our teams working towards our mission of "Preventing Extinction".

Strategic objective

1

Preventing Extinction - by achieving the greatest conservation impact.

Strategic objective

2

Preventing Extinction - by being a world class visitor attraction.

Strategic objective

3

Preventing Extinction - by providing exceptional animal and plant care.

Strategic objective

4

Preventing Extinction - by ensuring financial sustainability.

Strategic objective

5

Preventing Extinction - by developing our people to be the best.

Strategic objective

6

Preventing Extinction - by being a voice for change.



Development of "Madagascar"

## Strategic Development Plan

The SDP sets out our plans for the physical development of the zoo, reflecting our work in the world's biodiversity hotspots, as described in the following pages. It also builds on our proud heritage and current achievements to ensure that the physical site of the zoo supports our work to achieve our mission.

The plan improves infrastructure to meet the changing needs of the zoo and all of its stakeholders, including the visitors, staff, trustees and of course its animals, while keeping the zoo's unique character and values. It sets out the development of new zones: Grasslands, Forests, Foothills and Floodplains, to accompany Islands, and promises to create exciting and engaging experiences for our visitors, seeing existing species alongside those coming in to the collection, in world class habitats.

One of the most recent developments saw The Oakfield being opened to visitors in its new form, following extensive redevelopment. The Oakfield is a grade II listed house dating from the 19th century. A report by Donald Insall Architects considered its heritage and outlined proposals for its future; developed plans included a new single storey kitchen, a new Garden Room to the south elevation, and a sympathetic opening up of the interior spaces. With the work completed in 2018 we now have a stunning pub and restaurant which provides an alternative option for visitors dining at the zoo, and also gives us excellent function rooms and event spaces.



## Key projects of 2018

- Enhanced viewing of Humboldt penguins
- Goodfellow's tree kangaroo, pademelon and Prevost's squirrel habitats in Islands
- New staff canteen
- Wildlife Wood play area
- The Oakfield renovation
- Construction of Madagascar (phase 2)
- Additional office space within Cedar House



Celebration of Service event

# OUR PEOPLE

**A**t our peak in 2018 we had a headcount of 971 (452 permanent, 37 fixed term and 482 seasonal) employees in the organisation.

### Employee Relations

Working closely with the Staff Association, a number of initiatives were discussed and introduced during 2018. These included the option to buy or sell annual leave, an annual Celebration of Service event, a revised sickness absence policy and the introduction of a staff recognition scheme. We also took steps to rectify the pay differences and equalised salaries within pay grades. All employees within the same pay grade are now paid the same salary, regardless of length of service.



### Recognition

People are at the heart of everything we do and we wanted to create a really special evening for our wonderful long-serving staff who have given so much to the zoo.

More than 100 members of our zoo team with ten or more years' service were treated to fabulous food, free bubbly and a great atmosphere on a relaxed sunny June evening on Islands. The event was truly collaborative with our Food & Beverage team putting on a magnificent spread, our retail artists gave the celebrants the opportunity for a personalised "Handimal", sales & events organised the venue, IT helped with the background ambience, and security made sure everyone went home safe; to name but a few who made this a truly memorable occasion.

### Training and Development

We continue to invest more into personal growth, making it easier for managers and staff to look ahead and plan for the future. A Performance Development Planner was issued to all staff alongside our first training syllabus offering just under a 100 courses.

With ever increasing legislation comes compliance so we've focused training with sessions on cyber security, the Modern Slavery Act and the General Data Protection Regulations.

### Wellbeing

Under the banner 'Health, Wealth & Happiness' we have run Pilates classes, had 'fruity Fridays', physiotherapy back awareness sessions, pension awareness training, and held themed health events including National Walking Week. Our Occupational Health Advisor ran a very well-attended 'time to talk' event which saw people promising to make the time to talk and make a difference to someone's day, week or life.



# VOLUNTEERING

**2**018 was another strong year for our volunteer programme, with 227 active volunteers donating a record 25,548 hours between them over the year.

Alongside long-standing roles engaging visitors within Islands and across the core zoo, our visitor engagement volunteers took on new roles supporting the welcoming of school visitors at the front entrance, as well as facilitating play activities for families throughout the summer holidays. They engaged with 332,093 visitors, talking to them about conservation, Chester Zoo's work and our collections, and providing orientation and other visitor information. Taking on new more specialist roles, volunteers also supported our Safari Ranger

outreach work, the delivery of workshops to schools at the zoo and the collection of research data about our learning programmes.

In the Autumn, we delivered our first youth focused volunteer programme, working with Upton High School pupils to provide them with a volunteering experience designed to meet the requirements of their Duke of Edinburgh bronze award. The programme combined practical training about our major conservation campaigns and experience volunteering out in the zoo, alongside learning visitor engagement and multimedia skills to enable them to share their campaign messages with others.



## AWARDS

In 2018, we were delighted to be awarded the following accolades:

- **BIAZA Gold Award for Education: Wildlife champions**
- **BIAZA Gold Collaborative Zoo Award (for our shared workings with the wider zoo community)**
- **BIAZA Gold Award for Conservation: Pine marten recovery project**
- **BIAZA Gold Award for Research: Fitness for the ark: Are zoo bred amphibians ready to go back to the wild?**
- **Sabin Conservation Prizes: Dr Gerardo Garcia awarded the 2018 Sabin Amphibian Conservation Prize**
- **North West in Bloom: Gold Award in the Large Tourist Attraction Category**
- **North West in Bloom: Conservation & Environmental Award**
- **Days Out With The Kids: Best Event at an attraction North West (Wild Worlds)**



Gerardo Garcia, Curator of Lower Vertebrates & Invertebrates, in Mexico

Conserving species of

## LATIN AMERICA

The zoo's work with the Bermudan Government has had another hugely successful year. The greater Bermuda snails that we brought to the zoo have multiplied in their thousands and plans are underway early in 2019 to move the first 4,000 snails back to Bermuda for reintroduction. On the back of this success we have started keeping and breeding the only other and equally threatened, endemic species in this group, the lesser Bermuda snail and hope to repeat the breeding success with this species. Again we had further successes with breeding the Bermuda killifish during the year.

The zoo's national plant collection of Pleurothallidinae orchids continues to expand and we are getting close to holding over a thousand different species of this group. In the zoo both our pied tamarins and Azara's agoutis produced babies during the year.

Our work with the Lake Patzcuaro salamander continues with us not only coordinating the European breeding programme for this critically endangered Mexican salamander, but also our staff have been working out in Mexico with the Michoacana University and a nunnery in the town of Patzcuaro where the salamanders have been kept for over 150 years to use in traditional medicine. Meanwhile on Guadeloupe we have been conducting preliminary surveys of chytrid

fungus, the major cause of extinction of the mountain chicken frog, as a pre-cursor to developing facilities capable of returning the frog to the island.

In Ecuador our field work on the ecology and conservation of the Ecuadorian Amazon parrot continues where staff have been looking at habitat use, nest sites and roosting dynamics, as well as working on a community education project about the threats to the species and its habitat.

Building on our expertise in human-wildlife conflict and sustainable livelihoods we were delighted to receive a Darwin Initiative grant for our work on Andean bears in Bolivia, delivered with our partners at Oxford University's Wildlife Conservation Research Unit and the Bolivian NGO, PROMETA. Together we are monitoring bears and looking at community tolerance to bears who are blamed for livestock and crop losses. Ultimately we want to improve the wellbeing of communities and the populations of Andean bears by promoting coexistence. We were delighted when we heard in October that the municipality of San Lorenzo in Bolivia signed an agreement to create a new protected area for the conservation of the Andean bear, largely as a result of the profile raised for this species by our project.





Conserving species of

# AFRICA

Eastern black rhino Malindi and calf

**W**hat an incredibly busy year for our Africa regional programme. A highlight was surely the birth of Stevie our first successful Western chimpanzee birth for ten years in the zoo. Baby Stevie and mum Zeezee are doing well and have brought a new atmosphere to our group of critically endangered Western chimpanzees.

Eastern black rhino continue to be at the fore of our fight to prevent extinction in Africa and 2018 again saw the birth of a new calf at the zoo; mum Malindi delighted visitors by giving birth in the Tsavo rhino house around lunch-time on the 31 July. Excitingly the European breeding programme for the species, which we coordinate at Chester Zoo, continues to flourish and it moved closer in its plans to send five zoo-born Eastern black rhinos to Rwanda to join the growing population that has been reintroduced to Akagera National Park. We continue to support efforts to combat poaching of rhinos and other wildlife in both eastern and southern Africa, providing finances, equipment, advice and training. We are also working with some of the conservancies in the central and northern areas of Kenya to apply our endocrinology work to the monitoring of black rhino breeding performance in the wild.

Another momentous event was the birth in May of an okapi. The youngster was named Semuliki in recognition of the work we have been carrying out in Semuliki National park in Uganda with our partners the Uganda Wildlife Authority (UWA) to search for okapi. We continued our search for elusive wildlife there using camera traps and although these have not yet detected okapi, they did record lowland bongo which is a new record for this site. We have also been supporting rural communities in the Maiko region of Democratic Republic of Congo (DRC) to monitor and conserve okapi populations

which occur in their ancestral forests outside of protected areas. The year again saw the birth of red river hogs and following on from 2017's twins, this year we had triplets!

In the field our research on giant pangolins has been growing and following on from survey work in previous years in Nigeria we have now begun surveys in Uganda and Gabon, where our camera traps are revealing new populations of this very poorly known species. We are following up on the surveys with more detailed ecological work which will help to establish the habitat requirements for the Giant pangolin, vital information to inform conservation strategies for the species.

Similarly we have been working on butterfly, moth and beetle surveys and training in Kenya and South Africa in an effort to assist local governments to better understand populations of such poorly known species.

In Kenya we further strengthened our support for the Big Life Foundation through exchange of staff and expertise in conservation education and through our sponsorship of a major prize at the biennial Maasai Olympics which was held in December. Started by Big Life Foundation in 2012, the Maasai Olympics is part of a major programme of work with the Maasai people that aims to use sport as an alternative to hunting lions and other large animals as a means of demonstrating bravery and courage. When the first Maasai Olympics were held in 2012 there were fewer than 20 lions left in the Maasai territories situated between Tsavo and Amboseli in south-east Kenya. Now, after six years of protection from hunting by the Maasai there are over 200! The Maasai Olympics are central to this achievement and we are proud to have been a supporter from the beginning.



Camera trap image, Nepal

Conserving species of

# SOUTH ASIA

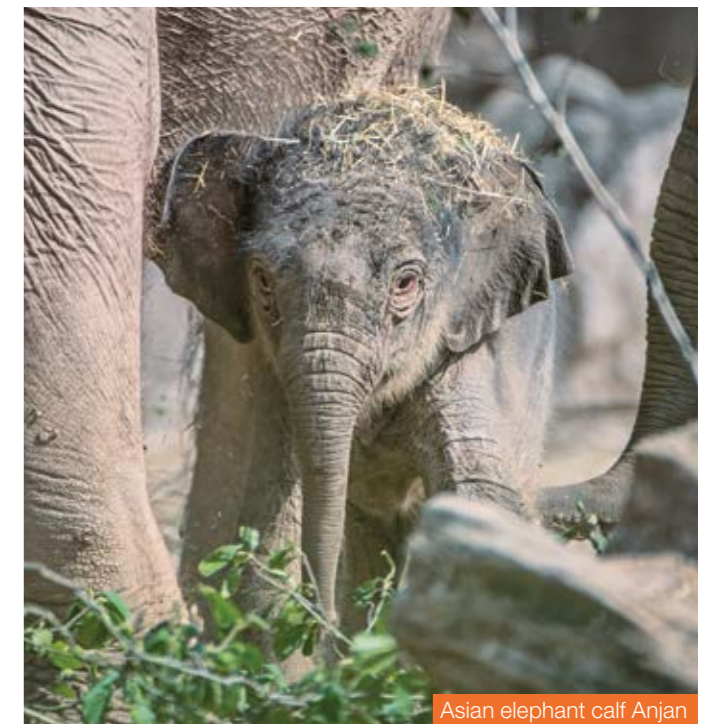
**A**sian elephants continued to be a flagship for our South Asian regional programme and our fight to prevent extinction. This year was a year of highs and lows as we continue the fight to better understand elephant endotheliotropic herpesvirus (EEHV) and work towards better treatments and ultimately a vaccine. May brought the arrival of a long overdue calf for mum Thi; having originally been expected in March the new male, Anjan was finally born in May. Sadly though in the autumn two of our calves, Nandita and Aayu both succumbed to EEHV and despite the best efforts of all concerned and a number of new therapies, both died. Our research continues to try to fully understand the disease and our post-doctoral and post-graduate researchers with the assistance of our partners are closer than ever to producing a vaccine.

Meanwhile in October we signed an exciting new collaboration agreement with the Wildlife Trust of India to develop our elephant project in Assam. The new project builds on the success of our Assam Haathi project and focuses on creating human-elephant coexistence in the region by using a landscape-scale approach to integrate a range of different land uses in a way that is both beneficial for people and wildlife.

We were delighted during the summer of 2018 to have another calf born to our pair of greater one-horned rhino. The species once widespread across the southern foothills of the Himalayas is now restricted to a few regions in India and Nepal, where its populations are now slowly increasing due to protection.

As part of our Living with Tigers project in Nepal our camera traps in and around the Chitwan and Bardia National Parks continue to reveal an abundance of wildlife and show how tigers and leopards

are moving into community forest and posing a potential threat to people. We have been conducting workshops in four communities there looking at horticultural techniques to help villagers to be more productive in growing crops and find ways to become less dependent on the forest for their livelihoods, thus reducing their risk of attack.



Asian elephant calf Anjan



Conserving species of

# MADAGASCAR & MASCARENES

View of camp at Mangabe forest area

It has been a productive year for our work on a wide variety of threatened endemic species from Madagascar. Construction of our major new Madagascar forest zone continued apace and alongside this we have been strengthening our partnership with Madagasikara Voakajy (MaVoa) to develop our support for projects in the field. The latest parts of the new Madagascar zone have been designed and built ready to open during 2019, including an exciting new walk-through experience, landscaped to provide habitat for lemurs and a habitat for Fossa, an unusual carnivore, related to the mongoose but more cat-like in appearance and found only in the forests of Madagascar.

We have undertaken a major camera trapping study with field partners MaVoa in the Mangabe forest area of eastern Madagascar and this has confirmed the presence of aye-ayes, Geoffroy's dwarf lemurs, Goodman's mouse lemurs, woolly indris, diademed sifakas and brown lemurs, demonstrating that this forest is richer in lemurs than we first realised. This survey is helping us to identify habitat most used by these species which will then inform future conservation efforts as well as the development of ecotourism opportunities in the region.

In December our expedition team of 15 Chester Zoo staff and one trustee travelled to Madagascar to carry out two weeks of intensive fieldwork with our partners in the Mangabe New Protected Area. Tapping into the range of expertise from the zoo and working in close collaboration with MaVoa staff and local guides, the teams focused on amphibians and reptiles, birds, small mammals and lemurs – further details can be found on page 28 of this review.

A pair of critically endangered Pronk's day gecko arrived at the zoo. This species is right on the edge of extinction and our pair are the only individuals of the species in any EAZA zoo and therefore a vital part of preventing the extinction of the species. Two greater Madagascar tenrecs were also added to the collection this year to assist our staff in learning the techniques required for the husbandry of this unique group of mammals that are totally endemic to Madagascar. Our Madagascar giant jumping rats gave birth to twins in the spring, adding to the important conservation insurance breeding programme for this threatened species.

In Rodrigues we provided technical expertise for our partners at the Mauritian Wildlife Foundation to help protect the Grande Montagne Nature Reserve, one of the last strongholds for native flora and fauna on the island, assisting them in evaluating their environmental education programme and their interpretation of the reserve to their visitors.

Meanwhile, we continued our work with endemic birds from Mauritius. Our bird keepers contributed to the hand-rearing of 11 Mauritius cuckoo-shrikes this year and five birds were released at a new site in the east of the island as part of efforts to establish a new population in the wild. In the zoo, we added a new female pink pigeon to our collection, making a second pair to add to the vital breeding programme for this species. Despite increasing in numbers there are still plans for further releases on Mauritius.



Diademed sifaka



The opening of the Nature Reserve

Conserving species of

# UK AND EUROPE

In April we unveiled the six hectare extension to our Nature Reserve which includes an extensive wildflower meadow, new wetlands, hedgerows and interpretation. The site is already home to a variety of species of local and national significance including hedgehogs, harvest mice, kingfishers and reed buntings. Our reserve includes the 91st Coronation Meadow, part of a scheme initiated by Prince Charles to create new wildflower meadows in every county of the UK and provide a source of seeds for further habitat creation locally. At the opening ceremony in April, our guest speakers, botanist and broadcaster Trevor Dines and Cheshire West and Chester Council Leader Sam Dixon planted a black poplar in the reserve, adding to the population of one of the UK's rarest native trees.

Our conservation work with the Vincent Wildlife Trust aims to restore viable populations of pine martens to Wales and has already resulted in the translocation of 51 pine martens from expanding populations in Scotland, to reinforce relict populations in mid-Wales. The next phase of the project is to promote the area as an eco-tourism destination for seeing Welsh pine martens. One idea is to encourage local hotels and attractions to set up their own viewing-hides where people can come and watch the martens as they investigate tasty treats. We have built a new demonstration hide overlooking feeding platforms where local businesses could come and see 'best practice' for making their own hides in future. The hide is in a location right in the heart of a known marten territory and the pine martens are now regularly visiting the platforms providing opportunities for viewing.

We also made an important contribution to the conservation of another threatened British mammal when our female British wildcat surprised everyone with a kitten born late in the season in summer. Hybridisation with domestic cats is a major threat to the survival of this unique species. The number of British wildcats, which are now completely confined in the wild to Scotland, is probably now less than 400, making each new birth especially important.

We have started working with Barcelona Zoo and the Torreferrusa Wildlife Centre in Catalonia to conserve one of Europe's most endangered amphibians, the Montseny brook newt. Found only in a few streams in the mountains of the Montseny nature park, about 100km north of Barcelona, a combination of habitat loss and climate

change has brought this critically endangered European amphibian to the brink of extinction. We are the first zoo outside of Spain to breed these amphibians and our careful efforts paid off in the autumn when 12 tadpoles successfully hatched. In parallel with the breeding programme, conservation efforts are also being made to improve the newts' habitat in the wild in preparation for their reintroduction – including improving the water quality and ecological flow of the streams it lives in.

Our important work with a variety of scarce British plant species continues, including work with the Canal & River Trust to care for and propagate two native aquatic plant species, Floating water plantain and Grass-wrack pond weed. Both species are declining in the UK due to degradation of wetland habitats. During May, specimens grown in the zoo were translocated into the Aston Nature Reserve near the Montgomery canal in Shropshire. Further work on the endemic tree, the Llangollen whitebeam was also carried out with propagation of seeds collected from the wild, new surveys of suitable location in north-east Wales and a 'Whitebeam walk' in June to raise awareness of the species.



Llangollen whitebeam



Banteng calf

Conserving species of

# SOUTH EAST ASIA

**A** real highlight of our South East Asia programme this year was the birth of our Malayan sun bear cub, the first to be successfully born in the UK. This is a major achievement for this species which is declining across its range, and a real seal of approval from the bears for the design of our new habitat for them on Islands.

Conservation breeding efforts for our South East Asian primates were significantly boosted this year with the birth of a female Sumatran orangutan, two Javan gibbons and a Sulawesi crested macaque. Two of our collections team travelled in Malaysian Borneo to work with our field partners from the Hutan Foundation where they repaired and constructed rope bridges that will help connect the fragmented habitat for primates in the Kinabatangan wildlife sanctuary. Also in the same sanctuary, members of our bird team assisted Hutan with installing another four nest boxes for hornbills, complete with data loggers and cameras so that we can monitor them closely without disturbing the birds.

Four calves were born to our banteng herd in early spring and another in the autumn, which was a welcome boost for the European

Endangered Species Breeding Programme (EEP) for this species which we manage and coordinate from Chester Zoo. Our Northern babirusa also gave birth to triplets and we continue to be the key participant in this breeding programme. These births and the knowledge that we gain from them contribute to the Global Species Management Plan (GSMP) for both these species which we are coordinating together with partners from the IUCN Specialist Groups covering Asian wild cattle and pigs. Along with similar plans that we are involved in for lowland anoa and for Sumatran tiger, this integrated planning process brings together experts from the conservation breeding, science and field conservation communities to develop 'one plan' solutions to their population management. Education work is a critical component of this and members of our Discovery and Learning team joined our field conservation and collections experts in three major workshops held in Indonesia throughout the year as part of the GSMPs for these four species.

We are supporting the Javan Species Recovery Programme (JaSpeR) which is half-way through its two-year project plan. The team has completed three of the five planned camera trap rounds and covered 150 of 250 independent camera trap locations in a 2,000 km<sup>2</sup> area

of West and Central Java, Indonesia. One of the main objectives is to provide a population estimate for the endangered Javan warty pig but this is hampered by the fact that European wild boars are roaming the last forested places on Java and competing and hybridising with the endemic warty pigs. Nevertheless, our surveys have revealed that there are still some pure populations of Javan warty pigs around with one of our photos showing a lactating female and her piglet on another image. The camera traps have also revealed several individuals of the critically endangered Javan leopard as well as pangolin, Javan chevrotain, Sunda porcupine and Javan slow loris. These surveys are encouraging as they show there is still room for wildlife on the crowded island of Java and will help inform protection efforts in future.

We assisted our partners at the Katala Foundation in the Philippines in mitigating against the risks of disease in both captive and wild populations of the critically endangered Philippine cockatoo. Using PCR techniques developed in the zoo and with colleagues at the Durrell Institute of Conservation Ecology at the University of Kent, field trials proved successful in providing reliable testing for diseases for cockatoos held by our field partner, the Katala Foundation. They are planning translocations of individuals between sub-populations in order to increase numbers so this information is vitally important in order to minimise the risk of transmission.

Our Asian songbird work continued with more successful breeding of Javan green magpie and Sumatran laughingthrush amongst other species. This success also enabled the transfer of birds from Chester to other collections, thus expanding the conservation breeding populations for both species. In Java we have started a new study looking at understanding the Asian songbird crisis in terms of both supply and demand within Java's huge captive bird market. Through this we hope to be able to work with communities to find practical and sustainable solutions to the problem of uncontrolled trapping of birds from the wild to feed the demand for cage birds.

Our national collection of pitcher plants (Nepenthes) is one of the most significant in the world from a conservation standpoint and we are now sharing knowledge and working with the Indonesian Institute of Sciences to survey some of the most threatened species in the wild in Indonesian Borneo. Their survey found 11 species of Nepenthes in the Mandor and Mount Kelam areas, both in West Kalimantan and further surveys of other areas are planned.



Goodfellow's tree kangaroo

An exciting new addition to Islands this year was the display, once again, of marsupials in the zoo with the opening of our new tree kangaroo habitat, where Goodfellow's tree kangaroo and dusky pademelon share a habitat. Both species are from the South East Asian island of New Guinea where both they and their forest habitat are under threat.



Pitcher plants



Our specialisms

# CONSERVATION BREEDING AND MANAGEMENT

Lab work in Kenya

**E**ach and every year the importance of Chester Zoo in preventing extinction of the plants and animals we work with grows. During the year we worked with more than 570 species of animals and more than 2500 important species of plants at the zoo in Chester. We are an acknowledged world leader in conservation breeding and management. This specialism is the core of what we do and an essential tool in saving many threatened species.

This year has seen several new species which are right on the edge of extinction included in the work we do, especially with a focus on Madagascar as we work towards developing the Madagascar Forests zone of the zoo; Pronk's day gecko, black lemur, Granddier's mongoose and greater hedgehog tenrec all came newly into the collection.

We achieved some highly significant births amongst our conservation breeding programmes; not only in high profile species such as Eastern black rhino, greater one-horned rhino, okapi, Sumatran orang-utan, Javan gibbon, Sulawesi macaque, Western chimpanzee and Javan green magpie, but also equally amongst many of our less well known species such as partula snails, and Vietnamese magnolia snail. Early in the year we began working with Montseny brook newt, sand lizard and Omani blind cavefish. Equally our plant staff worked successfully

to propagate important species including many of our cacti, pitcher plants and orchids.

Managed and coordinated breeding programmes are of growing importance for many species to prevent their extinction and during this year we have been involved in more than 140 animal breeding programmes. These are run under the coordination of the European Association of Zoos and Aquaria (EAZA) and we participate as part of a large network of zoos across Europe to manage these international cooperative breeding programmes. We also continue to manage five National collections of plants; orchids (Pleurothallidinae), pitcher plants (Nepenthes) and cacti (Copiapoa, Matucana and Turbinicarpus).

We are also applying techniques developed in the zoo to wildlife population management in the field, especially in Kenya where our Science team have set up a new satellite endocrinology laboratory to monitor wild herbivore hormones from animal dung. The new lab will focus on using endocrinology to help answer key questions in the conservation of Kenya's iconic megaherbivore fauna (including black rhinos and Grevy's zebra) as part of our new research partnership with the University of Manchester. This satellite endocrinology lab has also been established in collaboration with the Kenya Wildlife Service, the Mpala Research Station and the Lewa Wildlife Conservancy.



Our specialisms

Penguin health check

# WILDLIFE HEALTH AND WELLBEING

**W**e pride ourselves in having staff that are totally committed to and acknowledged experts in the health and wellbeing of wildlife. In the zoo we care for over 27,000 animals of more than 570 species on a daily basis. This also gives us exceptional skills to support and advise our partners around the world and to deploy for our field programmes.

We continue to focus intently on the issues of EEHV and our research to find effective preventions and treatments for EEHV to safeguard the future of Asian elephants both in zoos and the wild. This year more than any with the sad deaths of Nandita and Aayu, two of our Asian elephant calves here in the zoo, this has been a passionate focus of our teams and partners to progress this work. Funded through our 'Never Forget' campaign we are investigating the use of alternative immune boosting therapies as well as being closer than ever to the production of a trial vaccine.

Veterinary advice and support for orangutan conservation has continued through 2018 with our continued support for the Orangutan Veterinary Advisory Group (OVAG).

The veterinary team has had another exceptionally busy year working both abroad and of course within the zoo. As part of our support to the global zoo community we act as veterinary advisors for a multitude of conservation breeding programmes and Taxon Advisory Groups (TAGs) of the zoo associations in which we participate; giving valuable support to BIAZA, EAZA, WAZA and other partners both at home and abroad.

Finally the skills and passion of our teams was put to the test at the end of the year with the sad events of the Monsoon Forest fire on 15th December 2018. Most of the animals that could have been affected were saved as a result of the commitment and dedication of all concerned working tirelessly through the day and night of the fire as well as the following weeks to ensure that they had the utmost care.



Our specialisms

# BIODIVERSITY SURVEYS AND MONITORING

Setting a camera trap

Understanding the distribution and abundance of plants and animals is absolutely central to being able to prioritise the most pressing conservation needs and ensure that our efforts to prevent extinction are targeted in the right places. Staff at the zoo have unique skills and extensive experience in surveying and monitoring. The ability to work so closely with our plant and animal collections gives us a unique opportunity to learn and practice these skills that are so important for our work in the field with wildlife.

We have been incredibly busy carrying out surveys at many of our field sites and at the same time training others in our unique skills to build the capacity of many of our partners to carry out such work themselves. Camera trapping has again been a key technique that we have deployed in many of our projects on larger mammals; working

in Indonesia, Nepal, Uganda and Gabon to detect elusive wildlife such as giant pangolins, Javan warty pigs and lowland bongo. We have been trapping for butterflies, moths and beetles in a number of African countries to build the baseline knowledge of which species are present as well as carrying out bird survey work in Ecuador and Indonesia. In Indonesia we have also once again been supporting survey work on the many species of endemic pitcher plants.

Late in the year our staff expedition worked with our partners in Madagascar to carry our rapid biodiversity surveys on many groups of species from nocturnal lemurs to birds and amphibians in order to build vital information on species remaining in valuable patches of habitat; also carrying out detailed population surveys of key threatened species such as golden mantella frog.



Andean bear (camera trap image)

Our specialisms

# HUMAN-WILDLIFE CONFLICT

With space for wildlife under increasing pressure human wildlife conflict is rapidly becoming one of the biggest conservation challenges. We are helping to tackle this by focusing a number of our field projects on this issue and through our research partnership with the Wildlife Conservation Research Unit (WildCRU) at the University of Oxford. The partnership was strengthened this year with the addition of two new Chester Zoo Conservation Fellows who started their postdoctoral research at Oxford. Covering topics on social attitudes towards species involved in conflict and developing a policy framework for solving human-wildlife conflict in Latin America, our new Conservation Fellows will contribute substantially to a greater understanding of both the causes of and solutions to human-wildlife conflict across the globe.

Our Darwin Initiative funded Living with Tigers project in Nepal has been developing innovative and practical ways of supporting communities living adjacent to tiger habitat. In 2018 we hired street performers to deliver a behavioural change campaign by bringing theatre to our project site communities. A thirty minute performance followed the lives of several families who had experienced human-tiger conflict and discovered what kind of human behaviours led to the encounter. Using a mixture of humour and local folklore, the stories provided messages about practical mitigation measures to

keep people and livestock safe. These have been evaluated to assess their effectiveness in bringing about positive behaviour change to reduce conflict. A member of our maintenance team also travelled to Nepal to give workshops and advice on installing and maintaining electric fences to mitigate human-wildlife conflict. The workshops were delivered alongside staff from our elephant project in neighbouring India, showing how lessons learned in one country can be applied to another.

In Latin America, our Andean bear project was awarded a prestigious Darwin Initiative grant for work with local communities in the range of the bear in the Bolivian Andes, worth over £260,000 over 3 years. In addition to monitoring the bears, and improving livelihoods for the local communities, this collaborative project is also providing crucial information on the ecological and social dynamics of human-wildlife conflict in the region.

Our continued support for the IUCN human-wildlife conflict task force led to a collaboration between the task force and the World Bank for a global information exchange and peer-to-peer training initiative. There was also further work on human-elephant conflict with the Asian Elephant Specialist Group to develop IUCN guidelines for human-elephant conflict in Asia.



Our specialisms

# LIVELIHOODS & SUSTAINABLE DEVELOPMENT

Community work in Nepal

In order to tackle the causes of extinction we must work with communities who make their living in the landscapes that we want to protect for wildlife. We try to take a practical approach to this and work to improve the livelihoods of local people in ways that reduce damaging effects on wildlife and habitats.

In 2018 members of our botany and horticulture team helped villagers in Nepal to grow more productive crops using organic methods as part of our Living with Tigers project. They made two visits to the area to train local farmers in techniques including growing oyster mushrooms, seed propagation, vermicomposting and organic pest control. These workshops have proved hugely popular with over 250 people trained so far and this is already enabling them to improve their income and livelihoods and reduce their dependency on neighbouring forests, which in turn reduces their risk of encountering dangerous wild animals whilst out foraging.

We showcased our livelihoods work with the Living with Tigers project at the Communities, International Conservation & Livelihoods Conference in Halifax, Canada. The conference, organised by the

Community Conservation Research Network and the IUCN focused on local communities' environmental conservation efforts supporting sustainable livelihoods, and strengthening policies and legislation for indigenous people and their traditional/cultural practices.

In Mauritius we have re-doubled our efforts to find solutions to the problem posed by Mauritius fruit bats raiding local fruit crops and threatening the livelihoods of fruit growers, after learning that the Mauritian Government agreed to sanction another cull of the species. Following the successful stakeholder workshop on fruit tree netting and management of fruit bat damage to orchards conducted last year, a team of our scientists and conservationists travelled to Mauritius to co-lead a Fruit Bat Research Strategy Workshop. This workshop was jointly prepared by Chester Zoo, National Parks and Conservation Service, the IUCN SSC Human-Wildlife Conflict Task Force, the IUCN SSC Bat Specialist Group and the Mauritian Wildlife Foundation. The workshop shared knowledge on topics including ecology, behaviour and conservation of fruit bats, as well as the social, political and economic components of the human-bat conflict issue.



Visitors at Chester Zoo

Our specialisms

# VISITOR AND COMMUNITY ENGAGEMENT

Through our conservation social science work that is evaluating our educational and visitor engagement activities we are establishing ourselves as leaders in this important field of applied conservation science.

Our social scientists have developed a method for analysing open text comments from our visitor feedback on Twitter and TripAdvisor. Their algorithm is designed to recognise the range of sentiment in each comment and assess the messages that they convey. This should enable us to assess large quantities of text data in just a few seconds. Currently sense checking is revealing between 70-90% accuracy, depending on the data source. The idea behind this research is to train algorithms to try to recognise things like patterns of illegal wildlife trade or whether or not people are discussing conservation or not when responding to our tweets. This should be useful in helping us to evaluate and enhance our visitor engagement activities in the future.

We also began a study with partners at the University of Kent looking into the effect of anthropomorphic language on the interpretation signs to see if it has an effect on uptake of pro-conservation behaviour.

The Convention on Biological Diversity was signed by most of the world's governments, committing them to striving to meet 20 targets

for biodiversity, named the 'Aichi targets' after the city in Japan where the last convention was signed in 2010. The first of these targets (Aichi 1) states that by 2020, people will be aware of the values of biodiversity and the steps they can take to conserve and use it sustainably. This is central to our visitor engagement work and we have been working in collaboration with WAZA and the University of Warwick to develop a measure of how well this has been achieved through zoo visits using visitor surveys. As a result we have become an official partner of the Biodiversity Indicators Partnership, an influential group of over 60 academic, environmental and international bodies and organisations who together are determining the measures that will be used to assess how far the CBD targets have been achieved and influencing the development of the new targets when the treaty is renewed in 2020.

Our social scientists, interpretation and visitor engagement staff were in demand to present and disseminate their work at conferences both at home and abroad. These included a keynote speech at Melbourne Zoo as part of 'The Human Factor in Conservation', a forum on how social science research can inform conservation initiatives to engage communities and encourage social change, and a plenary speech on 'What's not being said? Interpretation and the UK's largest zoo exhibit' at the Association for Heritage Interpretation (AHI) Annual Conference held in Chester.



Duke of Edinburgh students at the zoo

# DISCOVERY & LEARNING

2018 was a record year for engaging with school children both on site and through our Safari Ranger outreach programme. 127,810 people visited the zoo as part of an organised educational visit. Of those, 37,608 were offered free tickets as part of our free winter tickets offer, which now in its second year, enables schools to book free places during November, December, January and February. Record numbers of educational visitors on site also resulted in record numbers participating in taught workshops with our education officers. 29,551 students took part in one of our curriculum linked workshops. Throughout the year our workshop programme continued to be developed to meet the needs of schools, with a particular highlight being the introduction of new more scientifically focused workshops for post-16 students as well as further collaboration with the Geographical Association to develop resources for geography, which were then also presented at the Geographical Association conference.

Our Safari Ranger outreach programme also engaged record numbers – generating a total of 86,164 participations – and we continued to develop our approach to engaging young people from low income areas in conservation focused projects. Outreach projects during 2018 focused on the Sing for Songbirds and Sustainable Palm Oil Challenge campaigns, with young people involved in learning about and then raising awareness of the issues in their communities, as well as taking their own actions for UK songbirds or looking at how they could drive demand for sustainable palm oil. During the year, 9,167 pupils from 45 different schools took part in these campaign focused projects. Following participation in a Safari Ranger project each child was given a family ticket to the zoo. 6,706 people visited the zoo through this free family ticket scheme.

Throughout the year we collaborated with pedagogical experts and Ignite Teaching School Alliance to deliver a programme of teacher professional development designed to support the staff from 30 participating schools to develop their own conservation focused curricula. Pre and post-test evaluations with the pupils who took part in the resulting projects demonstrated positive results in relation to young people's knowledge of actions to prevent biodiversity decline. The projects also resulted in tangible conservation actions being taken, including the development of more wildlife friendly school grounds, whole school exhibitions sharing conservation messaging with the wider community and letters to politicians and business leaders calling for more sustainable practices, particularly in relation to palm oil usage. In the 2018/2019 academic year the programme is running with a further 24 schools.

Zoo visitors were also educated in new and exciting ways. New interpretation schemes were installed across the zoo, increasing focus on our field programmes and on the actions that visitors can take to protect wildlife themselves. Our approach to interpretation and its evaluation was the focus of a keynote speech delivered by our exhibitions and interpretation officer at the Association for Heritage Interpretation annual conference which was hosted in Chester in October. Our Exhibitions and Interpretation Manager also shared expertise with partners at the Mauritius Wildlife Foundation when she travelled to Rodrigues to advise on the interpretation of their nature reserve and worked with them to develop a completely new interpretation scheme for their visitor centre.

As in previous years zoo visitors could also join our zoo rangers every day for talks about our animal collections and hands on activities

about our campaigns, our field programmes, our animal and plant care or the scientific work we do.

In addition to the daily programme, zoo rangers led and collaborated on a wide variety of special events aiming to appeal to specific audiences, highlight different learning focuses or drive visitor engagement. Dementia Coffee mornings hosted twice monthly in Bembe Coffee Shop provided opportunities for engagement with a specific, predominantly older, audience, whilst new activity sessions were also developed for children under 5 and their carers.

Creative and scientific events featured heavily across the main season, in support of our Wild Worlds campaign, including a strand of 'meet the scientist' style events enabling zoo audiences to meet our science and conservation teams and find out more about the science we do at the zoo. Throughout the year, collaborations with a variety of performers brought a creative approach to communicating our conservation work. This included working with Jon Chase on a rap-based performance linked to our sustainable palm oil campaign and with the Hallé orchestra on a musical storytelling experience which also made full use of the immersive projection environment of the Sumba Schoolroom. Across all activity the zoo ranger team engaged with 209,921 visitors during the year.



New signage in Realm of the Red Ape



New signage in Realm of the Red Ape



The work of Childer Thornton Primary School

Outside the zoo, we communicated our science work to new audiences at the Blue Dot Festival and through a major presence at Manchester Science Festival highlighting our research partnership with University of Manchester, through a pop up lab style installation.

Further afield, we continued to support a variety of in situ partners to develop their education practice. In February, our Head of Discovery and Learning led the first Education Working Group meeting of the Global Species Management Plans for anoa, babirusa, banteng and Sumatran tiger, which led to the development of a global education plan for these species. As part of this plan, our Community Engagement Officer travelled to Java to deliver training focused on education delivery skills to educators from Indonesian zoos, as well as creating a range of resources for educators around the globe to use to engage people with these species. Our Community Engagement Manager travelled to work with ICAS in Brazil and Big Life Foundation in Kenya, working with them to develop new strategies for education and community engagement. In October, 12 educators, from these and other international projects we work to support, congregated at Chester Zoo for a week long training experience led by zoo staff, developing their skills as educators and sharing practice with the zoo based team.



Lazy River Boat Trip, Islands

# MAINTAINING A SAFE ENVIRONMENT

As the zoo grows and the complexity of operations increases, the challenge to maintain exemplary levels of health and safety grows in parallel. In mid-2018 we began a transformation of our health and safety strategy, recruiting several additional staff within the department and re-focusing our approach to become a truly 'world class' example of operational health and safety within the leisure, tourism and conservation sectors.

Our Health and Safety team have been integrating with zoo colleagues and have started to introduce enhancements to daily operations and in collaboration with external specialists we have benchmarked our performance against OHSAS 18001. Whilst we meet the criteria for the standard our desire for continual improvement drives us forward and allowed us to focus on several key actions to further enhance our approach to Health and Safety and its culture too.

During the year the Health and Safety team have also carried out specialist training to equip our staff with the knowledge to develop our safety culture. Starting with our bespoke online Health and Safety inductions for our new starters, to in-house delivery of IOSH Managing Safely to supervisors and managers combined with trainer led classroom sessions which have proven to be very popular with our teams.

We have also reviewed and enhanced our internal processes for our staff who wish to travel overseas to work in or visit our field projects. Alongside this we have worked closely with external contractors such as the BBC when the Rickshaw Challenge visited the zoo as part of Children in Need to ensure that such a complex event was delivered professionally.

Finally, to support the Strategic Development Plan and the daily maintenance of the zoo estate we have taken steps to review our contractors and we now have over 140 contractors being successfully managed under our accreditation scheme.



Treetop Challenge



The Oakfield

# WELCOMING OUR VISITORS

Creating a world class visitor attraction is a challenge especially as visitor expectations are constantly evolving leaving them thirsty for new and unique experiences. However, the reward for getting it right is more than enough motivation for us here at the zoo especially as we know that it directly supports our mission, to prevent extinction.

The year proved another record breaker for the zoo when it comes to visitor attendance, which grew to more than 1.97m visitors in 2018. Key factors included new play activity, a new event and the introduction of an exciting new food concept for the zoo all supported by some lovely warm and sunny summer days.

Next to one of our most popular food eateries, June's Food Court, we launched a new play space called Wildlife Wood. This was as a replacement for the previously existing Ark Play Area which had come to the end of its practical life and was due for an upgrade. The new play area has proved immensely popular retaining lots of exciting physical play experiences as before but adding a whole host of new ones too. It also provided an opportunity to introduce wheelchair accessible experiences including a rocking bridge and a slide.

Wild Worlds, a brand new festival concept, opened in May and ran all the way through the summer holidays. Working in collaboration with talented artists, landscape designers, scientists and entertainers, the festival transformed some of our favourite spaces around the zoo into unique worlds, all of which have been inspired by the incredible work of our conservationists, scientists and the amazing wildlife found right here at the zoo.

The Oakfield, which was the original manor house bought by George Mottershead when creating the zoo many years ago, has undergone a huge amount of work over the last few years. In July we were delighted to reopen it to the public following a major transformation. The Oakfield is now a traditional pub which serves a hearty blend of British classics, and modern contemporary cuisine – all accompanied by an exciting wine list and great beer. Its interior is welcoming and warm and offers another unique dining experience for our visitors.

The retail team has worked closely with new suppliers to keep our product range up to date and exciting. One of the big successes this year was the introduction of a new personalisation range – Adventa. Our visitors are now able to personalise items such as keyrings, lunch bags and notepads to remember their day out at the zoo or to give as a lovely gift. A new range of jewellery was designed in collaboration with

the Swarovski Group and each piece contains a beautiful Swarovski® crystal. Giraffes, penguins and elephants are featured in this special collection and importantly, proceeds from the sales of our elephant range, which includes a necklace, bracelet and earrings, will directly support our Never Forget fundraising campaign.

A major focus for the teams during the year was to continue to source sustainably and to find the balance between providing a great guest experience and protecting the environment. Two million fewer pieces of single use plastic were given out to guests as part of their purchases. Although there is still some work to do this is a great step in the right direction.

In addition deliveries to the zoo's pre-existing restaurants were reduced by more than 30% compared to last year, resulting in a 20% reduction in food miles. In retail shops, Chester Zoo 'bags for life' and pens are now made from recycled plastic bottles, while sweets that were previously wrapped in plastic are now sold in compostable bags.

Finally, supporting the zoo's Environmental Management System the team successfully achieved and migrated onto the new version of ISO 14001:2015 which further challenges control measures being undertaken. Free electric car charging pods were also installed in our visitor and employee car parks and 97% of the electrical energy used in the zoo is now sourced from renewable sustainable sources, such as wind and solar power – whether from the national grid or from the zoo's own solar panels.







# EXPEDITION 2018

The staff expedition team with some of the Madagasikara Voakajy team

A team of 15 people travelled to Madagascar in December, to work with our field partner Madagasikara Voakajy (MV) as part of the annual Chester Zoo expedition. The team consisted of curators, keeping staff, educators and scientists, who assisted with the delivery of research and conservation activities. Additionally, a number of volunteering staff from other zoo divisions joined the team to gain first-hand experience of field conservation work.

Chester Zoo has worked with MV since 2011 when it began providing technical advice and funds to support the conservation of the critically endangered golden mantella frog. More recently this partnership has expanded to include the support of activities to assess the diversity and abundance of diurnal and nocturnal lemurs in the same habitat.

The focus of this conservation support is Mangabe New Protected Area in East Madagascar. This area has been heavily impacted by gold mining and logging in the past and thus the work of MV to protect this forest, engage with local communities, and carry out research to assess the full extent of biodiversity in the region, is vital.

The Chester Zoo expedition team joined MV for two weeks, camping in Mangabe NPA, to run intensive biodiversity surveys of amphibians, reptiles, birds, lemurs and small mammals. The team were also joined by biology students from the University of Antananarivo and members of the local community. During this time they recorded at least 87 bird species, gathering over 800 sightings, they gained morphometric data for 26 reptile and amphibian species. They ran an intensive study to assess the number and diversity of small mammals present, and conducted lemur surveys to record behaviour during both day and night, confirming the



The expedition team

presence of the following species: diademed sifaka, indri, brown lemur and Eastern lesser bamboo lemur.

The team also spent time with two local schools, running interactive workshops and games to highlight the importance of Mangabe's local biodiversity. MV work closely with local communities, in particular young people as part of their 'Youth for Lemurs' project which aims to promote protection of lemurs and encourage sustainable livelihoods by creating young ambassadors for lemur conservation. Staff from the zoo's Discovery and Learning team ran workshops with these young people during the expedition. They ran fun team building activities to teach theory of change, and focused on equipping teams with the skills to help achieve their goals. Laughter, songs, poems and dances marked each of those days of activities.

Overall the expedition was a huge success. Not only gaining vital information about the forest and its biodiversity, but building and strengthening friendships between Chester Zoo, MV and local communities. This represents an ongoing partnership, and members of the Chester Zoo team hope to be back out to Mangabe soon!



# KEEPER FOR A DAY

Zoo staff share their expertise

The Chester Zoo 'Keeper for a Day' initiative provides a unique opportunity for the public to experience a day in the life of a zookeeper. In 2018, the income generated through this scheme supported 16 staff to participate in a variety of projects, conferences and meetings; this is in addition to the staff travel that usually occurs as part of our on-going conservation work. The scheme also supported four overseas partners to visit Chester Zoo, and a further 15 staff to participate in the annual expedition to Madagascar.

Keeper for a Day supported activities allow staff to share specialist skills to support field projects, to learn new skills and to develop a better understanding and appreciation of conservation projects. These trips play a valuable part in promoting relationships with conservation partners, and often result in staff returning as 'project champions'.

This year staff from a huge variety of zoo teams travelled far and wide to projects around the world. As part of our Living with Tigers project in Nepal, they helped develop local community expertise in horticulture and electric fence construction and maintenance, and assisted with tiger monitoring. In Uganda, they got stuck in monitoring giraffe and giant pangolin, in Mexico worked with nuns to save salamanders, and in Brazil learnt how sustainable fishing is supporting local communities and saving the forest.

The Keeper for a Day scheme also funded staff attendance at various training events including a volunteer conference in Germany, okapi management training in the Netherlands, elephant management training in Belgium and small mammal management training in the Czech Republic. It also supported one of our conservation scholars from Kenya to attend our Connect! Symposium, and for a Malagasy colleague to spend a week training with our Discovery & Learning team.

Elsewhere, staff attended the annual Orangutan Veterinary Advisory Group conference in Sumatra to provide training in record keeping and management. Whilst in Kenya staff helped develop interpretation for schools and visitors at a rhino reserve; and in Laos managed local teams to design and build facilities to support rescued black bears.





Wild Worlds: Talking Chair, designed by Jane Revitt

# OUR CAMPAIGNS AND PARTNERSHIPS

Our lead marketing campaign for 2018 was Wild Worlds, where we stepped into a new cultural landscape, working with artists, scientists, horticulturalists, and cultural programmers to create and bring to life fresh spaces across the zoo. Taking tired, unloved patches of land, or repurposing existing spaces, we were able to create a range of new gardens and points of interest, animating them with a lively event programme to appeal to a range of visitors.

Our PR team shared news far and wide of our animal births, and visitors clamoured to see the sun bear cub and rhino calf amongst many others.

Of course, we were also at the front line when dealing with media interest in the Monsoon Forest fire. Media coverage was extensive, with all UK national and regional outlets (as well as a high volume of international outlets) covering the story. Day one necessitated a crisis communications response to a live incident, delivered in accordance with the zoo's well-rehearsed crisis communications procedure, including a regular flow of factual statements issued by the zoo PR team to effectively manage media and public interest. On day two, we held a live press conference, confirming details about the loss of animals and clarifying the zoo's fundraising objectives. Further along, the PR team were focused on resolving the 'story' for media, releasing images of animals safely re-settled into new habitats.

Ultimately, the overwhelming public (and media) response to the fire was extremely empathetic, with thousands of supportive messages across social media and other channels. Prior to this event, the zoo PR strategy has been primarily focused for a number of years on growing our reputation as a world leading wildlife conservation charity, and in turn increasing the number

of vocal advocates for the zoo. This, allied to the delivery of the crisis communications procedure during the incident, was a significant factor in ensuring successful reputation management during December.

Filming of The Secret Life of The Zoo for Channel 4 continued during 2018. Series six reached its conclusion in December, with a Christmas special alone watched by more than 2 million viewers. The programme continues to be one of Channel 4's most viewed programmes.

We ended 2018 with a fantastic 114,680 members. We saw strong growth in membership numbers with a 20% increase throughout the year and a 6% increase on the budgeted member numbers. With 85% of members now paying by direct debit strong retention rates are promised during 2019.

2018 was a challenging year for event sales with the refurbishment of The Oakfield but it gave us an opportunity to review our event products and packages, and we were delighted to see the interest in The Oakfield when it re-opened.

It was a very busy year for our Sustainable Palm Oil campaign. Despite calls from some for a palm oil ban to protect rain forest, we strongly maintain that the solution lies with supporting sustainable palm oil production, especially by small holders in countries like Indonesia and Malaysia for whom palm oil is a key part of their livelihoods. We were delighted when in November, the Round Table on Sustainable Palm Oil agreed to strengthen its standards and include a 'no deforestation' rule in an effort to stop further rain forest destruction to make way for intensive plantations, and even more thrilled when all the delegates celebrated their decision at the end of their meeting by dancing to our Chester Zoo sustainable palm oil conga! We are also involved in efforts to extend the sustainable production model to another tropical crop, soy, which also threatens rain forest from intensive production.

Team leader Ben Baker with a sign for auction



Fundraising

# THANK YOU FOR YOUR SUPPORT

This year saw some of the most difficult times in our zoo's illustrious history. In October we lost two of our much-loved elephants to the deadly EHV virus, and December saw fire ravage Monsoon Forest. But from these devastating events came an outpouring of immense compassion and generosity.

In both cases, we were literally overwhelmed with the love shown to us by our community. Over £50,000 was donated to our Never Forget campaign in memory of Aayu and Nandita, and together our supporters raised over £250,000 for the Monsoon Forest Conservation Fund which will support the species represented in the habitat.

We were shown a lot of love throughout the year as well. Our Summer Stampede saw little herds dashing through the zoo once again for our Never Forget campaign, whilst others took on their own personal challenges; baking, swimming, drawing, running and cycling in aid of our vital conservation work. And for the ultimate Chester Zoo fan looking for something a little bit different, the Me, You & the Zoo eBay auction of historic interpretation raised over £40,000 towards preventing extinction, with over 400 people being able to say #ThisSignIsMine!

New and renewed philanthropic relationships with grant giving trusts and companies have allowed us to achieve some wide-ranging and amazing feats of conservation and learning; establishing a laboratory in Kenya to monitor black rhino; providing extra resource for our Safari Rangers to travel further across the North West to inspire communities about wildlife; and allowing us to progress the next stage of our crucial research into EHV.

We are so lucky to be an important part of many people's lives. This year we saw more people than ever choose to dedicate a leaf on the Giving Tree and leave a legacy to the zoo in their will. Thanks to this generosity, we can ensure that the memory of their loved ones live on, both at the very heart of the zoo and through the conservation impact made possible.

The most treasured message we have taken away from 2018 has been the knowledge that we are supported by so many incredibly caring people and organisations; who are willing and prepared to step up and make an impact for wildlife all across the world. This is an extraordinary thing, and we do not take it for granted. Thank you!

With thanks to all our supporters throughout 2018! And to those who wish to remain anonymous,

#### Corporate Champions

Airbus  
Bank of America Merrill Lynch  
Craghoppers  
MBNA  
Rhino Products Ltd

#### Retail Partners

Charlie Bears  
Steven Brown  
Joe Davies Ltd  
Royal Crown Derby

#### Corporate Supporters

3D Squared  
Barclays Bank PLC  
Darwin Escapes  
M&S Bank  
Stagecoach  
Sykes Cottages Ltd  
Toyota Motor Manufacturing Ltd

#### Trusts, Grants and Incredible Gifts

The Ampelos Trust  
Carole & Mike Brown  
The Eric & Dorothy Leach Charitable Trust  
Heritage Lottery Fund North West  
Marjorie Coote Animal Charity Trust  
Chris McDermott  
The Philip Barker Charity  
The Ronald & Kathleen Pryor Charity  
The William Dean Countryside and Educational Trust  
The Thriplow Charitable Trust

#### Corporate Adopters

Adlington Hall  
Caninecottages.co.uk  
DoubleTree Chester Hotel & Spa  
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Holidaycottages.co.uk  
Investec Wealth & Investment  
John Lewis at Home  
Stagecoach  
Thew Arnott  
Tower Supplies  
Waters Corporation  
Zarafa Group Ltd

And all those celebrated and remembered with love on the Chester Zoo Giving Tree

**AIRBUS**

**Bank of America Merrill Lynch**

**CRAGHOPPERS**

**mbna**

**PHILIP BARKER CHARITY**

**HERITAGE FUND**

**FCC Communities Foundation**

**Rhino PRODUCTS**



# OUR FINANCIAL PERFORMANCE

The year ending 31st December 2018 was a record year for The North of England Zoological Society (the Society) in terms of zoo visitor numbers, income and expenditure on our charitable activities. Our underlying income rose to £44.3m (2017: £41.3m) whilst underlying expenditure rose to £40.9m (2017: £38.5m). These figures exclude exceptional income and expenditure relating to the Monsoon Forest fire. Having taken account of the £0.4m net impact of these exceptional items the Society reported a £3.0m net increase in our funds (2017: £2.9m increase).

### Exceptional income and expenditure

On 15th December 2018, a fire broke out in the Monsoon Forest building within the zoo's Islands zone. Included within the 2018 accounts is an exceptional impairment charge of £5.2m reflecting damage to the building, together with £0.4m of costs associated with the fire which cannot be recovered from insurers. These charges are offset by £5.2m of other income, sitting as a debtor at year end, to reflect the recovery of the costs of the damage from insurers. Work is ongoing to confirm the extent of damage and repairs, and to the extent that the income received from insurers is higher, a gain will be recognised when it becomes virtually certain. The net impact on the 2018 financial statements is an expense of £0.4m.

### Income

The bulk of the Society's income comes from the zoo's visitors and members, in the form of admissions and other charges. Visitor numbers reached a record 1,969,768 in 2018, up nearly 6% from 1,866,628 in 2017, with nearly a third of those visits made by our members. Membership numbers increased by 20% to 114,007 during the year and have grown by 130% in the last 5 years.

Our winter event, The Lanterns, attracted over 90,000 visitors and we welcomed 128,000 education visitors, 36,000 of whom visited the zoo for free during the winter months under an initiative launched in 2017. Total visitor related income for 2018, which includes admission fees and membership income, rose by 7% to £28.1m (2017: £26.3m).

As a registered charity the Society generates voluntary income from visitor donations, Gift Aid, animal adoptions, grants, legacies and other donations. With increases in visitor numbers, the related donations and Gift Aid on admission increased to £2.9m (2017: £2.8m). Fundraising income, which includes animal adoptions, grants, legacies and other donations was £1.3m (2017: £1.3m).

This fundraising figure includes £0.2m of generous donations by the public following the Monsoon Forest fire. Since the year end this fund has grown to £0.3m and will be used in the coming years to fund a number of conservation projects both in the zoo and in the field.

The Society's trading subsidiary, Chester Zoo Enterprises Limited, which provides retail and food & beverage offerings across the zoo site had a turnover of £12.0m in 2018 (2017: £11.0m). This performance was impacted by the closure of Oakfield House for redevelopment during the first half of the year. The Oakfield opened to visitors as a restaurant and pub in July 2018.

Exceptional income of £5.2m reflects the estimated income to be recovered from insurers for the rebuild of the Monsoon Forest which offsets the impairment charge recognised.

The chart to the right shows where how we generate our income (excluding exceptional income).

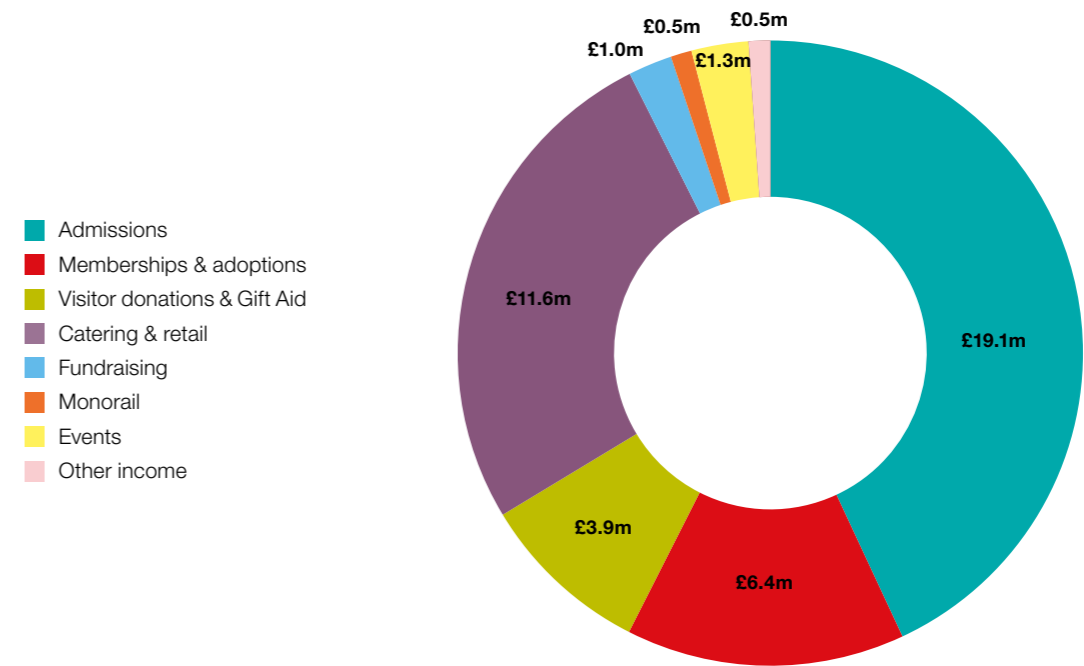
### Expenditure

In 2018 we spent £40.9m (2017: £38.5m), excluding capital expenditure and exceptional costs relating to the Monsoon Forest fire.

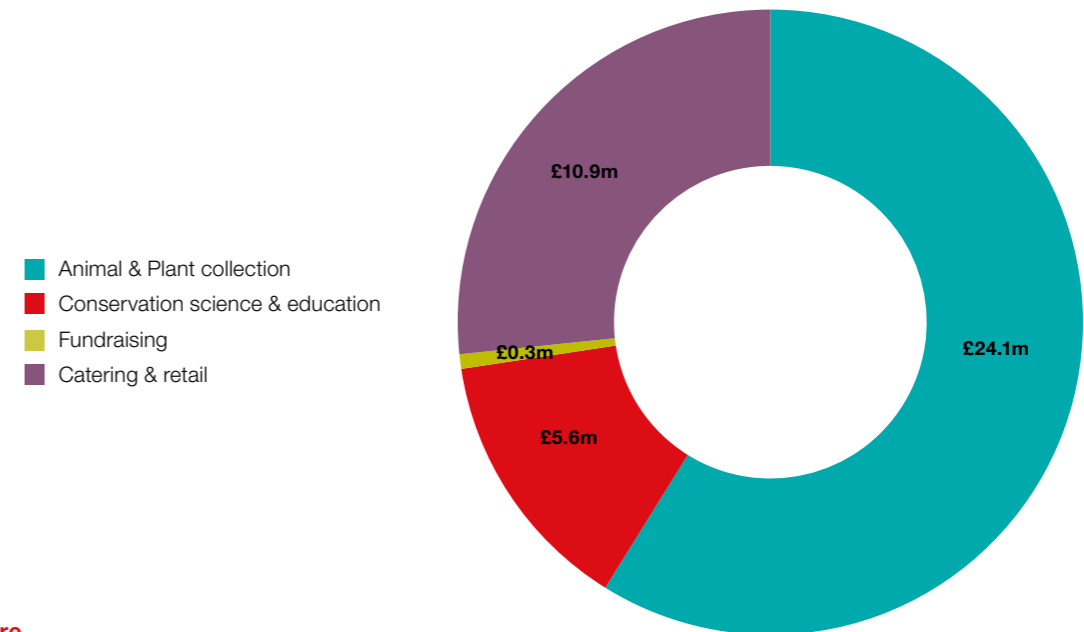
Resources expended on our charitable activities, including the costs of maintaining the animal & plant collection, the visitor facilities, science and education and our field conservation programmes, together with related support costs totalled £30.1m (2017: £26.8m). In addition we spent £0.3m (2017: £0.2m) generating our voluntary income.

Chester Zoo Enterprises Limited had costs of £10.9m, excluding £0.7m of rents paid to the Society, and it made an operating profit of £0.4m in 2018 (2017: £0.4m) which is donated to the Society.

By far the biggest element expenditure relates to our employees and the cost continues to be impacted by both increases in the number of employees and the ongoing increases to the national living wage and to auto-enrolment pension contributions. Our average Full Time Equivalent (FTE) headcount for 2018 rose to 579 from 555 in 2017. A third of these employees worked directly in support of the Society's charitable objectives, either with our animal & plant collection or in education, science and research. In addition we benefitted from the hard work of a team of over 220 passionate volunteers.



### Income



### Expenditure

Exceptional costs in relation to the fire in the Monsoon Forest total £5.6m, £5.2m is an impairment charge in relation to certain elements of the building structure, its fixtures and fittings, which were damaged in the fire. These elements are fully insured. A further £0.4m has been accrued to cover uninsured professional fees.

The chart above shows a breakdown of the Society's expenditure (excluding exceptional costs relating to the Monsoon Forest fire).

### Pensions

The Society's defined benefit pension scheme was closed to future accrual in 2012 and at 31 December 2018 reported a surplus of £4.6m under FRS102 (2017: £5.4m). During 2018, in accordance with an agreement with the Pension Trustees, the Society deposited £1m into an escrow account held by the Society, which is to be used, if required, to fund a buy out of the scheme, when the scheme liabilities would be fully secured with an insurer. The reported surplus, which excludes the amount held in the escrow account, is not recognised in the financial statements as the Society cannot gain economic benefit from it.

### Capital expenditure

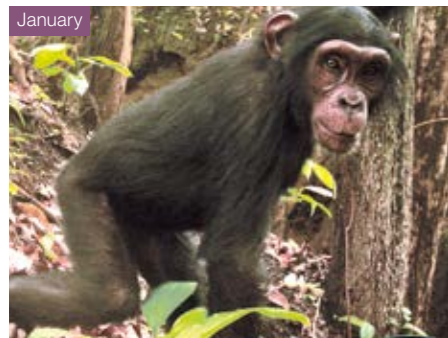
During 2018 the Society spent £10.4m on capital expenditure (2017: £9.6m). This expenditure included the completion of the renovations to Oakfield House and its conversion to a restaurant and pub, building of a new habitat for tree kangaroo and pademelon within Islands, upgrades to the penguin habitat and construction of a new canteen for our employees and volunteers. We also commenced work on a number of projects that will be delivered in 2019. These include a Madagascar forest exhibit with an immersive lemur walkthrough exhibit that will open in spring 2019, construction of an off-show area which will allow holding and movement of animals during planned development works and a new habitat for our Asiatic lions.

Cash generated from operations of £11.1m (2017: £8.9m), together with a £1.2m increase in borrowings, was used to fund these capital developments. At 31 December 2018 the Society had a net borrowing position of £3.5m (2017: £4.1m), with £1m being held within an escrow account for the benefit of the defined benefit pension scheme.

Full details of our financial performance can be found in the 2018 Trustee's Report and Financial Statements.



# HIGHLIGHTS OF THE YEAR



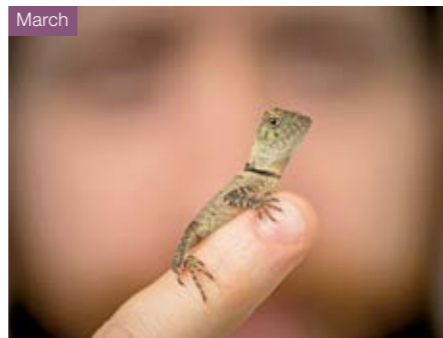
January

Camera trap footage reveals incredible diversity of Nigeria's Gashaka Gumti National Park



February

Precious African painted dog pups named



March

Rare baby forest dragons hatch



April

Chester Zoo Nature Reserve Phase 2 opens



May

Celebrations as we reach 100,000 members



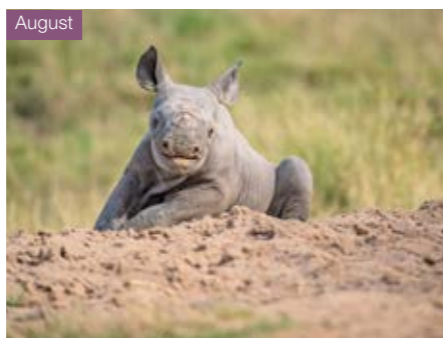
June

Our work with Lake Patzcuaro Salamanders makes the news



July

Western chimpanzee baby draws summer visitors



August

One-week-old rhino calf has first outdoor adventure



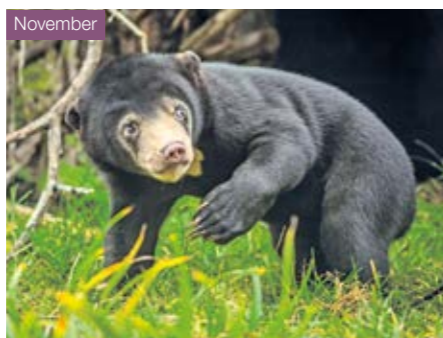
September

Camera trap tiger - Living with Tigers



October

Series six of The Secret Life of the Zoo airs on Channel 4



November

Sun bear cub explores outside habitat for the first time



December

Staff care for animals saved from the Monsoon Forest fire

Front cover: African painted dog

[www.chesterzoo.org](http://www.chesterzoo.org)

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Registered Company Number 287902

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