



2015 ZOO REVIEW

Annual Review of the North of England Zoological Society

www.chesterzoo.org

HIGHLIGHTS OF THE YEAR

Lemurs watching the rare solar eclipse, a whole host of births, innovative conservation projects around the globe and the opening of the UK's largest ever zoo development, *Islands*: some of the photographic moments that defined 2015.



Three tiny tiger triplets Jaya, Topan and Kasarna were born to Sumatran tigress Kirana and dad, Fabi.



Sophie the onager was more than happy to let a group of jackdaws pinch bits of her coat.



Three Ring-tailed lemurs were snapped watching the solar eclipse.



The first of six Humboldt penguin chicks hatched in April.



Prime Minister David Cameron visited the zoo to see how work was progressing on *Islands*.



Walking tall! Sanyu, a rare Rothschild's giraffe, was the first of two calves to be born at the zoo in 2015.



Phase one of the UK's biggest ever zoo development, *Islands*, opened in July.



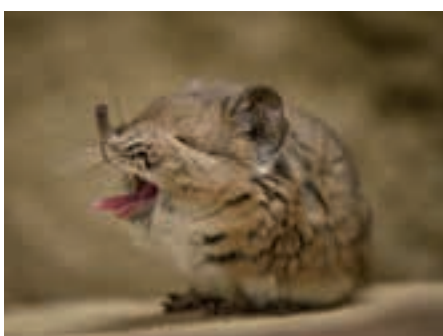
August saw the unveiling of Monsoon Forest – the largest indoor zoo exhibit ever built in the UK.



Four Northern bald ibis chicks which were bred at the zoo were flown to Jerez in southern Spain.



Sun bears made a return to the zoo after a 40-year absence.



Two cheeky sengis made their public debuts in November and hit the headlines.



In December keepers announced the arrival of a rare female Brazilian tapir.

The North of England Zoological Society is the charity that runs Chester Zoo and our conservation campaign, Act for Wildlife.

VISION & MISSION

OUR VISION IS FOR A DIVERSE, THRIVING AND SUSTAINABLE NATURAL WORLD.

OUR MISSION IS TO BE A MAJOR FORCE IN CONSERVING THE LIVING WORLD.

Chairman: Professor Peter Wheeler

A LANDMARK IN OUR HISTORY



Almost five years to the day after the Trustees took the initial decision to proceed with the *Islands* project, our breeding group of Sumatran orangutans moved into their new accommodation. In 2015 the years of careful planning came to fruition as architects' drawings and artists' impressions assumed a physical reality. Although the sheer scale of *Islands* is now apparent, most visitors will remain unaware of the complexity of the engineering and

construction involved, most of which lies intentionally hidden behind, or beneath, the spacious naturalistic enclosures. Many zoos have had grand ideas of the projects they would like to undertake, but that Chester Zoo has been able to actually deliver what is undoubtedly the most ambitious project ever undertaken by a UK zoo is of immense credit to all of the many people involved.

Although 2016 will be the first full year that *Islands* will be open, the indications are that not only will it make an enormous contribution to our conservation and education activities, but it will inspire even more people to visit the zoo.

The renowned conservationist and esteemed friend of Chester Zoo, Dr. Simon Stuart, was the recipient in 2015 of the North of England Zoological Society (NEZS) Gold Medal for outstanding lifetime achievement in natural science, conservation and the environment.

This was in recognition of the vision and leadership he has provided to global species conservation through his work with the International Union for Conservation of Nature (IUCN) Species Survival Commission (SSC). The award was presented to him by our President, His Grace the Duke of Westminster, at a ceremony in June 2015.

Sadly, in 2015, we said goodbye to our Vice President and generous donor Baroness Ruth Rendell of Babergh. Ruth had been a loyal supporter and regular visitor to the zoo for over 15 years, always so fond of the elephants. Her dedication and her passion will be very much missed.

The 81st NEZS AGM took place in the Lecture Theatre on 8th September 2015, later than usual due to the opening of *Islands*. At this well attended meeting the 2014 Annual Report and Statutory Accounts were formally approved. Thanks are due to Dr Simon Dowell, Catherine Buckley and Judith Skerritt who retired as elected Trustees at the AGM following many years of service to the Society. William Beale and Sandra Donnelly were both formally elected as incoming members of the Board of Trustees.

This will be my last Chairman's statement as I have now completed my maximum term of office and will be handing over the reins to Bruce Ursell. I would like to thank all the members, Trustees, Executives and other zoo staff, who have made this an extremely enjoyable and exciting six years, and I look forward to seeing the Society and zoo move even further ahead in the years to come.



Trustees of the North of England Zoological Society

NORTH OF ENGLAND ZOOLOGICAL SOCIETY

President: His Grace the Duke of Westminster, KG, CB, CVO, OBE, TD, CD, DL

Vice Presidents: The Rt Hon Lord Wade of Chorlton, kt, JP, The Hon Lady Jane Heber-Percy

The North of England Zoological Society (NEZS) is the charity that runs Chester Zoo and our conservation campaign, Act For Wildlife.

Our Board of Trustees

Our Trustees, as a body of voluntary, charity trustees and as directors for the purposes of company law, have general control and management of the administration of NEZS. They determine the strategic direction and policies of the Society, with consultation and discussion with the Director General and Managing Director of the Society as Principal Executives and their staff who implement policy.

Our Trustees during 2015 (names in bold are pictured): **Malcolm Ardron**, William Beale, **Prof. Malcolm Bennett**, **Catherine Buckley**, Prof. Stefan Buczacki, **Rebecca Burke-Sharples**, **Brian Child**, Sandra Donnelly, Dr. Simon Dowell, Richard Griffiths, **Robert Mee**, **Prof. Russell Newton**, **David Pickering**, **Angela Pinnington**, **Dr. Judith Skerritt**, **Bruce Ursell**, **Simon Venables**, **Tony Williams**, **Prof. Peter Wheeler**.



Zoo entrance and shop



Dr Mark Pilgrim

DIRECTOR GENERAL'S REVIEW

On the foundations of several years of growth and development, 2015 was always planned to be a year of step change, a year in which the North of England Zoological Society, Chester Zoo not only continued to grow and progress but made significant leaps forward in achieving its strategic objectives.

The completion and opening of the *Islands* project, the largest ever zoo development in UK history, has moved us into the very top tier of world class zoos.

2015 however gave us more reasons to celebrate than *Islands* alone; there were some really significant developments in the collections too. Firstly with the appointment of Collections Director, Mike Jordan, who re-joined the zoo after previously being Curator of Higher Vertebrates and then spending eight years working in conservation roles in South Africa. Information about the development of the animal and plant collections can be found throughout this annual review and I have picked out just a few of the highlights. The birth of three Critically Endangered Sumatran tigers was great news for this important European Breeding Programme as well as being perfect timing, as they were at just the right age to move with their parents to the new exhibit in *Islands*, proving to be the stars of the show in the summer.

Populations of giraffe, once common across Africa are dwindling to worryingly small numbers. The Rothschild's giraffe in particular has an estimated wild population of less than 2500 animals. Again as part of a European Breeding Programme, the birth of Sanyu and Kidepo gave a boost to us and the population of this iconic animal.

At the other end of the size scale but another Endangered species bred in 2015 was the Pied tamarin, one of my favourite little primates.

The beautiful Javan green magpie is right on the brink of extinction. It has been collected for the local Asian cage bird trade and is now so rare that it rarely even appears in the local bird markets. We have been working with our field partners at the Cikananga Wildlife Centre, a breeding facility in Java for a few years now where these birds are being bred. As an insurance population we brought six pairs of these birds to Chester during 2015 to initiate a European Breeding Programme. The birds have settled in very well and we are hopeful that they will breed during 2016 giving extra hope of saving this species.

Closer to home we are delighted to be working in partnership with the Vincent Wildlife Trust to bolster populations of the rarely seen Pine marten in mid Wales.

Good zoos need good people and in support of our objective to connect people to wildlife, and to complement our excellent staff, we recruited a passionate group of visitor engagement volunteers to talk to and inspire our visitors about the wonders of the natural world and what actions they can take to secure its future.

Of course none of this work in support of our mission can happen without a robust financial model and 2015 was an extraordinary year in terms of commercial performance. Our Managing Director Jamie Christon explains how our visitor targets were not only achieved but in many cases exceeded.

Chester Zoo remains an extraordinary place with amazing species and incredible people; it is an enormous privilege to be its Director General.



Jamie Christon

MANAGING DIRECTOR'S REVIEW

2015 was a fantastic year for the zoo from start to finish. The year saw 1,694,115 visitors passing through our gates, an 18% improvement on 2014 which in itself had been a record year.

We got off to a great start with strong spring visitor numbers as a result of good spells of weather, the ongoing legacy of the successful BBC series "Our Zoo" and interest around new births.

We were really pleased to see our membership steadily rise ahead of the summer as well as welcoming more standard admission visitors than ever before.

The opening of *Islands* dominated 2015 and despite delays to a very complex project, we opened phase one in July.

Islands meant big changes to the way the zoo operates on a daily basis and a lot of preparation had been made to deal with the interest it generated. Anticipating a very busy summer, we introduced a new pricing calendar which helped spread visitor numbers across the summer weeks rather than peaking around the weekends and bank holidays. Online booking increased from 27% to over 60% and this helped minimise queues and allowed quick entry from our staffed car parks into the zoo.

We recruited 150 volunteers during the year to help deliver better visitor engagement as well as over 300 seasonal staff who helped deliver our catering, retail and guest experience. At peak we were employing over 700 staff.

The opening of phase two of *Islands* later in the summer encouraged strong visitor numbers which ran into the autumn, again providing record attendance.

We achieved our one millionth visitor earlier than ever before on the 15th August and numbers continued to rise especially during the late summer period helped by a few weeks of sunny, warm weather.

For the first time, our marketing campaign stretched across the UK, advertising nationally across television and print media, and across regional radio. We welcomed visitors from further than ever before, as well as within the more local north west catchment areas.

Our December Lantern Magic walk was bigger than ever and we saw nearly 30,000 guests visit after dark to explore the zoo.

Membership continued to increase throughout the second half of the year with 76,358 active members at year end, a huge increase of 32% during the year.

We were delighted to team up with television production company Blast! and Channel 4 to film a new documentary series called "The Secret Life of the Zoo" to air in 2016.

In so many respects, Chester Zoo celebrated its most successful year ever in 2015. The challenge is now to repeat and build on this success in 2016 and onwards.



Chester Zoo's award-winning gardens

AWARDS

The reputation of Chester Zoo as a successful and well-managed visitor attraction and conservation organisation was again recognised by a number of awards in 2015:

- **The Trip Advisor Travellers' Choice Attractions award** rated Chester as the Best Zoo in the UK
- **2015 Trip Advisor Certificate of Excellence Hall of Fame award**
- **In the Leisure and Tourism Business of the Year we were recognised with the UK Heart Safe Award**
- **Gold NHS Cardiac Smart Award including three individual lifesaver awards**
- **The West Cheshire and Chester Active Employer for the Year**
- **The Silver award from the Reserve Forces and Cadets Association Employer recognition Scheme for our support to those in the reserve forces and those looking for work after service**
- **The Marketing Cheshire Award for Tourism Marketing Campaign of the Year, for our *Islands* campaign plus Commendation for Best Large Visitor Attraction of the year**
- **The Retail Greats Awards for Best Museum/Visitor Attraction Gift Shop**
- **Shortlisted at the international IAAPA awards for Best Retail Merchandising**
- **Winner of The High Sheriff's Award for Enterprise**
- **2015 Royal Horticultural Society's (RHS) North West in Bloom Awards, winner of 'Best Large Tourist Attraction of the Year'**

BIAZA (British and Irish Association of Zoos and Aquariums) Awards:

- **Silver Award for Animal Breeding, Care and Welfare, for rearing waterfowl**
- **Silver Award for Conservation, for the Maasai Olympics project**
- **Gold Award for work in partnership with Durrell Wildlife Conservation Trust and ZSL London Zoo for Mountain Chicken project**
- **Silver Award for Education for "From Presenters to Zoo Rangers"**
- **Silver Award for PR, Marketing, Digital & Events for the Chester Zoo smartphone app**
- **Gold Award for Research for the work to understand frogs and their symbiotic bacteria.**

North of England Zoological Society Strategy 2013-2018

A NATURAL VISION

Throughout 2015, our Trustee-approved strategy 'A Natural Vision' informed and guided our teams in planning, achieving and developing our mission and supporting business activities.

Strategic objective

1

To ensure that our conservation and educational activities, both in the zoo and globally, achieve the greatest conservation impact.



Gashaka Biodiversity Conservation Project in Nigeria

This means:

- having more control and influence over our field programmes;
- ensuring that we get the most conservation impact from the collection;
- understanding the expertise and specialisms of our staff and development of new skills required;
- empowering people to make environmentally positive life style changes;
- evaluating the conservation impact of our activities;
- ensuring that we consider the environmental sustainability of all that we do.

Strategic objective

2

To be a world class 'must see' visitor attraction, in terms of quality, service and enthralling experiences.



Our immersive butterfly exhibit

This means:

- providing immersive, authentic experiences, for visitors across all sectors of society, so increasing the reach;
- providing a personalised visitor experience;
- establishing and evaluating what it means to be 'world class';
- consistently provide high quality visitor facilities;
- maintaining year-round, high quality visitor experience;
- continuous improvement of site presentation standards.

Strategic objective

3

To be a centre of excellence for animal and plant care based on sound scientific principles.



A young orangutan

This means:

- providing best practice animal and plant husbandry and care;
- ensuring our facilities are fit for the purpose of providing excellent care;
- focusing our science to support conservation and animal welfare;
- sharing our skills and experience both internally and externally.

Strategic objective

4

To ensure long term commercial viability through excellent business practices.



Products on sale at the zoo's shop

This means:

- broadening our income base via new markets, products, funding and land use;
- developing better intelligence and market analysis and exploiting this data to better understand our customers;
- working smarter to drive down costs;
- increasing winter revenue;
- revision of the pricing strategy.

Strategic objective

5

To ensure that our staff are recognised as being at the heart of the organisation and influence the success of everything we do.



Our staff getting involved with the Go Orange campaign

This means:

- helping people innovate, assessing leadership and capability and producing a people development plan;
- ensuring we have excellent recruitment, selection and induction processes;
- improving staff facilities and staff welfare;
- developing a culture that means that everyone is an ambassador for our work;
- training and development including succession planning and building capacity;
- developing a system of reward and recognition that includes performance management, pay and benefits;
- initiating cross-functional working groups that build in flexibility.

Strategic objective

6

To ensure an excellent external reputation that builds trust and allows us to influence our stakeholders.



Chester Zoo winning a Marketing Cheshire award

This means:

- developing and creating a clear brand and awareness of what we want to be known for;
- receiving industry recognition across multiple disciplines through awards;
- protecting our reputation and having robust crisis management processes;
- developing strategic lobbying on the issues that we feel strongly about;
- ensuring greater public engagement with our science and technology, conservation and commercial activities;
- continuing liaison with our partner organisations and peers, e.g., BIAZA, EAZA, WAZA, IUCN, ALVA;
- providing support and expertise to targeted zoos throughout the world in partnership with like-minded organisations to improve the general public perception of zoos.



Islands - Coral Sands

DEVELOPING THE ZOO IN 2015

Islands

In July 2015 we opened *Islands*. This amazing recreation of six South East Asian islands took over two years to complete and, at £40.6m, was the largest project ever undertaken by Chester Zoo.

Islands became a truly unique project in both size, scope and design and pulled on resource from a number of specialist contractors as well as many Chester Zoo staff.

During the summer of 2015 *Islands* opened in planned phases as species settled into their new habitat and final touches were made to enclosures and back of house areas.

Over the last 6 months of 2015, and into early 2016, additional species were added including the Sumatran orangutans.

Further development is being planned for *Islands* in 2016 allowing additional enclosure space to be created for more of our current collection to be relocated to new, state of the art enclosures which further represent the natural environment of South East Asia.

There has been a great amount of customer feedback about *Islands* and we have collated this information to allow us to continue to further enhance the visitor experience as they journey through the expedition.

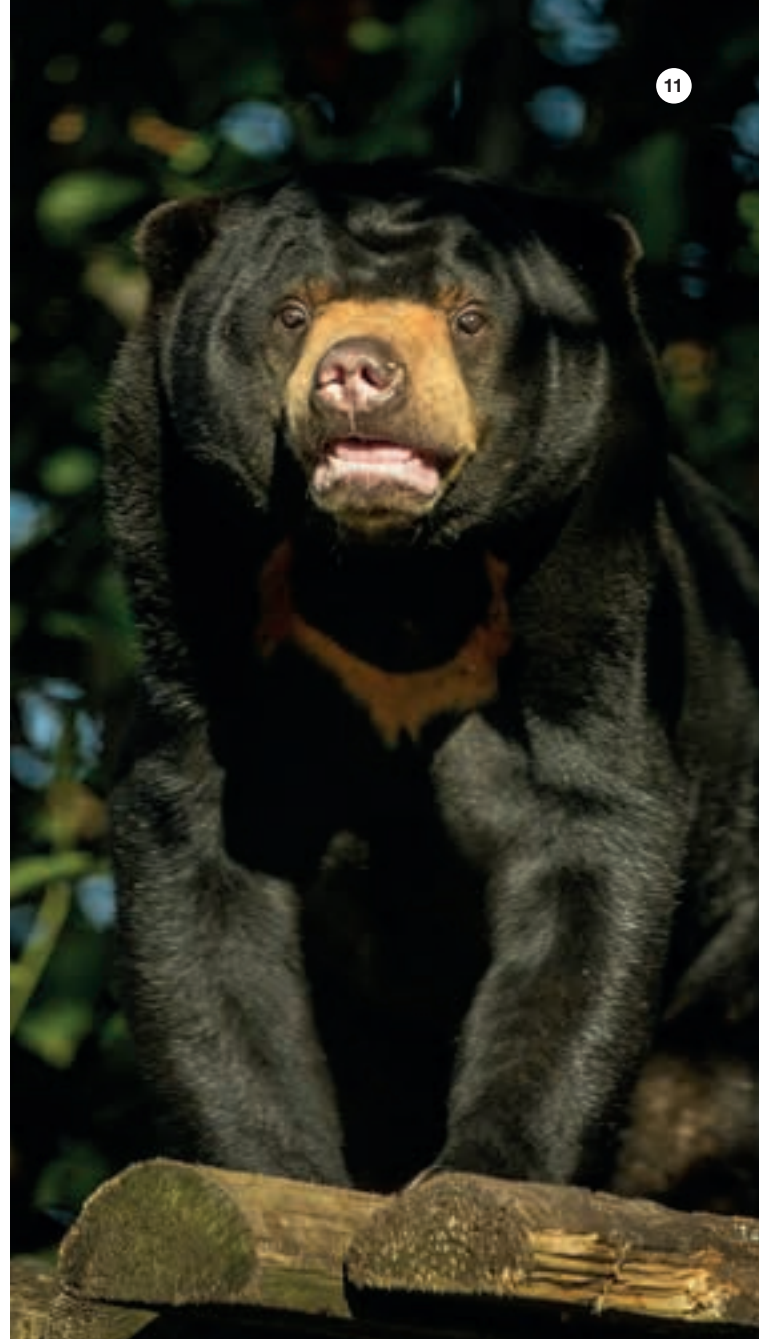
Developing other parts of the zoo

Whilst the zoo team focused primarily on the delivery of *Islands* during 2015, there was a great deal of additional enhancement work undertaken to other parts of the zoo. These included re-roofing the popular *Tsavo Black rhino house* with an impressive new thatch, and re netting the *Tsavo aviary*. We also dredged and installed aerators into the ponds around the flamingo exhibit to improve the water quality. To enhance the visitor experience we reinvested in customer toilets, catering kiosks and also prepared for major refurbishment of Bembe restaurant at the zoo entrance as well as further extending accommodation for the membership team.

Preparing enclosures vacated by species which relocated to *Islands* was also an important project during 2015. An example of "backfilling" emptied exhibits included the successful introduction of a pair of Sun bears to the habitat which had formerly housed the family of Sumatran tigers. The bears have become very popular and visitors are enjoying viewing them from the newly named Sun bear platform.



Cassowary



Sun bear



Islands – bird's eye view



Bali Starling temple

Strategic Development Plan

With the huge investment of resources in *Islands*, development of the zoo's strategic development plan was put on hold for much of 2015. In the final quarter of the year we began in earnest to evaluate and develop the elements that will inform the next stages of the zoo's physical development with the intention of seeking the Trustees' approval of the scheme in the first half of 2016.

The key principle of the strategic development plan is to create large themed zones, similar in nature to *Islands*, based on either geographical groupings or habitat type, for example rainforest or savannah. This will be in conjunction with major investment in the zoo's infrastructure as well as development opportunities for the zoo owned land outside the existing core zoo to ensure we maintain and future proof.





Monsoon Forest



Tiger enclosure



Sunda Gharial



Environment

In May 2015 we attained reaccreditation to the Green Tourism Business Scheme, achieving the gold level award. In June we completed the installation of an array of photo voltaic panels to the roof of Cedar House, our administration building. These will generate around 63,000 kW hours of electricity each year which will meet up to 70% of the electricity demand at Cedar House during the summer period. The green energy will cut our carbon emissions by 16,000 kg a year and provide opportunities to engage our visitors on energy use and climate change.

These initiatives, delivered within the framework of our environmental management system ISO14001 will help achieve the financial sustainability we are looking for from our investments.



SCIENCE

Knowledge and understanding underpins the zoo's mission, in both our field and on site activities. Scientific method provides the evidence base for decision making, evaluation and refinement.

Scientific activity occurs across the zoo and beyond and involves our highly skilled and experienced staff in many divisions. Research projects involving the living collection are primarily identified by our curators and animal and plant teams. Projects which are not completed by zoo staff are offered to professional researchers or postgraduate students who collaborate with or are supervised by a member of zoo staff. Our in-zoo experts also act as specialist supervisors on multi-zoo projects or projects which take place in the field. Chester Zoo is currently supporting 12 PhD students from 9 different universities. In 2015 Chester Zoo staff were actively involved in 45 research projects, the majority of which we had commissioned to directly help us with evidence based decision making, a small sample of these are highlighted below.

Biodiversity Surveys and Ecological Monitoring

In an ongoing collaboration with researchers from Manchester Metropolitan University, different population monitoring methods for the Hazel dormouse were compared to determine the most accurate technique. This species is relatively rare locally and estimating populations can be challenging. This study developed a new population model that incorporated dormouse nest counts and offspring counts, which are collected as standard as part of dormouse nest box monitoring. This new model was a significant improvement and is now recommended to others working on the ecology and conservation of the hazel dormouse.

Conservation Breeding and Management

Zoo populations play an important role in conservation, particularly for amphibian reintroductions, however these individuals need to be able to adapt to wild conditions once released. The fitness of a zoo population of Golden mantella, a Critically Endangered frog, was evaluated as part of a multi-disciplinary PhD with the University of Salford. Results showed that captive individuals had different skin colouration and did not perform tonic immobility when compared to their wild counterparts, which may make them more susceptible to predation. Investigating fitness can improve zoo population breeding and help informed decisions regarding reintroductions.

Human-Wildlife Conflict

Human-elephant conflict involves crop raiding, destroyed homes, and injuries and deaths of both people and elephants. As part of our Assam Haathi Project in India, which mitigates this conflict across six districts of northeast India, we are currently revisiting a decade of monitoring data to determine optimal cost-benefit strategies for managing conflicts, with a view to modelling future outcomes for elephant conservation.

Livelihoods and Sustainable Developments

Nearly half of Nepal's population lives in poverty and many communities are directly dependent on natural resources around national parks. Successful anti-poaching campaigns have led to an increase in tiger numbers, which has resulted in human-wildlife conflict. Marginalised poor communities are now struggling to live alongside this threatened yet dangerous predator. We are conducting qualitative social research



Collecting behavioural data



Dormice monitoring



Golden mantella

to understand the options for these communities to pursue alternative livelihoods that may improve their economic and personal safety. In addition, our joint doctoral student with the University of Oxford is studying the effects of such interventions on the population ecology of tigers and leopards in the region.

Visitor and Community Engagement

In collaboration with WAZA (World Association of Zoos and Aquariums) and the University of Warwick we continued to provide support for a 3-year study assessing the educational impact of zoos and aquariums on biodiversity literacy in visitors. This year a second global survey of zoo visitors was conducted. Nearly 5,000 visitors to 20 zoos from 14 countries participated and we again found significant increases in biodiversity understanding and the knowledge of actions to help protect biodiversity between pre- and post-visit. We also found significantly higher biodiversity understanding in those visitors that reported viewing education materials from the global biodiversity literacy campaign – ‘Biodiversity is Us’.

Wildlife Health and Wellbeing

Islands presented us with a unique research opportunity. As the majority of the animal species housed in *Islands* had been housed in existing enclosures at Chester Zoo we could assess animal behaviour and wellbeing both pre- and post-*Islands*, within the same individuals. Similarly, by assessing key visitor-related variables such as visitor viewing behaviour, perceptions, attitudes and social conversations we would also be able to assess the impact *Islands* has on visitors. This large-scale, cross-disciplinary work has involved over a dozen students collecting data since May 2014. Post-*Islands* data will continue to be

collected into 2017 to enable a full assessment of how the animals have settled into their new homes. Conclusions will be used to guide future developments.

Supporting Scientific Research

In addition to actively undertaking research projects we support a wide range of scientific activities. The Richard Hughes Scholarship (awarded to projects with a focus on elephant management, welfare or conservation) was awarded to a project researching reproductive success and adrenal physiology in wild African elephants and Black rhinoceros. In total in 2015 Chester Zoo supported over 150 research projects in partnership with over 80 organisations, and we approved 17 biological sample requests, provided 17 training opportunities for undergraduate students and offered 10 studentship grants for conservation related research.

Our strength in science also relies on disseminating our findings both nationally and internationally with peers and the wider public. This year we contributed to over 60 publications, abstracts and reports, we delivered over 170 presentations, seminars and training sessions and peer reviewed over 80 manuscripts and abstracts. We were awarded a Gold Research Award at the 2015 BIAZA Annual Awards for a doctoral study understanding the interactions of frogs and their symbiotic bacteria to improve *ex-situ* husbandry and develop the use of probiotic treatments against chytridiomycosis disease. In 2015 we increased our engagement with members of the public by attending science festivals for the first time. We also launched our Science Twitter account (@ScienceatCZ) to actively engage with members of the scientific community and interested members of the public. Further details of our activities can be found in our annual Science Review (www.chesterzoo.org/conservation-and-research/resources).



Asian elephants at Chester Zoo

CHESTER ZOO CONSERVATION SCHOLARS 2015

We are pleased to be currently supporting 12 PhD students from nine different institutions

Influences of competitive behaviour in cooperatively breeding mammals, Rhiannon Bolton, University of Liverpool

'My project aims to investigate the underlying mechanisms that balance contented and aggressive behaviours in mammals which rear their young together in shared nests. Such animals, for example African painted dogs, are endangered in the wild, therefore gaining greater understanding of how their bodies function should help to improve the conservation of these species.'

Environmental sound impact on zoo mammals, Marina Bonde de Queiroz, Salford University

'My research is about the impact of sound pollution on zoo mammal behaviour and welfare. I will focus specifically on the noise produced by the zoo visitors, how it can affect the animals, and how it can influence the public's experience at the zoo.'

Social welfare of captive Asian elephants, Rutendo Wazara, University of Liverpool

'My PhD will be about measuring the strength of social bonds of captive elephants. My aim is to find a way for zoo keepers to monitor the social development of elephants simply and effectively and to test if social relationships are linked to other measures of zoo elephant welfare.'

Fencing African elephants in Kenya: landscape and welfare impacts, Jacqui Morrison, Manchester Metropolitan University

'My research is looking at what the effects are of building a fence around a national park in Kenya. I will be measuring levels of stress in elephants and looking at their group structures whilst also assessing the impact on the habitat including the types of vegetation present and any possible damage.'

Orchid-Mycorrhizal fungi interactions; improving propagation methods for chlorophyllous and mycoheterotrophic orchids, Oliver Hughes, University of Manchester

'My research looks at interactions between orchids and fungi. For the majority of their lives most orchids are reliant on interactions with fungi,

to share nutrients and gain protection from diseases. Orchid seeds rely on being infected by fungi to germinate and grow. I am studying this relationship to better understand the biology of these plants and help their conservation.'

Impact of ex-situ husbandry: comparisons between in situ and ex situ species, Luiza Passos, University of Salford

'My project is trying to evaluate the effects of the captive environment on the behaviour of reptiles and amphibians in order to understand if, in the case of a reintroduction, captive animals would have the right skill for survival back in the wild.'

Population status and conservation of the critically endangered Bermuda skink Plestiodon longirostris, Heléna Turner, University of Kent

'I am researching the population and conservation of a critically endangered lizard, the Bermuda skink. As they have many threats, I want to know how many currently remain in the wild and determine whether there have been any significant changes in the health of the population to help with their future recovery.'

Assessing practical interventions for reducing human-large felid conflict in Nepal, Susana Rostro, University of Oxford

'I'm identifying the factors that influence human-felid conflict in Nepal, and determining the effectiveness of interventions carried out by Chester Zoo to reduce conflict. This will help to: 1) evaluate if interventions are culturally-relevant, situation-specific, and successful; 2) determine if tigers and leopards are affected; 3) understand the relationship between ecology and conflict.'

Factors influencing management and conservation of wild Asian elephants in Peninsular Malaysia, Ee Phin Wong, University of Nottingham Malaysia Campus

'Human-elephant conflict usually involves elephants raiding crops, which causes economical loss to plantation owners and smallholders in Peninsular Malaysia. One mitigation measure is translocating these elephants to larger forest areas. My PhD is investigating the effect of translocation on the health of the animals and how they adapt to their new environment using non-invasive wildlife endocrinology techniques.'

Defining in-situ characteristics to determine best practice for ex situ husbandry for Harlequin mantella, Jade Newton-Youens, University of Manchester

UK Pine marten recovery programme: Impact of translocation strategies, David Bavin, University of Exeter and Vincent Wildlife Trust

Dynamics and conservation of a population of the Harlequin mantella at Fohisokina, Madagascar, Christian Radrianantoandro, Antananarivo University



Sumba School

Fundraising through Chester Zoo and Act for Wildlife

THANK YOU FOR YOUR SUPPORT

What an amazing year we have had, and so we begin with a huge thank you to all our supporters, donors, volunteers and friends for their continuing help without which we simply would not be able to achieve everything we want to.

With the opening of *Islands* in 2015 we are hugely grateful to the Wolfson Foundation for their support of the Sumba School in *Islands* (pictured above). We are delighted that the room is now up and running. It's a resource that is providing school groups and visitors with not only a place for interactive education sessions, but also a chance to step into the forests of South East Asia thanks to the specialist 360 degree films shown within.

Grant-giving trusts and foundations have continued to support a range of projects this year including the Safari Ranger schools outreach project and a PhD on orchid research. New, funded, activities included The Green Gold Conspiracy theatre production and an artist in residence, both projects raising the profile of our work in the area of promoting sustainable palm oil. Other funding from Foundations has allowed an update of The Ronald and Kathleen Pryor Bird Hide and the installation of bike lockers. Education at the zoo has been enhanced with the addition of two new projects including a "wild winter" experience for younger children and activity packs for use in the nature reserve.

In 2015, after four years, the Heritage Lottery funded Biodiversity Trainees project ended with a celebration event attended by special guest, broadcaster Iolo Williams. We want to say a special thanks to our funders, without whom this project certainly would not have happened. Having the ability to invest so much in these young people has really paid off with the majority now in paid employment in the conservation or heritage sector, a great legacy for the project.

Support from the corporate sector has grown with a range of new partnerships including Sykes Cottages, Cullimore Dutton, Hillyer McKeown, M&S Bank and Medicash. Long term support from Airbus and Urenco has continued for both conservation and education projects, and knowing we have their support long term allows us to plan even greater things for the future.

Funding for our conservation projects via the Act for Wildlife campaign has continued to grow during 2015 including receiving a significant donation from a private donor towards our China project. More people than ever took up the challenge to fundraise. You cycled, ran, baked and got muddy all to help wildlife across the world. And if that wasn't enough, when we asked you to do more you did, raising over £1,000 in 24 hours for an emergency appeal to help endangered turtles.

This year the society has benefited from a number of legacies and we would like to take this opportunity to say thank you for thinking of us in this way.

Finally a really big thank you goes out to our committed volunteers who help with fundraising and support the wider zoo team.

To all our supporters and friends we thank you for your support and look forward to working with you again in the future.



Biodiversity Trainees

THANK YOU to everyone who has supported us during 2015 including the following major donors:

Airbus	Philip Barker Charity
AT 3D-SQUARED	Ronald S Williams (legacy)
Carole L Brown	SeaWorld & Busch Gardens
ClubAZ	Conservation Fund
Cullimore Dutton Solicitors	Sheila Hartley (legacy)
Freda B Warburton (legacy)	Stuart E R Bailey (legacy)
Halliwell Jones Chester	The Ampelos Trust
Harold Reid (legacy)	The Dwek Family
Heritage Lottery Fund	Charitable Trust
Hillyer McKeown LLP Solicitors	The Ernest Cook Trust
itravelSMART	The Finnis Scott Foundation
Maureen S Tudor (legacy)	The Granada Foundation
MBNA and Bank of America	The Peter Foden Family
Merrill Lynch	Charitable Trust
Medicash	The Ronald and Kathleen
M&S Bank	Pryor Charity
Mrs T A Briggs Deceased	The Wolfson Foundation
Will Trust	URENCO UK Ltd





Health check for a Sumatran tiger cub

ANIMAL HEALTH, WELLBEING AND HUSBANDRY

In 2015 we strengthened the veterinary department's capacity by employing another full time veterinary officer and one administration assistant. We also made preparations to increase capacity further by creating a residency in zoo health management in 2016.

We were delighted that the first ever, fully funded, three month zoo veterinary internships took place this year at Chester Zoo. Two Indonesian veterinarians were selected for this with the overall aim of increasing *in-situ* veterinary capacity for conservation programmes.

Away from the zoo we continued our contribution to the South East Asia programme through support to OVAG and a new programme of health support to Cikananga passerine breeding centre. Locally, we continued the Tuberculosis badger vaccination programme.

The team made a variety of contributions to the research and science activities of the zoo, covering areas ranging from effects of darting primates in the wild, to chytrid treatment of wild populations of Mountain chicken frogs, to advances in the treatment of Spectacled bear alopecia, and development and evaluation of alternative methods for blood sampling for EEHV (elephant endotheliotropic herpes virus) diagnosis.



Conservation overview

Mauritius cuckoo shrike
nestlings

A BLENDED APPROACH

The world continues to change, and in response so has the role of zoos. Climate change, growing human populations and associated increasing pressures on land and natural resources are having an escalating impact on the world's biodiversity.

Natural habitats continue to be lost or degraded, and the number of species threatened with extinction grows. The wild is getting smaller and more fragile, and the role of zoos as conservation organisations is more important now than ever.

Zoos are an important part of a wider global conservation community and it is our duty to identify where we can have the most impact, to best utilise our unique suite of skills and opportunities, to save species from extinction.

We provide the very best husbandry and welfare for some of world's rarest creatures, underpinned by sound science benefitting conservation both in the zoo and wild; and we have an extensive network of academic, government, zoo and conservation partners that allows us to have conservation impact spanning from Chester Zoo to global biodiversity hotspots across the globe.

The actions needed to save a species are rarely simple and a holistic approach is needed. This report has multiple examples of research we support in the field, in the zoo, and most importantly where the two strands run parallel to complement each other.

People are of course the key component of the conservation puzzle and we have teams dedicated to engaging and enthusing, to getting people to care and more importantly to take action. These skills are not only applicable to our visitors but also for governments or policy makers or for communities on the front line, living side by side with wildlife – we are uniquely placed to engage and connect with all of these audiences.

We manage populations of threatened species in the zoo, and increasingly wild populations also require degrees of management. We have keepers with years of specialist experience and our work in Mauritius is a great example of how these skills are applied in the zoo and field; managing zoo populations as an extension of the wild ones.

The strongest example this year of our integrated approach to conservation is our work in Indonesia – our commitment to conservation in this region exemplified by *Islands* and our complementary activities in the wild.

The following pages showcase our conservation activities in 2015, demonstrating how zoo and field based approaches have worked

hand in hand to tackle conservation challenges – a blended, one plan, approach that optimises the skills and resources that zoos have to offer the conservation community. It is also an approach, which despite continued global challenges to wildlife, is having an impact.

PALM OIL

September 2015 saw the launch of our Sustainable Palm Oil Challenge campaign; a way of celebrating the companies who are already committed to 100% Roundtable on Sustainable Palm Oil (RSPO) certified sustainable palm oil, supporting those that want to be sustainable and making it easier for people to choose sustainable palm oil products. We ran various activities and projects to reach different target audiences:

- We launched a crowd-sourced 'shopping list' gallery of products which contain RSPO sustainable palm oil.
- Alongside Coney, a theatre production company, we reached new audiences with the palm oil message through experimental theatre.
- Research took place on restaurants in Chester, investigating their commitments to ethical purchasing and knowledge of sustainable palm oil. Following this research, which surveyed over 80 restaurants in Cheshire, a restaurant toolkit was produced.
- The Palm Oil Challenge in the zoo saw the installation of artwork outside Realm of the Red Ape created as a collaboration between our artist in residence, Angela Sidwell, and local school children and zoo visitors.

In other work, we are working closely with BIAZA (British and Irish Association of Zoos and Aquariums) and other international zoos on procurement and public awareness to increase the demand for sustainable palm oil. In particular this year a highlight was the co-organisation of the BIAZA Palm Oil Action Conference, where over 40 BIAZA members attended, increasing knowledge on sustainable palm oil, activities in the field and actions which BIAZA members can take – from procurement and auditing to communication with the public. The conference was a huge success and further developments will be taken forward this year. Our Annual Conservation Symposium was held in October, focussed on 'Labelling Sustainability', with particular emphasis on MSC, FSC and RSPO certification schemes.



Conserving species of

LATIN AMERICA

Ecuador Amazon parrot

Chester Zoo holds a National Plant Collection comprising over 1,500 species of Latin American orchids. During the year, 25 additional species were added to the collection, and a further 20 new plants propagated by the division to build up existing species in the collection.

A PhD student has been carrying out research on pollination of Pleurothallid orchids, plus root sampling from various species to screen for a suitable mycorrhizal fungi. The premise of this research is that if *ex-situ* propagation of orchids can be improved, this will help to reduce pressures on collecting specimens from the wild.

The IUCN recently completed a Global Species Assessment of Cactus, and found that this taxon is much more threatened than previously thought. The zoo holds three National Collections and over 250 species of South American cactus, of which 84 are now thought to be threatened in the wild.

Work is on-going in the zoo to grow different cactus species from seed. Experimental work has also been carried out around grafting as a potential propagation technique which could be used in the future, where species are rare or difficult to grow from seed.

The jaguar, the largest cat of the Americas, survives in patches of habitat across 18 countries of Central and South America, but its numbers are continuing to decline.

Around 65% of its range is outside of wildlife reserves and protected areas, and it is here that jaguars roam onto farming and ranching lands, and prey on cattle and other livestock.

This leads to retaliatory killing of many cats, which can decimate their populations faster than habitat loss. It also seriously affects the incomes and welfare of the people of who we ask support for wider environmental protection goals.

In our recently completed global study on human-jaguar conflict led by our conservation scientists in collaboration with Oxford University and a large team of jaguar experts, we studied patterns and priorities for jaguar conservation.

Studying over 100 human-jaguar conflicts across Latin America, including 17 case studies in-depth, we found that a huge variety of types of communities and socio-economic contexts exist. Although there are ecological and agronomic patterns in these scenarios, there is nothing that consistently predicts why some farmers tolerate jaguars and others kill them.

From this we determined that in order to resolve human-jaguar conflict, we need to not only protect wild prey and work with farmers and ranchers to improve livestock husbandry practices, but also perhaps most importantly understand the cultures and social norms of the farming communities that live near jaguar habitats and find ways to encourage them to benefit from, value, and protect jaguars.

To this end, we are currently developing a new field conservation project on jaguars with partners in Brazil and elsewhere, which will act as a model for ensuring the safe coexistence of jaguars and people across different kinds of landscapes.

This year we continued our support for the Lowland Tapir Conservation Initiative. We've supported their ongoing research in the Brazilian Pantanal for many years. The team expanded their work to a new site; the Cerrado. This new component of the project aims to assess the threats facing tapirs and develop effective conservation strategies to minimise them.

We also continued our support for Ecuador Amazon parrot research. As well as funding on-going monitoring and protection, our Director General and his Technical Assistant travelled to Ecuador and Peru to continue to map the range of the species as part of an on-going study.

Our support to projects on Spider monkeys, Giant armadillos and Grey-breasted parakeets also continued this year.

Within the zoo we said goodbye to Franka, the 18 year old female Spectacled bear, a sad loss for our keepers and visitors.

Conserving species of AFRICA

Gashaka Gumti National Park

This year we supported a new field project on endangered Rothschild's giraffes in Uganda. As well as providing financial support, our Africa Programme Manager and Giraffe Team Manager travelled to Uganda to assist with initial population surveys in Kidepo Valley National Park. In the zoo there were two Rothschild giraffes born in 2015; Sanyu was born on the 7th June to mum Dagmar and Kidepo was born on the 23rd July to mum Orla, both sired by Meru. One sad loss this year was that of Aoife the Rothschild giraffe on the 23rd June 2015, who had to be euthanised due to an ongoing back problem. Aoife had been at the zoo since July 2008 and still had two offspring here; Tula who was born at the zoo in 2010, and Zahra who was born just last year in December.

The 31st January 2015 saw the birth of the female Critically Endangered Eastern black rhinoceros, Fara. Sadly, Fara passed away on the 3rd March due to heart failure. The killing of rhinos for their horn continues to escalate and to be the major threat to rhino worldwide. We continued to focus field support for the Eastern black rhino in Kenya and Tanzania.

At the Chyulu Hills National Park, Kenya, we continued our funding for Biglife Foundation rangers who provide 24/7 monitoring and protection for the small but important rhino population. Work continues towards an Intensive Protection Zone, which would provide increased security to the rhino plus huge benefits to the ecosystem and wider wildlife. This year saw significant increases in rangers, training and infrastructure, including funding from Chester Zoo to boost intelligence gathering capacity. Despite huge dedication and investment sadly a rhino was lost. Bahati, a calf orphaned by poachers last year and who survived against the odds despite suffering a gunshot wound, died this year after being caught in a snare.

At Mkomazi National Park, Tanzania we continue to support the George Adamson Wildlife Preservation Trust (GAWPT) to protect the rhinos that have been translocated to the Mkomazi rhino reserve. This requires ongoing support for infrastructure personnel and maintenance, which also includes our funding of the highly effective tracker and attack dogs. We have also worked closely with GAWPT to develop a Rafiki wa Faru – an education programme that engages local communities with the wildlife in the park, and we continued funding for education officer salaries.

Elsewhere we also continued our support for the Association of Private Land Rhino Sanctuaries (APLRS) in the Laikipia District, where the majority of Kenya's Black rhino are found. These sanctuaries are essential stakeholders in Kenya's national action plan for the conservation of Black rhino.

In collaboration with Manchester Metropolitan University we also continued to fund PhD research into the Factors Underlying the High Variance in Black Rhinoceros Reproductive Output with academic input from Chester Zoo staff conducting their MSc projects.

2015 was a challenging year for the Gashaka Biodiversity Project (GBP) due to the change of Nigeria's federal government following general elections in March. Nonetheless significant progress was made in the development of our flagship Africa Programme. In January our Africa Programme Coordinator made his first visit to the Gashaka-Gumti National Park (GGNP) with our Head of Field Programmes, getting familiar with the project, spending time in the park and liaising with the Nigerian Park service. January also saw a change of GGNP management with outgoing park director Dr. George Okeyoyin taking a senior position at the Nigerian Park Service (NPS) headquarters in Abuja. The incoming director Cornelius Oladipo MSc. brings with him

a wealth of experience including several years' experience as a former park ranger in GGNP.

We also shared the loss of Heidi the Western chimpanzee, who was born at the zoo in 1972. Heidi was euthanised on the 19th March 2015 due to ongoing health issues.

In March we hosted the 1st Gashaka Biodiversity Symposium. This exciting event gathered over 50 conservationists and researchers working in central Africa including speakers from IUCN, The Wildlife Conservation Society, University College London as well as the zoo. Dr. Umar Buba, GBP project manager also visited the UK for this event, delivering a talk on his research on chimpanzees at the GGNP. He also visited Everton F.C. to discuss next steps for the GBP ecosystem health project, sponsored by the Everton in the Community Initiative (EitC). June saw a second visit to Nigeria for zoo staff, initiating a pilot camera trap study for elusive Golden cat and Forest leopard as well as witnessing the second phase of the EitC supported ecosystem health project. This activity targeted a number of key villages, delivering conservation and health messages and providing diagnosis, treatment and preventative measures for a number of common tropical diseases (such as Malaria and Typhoid). In total 992 people attended the sessions, 666 were treated and 500 mosquito nets distributed. Our collaboration with the Taraba State University, Jalingo continued, with six undergraduate students from the Taraba State University, Jalingo visiting Kwano in July and four MSc level Nigerian students receiving student support bursaries.

Throughout the year the zoo's "Discovery and Learning" department continued the development of interpretation for the new GGNP education centre, (constructed in 2014) and a number of improved management and operating procedures were implemented in-country. November saw our long-term collaborator and initiator of the original "Gashaka Primate Project" Professor Volker Sommer, University College London, hand over scientific direction of GBP activities to the zoo and the legal registration of Chester Zoo as an International NGO in Nigeria entered its final stages. Also in November Dr. Umar and Cornelius Oladipo visited the zoo, furthering our long-term partnership with the NPS and discussing new strategies and activities for the GBP in 2016. These will include the intensification of protection activities, the first complete census of chimpanzees in GGNP and the first attempt to assess the status of large mammals and threats since the late 1990s. 2016 promises to be an exciting year in the development of the GBP!

We continued support for okapi conservation; sending Kheri the male Okapi to White Oak Conservation Center in Florida to join the SSP whilst continuing our support in the Democratic Republic of Congo.

Another significant export this year was that of Winston the male Mandrill to Disney's Animal Kingdom in Florida which went smoothly, having taken over 12 months to plan and carry out.

Six Slender tailed meerkats were born at the zoo in 2015; four in June and two more in August.

We also started supporting a PhD looking into the effects of fencing a reserve in Kenya on elephant populations. The PhD aims to determine the effect on population size and physiology of the elephants as well as the impact their confinement has on the forest habitat and vegetation structure. This is in addition to continuing Mountain bongo research in Kenya and on-going support for a project reducing the threat of disease to African painted dogs through vaccination of domestic dogs in Zimbabwe.



Conserving species of

MASCARENES & MADAGASCAR

Mauritius Olive white-eye

Collaborative conservation in the Mascarenes has a proven track record of success, saving many endemic Mauritian species from extinction.

Our long standing relationship with the Mauritius Wildlife Foundation (MWF) and other partners continued in 2015. Our Director of Collections and Head of Field Programmes visited Mauritius discussing exciting opportunities to further utilise the unique skills and opportunities we have to support integrated conservation action for Mauritian species.

The major focal area for our technical support over the last few years has been for passerine conservation. We continued to fund the Mauritius Fody and Olive white-eye projects - including on-going management of the populations successfully established on the off shore island of Ile aux Aigrettes. We also supported PhD research on rat control and the outcomes of this research are currently being applied to management in the field, with particular relevance to the wild Olive white-eye populations in Combo where continued habitat loss and the impact of rats are of major concern.

Another developing passerine project is for the Mauritius cuckoo shrike, and two of our bird keepers provided hand rearing and nest mapping and monitoring skills.


We continue to give financial support for the Pink pigeon and Echo parakeet – examples of species brought back from the brink of extinction, but which do still require on-going management and research. A new phase of the Echo parakeet work included

translocations to establish a new sub population in the SE of Mauritius. To support this programme a new male Mauritius pink pigeon was imported from Dallas Zoo, USA, to Chester as part of the EEP conservation-breeding programme for this highly threatened species. Pigeons bred at Chester will soon be moved back to Mauritius to provide important genetic diversity for the reintroduction programme on Mauritius.

Another new species added to the collection this year was the Madagascan Lesser-hedgehog tenrec, brought in from a private collection on the 10th December, which has become part of the Fruit Bat Forest exhibit.

The endemic plants of Mauritius are also under incredible threat and their importance is globally recognised. Work continued to build up the gene banks of these threatened plants and to propagate for on-going replanting projects. This includes replanting on Ile aux Aigrette, which through intensive management now has strong populations of both native plants and animals. Here Learning with Nature, develop by MWF in conjunction with Chester Zoo, goes from strength to strength and is booked to capacity.

We continue to coordinate the conservation breeding programme for the Rodrigues fruit bat and on Rodrigues Island we again funded the annual Rodrigues fruit bat surveys and the restoration of Grande Montagne Nature Reserve, a critically important habitat for range of endemic species. To date almost 80% of this once highly degraded habitat has been restored.



Cabot's tragopan

Conserving species of SOUTH ASIA

Significant births this year included three Endangered Persian onager foals born within a few weeks of each other. Another significant birth this year was that of Nandita Hi Way, the female Endangered Asian elephant calf, born at the zoo on the 20th August to experienced mum Thi Hi Way. Nandita is the first calf born at the zoo sired by bull Aung Bo. However, sad losses this year were that of Bala and Hari Hi Way on the 15th September and the 27th October respectively. Both calves tested positive for elephant endotheliotropic herpesvirus (EEHV), a very fast-moving virus which affects both wild and captive elephants between the ages of two and five years old. There is currently no vaccine against EEHV, although the zoo is committed to ongoing research into this.

The Himalayan foothills of Assam in north east India provide one of the most important remaining areas of habitat for the Asian elephant. However, the state of Assam is also home to around 30 million people, and in areas where elephant and human habitats overlap, devastating losses of lives and livelihoods occur. Since 2004, Chester Zoo has been working with Ecosystems-India to address this conflict across the state, providing safety for people and reducing retaliations against elephants. In 2015 we continued our work to control crop-raiding and property damage by elephants, which we achieve through a combination of barrier and deterrent methods. The Assam Haathi Project also works extensively with women's groups to develop alternative sustainable livelihoods, in particular small livestock, weaving, tailoring, beekeeping, fisheries and other microenterprises.

An expedition of 12 Chester Zoo staff with a variety of expertise travelled to Assam in early 2015 (see page 27 for more details about the expedition).

Notable breeding successes in the zoo include the rearing of 25 Critically Endangered Baer's Pochard and Vulnerable Cabot's tragopan were bred for the first time at the zoo during 2015. We also continued coordination of the collaborative support for the Critically Endangered Blue crowned laughing thrush. A total of 321 birds were counted in the wild during the breeding season, and survey results included disturbance at one site due to construction and the discovery of two new breeding sites. These new sites may represent the movement of birds from other known sites and future research will aim to investigate this further. A new Memorandum of Agreement was signed with Forestry Bureau of Wuyan County, Jiangxi for continued monitoring and protection of these threatened birds.

In China, our largest project is the Sichuan Forest Biodiversity Project, which has been running since 2002, protecting and conserving forest biodiversity in the Liang Shan region of Sichuan.

A fifth reserve, Qin Cai Ping, was added to the network of other reserves we support, extending protection to a vital corridor of broadleaf forest along the ridge linking Laojunshan nature reserve in the east of the region with larger forests further west. Giant pandas have dispersed from their strongholds eastwards along the forested ridge to Laojunshan, so we know how important this dispersal corridor is to endangered wildlife.

Continuous monitoring of Gamebird populations at three of the reserves over the last 7-9 years is revealing an underlying increase in populations of key species, including the Sichuan Hill-partridge, providing evidence that this careful management to reduce disturbance is paying off. In 2015 a new Memorandum of Understanding was signed directly with the five Nature Reserves that collectively form this project to secure the continuation of this work for another two years. Working closely with this project we also continued to fund the education activities of the Chengdu Research Base of Giant Panda Breeding.

Over the past 20 years the human population in Nepal's Terai lowlands has increased by as much as 81%, making the area the most densely populated region of Nepal and significantly increasing consumption of forest resources. Simultaneously, effective conservation actions, including the establishment of community-managed buffer zones and a successful anti-poaching initiative, have resulted in increasing tiger populations. As a result, human-tiger conflict (tiger attacks on people and livestock) have also increased, particularly in buffer zone areas around Chitwan National Park and Bardia National Park.

In 2015 Chester Zoo together with its new Nepalese NGO partner Green Governance Nepal, created the new Living with Tigers project, in order to address this urgent human-tiger conflict situation.

We selected the precise field sites and the communities with which we will be working in Chitwan and Bardia, using a structured approach considering community characteristics, needs, agency and perceptions, and designed in full our baseline monitoring and evaluation and social research plans. The project will target in particular those households with a high dependence on forest resources for subsistence or income; those that have large livestock; and people involved in community forest management activities. In the Terai, women are typically responsible for collecting the bulk of forest resources so the project will work closely with women from target households.

In setting up new projects there is also much to do in setting up agreements and applying for permits to work with communities and carry out research alongside the applied conflict mediation work.

We also had our doctoral student from Oxford University begin her research as part of this project, in which she will study the effects of the project's conflict intervention work on the ecology and distribution of tigers and leopards at the edges of these national parks. This will help conservation scientist better understand the continuously changing ecological and landscape dynamics of human-carnivore conflicts.

In addition this year we funded a new project dedicated to saving the Indian buffalo by lowering the dependency of local communities on forest resources and establishing a protocol for forest restoration. We also continued our support for ZOO/WILD, a collaborative organisation bringing together conservationists to promote education, networking and training.



Conserving species of

SOUTH EAST ASIA

The Katala team studying a map to identify boundaries and critical areas for the Palawan forest turtle © Katala

A significant new import this year was the arrival of a male and female Sun bear from the Rare Species Conservation Centre in Kent. Toni and Milli arrived on the 6th October 2015 and settled straight into their enclosure which was previously the home of the Sumatran tigers. Both Toni and Milli were rescue animals and are the first Sun bears to live at the zoo in over 30 years. Also new to the collection this year were a male and a female Endangered Moloch gibbon, Alven and Tilu, who were imported here from Howletts Wild Animal Park in Canterbury on the 30th December 2015. This is an Endangered species and both individuals moved straight into their brand new enclosure in the *Monsoon Forest* exhibit on *Islands*.

On the 3rd January 2015, three Critically Endangered Sumatran tigers (two males and a female) were born to parents Kirana and Fabi. This year also saw the export of the two female Sumatran tigers from Kirana and Fabi's previous litter. One went to Parc de la Haute Touche in Obterre, and the other to Wrocław Zoo in Poland. Fabi the male Sumatran tiger also moved on to Paignton Zoo in December.

Borneo and Sumatra, the home to the last remaining populations of orangutans, remain a focus for our conservation support. Conversion of forests for agricultural use is putting numerous species at risk and conservation efforts are vitally important to protect the islands. Palm oil continues to be a conservation issue of focus in this region.

2015 saw Indonesian forests burn for over 3 months, although an annual occurrence, the fires this year were particularly devastating. Emergency support was provided to The Orangutan Tropical Peatland Project (OuTrop) to support their firefighting efforts. On the 3rd September, Siska, a female Critically Endangered Sumatran orangutan was born to mother Subis at the zoo.

This year we have once again worked closely with our partners HUTAN in Malaysian Borneo, focussing on providing essential core funding for their operations. Initiated this year, our partnership for the HUTAN Hornbill Conservation programme has increased, with a PhD project researching the ecology of Bornean hornbills, of which the Kinabatangan is one of the three study sites. Monitoring of the

artificial hornbill nest boxes which are staff assisted with in 2013 has continued, with further evidence that the boxes are being visited by a number of species included rhinoceros hornbill and bushy-crested hornbills. The HUTAN Environmental Awareness Programme (HEAP) also continues to deliver the educational programme developed together with the zoo's Discovery & Learning Team and our veterinary support for international orangutan conservation also continued with participation in the 2015 Orangutan Veterinary Advisory Group (OVAG) conference in Java, Indonesia.

We have continued a partnership in Sumatra focussing on protecting the critically endangered painted terrapin. Terrapin eggs are at risk from poaching, and this project works to protect eggs through nesting patrols and other measures. In addition we supported a new project alongside partners Danau Girang Field Centre to carry out a habitat assessment of the Kinabatangan sanctuary using drone technology.

In 2015, the IUCN red list status of the Helmeted Hornbill was changed from Near Threatened to Critically Endangered, confirming the urgency of conserving this species. The main threat is from illegal poaching for its ivory casque. Our support continued for work being carried out in Indonesia to assess the population size and protect the species.

During 2015 our commitment to Indonesian bird conservation and support for Cikananga Conservation Breeding Centre (CCBC) in West Java continued. Twelve Critically Endangered Javan green magpies were imported from CCBC to the Zoo; and we will now be coordinating an EEP for this species as well as managing the Sumatran laughing thrush programme.

The Curator of Birds and the Head of Veterinary Medicine spent two weeks in March at CCBC, where they provided bird husbandry training and veterinary support to CCBC staff. An MOU was developed between Chester Zoo and CCBC with the aim of establishing viable captive breeding populations of highly endangered Indonesian birds and developing long term strategies for their survival and translocation to the wild.

Financial support continued for the Begawan Foundation in Bali for their work with the critically endangered Bali starling and four Bali starlings were bred at the zoo for the first time in many years; it is hoped these four chicks will be sent back to Indonesia in the not too distant future.

Whilst the Endangered Javan banteng were thriving in the new Islands zone with two born in 2015, this year saw the initiation of our partnership with IUCN Asian Wild Cattle Specialist Group (AWCSG). We established a new Programme Officer for the group which will be based at Chester Zoo, starting in January 2016. The position will support the Chair of the AWCSG part time, with the remaining time as SE Asia Field Programme Coordinator. In addition, we provided funds to support the salary of the AWCSG this year.

On the 20th March 2015 two Vulnerable Northern babirusa piglets were born (one male and one female), and we continued our support for an education programme on Sulawesi macaques and funded a new project to protect populations of babirusa and anoa in Sulawesi.

The Philippines are a global hotspot for biodiversity, and continue to be a focal region for our support. Follow the sad passing of our colleague William Oliver last year, Field Programme staff met with Philippines Biodiversity Conservation Foundation Inc (PBCFI) partners to discuss future directions of projects. In memory of William Oliver we also funded a dedicated student conservation award. Exciting news from surveys included rediscovery of the Rufous-headed hornbill on Negros where it was previously thought extinct.

Our continued PBCFI support included contributing funds to maintain important populations of species such as the Philippines spotted deer, Visayan warty pig and Visayan tarictic hornbill at the NFEFI and Mari-it breeding centres. This is in conjunction with support of field activities continuing community engagement, habitat protection, reforestation and monitoring activities for these species. On the 28th December 2015 two Critically Endangered Visayan warty pigs were born in the zoo to experienced mum Viv. Another notable birth was that of a Northern Luzon cloud rat on the 3rd February, the first to be born at the zoo since the breeding pair arrived in 2014.

Our other major partner in the Philippines, the Katala Foundation, also continued their dedication to wildlife in Palawan. The Philippine cockatoo remains a major focal species, with the highly successful Philippine Cockatoo Conservation Programme (PCCP) protecting the majority of the sub populations of this critically endangered bird. A new male Philippine cockatoo arrived at the zoo from Bristol and is hoped to be an important new breeding bird for the conservation programme.

In June we received an urgent call for help from the Katala Foundation when a truck full of over 4000 freshwater turtles bound for illegal markets were confiscated. Many were Philippine forest turtles, a species we work with Katala Foundation to protect and monitor in the wild. We were proud to be part of a global community (including our Act For Wildlife supporters who donated to the emergency appeal) who responded to provide financial and technical support to help. The event highlighted the need for the continued monitor and protection work we support that protects core sites for this species, and has successfully engaged local communities in their protection.

The zoo holds the National Collection of *Nepenthes* (South-east Asian pitcher plants), comprising a total of 125 species of which 8 are critically endangered, 13 are endangered and 33 are vulnerable. During the year 4 new species were added to the collection. The zoo also keeps 50 species of Slipper Orchids from Asia (particularly South-east Asia). This genus of orchids has recently been reassessed by IUCN and many species are now listed as Endangered or Critically Endangered.

The new *Islands* development saw the construction of several new bird exhibits. The pair of Southern cassowary moved into a purpose-built enclosure, which can be viewed from the *Lazy Boat Ride*. The *Bali Temple* highlights the zoo's ex-situ conservation work with the Begawan foundation in Bali. Bali starling, Java sparrow, Pied imperial pigeons and Yellow-backed chattering lorries are all on show in this new walk-through aviary. A young pair of Javan rhinoceros hornbills was moved into a new aviary in *Monsoon Forest* and it is hoped that the zoo can continue the breeding success with this species.

The new free-flight area in *Monsoon Forest* has become home to several Indonesian bird species including Victoria crowned-pigeon, Grosbeak starling, Superb fruit-dove, Grey-capped emerald dove, White-rumped shama and Fairy bluebird.



Sumatran tiger



Bali starling

Conserving species of

UK AND EUROPE

Large Heath mating pair

The zoo works with a number of threatened native plant species, propagating and reintroducing to appropriate locations in the wild. 650 seeds, including Barberry, were sown during January and February from sites in Oxfordshire and Wiltshire where there are good populations of Barberry Carpet Moth. Five hundred plants have been grown on for planting later in the year along the Barberry Highway project and for the Wildlife Connections Project.

Four Critically Endangered Northern bald ibis bred at the zoo were sent to Jerez in southern Spain as part of a reintroduction programme with the southern Spanish authorities, whilst a male European black vulture arrived from France to accompany the female in Europe on the Edge. There is an active reintroduction programme for the species in southern Europe and birds bred at Chester may go for reintroduction in the future.

Dormouse field work continued at our Welsh study site. Chester Zoo's experience in microchipping dormice provided invaluable advice to guide future licencing of this procedure in the UK through Natural England and Natural Resources Wales.

Camera equipment funded by Chester Zoo was installed at Nantclwyd y Dre, to observe breeding behaviour in a Lesser horseshoe bat maternity roost. The bats are regularly visible on the web cam on the zoo website.

The Biodiversity Trainees project concluded, after four years, having successfully delivered 12 one year traineeships. 75% of trainees have succeeded getting into jobs in the sector. The project was funded by the Heritage Lottery Fund's Skills for the Future (SFTF) programme; developed in direct response to the UK recession and identified skills gaps in the heritage sector. It was led by Chester Zoo in partnership with Cheshire Wildlife Trust and RECORD, the local ecological records centre.

Detailed discussions with the Vincent Wildlife Trust led to our agreeing to become major partners in this exciting new project which aims to restore pine martens to England and Wales. Chester Zoo is providing technical expertise through design and construction of soft release pens, manpower for field work, and funding.

The Vincent Wildlife Trust captured the first martens in Scotland in early September. The soft release process worked well, allowing the animals to acclimatise for around a week before full release. The target of translocation of 20 martens was achieved in early November. Radio tracking has shown that most martens have stayed reasonably close to the release sites, though a few have moved significantly further.

Two zoo staff attended training to become licenced badger vaccinators, enabling us to continue to vaccinate the badgers on the zoo site without external assistance. The funding for this training came through the Wirral and Cheshire Badger group from DEFRA, and means zoo staff are now part of a team of vaccinators working in Cheshire.

We once again took part in a Bioblitz in May as part of the BIAZA initiative to encourage wildlife recording on zoo sites. A group of experts with diverse expertise attended and the species list for the event broke our 500 species target. Of particular interest were 7 bat species, some of which haven't been recorded here for over a decade, and a superb list of around 60 bryophytes; we haven't had experts on site to record mosses and lichens before.

At the zoo female Large heath butterflies captured in 2014 produced 50 pupae in the rearing facility. These were delivered to the reintroduction site at Heysham Moss in June. Excitingly, adult butterflies were seen at Heysham Moss before this year's release, proving that adults released last year did breed successfully in the wild. These are the first wild-born large heath butterflies to be seen at Heysham Moss for over 100 years.



Zoo expedition

Chester Zoo team with a women's group in Assam

EXPEDITION TO ASSAM

In February 2015 12 members of Chester Zoo staff travelled to Assam in North East India to support the work of the Assam Haathi Project (AHP) aiming to mitigate levels of conflict between communities and Asian elephants. Assamese communities in the districts of Sonitpur and Goalpara, where AHP has worked for the last ten years, chose five workshop topics that they felt would offer them the most immediate and direct benefits for living in a landscape with Asian elephants. These were: Business Skills, Bee Keeping, Horticulture, Animal Care and Electrical Skills. Members of zoo staff with relevant expertise developed interactive and adaptable workshops, which were then delivered in different villages in the two districts.

The expedition also provided an opportunity for staff from all departments of the zoo to gain first-hand experience of field conservation - so five members of staff were drawn at random from a hat. These 'volunteers' provided vital assistance to allow the smooth running of the workshops.

The expedition was led by the zoo's Managing Director. Our Curator of Horticulture and Botany, an expert bee-keeper, advised villagers

on how to set up and maintain successful and productive hives. Our Garden's Assistant Team Manager ran horticulture workshops specifically looking at how to increase variety and productivity of crops, such as spices, subsistence crops and vegetables, to increase income. A member of the zoo's Keeper Team and farmer showed villagers how to improve the care and productivity of their domestic animals including pigs, cows, goats and poultry.

Finally, the zoo's Electrician offered theoretical and practical advice on the maintenance of solar powered electric fences and spot lights, both methods used to keep elephants away from villages and croplands. As well as formal workshops, the team visited individual households looking at more specific problem solving.

All sessions were very well attended with over 925 villagers present. The expedition was an important part of our ongoing partnership in Assam and an example of how zoos can contribute diverse and valuable skillsets to conservation projects through their many different, talented staff.



DISCOVERY & LEARNING

2015 has seen learning at the zoo become ever more focused on achieving conservation impact and enhancing visitor experience, by complementing the work of Zoo Rangers with a large volunteer team, highlighting the actions visitors can take to support conservation and increasing our use of technology to support learning.

The early part of the year focused on preparations for *Islands*, in particular on developing and installing theming and interpretation to create the authentic environments of the *Islands* expedition.

Once *Islands* opened, Zoo Rangers and our new team of visitor engagement volunteers worked side by side welcoming and engaging visitors with the *Islands* storyline. Zoo Rangers delivered hands on activities at the new enclosures and in particular in *Manado Town*, where they now provide a constant presence armed with a range of bio-facts and props to engage visitors in understanding the threats South East Asian species face, our conservation work there and the actions visitors can take to make a difference.

New *Islands* based schools sessions, using the fantastic immersive technologies and 360 degree projections in the *Sumba School* have already proved popular. The whole team has increased their use of technology throughout the year with iPads being introduced into teaching sessions for schools and into our Zoo Ranger led discover activities.

Engagement work across the rest of the zoo continued with our daily programme of talks and discover sessions, and in the summer was further enhanced with Zoo Keeper Training Camp, an interactive session enabling younger children to experience some of the tasks undertaken by zoo keepers and think more about how we care for our animals at the zoo.

Also, during the summer, we worked with Warrington Academy to deliver a week long Summer School to children transitioning from primary to secondary school. The week long programme of activities in school and at the zoo, not only supported the transition process but enabled us to have significant engagement with young learners, inspiring them to think about how they can support conservation in their everyday lives.

Our work engaging schools outside the zoo continued into autumn, first with the Sustainable Palm Oil Art Project, which saw over 700 pupils from local schools work with artist Angela Sidwell to learn about palm



Learning in action

oil, its potential impact on species loss and then create an artwork for display at the zoo. This was followed by further changes to the Safari Ranger programme, traditionally a bookable service for local schools to experience workshops about zoo topics. These changes involved piloting a more project based approach, with repeat visits to the same school around the theme of threats to wildlife, culminating in an active session linked to conservation action and how we can all do something to help wildlife. The pilot programme was evaluated using repeated measures surveys, interviews and focus groups and initial results show much deeper learning was achieved than with the single visit approach.

The year closed with our Christmas event. Thanks to funding from Seaworld and Busch Gardens we were able to expand our Wild Winter offer, creating an inspiring indoor winter woodland for younger children to explore and learn.

Over the course of the year we provided 116,000 concessionary priced education visits to the zoo, of which 17,000 had free admission and 24,000 were taught by our Discovery & Learning team.



Volunteers helping with an upcycling workshop as part of the Safari Ranger outreach programme

VOLUNTEERS AT CHESTER ZOO

In advance of *Islands* opening, we recruited and trained a new team of Visitor Engagement Volunteers and by the end of the year over 150 volunteers were working across the zoo. We began with a group of 75, who joined the zoo in April and completed their training in time to spend a few weeks honing their customer service skills out in the zoo before being an integral part of *Islands* opening. In their new visitor engagement roles volunteers welcome visitors as they arrive at *Coral Sands*, give out logbooks to young children, help visitors locate animals and orientate themselves around the exhibits. Later in the year a further 80 volunteers were recruited and roles expanded to include a presence in *Spirit of the Jaguar*, *Realm of the Red Ape* and *Butterfly Journey* as well as in *Islands*. As well as increasing our capacity to talk to visitors and enhance their experience to the zoo, the new volunteering programme provides training, skills development, social and well-being benefits to the individuals taking part.

Volunteers describe their experience training and volunteering at the zoo:

"Fantastic Zoo ~ Incredible team ~ 1st class training. Highly recommended experience."

"Seeing the smile as you help improve someone's day at the zoo, now that is priceless!"

Towards the end of the year a Volunteer Manager was recruited within the Discovery and Learning team to provide dedicated support to the growing team, to lead their training and development and ensure consistency and best practice in the development of volunteering across the zoo.





OUR TEAM

At work, at the zoo

Our people focus this year has been one of proactivity, being a step ahead of needs.

We ended the year with a permanent headcount of 371; adding on our annual seasonal staff took the head count to just over 700 at its peak. We have invested in new recruitment software to enable us to deal more efficiently with the vast numbers of job applications we receive – over 5,000 during 2015.

Employee Relations

The Staff Association completely refreshed their recognition agreement and constitution which has led to the formation of a smaller much more responsive team. This helped raise the profile of the Staff Association giving greater clarity of role and responsibilities. The Staff Association continue to work very closely with human resources team and their contribution is very much valued.

Training and Development

Our in house training programme has seen a flurry of short succinct training sessions called Zaps! being added to our training repertoire, all to enable our team to provide a better service to our guests. Zaps! developed included customer service, palm oil, data protection,

effective meetings, time management, effective communication, assertiveness, presentation skills, allergens and our people values.

We continue to support our people “learning whilst they earn” by offering National Vocational Qualifications (NVQs). We have had several successes in NVQ level 2 & 3 in Customer Service, Team Leading and Hospitality Supervision.

We proudly accepted the invitation to sign the ‘Autism Charter’ for a commitment to train staff with the aspiration to be an autistic friendly site in the near future.

Recognition

Our highest people accolade this year though has to be accreditation by BIAZA for our Effective Leadership Programme. The BIAZA Education and Training Committee reviewed the whole course and feedback was extremely positive.





CREATING A SAFE ENVIRONMENT

Creating a safe environment for our visitors, employees and animals

As anticipated, 2015 delivered many technical and logistical challenges as we brought *Islands* to life, ensuring that it met our high standards.

Our zoo is a 125 acre site, which must be secure for our collection, staff, and visitors. Responsibility for this sits with the new Site Operations division.

Encompassing Security, Health and Safety, Maintenance and Environment and the management of the zoo estate, the team are putting service, site standards and safety at the forefront of everything it does.

With a significant increase in visitors and staff, 2015 saw the total number of first aid incidents increase from 727 to 930. Zoo related accidents decreased from 79 to 43, a decrease of 54%. There

were two RIDDOR reportable accidents during the year and four employee accidents that resulted in lost time. Over 215 near-miss reports were logged on our online reporting system and preventative actions taken.

Close working relationships continue with external parties including the emergency services and the positive feedback on our employee Health and Safety Awareness campaign has been welcomed.

With guest safety taking priority, this year over 100 zoo employees have attended and successfully completed specialist training from Cheshire Police. Our security infrastructure is also seeing some beneficial developments. With enhanced security systems such as upgraded CCTV, fire and Intruder alarms, the officers can detect and react to any incident in a proportionate and professional manner.



Molly Parker
Leads the school choir
and the search for the
Sumatran tiger.

Extraordinary discoveries every day
www.chesterzoo.org/islands

ISLANDS at CHESTER ZOO

YOUR
EXPERIENCE
BEGINNS
13 JULY

Marketing overview

INCREASING OUR PROFILE

During 2015 we focused on bringing *Islands* to life, calling for the first 'explorers' to experience the South East Asian habitat and the endangered species that live there. It was crucial that we enabled our potential visitors to explore some of the stories behind *Islands* so we developed a large online hub to give access to a wealth of information about the build, the animals and plants destined for *Islands* and the conservation work that we do in South East Asia.

We also developed an *Islands* app experience to support visitors to explore each of the six Islands, giving relevant educational content in the form of a series of conservation 'games' with badges to collect as a reward for completing each of the tasks.

We launched our main marketing campaign in June 2015 with national TV, online and press advertising and a large regional radio and press campaign. The campaign invited visitors to make extraordinary discoveries every day.

The response from the public was encouraging with a 71% increase in website traffic, 22% increase in membership and 26% increase in admissions during the campaign period (30 June – 31 August 2015).

We conducted visitor research throughout the year to measure the response to *Islands* and saw an increase in the number of visitors saying that they would recommend Chester Zoo as a day out and that it represented an excellent or good value for money.

The zoo's 2015 PR campaigns - through broadcast, print and online press coverage and engaging social media content - were geared towards driving visitors to the zoo, positioning us as a world class visitor attraction and conveying our charitable objectives to the public. Animal stories, from the birth of tiger cubs to the arrival of elephant calf

Nandita, received widespread positive attention from press and social media. During the launch period for *Islands* alone we received well over £1 million worth of media coverage (Advertising Value Equivalent), including a major PR event with the visit of Prime Minister David Cameron in May and widespread coverage including a live broadcast on BBC breakfast for the opening in July. The zoo successfully secured an agreement with Blast! Films and Channel 4 for the production of an observational documentary about Chester Zoo, facilitating the on-site film crew throughout the summer and autumn, ahead of the airing of the prime time programme in 2016. We also responded to the media and public interest in the sad death of two elephant calves in a constructive way, helping to raise awareness of the global virus, elephant endotheliotropic herpes virus (EEHV), and the valuable work being done to fight the disease within the zoo community.

Our sales and events activity increased during the year as we introduced new delegate packages to stimulate corporate bookings for Oakfield.

Our members

At the beginning of 2015 we had 57,835 members, by the end of the year this had increased to 76,358.

Through further research we have endeavoured to further improve experiences for our members. Initiatives include making half price Members Day tickets available to purchase on line through a new Members portal, where members can also access Z magazine and other news items.

Menu at Manado Street Kitchen



Commercial overview

WELCOMING OUR VISITORS

This year saw a strong commercial performance in guest experience, catering and retail. Although the launch of *Islands* was a big focus for us we continued to develop the wider operation by rebranding and upgrading guest facilities, launching a number of new products aimed at meeting the needs of our guests and supporting the introduction of a new flexible pricing structure for admission tickets.

As part of *Islands* we opened a new restaurant, retail shop and boat trip. The *Manado Street Kitchen*, a 450 seat outdoor restaurant, was designed to bring a South East Asian dining experience to Cheshire. Particular attention was given to the menu planning and included researching authentic recipes from the region. The menu we launched with included traditional rice and noodle dishes such as Nasi Goreng and Pad Thai to complement the already varied food offer at the zoo.

The Manado shop, a 100m² themed retail environment, was designed to include the authentic architecture of Sulawesi and contains hints to suggest that the shop may have been a craftsman's workshop. We also introduced artefacts gathered from region which told the story of weaving, woodworking and painting. The new gift range celebrated the rich culture and beauty of the animals and people of South East Asia and included bespoke carvings and intricately decorated items sourced from craftspeople of the region.

The *Lazy River Boat Trip* provides our visitors with a different way to experience *Islands*. The journey is designed to last around 15 minutes, with the intention of bringing our guests closer to the plants and animals whilst allowing them time to relax and unwind.

Our event programme has continued to progress with the introduction of a number of private hire activities, safari evenings, and a fourth year of the very popular *Lantern Magic*. This year *Lantern Magic* saw the introduction of a new route, more animal lanterns and a fabulous array of animal puppetry and performance. Alongside this a new *Santa's Story Time* experience was launched and both events were well received.

Finally we had a record year for the number of employees recruited into the commercial team. Putting these people at the heart of the organisation and equipping them with the skills and knowledge to deliver a great day out for our guests was paramount. The management team were all involved in a new effective leadership programme whilst the wider team all received additional training in delivering excellent customer service, creating a safe environment and delivering a truly special *Islands* experience.



Exploring *Islands*



KEEPER FOR A DAY

Twilight lead keeper assisting with camera trap monitoring of Spectacled bears in Peru

Chester Zoo's 'Keeper for a Day' scheme provides an opportunity for visitors to experience a day in the life of a zoo keeper, spending a full day working alongside staff from one of our animal or plant teams. The income generated from this scheme provides opportunities for staff to be involved with conservation projects, conferences and meetings outside of the zoo. In 2015, the fund enabled four members of staff to undertake activities around the world, as well as hosting two international vets and funding the zoo expedition to Assam.

The lead keeper of our Twilight Team travelled to Peru to visit the Spectacled Bear Conservation Project. Chester Zoo has funded this project for a number of years. Whilst in Peru, she was able to assist the team with their camera trap study which provides data on presence and habitat use of this elusive species.

Our endocrinology technician returned to Malaysia to provide further assistance to PhD student Ee Phin. Chester Zoo and the endocrinology lab have been supporting Ee Phin throughout her PhD, which is part of the larger project MEME (Management and Ecology of Malaysian Elephants), working to assess the impact of Government management policies (including translocations) on wild Asian elephants. She

assisted with analysing over 650 faecal samples collected in the tropical rainforest in Peninsular Malaysia for adrenal hormones.

The team manager of our Giraffe Team attended the Giraffe Indaba in South Africa. This six day conference brings together professions who are working with giraffid species to discuss key conservation and management themes. Another member of our giraffe team travelled to Cheyenne Mountain Zoo in the United States of America to attend a Giraffe Care Workshop. The three day workshop covered both in situ and *ex situ* topics related to giraffe care from hoof care and training to conservation.

This year the Keeper for a Day scheme also funded an international staff exchange. We invited two veterinarians from Indonesia to spend three months working alongside our Animal Health Team. Both vets are members of the Orangutan Veterinary Advisory Group (OVAG) which we have worked closely with for a number of years. Whilst here they shared knowledge and experience with many zoo teams, participated in veterinary procedures and got involved with some of our UK conservation work. They also worked with some of our partners around the UK including University of Liverpool, the International Primate Heart Project and the Natural History Museum.



Lantern Magic

OUR FINANCIAL PERFORMANCE

With a record number of visitors coming to the zoo in 2015 and an increasing membership our income rose by 20% to a record level of £35.6m. Total expenditure rose by 17% to £30.9m resulting in a £4.7m net increase in our funds.

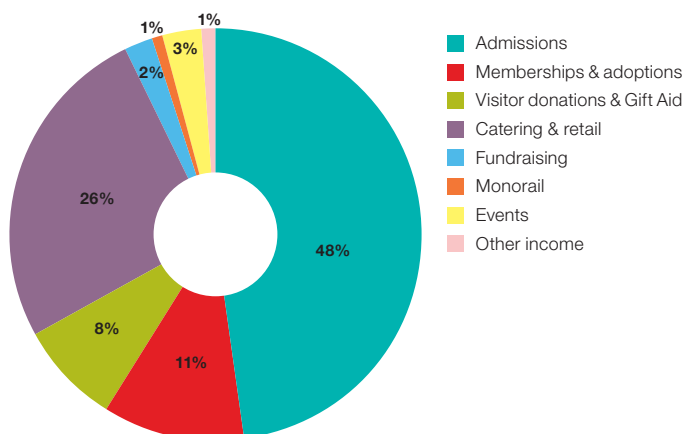
Income

The bulk of the Society's income comes from the zoo's visitors and members, in the form of admissions and other charges. With visitor numbers increasing by 18% to 1,694,115 in 2015 and membership numbers increasing by 32% to 76,358, the related income rose by 20% to £22.5m.

As a registered charity the Society generates voluntary income from visitor donations, Gift Aid, grants and other donations. In 2015 53% of our visitors chose to donate when they visited which was slightly lower than the previous year due to legislative changes in the way in which donation requests can be presented on our website. However, driven by the increase in visitor numbers together with legacies left to the Society, our voluntary income still rose by 12% to £3.1m.

The Society's trading subsidiary, Chester Zoo Enterprises Limited, which provides retail and catering across the zoo site had a turnover of £9.8m.

The chart below shows where our income comes from.



Expenditure

In 2015 we spent £30.9m, excluding capital expenditure. This expenditure includes the benefit of a £1.0m exceptional refund from

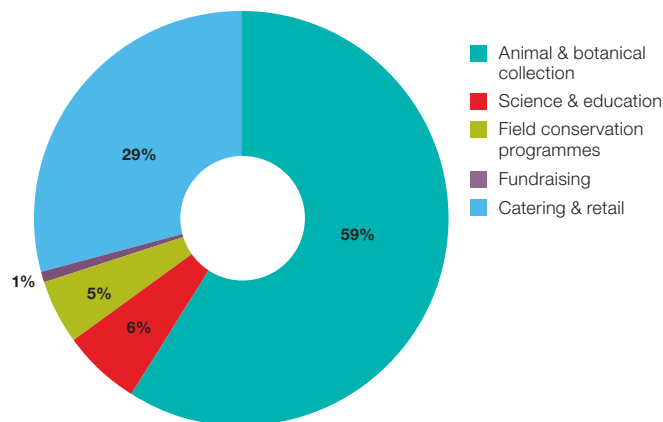
HMRC in relation to input VAT following a tribunal case, offset by a £1.5m increase in year on year depreciation following the opening of *Islands*. Costs also include a £0.9m contribution to the defined benefit pension scheme.

Resources expended on our charitable activities, including the costs of maintaining the animal & plant collection, the visitor facilities, education and science and our field programmes, together with support costs totalled £21.0m. In addition we spent £0.3m generating our voluntary income.

By far the biggest element of this expenditure relates to our employees. Our average headcount during 2015 rose to 574 from 510. 52% of these employees work 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 over 150 volunteers.

Chester Zoo Enterprises Limited made an operating profit of £0.5m in 2015 which is donated to the Society.

The chart below shows a breakdown of the Society's expenditure.



Capital expenditure

During 2015 we spent £22m on capital expenditure, primarily delivering the *Islands* project. In total the project has cost £40.6m, excluding VAT, and has primarily been funded from the Society's cash reserves, supplemented by a borrowing facility. At 31 December 2015 the Society had a net borrowing position of £9.1m.

Full details of our financial performance can be found in the 2015 Trustee's Report and Financial Statements.

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Registered Charity Number 306077
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North of England Zoological Society
Caughall Road
Upton by Chester
Chester CH2 1LH
Tel: 01244 380280
Fax: 01244 371273
Email: info@chesterzoo.org

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