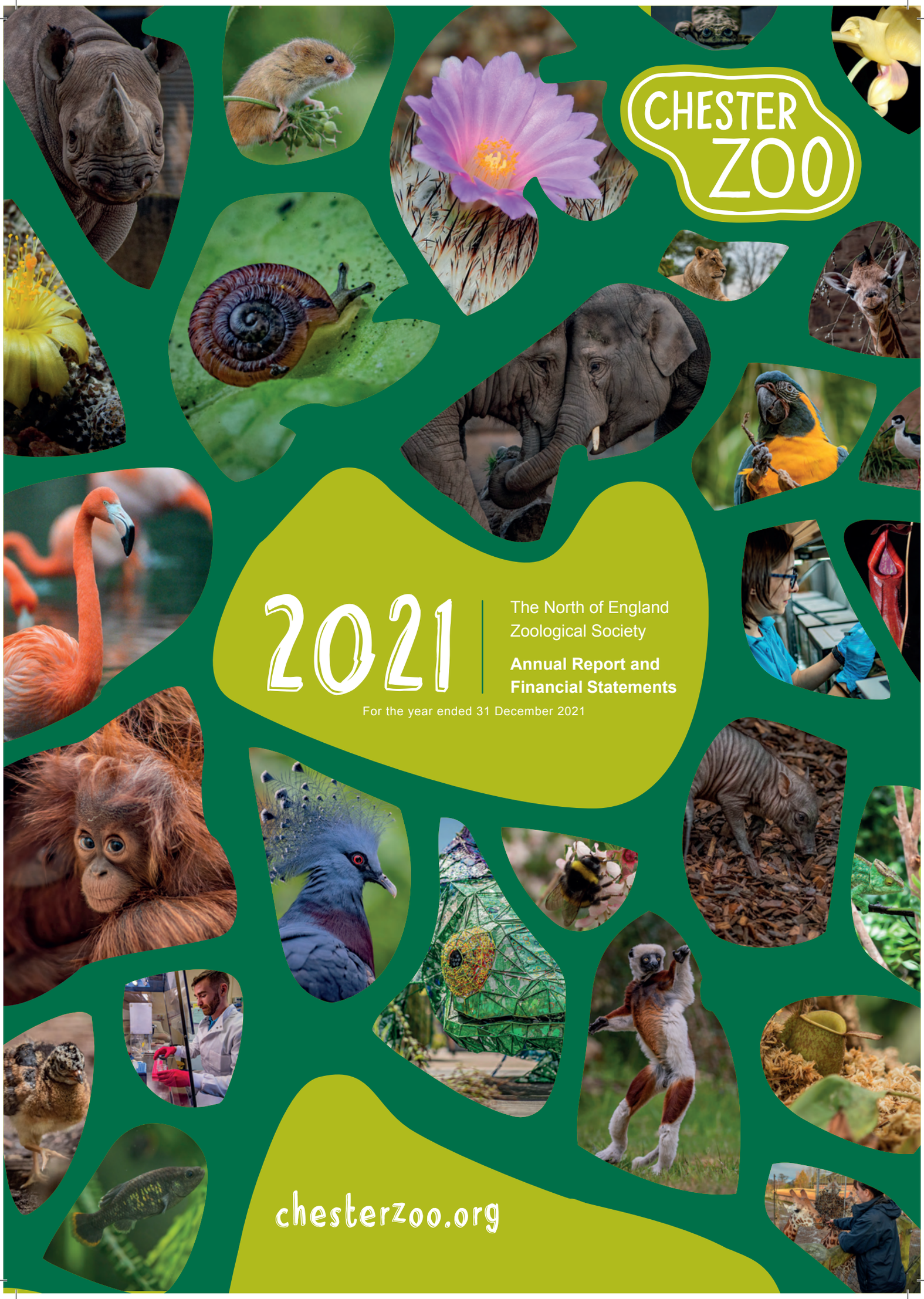


2021

The North of England Zoological Society

Annual Report and Financial Statements

For the year ended 31 December 2021

chesterzoo.org

IN THIS YEAR'S REPORT

This year's annual report highlights our key achievements in 2021 – a year of extraordinary challenge and success for our charity as we started our recovery from the impact of COVID-19 and launched ambitious plans for the future.

Together with highlights of the year, you can read more about our Conservation Masterplan, which was launched in 2021. Case studies show how we are achieving our mission of preventing extinction and how our people and commercial performance are critical to this success. In the report you can also find out about the secret life of the zoo, and what goes on behind the scenes in our complex organisation, together with details of how our charity is governed and the risks and uncertainties we face. There is also detailed information about our financial performance, and information on those who support us, either financially or who we partner with, in order to help us achieve our mission.

CONTENTS

The Trustees of the North of England Zoological Society ("NEZS" / "the Charity" / "the Society") are pleased to present their annual report, together with the consolidated financial statements of the charity and its subsidiaries for the year ended 31 December 2021, which are also prepared to meet the requirements for a directors' report and financial statements for Companies Act 2006 purposes.

NEZS is a conservation and education charity that owns and runs Chester Zoo.

The financial statements comply with the Charities Act 2011, the Companies Act 2006, the Society's Memorandum and Articles of Association, and Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their financial statements in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS102).

Charitable objects
The Society's objects, as set out in its memorandum and articles of association, are
(a) To promote the conservation of the physical and natural environment by promoting biodiversity
(b) To advance the education of the public on the conservation of the physical and natural world and the promotion of biodiversity; in particular by, but not limited to, the provision of public education, scientific study and the maintenance of endangered animals, plants and habitats in both protective and natural environments.

Registered Charity No. 306077
Registered Company No. 00287902

CHAIR OF TRUSTEES' STATEMENT

I am delighted to introduce our annual report for 2021 – a year of outstanding success and progress for our charity.

After the turbulence of 2020, when many of our planned projects were put on hold, we began 2021 with a continued focus on consolidating and protecting our finances – particularly during the third lockdown, which closed the zoo from early January to April.

The response of our staff, volunteers, members and supporters when the zoo was able to reopen was absolutely magnificent. We welcomed our highest-ever monthly number of visitors in August, and had exceptionally strong ticket sales throughout the remainder of the year – including record attendances at our annual winter event, The Lanterns. We ended the year with over 130,000 members – our highest-ever number.

With such terrific support, we delivered a robust financial performance for the full year, which has enabled us to return our focus to our ambitious plans for the future. Our Strategic Development Plan has been in place for a number of years, and sets out our exciting vision for the development of the zoo site. We launched our Conservation Masterplan in March 2021, bringing together in one document for the first time the ways in which we intend to fulfil our charity's mission of preventing extinction. These range from enhancing biodiversity locally to safeguarding threatened species through the management of the zoo collection, participating in world-leading research, contributing to international projects that protect critically endangered species, training conservationists and empowering people to live more sustainably. It's to the immense credit of our staff, led by our new Chief Executive Jamie Christon, that we have been able to further our conservation agenda in this way in a year when there continued to be significant operational challenges.

My fellow Trustees, who give their time freely, have made a huge contribution to shaping our plans – and I am immensely grateful to them for their dedication and expertise. Their role as custodians of the long-term future of the charity has been very ably supported by our Youth Board, who provide us with fresh perspectives and remind us of our responsibility to future generations.

I hope that you will enjoy reading about these plans, as well as our achievements of 2021, in this report. Thank you for your unwavering support that has made all of this possible, and we look forward to welcoming you to Chester Zoo throughout 2022!

Malcolm Ardron – Chair of Trustees

STRATEGIC REPORT

REASONS TO SUPPORT US

1. We are an international leader in the field of conservation science.

Our world-renowned teams of experts are recognised globally – in many cases by governments and international NGOs – for the work we do for wildlife conservation. Our staff work on topics ranging from breakthrough vaccine developments striving to save Asian elephants from a deadly virus, to cutting-edge use of conservation technology tracking giant pangolins in Africa.

» **Read more** about this in our case study on **pages 40-41**

2. We are a major wildlife charity that's playing a global role in tackling the world's nature crisis at a time when it's needed most.

We are leaders within the global conservation community, working with the International Union for Conservation of Nature (IUCN), World Association of Zoos and Aquariums (WAZA), European Association of Zoos and Aquaria (EAZA) and British and Irish Association of Zoos and Aquariums (BIAZA) to make a significant difference in protecting our planet's precious biodiversity.

» **Read more** about our field projects and the regions we work in on **pages 14-17**

3.

We are at the forefront of global conservation efforts, working with more than 60 partners in more than 20 countries to recover threatened wildlife and restore their habitats. Our species-saving work spans orangutans in Bornean rainforests to elephants and tigers in Indian grasslands, and from lemurs and frogs in Madagascan forests to rare plants in the UK.

» **Read more** about this in our Conservation Masterplan **pages 12-13**

4.

We are a world-renowned centre for scientific research.

Home to a conservation academy training nearly 300 conservationists a year, we also inspire more than 265,000 young people in conservation education programmes every 12 months. We are striving to embed conservation education into the national curriculum, while we also work with numerous universities across the UK.

» **Read more** about our work with partners on **pages 32-33**

5.

We connect people with nature and inspire a shift towards more pro-conservation behaviours.

We create opportunities for everyone to get involved in conservation, actively seeking to engage those who have previously been underrepresented. Our two million annual visitors and huge online communities are part of the educational, scientific and conservation jigsaw – empowered to be part of solutions for wildlife.

» **Read more** about this in 'The secret life of the zoo' on **pages 20-21**

6.

As well as preventing extinction here in the UK and around the world, **we have a core focus on sustainability**, and are committed to embedding long-term positive change in our zoo's future. Developed in line with UN's sustainable development goals, we have set out an ambitious pathway to achieving zero waste in our operations by 2030, are striving for carbon net zero and working to ensure the procurement of deforestation-free commodities in all of our supply chains.

» **Read more** about this in 'Our sustainable zoo' on **pages 24-25**

2021 AT A GLANCE

50
Field projects, working with 66 partner organisations

A social reach of
125,606,644

588
animal species

More than
2,500
plant species,
including 5 national collections

78,919
individual animals

139
international breeding programmes

1,601,327
visitors to the zoo

226
live research projects

We spent
£20.8m
on conservation & education activities

Trained
297
conservationists

11,753
on-site workshop participants

43,488
on-site education visits

2021 HIGHLIGHTS

RADIO 1 LIVE FROM THE ZOO

The BBC Radio 1 Breakfast Show, hosted by the much-loved broadcaster Greg James and his co-hosts Jordan North and Vic Hope, aired live from the zoo. Greg presented the show from a campervan parked in our Diamond Jubilee Quarter, while Jordan and Vic took on an array of zookeeper tasks, engaging in conversation with numerous zoo staff. With a listenership of predominantly 15 to 29-year-olds, this highlighted the importance of modern zoos to a young age group, while giving a huge boost to our national profile.

HAPPY 90TH BIRTHDAY!

The zoo celebrated its 90th birthday on Thursday 10 June, with a host of live TV and radio broadcasts. Among them, BBC weatherman Owain Evans presented his live forecast from the zoo's giraffe platform, while ITV presenter Caroline Whitmore delivered her report from our Asian elephant habitat.

CONSERVATION MASTERPLAN

Our new 10-year Conservation Masterplan – our ambitions roadmap for how the zoo will make a significant contribution to the global extinction crisis before the year 2031 – was launched in March. The launch cut through a crowded COVID-19-focused news agenda to secure coverage in a range of mainstream media outlets.

GREEN RECOVERY FUND

News of an award of nearly £1m from the UK government to enable us to create a new Nature Recovery Corridor in Cheshire generated widespread media coverage. It formed part of the main news agenda on outlets up and down the country, alongside stories about Team GB gold medal winners at the Summer Olympic Games.

LAKE TITICACA FROGS

The opening of our new Lake Titicaca Frog Habitat drew a huge amount of media attention, landing in national outlets ranging from The Independent to the Daily Star and BBC Radio 1 to Sky News. The frogs' unfortunate nickname (the 'scrotum' frog) grabbed attention, with important messaging about the frogs' incredible biology, their conservation status and what we and our field partners are doing to prevent their extinction then highlighted in many of the reports.

EARTHSHOT PRIZE

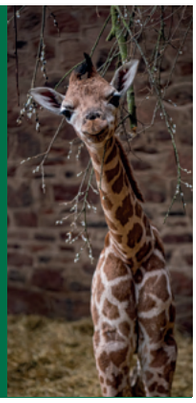
Our major initiative to make the city of Chester the world's first 'Sustainable Palm Oil Community' featured in a major new BBC wildlife series, narrated by Sir David Attenborough and His Royal Highness The Duke of Cambridge. The prestigious BBC One documentary, The Earthshot Prize: Repairing Our Planet, explored the most innovative and ambitious actions being taken to protect global biodiversity, and the brilliant minds working on solutions to save the planet.

TEQUILA FISH REWILDING

A fish that was declared extinct in the wild in Mexico more than 15 years ago was reintroduced to its former stronghold with our help. The tequila splitfin disappeared from the wild completely in 2003 due to the introduction of invasive, exotic fish species and water pollution. We teamed up with the Michoacana University of Mexico to return over 1,500 fish to a series of springs in the Teuchitlán River in the state of Jalisco in south west Mexico, creating a blueprint for future fish reintroductions in the country.

WELCOME, ALBERT!

The birth of a Rothschild's giraffe, who our zookeepers were to later name Albert, captured the hearts and minds of people all around the world. News of his arrival was reported in a host of countries, highlighting our vital efforts to prevent the extinction of the subspecies in Africa in the process.



OUR MISSION – PREVENTING EXTINCTION

“As one of the world’s leading conservation zoos, we are at the forefront of efforts to conserve biodiversity and are playing a special role in tackling the global extinction crisis.”

At Chester Zoo, everything we do is guided by our mission, preventing extinction. Our zoo is a complex centre of excellence, brimming with specialists in an array of disciplines. We are a huge team of conservationists, scientists, educators, veterinary experts, botanists, wildlife managers, animal welfare experts, animal behaviourists, endocrinologists, behavioural change experts and environmental policy influencers. We are among the world’s leading conservation-based charities, with decades of experience and highly respected levels of expertise. We empower communities to pursue pro-conservation behaviours and we influence policy and people. We are committed to the recovery of threatened species and tackling the challenges faced by wildlife, globally, with professionally planned, science-led conservation at our core.

We are a major wildlife charity, a genuine powerhouse for conservation and we are finding solutions to safeguard biodiversity at a time when it’s needed most.

Preventing extinction is highly challenging and requires a multi-faceted approach. This puts us in a leading position to provide immaculate levels of care for hundreds of threatened species, to protect and restore wild habitats, to foster deep and lasting connections with nature, and to inspire the next generation of conservationists.

Right now, our planet’s rich biodiversity is declining at an alarming rate, meaning zoos like ours are more relevant to the fight against extinction than ever before.

What first began as a family-run zoo back in the 1930s has now grown into a world-renowned centre for scientific research, a conservation academy training more than 400 conservationists a year, and a place with the capacity to engage more than two million annual visitors with conservation and empower them to lead more nature-friendly lifestyles.

Driving our charity is our ground-breaking conservation model. When people visit the zoo, they not only connect with and learn about wildlife and nature, but they also help us to generate the vital funds needed to tackle some of the world’s most pressing conservation challenges. We are fighting extinction through our conservation, education and research work – here at the zoo, across the UK and in more than 20 countries around the world. This work is only possible because of the success of our pioneering model for conservation, which allows us to operate at the scale and urgency that’s needed to tackle the environmental emergency we face.

Our zoo is a shining example of what real conservation action in the 21st century looks like, and is vital to preventing extinction – securing a brighter future for wildlife on this planet.


ACT FOR WILDLIFE
CHESTER ZOO

OUR CONSERVATION MASTERPLAN

POPULATIONS

Effective management of populations of species both in situ (in the wild) and ex situ (in zoos and breeding centres) through research, conservation breeding, welfare and monitoring.

PLACES

Providing safe and healthy habitats for wildlife through effective protection, restoration and management.

PEOPLE

Working with people everywhere and in all areas of society to enable them to coexist and thrive with wildlife and develop nature-friendly, sustainable lifestyles and livelihoods.

POLICY

Influencing businesses, statutory agencies and governments to incorporate effective planning and legislation to protect and enhance biodiversity, and in doing so contribute to vibrant economies.

Our Conservation Masterplan is our roadmap for how we are going to deliver real conservation impact over the next decade and make a significant contribution to tackling the global extinction crisis by 2031. Centred around a set of clear, bold targets and endorsed by the global authority on conservation, the IUCN, this 10-year plan will take us up to our 100-year anniversary, when we'll be able to look back and clearly see the results of our mission to protect the natural world.

Tackling the magnitude of the biodiversity crisis requires deliberate, innovative conservation actions. Preventing extinction is complex and, with the majority of species with whom we share our planet facing unimaginable threats, it requires a multi-faceted approach. Our conservation work is all about interconnection. Relentless collaboration is the only solution to ensuring the continued survival of threatened species. Our interdisciplinary zoo teams, together with our extensive network of field and academic partners, deploy a fully rounded approach to conservation.

Our focus is on 'four Ps':

- Populations of animals and plants
- Places for wildlife
- People
- Policy

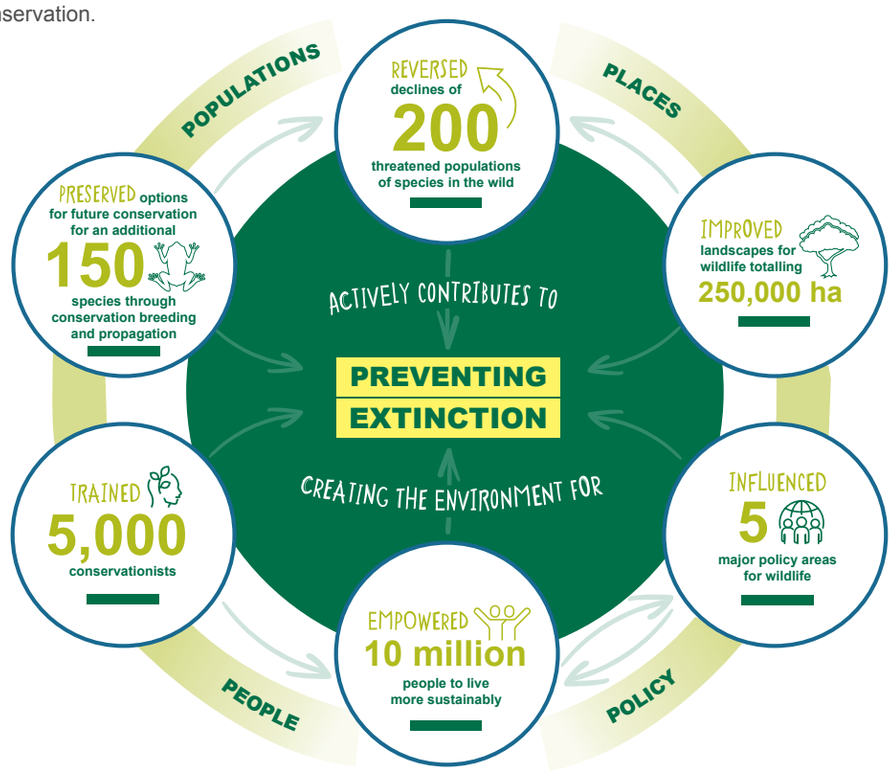
By integrating activities in these four areas, we can maximise our impact.

These four Ps shape our six key targets to benefit wildlife. By 2031 we will:

- Preserve options for future conservation for an additional 150 species through conservation breeding and propagation
- Halt or reverse the decline of 200 highly threatened populations of plants and animal species in the wild
- Improve landscapes for wildlife, totalling 250,000 hectares
- Train 5,000 conservationists to deliver positive change for wildlife
- Empower 10 million people to live more sustainably
- Influence change in five major policy areas for wildlife.

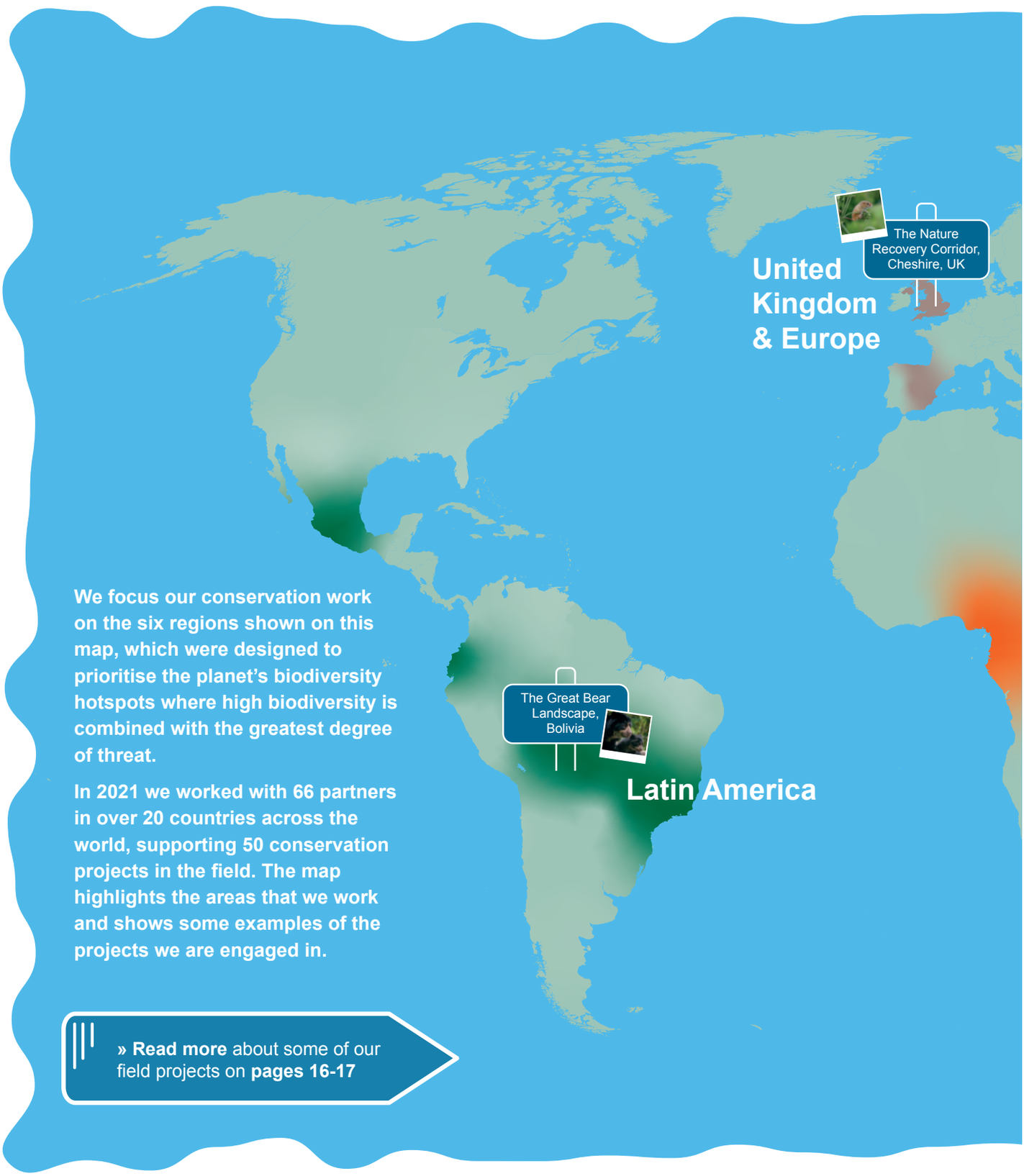
Developed in line with the UN's sustainable development goals, our Conservation Masterplan also sets out a path for us to achieve carbon net zero and zero waste in our operations, as well as ensuring the procurement of deforestation-free commodities in all of our supply chains.

This plan focuses our precious resources on what really matters: a masterplan for wildlife that will deliver real conservation impact, and fast.



CONSERVATION SIMPLY CANNOT WAIT.
THE TIME FOR ACTION IS NOW.

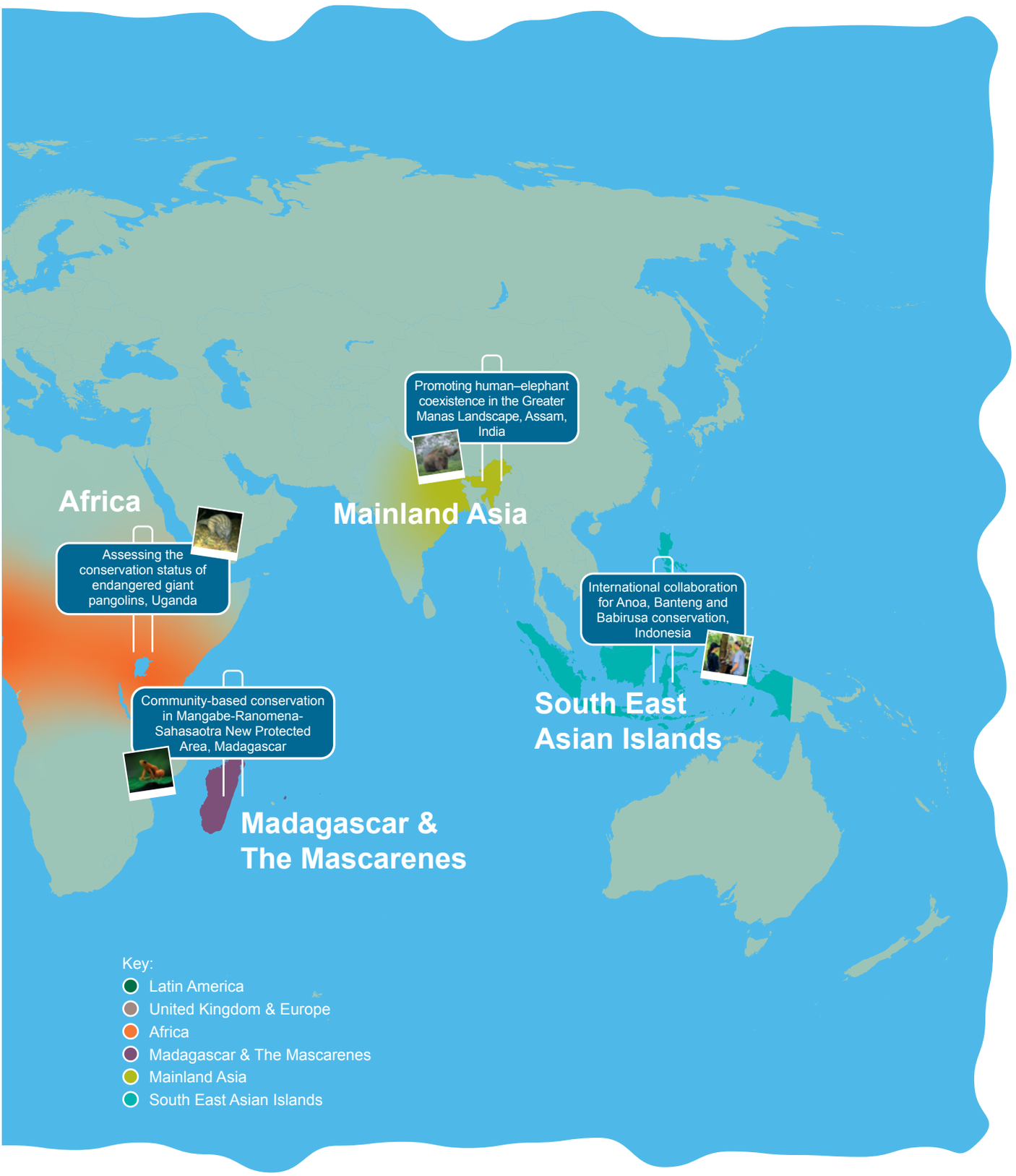
THE REGIONS WHERE WE WORK



We focus our conservation work on the six regions shown on this map, which were designed to prioritise the planet's biodiversity hotspots where high biodiversity is combined with the greatest degree of threat.

In 2021 we worked with 66 partners in over 20 countries across the world, supporting 50 conservation projects in the field. The map highlights the areas that we work and shows some examples of the projects we are engaged in.

» **Read more** about some of our field projects on **pages 16-17**


Promoting human–elephant coexistence in the Greater Manas Landscape, Assam, India
Africa
Mainland Asia
Assessing the conservation status of endangered giant pangolins, Uganda
International collaboration for Anoa, Banteng and Babirusa conservation, Indonesia
South East Asian Islands
Community-based conservation in Mangabe-Ranomena-Sahasaotra New Protected Area, Madagascar
Madagascar & The Mascarenes
Key:
Latin America
United Kingdom & Europe
Africa
Madagascar & The Mascarenes
Mainland Asia
South East Asian Islands

FIELD PROJECTS

Here are some examples of the field projects we worked on in 2021.

LATIN AMERICA

Working with rural communities in Bolivia's highly threatened inter-Andean dry forests, this project – in partnership with local NGO, PROMETA – has established new distribution records for 17 species, recruited and trained 11 parabiologists, and worked across six communities to develop alternative livelihoods. It has also played an instrumental role in the planning and implementation of Bolivia's National Action Plan for Andean Bear Conservation.

Other projects in Latin America include protection of giant anteaters and giant armadillos in Brazil and recovery of native freshwater fish and amphibians in Mexico.

SOUTH EAST ASIAN ISLANDS

Action Indonesia is an international collaboration for the long-term survival of anoas, bantengs and babirusas. This year, the third successful 'Action Indonesia Day' generated global awareness, while in the field, banteng monitoring began in Alas Purwo National Park. Chester Zoo provided technical input, plus core support for the IUCN SSC Asian Wild Cattle Specialist Group.

Other Southeast Asian projects include restoration of rain forest for orangutan and hornbills in Borneo and conservation breeding of Javan green magpie and other endangered songbirds in Java.

UNITED KINGDOM

Working with several local partners and funded through the government's Green Recovery Challenge Fund, the exciting new Nature Recovery Corridor launched this year. The corridor includes the zoo estate, where ongoing monitoring confirmed the presence of harvest mice, the success of previous reintroductions, and the first plain dark bee record for Cheshire.

Other native wildlife projects include recovery of large heath butterflies and carnivorous plants in Lancashire peat bogs.

MAINLAND ASIA

In partnership with Wildlife Trust of India (WTI), the Assam Haathi Project has pioneered a community participatory model for human–elephant coexistence. Eleven kilometres of community-managed fence protects elephants and villages along the southern boundary of Manas National Park First Addition, resulting in zero retaliation against elephants.

In another project with the WTI we are also seeking to reduce human-tiger conflict in central India.

MADAGASCAR & THE MASCARENES

In collaboration with local NGO Madagasikara Voakajy and local community-based organisations, our activities protect this important forest landscape, and main refuge for the critically endangered golden mantella frog. 2021 saw the rediscovery of black and white ruffed lemurs in the region and the first-ever paper published on the elusive Pronk's day gecko.

We are also working in Mauritius on conserving echo parakeets and in Rodrigues on restoring populations of rare plants.

AFRICA

Working in partnership with the Uganda Wildlife Authority, Chester Zoo is conducting a conservation assessment of giant pangolins in Western Uganda. The project has completed large-scale camera trap surveys for the species across five protected areas, and pioneered the development of giant pangolin-specific survey and monitoring methods.

Other projects in Africa include surveys of forest wildlife in Gabon and support for management of black rhinos in Kenya.

Q&A

Jamie Christon

Chief Executive Officer

Q. What attracted you to Chester Zoo?

A. I could see the enthusiasm and passion within the team at the zoo – all of them committed to the clear mission. Initially my role was to provide them with the resource and opportunities they needed to do their jobs and 'prevent extinction'. My background, and the team we have developed here at the zoo, have shaped what we are today and have given us a strong foundation to manage a difficult period.

Q. What were the extraordinary challenges during 2021?

A. Taking over as CEO in a world where we couldn't clearly see where the immediate future would be. The zoo had been closed for 208 days when I took on the CEO role in March 2021. Morale was low, our finances were depleted and providing a clear direction in an ever-changing economic landscape was difficult. It was all about trying to steady the ship – reassuring staff, planning for every eventuality and being prepared for daily changes to the way we worked.

Q. Looking forwards, what megatrends and material issues are impacting strategy and operations?

A. Biodiversity loss both here in the UK and worldwide is my biggest concern and is exactly what Chester Zoo is here to tackle. COP26 has highlighted worldwide the impact of climate change; however, many species will never be affected by changing temperature as they will have become extinct well before this happens. We have already demonstrated that we can prevent extinction, and everything we do here at Chester Zoo and beyond is focused on that mission.

Q. Did COVID-19 provide opportunities for change?

A. Chester Zoo has grown rapidly over the last decade. Sometimes we've run so fast that we haven't been able to keep up with ourselves. Covid provided an opportunity to pause and think, to regroup, and revise our future ambitions. We are a leaner, closer and more resilient team than we were before Covid, and are looking at the world in a different way – making possibly different choices but still focused on our charitable objectives, supporting conservation and education.

Q. What challenges remain?

A. We launched an ambitious 10-year Conservation Masterplan in early 2021, which sits alongside our Strategic Development Plan, that had been paused as a result of the pandemic. Having recovered financially from Covid, we need to start to deliver on the pledges made in both plans and make real progress in 2022. The world remains a very uncertain place and we can't predict the future, but we intend to drive forward with both these plans here on-site at Chester and in the countries that we work in globally. These plans will take the rest of this decade to deliver and are our biggest challenge to date.

Q. What's your personal focus for the year ahead?

A. The amazing team of people I work with. At the end of 2021 we asked our staff what they wanted from Chester Zoo as their employer. We recognise that feeling valued and part of a team where they are listened to and included in decision-making is just as important as career development and pay and benefits. I see on a daily basis the passion, commitment and loyalty each of them have for their role. I'm proud that we have such an engaged group of staff and so a lot of my time in 2022 will be spent with them, encouraging and showcasing the great work they all do.

Q. How will Chester Zoo change over the next 10 years?

A. I want to ensure I leave a legacy of a sustainable zoo. Both financially, environmentally and with a programme of conservation activities with evidenced impact around the world that can continue to grow beyond that 10-year period.

This will come from our existing operations, new ventures and different ways of working. It will be driven by a close team that respects each other, draws on a wide skill set and continues to work together towards our mission of preventing extinction.

Q. How do you see Chester Zoo's place in the world of conservation?

A. We'll never solve all of the world's conservation issues, but our work has a clear impact and our reputation allows us to influence many. We'll continue to lead in our field and our profile allows us to attract the best talent in our sector, and make the biggest difference we can. We'll continue to engage as many people as we can with our work and encourage them to take steps to join us in preventing extinction by making changes in their everyday lives. I know we have a special part to play and as a team we will keep doing that – day in, day out.

THE SECRET LIFE OF THE ZOO

Chester Zoo works with more than 3,000 species globally – including 139 international animal conservation breeding programmes, led by science, which are working to ensure genetically viable safety-net populations of species in zoos.

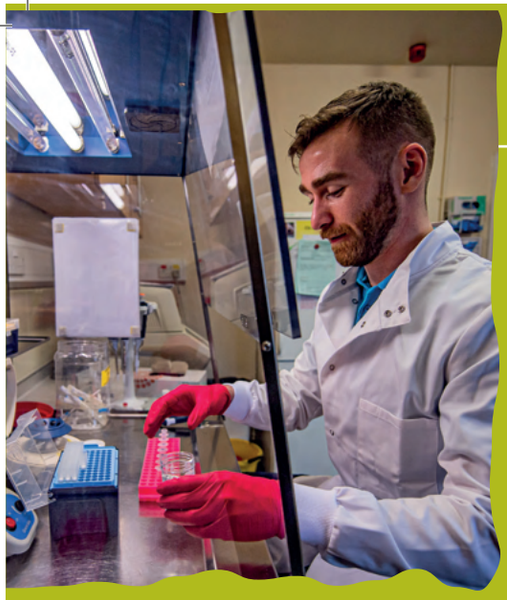
The zoo is home to five national plant collections, comprising orchids, cacti and pitcher plants – making up more than 1,000 threatened species. The zoo's horticulture and botany teams grow a number of plants, herbs, vegetables and trees within the grounds, to help feed the animals at the zoo.

Every year, the zoo inspires more than 265,000 young people through conservation education programmes – including up to 50,000 children, many from underprivileged areas, who are offered the opportunity to visit the zoo free of charge.

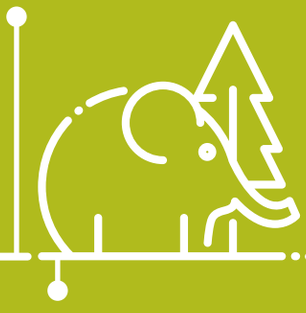
The zoo works with more than 60 partners in 20 countries globally to recover threatened wildlife and restore habitats – including orangutans in Bornean rainforests, elephants and tigers in Indian grasslands, lemurs and frogs in Malagasy forests and rare fish in Mexican lakes.

Recognised by governments and NGOs across the world as leaders within the global conservation community, the zoo's specialists use their expertise to influence policy both in the UK and internationally – working with governments worldwide to take action to halt the biodiversity crisis.

This year, the zoo formed a partnership with a world-leading waste and recycling operator, and pledged to become a zero-waste organisation by 2030. Work is already underway to find ways of recycling, reusing and, where possible, avoiding the 798 tonnes of waste the zoo currently generates each year.



Chester is home to the UK's only zoo-based wildlife endocrinology lab. Endocrinology is the study of hormones and can provide us with a deeper insight into animal health and reproduction – aiding the conservation breeding of highly endangered species. Through studying endocrinology, experts can closely monitor the needs of the animals at the zoo.



All plastic bottles were removed from sale at the zoo in 2021, while a number of new electric vehicle (EV) chargers were installed to increase the total to 18 for visitors – further reinforcing our commitment to a more sustainable future. By summer 2022, there will also be brand-new waste segregation units to enable the public to become more informed and involved in the zoo's sustainability targets.

Wildlife monitoring surveys on the 12-hectare Chester Zoo Nature Reserve in 2021 confirmed the presence of 658 species previously not seen on the site before. This is more than 54 species per hectare!

The conservation charity is the UK's most visited paid-for attraction outside of London and its popularity helps boost the regional economy in the North West of England by more than £50m each year – helping to sustain around 1,000 jobs at the zoo and a further 1,000 in the region.

Experts at the zoo brew a range of gins, including a new winter gin, infused with cinnamon leaf handpicked from its Monsoon Forest habitat, and Himalayan honeysuckle berry from the stunning botanical gardens. These unique ingredients, which are grown by the zoo's Horticulture & Botany team, create a deliciously unique gin.

The zoo launched its brand-new Conservation Training Academy in 2021, offering workshops and professional development sessions across the entire spectrum of applied conservation. In its first year, the Academy has already trained 163 people participating in professional training courses, 90 students on our higher education training workshops, 11 PhD scholars who completed their zoo research training and 33 conservation trainees on-year placements.

In 2021, the zoo launched a whole raft of exciting new animal experiences that allow people to get closer than ever before to the incredible animals at the zoo. This includes brand-new chameleon, butterfly, Komodo dragon and aquarium experiences, as well as Breakfast at the Lions and a Secret Life of the Zoo tour.

CASE STUDY – OUR PEOPLE IN AN EXTRAORDINARY YEAR

In January 2021, we started the year with a head count of 559. The Job Retention Scheme was utilised during the first three months of the year as we experienced a period of temporary closure due to Covid restrictions – approximately 70% of staff supported the zoo by taking a period of furlough or flexi-furlough during this time.

Well-being

The well-being of our people was a key focus for 2021, and a cross-departmental well-being project was set up in April. The CIPD Mental Health at Work framework was utilised to provide the structure needed to align several different streams of activity that would support the overall goal of improving the well-being of our people. During May 2021, the Well-being at Work Guide was developed and launched, partnering with an external training provider. 38 managers attended Mental Health Awareness training during 2021, and 18 well-being-related activities and events took place during 2021, attended by over 100 members of staff. Significant investment in staff welfare facilities further supported staff at the end of the year.

Learning and development

In February we launched a new eLearning platform with high-quality, video-based training courses, which condense learning into engaging, manageable pieces. Characters, themes and stories are used to bring learning to life and make it more memorable. The first library made available was a non-mandatory mental health collection, followed by our own bespoke courses. Since launch, more than 700 people from across the zoo completed and passed at least one course and more than 6,000 eLearning courses have been completed. Over 800 of these courses were non-mandatory.

In addition to the eLearning, more than 530 individual learning experiences have taken place in 2021, which have been delivered both externally and internally and range from customer service training, health & safety and autism awareness to chainsaw and tractor training.

Equality, diversity and inclusion

We are committed to encouraging equality, diversity and inclusion among our workforce, and our aim is for our employees to be a true representation of all sections of society, and for all of our staff to feel respected and able to give their best. A bespoke Equality, Diversity and Inclusion eLearning course was made available for all staff, while managers were invited to attend a virtual facilitator-led session to increase awareness, and continue to identify barriers and take appropriate action.

Recruitment

Head count increased to 906 employees when our seasonal staff joined us during our peak summer season, helping us to create a fantastic experience for our visitors. We welcomed 117 permanent and fixed-term new starters in 2021, 376 seasonal staff, and there were 64 internal moves to new roles. Eight kick-starter placements took place within our Facilities, IT, CE&E and People teams, supporting young people in the local community.

Recruitment continues to be a key activity as the zoo grows, and a new applicant tracking system was implemented in November, which will enable a better candidate journey and provide additional accessibility tools to support our equality, diversity and inclusion aims throughout the recruitment process.

Staff engagement survey

This year we worked with The Engagement Coach to create a bespoke staff survey relevant to our organisation, providing the opportunity for our people to feed back on what it's like to work at the zoo. Our staff survey was live for two weeks in October and 76% of employees participated in the survey. This response rate means we can be confident the results represent the views of the majority of our people. The survey contained 35 questions exploring themes around employee experience, our culture and mission, leadership and teams, reward and learning & development. Our overall engagement score of 77% demonstrates high levels of employee engagement, with questions around our mission, working with caring people and working towards a common goal scoring most highly.

Sustainable Development Goals:

Our people are key to all that we do, and on average we employed 725 people in 2021 in support of SDG 8 (Decent Work & Economic Growth), our focus on staff well-being supports SDG 3 (Good Health & Well-being) and our focus on E,D&I supports SDG 10 (Reduced Inequalities).

Our sustainable zoo

Our wider strategy for preventing extinction must involve measures designed to reduce the global threats to biodiversity presented by climate change and the over-exploitation of natural resources.

Central to this is demonstrating sustainability in all of our activities. In 2021 we published our Conservation Masterplan and set sustainability goals for the zoo's operations in the 10-year period through to 2030. Our aim is to work on new initiatives to make every aspect of a zoo visit sustainable, and to inspire our visitors to adapt to a more sustainable consumer behaviour in their everyday lives.

In 2021 we made progress against these goals in the following ways:

Carbon net zero by 2030

We commissioned an external specialist consultancy firm to work with us to develop our understanding of our current carbon emissions and to start work on developing a roadmap to net zero.

We have good data on our scope 1 & 2 emissions, generated by our own operations. We now also have a better awareness of our scope 3 emissions. While our work in the next 10 years will focus on becoming net zero in terms of our scope 1 & 2 emissions, we are also mindful of scope 3. The work undertaken in 2021 means we have a good platform to move forward and develop a framework for how we consider carbon when making investment decisions, working with our supply chain and engaging with our visitors.

Zero waste operation by 2030

In 2021 we engaged with a new strategic waste partner to support us in the delivery of our medium and long-term goals on our journey toward zero waste. Through detailed audits we now understand what we call our 'waste DNA' in granular detail and we have been able to define our waste streams and quantities, and therefore action immediate improvements on our waste outcomes.

With our partner we are starting on a step-by-step journey towards 'zero waste', which will use effective waste rationalisation, expert logistics and leading-edge processing technologies supporting our zero-waste ambition.

Procurement of deforestation-free commodities in all major supply chains

As for carbon and waste, 2021 work was focused on establishing a baseline understanding of the current supply chain. Work has commenced on establishing a deforestation-free procurement policy. And, for the first time, we have put a major procurement category out to tender with a focus on sustainability and transparency throughout the supply chain.

Love it for Longer

In summer 2021, 'Love it for Longer' provided an immersive, artistic experience for zoo visitors, particularly aimed at young families. Each element invited interaction and participation, delivering messages around sustainability. The key areas of focus were plastic, food, animal and clothing waste. The experience aimed to empower zoo visitors to live more sustainably and gave them handy hints and tips they could apply at home. There were on-site demonstrations and online content was made available including our head chef delivering new recipes around how to use up leftovers.

Energy consumption and carbon footprint

The Society's scope 1 & 2 energy usage and carbon footprint, within the United Kingdom, is set out below. This is the data that will be used to measure the Society's progress towards its target of carbon net zero by 2030.

	2021	2020*
Energy consumption used to calculate emissions (kWh)	18,742,875	14,516,433

Energy consumption used to calculate emissions	Scope	2021 usage	2020* usage
Emissions from combustion of gas	1	1,537 tCO2e	1,090 tCO2e
Emissions from combustion of LPG	1	302 tCO2e	161 tCO2e
Emissions from combustion of oil products	1	315 tCO2e	333 tCO2e
Emissions from combustion of fuel for transport purposes	1	49 tCO2e	42 tCO2e
Emissions from refrigerants	1	14 tCO2e	15 tCO2e
Emissions from purchased electricity	2	1,759 tCO2e	1,486 tCO2e
Total tCO2e based on the above scope 1 & 2 emissions		**3,976 tCO2e**	**3,127 tCO2e**

The following ratios give an indication of the intensity of the Society's carbon footprint based on the above scope 1 & 2 data.

	2021	2020*
kgCO2 per zoo visitor in the year	2.48 KgCO2	2.64 KgCO2
kgCO2 per acre of operational zoo estate (excluding the Society's wider land holding)	6,809 KgCO2	5,354 KgCO2

*In 2020 the zoo was closed to visitors for just over three months of the year.

CASE STUDY – BID TO RESCUE MADEIRA'S LOST SNAILS

This year has seen Chester Zoo make a major contribution to preventing the extinction of a number of snails endemic to islands around Madeira. Madeira, an autonomous region of Portugal, is an archipelago of islands in the Atlantic Ocean about 320 miles off the coast of Morocco. This isolation, just like its distant neighbour the Canary Islands, has resulted in the evolution of many unique endemic species. Among these are a number of snails that are found nowhere else on Earth, and have been driven right to the edge of extinction by loss of habitat and invasive species colonising the isolated islands.

Chester Zoo has been tackling similar challenges with the species of Bermuda for a number of years, and it was this experience and proven results that resulted in a contact to request our assistance with saving the snails of Madeira. Initially we have set a target to work with five of these species that are right on the edge of extinction, with goals to both start the species' preservation programmes to breed the snails in captivity and then population restoration programmes to increase the numbers and range of the five snails in the wild.

In summer 2021, we began by receiving snails of two different species collected from Desertas Grande Island (one of the Madeiran islands) – 36 *Discula lyelliana* and 81 *Geomitra grabhami* snails arrived at the zoo from the Madeiran government. Both species are critically endangered, with *Discula lyelliana* even feared to already be extinct prior to the collection of the snails, and the best estimates for *Geomitra grabhami* assessing the population as fewer than 500 snails are left. Receiving such precious species, it was our immediate action to divide the populations of both species between ourselves and the care of colleagues at Bristol Zoo – a safeguard just in case unforeseen events occurred. From these starting populations at Chester Zoo of just 18 and 42 snails respectively, our teams immediately set about trying to replicate the wild microhabitat of the snails and provide all the necessary resources and conditions for them to thrive – the first time these species have ever been kept out of their natural environment.

Seven months later, under the care and expertise of our invertebrate keepers, we now hold populations of 2,362

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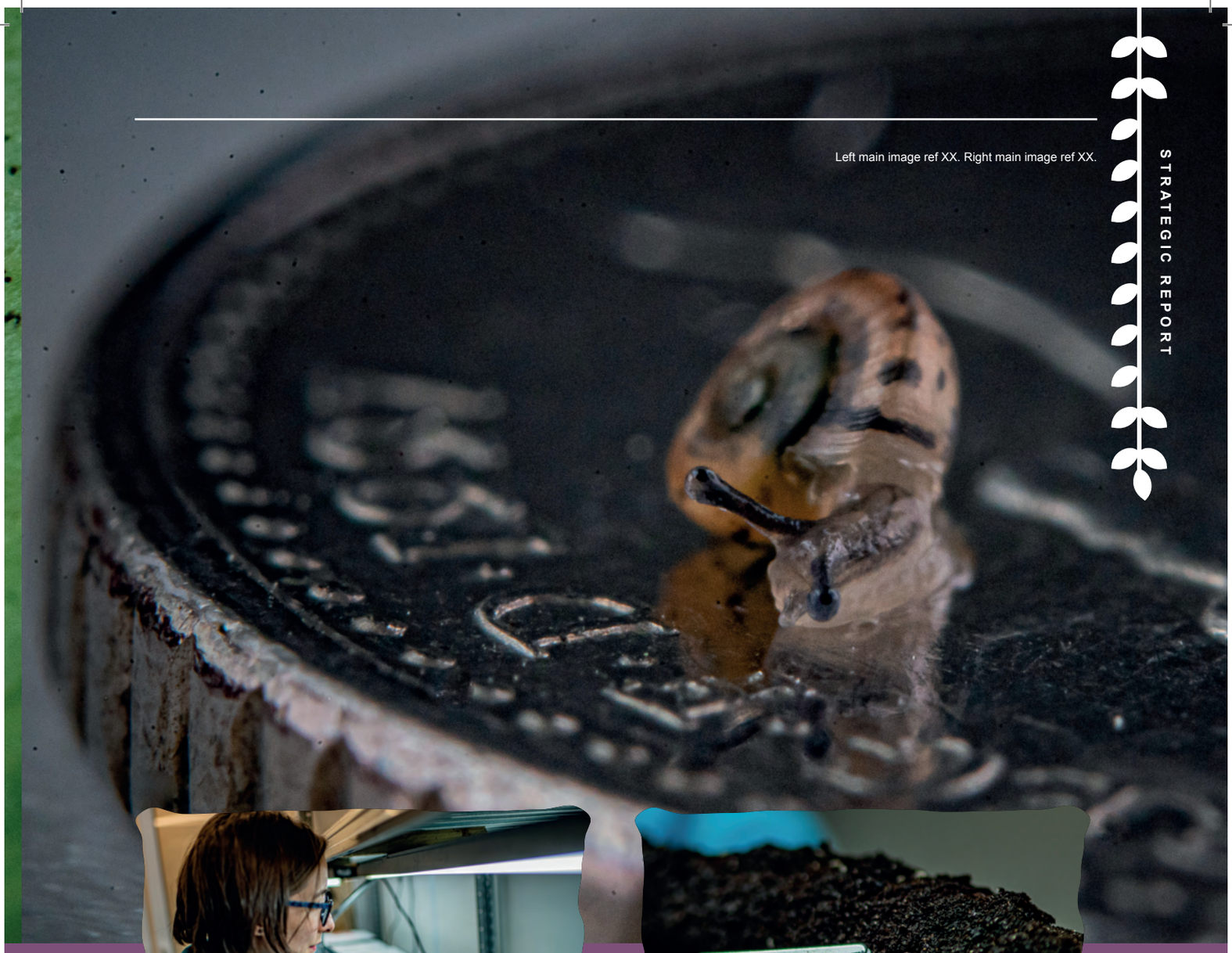


Discula lyelliana and 935 *Geomitra grabhami* – a staggering 6,500% and 1,150% increase in the population of those snails that originally arrived at the zoo back in June 2021. These initial successes were so encouraging that at the end of 2021 there was an expedition again to Desertas Grande Island involving both our own zoo staff and the Madeiran government, in search of some of the other almost extinct species. We were delighted that this yielded 37 specimens of a third critically endangered endemic snail, *Atlantica calathoides* – a species believed to possibly be down to a population as low as just 50 individuals!

The coming year will see our experts at the zoo starting to plan the first conservation translocations of some of these snails back to their native Desertas Grande Island to help restore the wild populations – working hard to continue our breeding successes with *Discula lyelliana* and *Geomitra grabhami* and extend these to *Atlantica calathoides* as well, and hoping to save the two still elusive species *Geomitra coronula* and *Geomitra moniziana* by collecting snails and founding species preservation programmes for them both.

Sustainable Development Goals:

Our work with Madeira's lost snails supports SDG 15 (Life on Land)

FINANCIAL REVIEW 2021

2021 was a year of recovery for the Society. Despite the zoo remaining closed for just over three months during the third COVID-19 lockdown, visitor numbers after reopening and particularly through the summer months, once all restrictions were lifted, exceeded our expectations.

Total income for 2021 was £45.2m – an increase of £9.1m from 2020's income of £36.1m, which had been significantly impacted by the first two lockdowns. This growth in income was driven by the increase in visitor numbers, secondary spend and the ongoing support of our members, to whom we are very grateful.

Expenditure for 2021 was £44.3m (2020: £36m) – an increase of £8.3m. Aside from the exceptional pension cost explained below, costs increased in all areas as our activities returned to a more normal level.

In November 2021, having worked closely with our Pension Trustees, we agreed a buy-in policy to secure the benefits of our defined benefit pension scheme members and made a contribution to the scheme of £2.1m, which together with fees of £0.2m resulted in an exceptional cost of £2.3m.

Having taken into account this exceptional £2.3m charge for the pension scheme, the Society reported a net increase in funds of £0.9m (2020: £0.1m) and we ended the year with net cash of £2.7m (2020: net debt of £3.4m).

Incoming resources

The majority of the Society's income comes from the zoo's visitors and members, in the form of admissions and other charges.

Having reached a record 2,086,785 in 2019, and then fallen to 1,182,652 in 2020 due to COVID-19 lockdowns, visitor numbers increased to 1,601,327 in 2021, with the zoo closed for just over three months at the start of the year. In 2021, 29% of visits were made by members (2020: 36%), with demand for visits by non-members particularly strong in the summer months.

At the end of 2021, our membership had grown again, and we ended the year with 130,178 members (2020: 120,539), many of whom continued to support us while the zoo was closed – we are incredibly grateful for their loyalty.

Our winter 'Lanterns' event, which ran for 24 nights, attracted a record 131,000 visitors (2020: reduced capacity of 77,000 visitors). Despite restrictions being lifted during the year, education visits were slow to recover as schools remained cautious and were impacted by staff and pupil absences. There were just 40,000 education visits made in 2021 (2020: 33,000, 2019: 132,000).

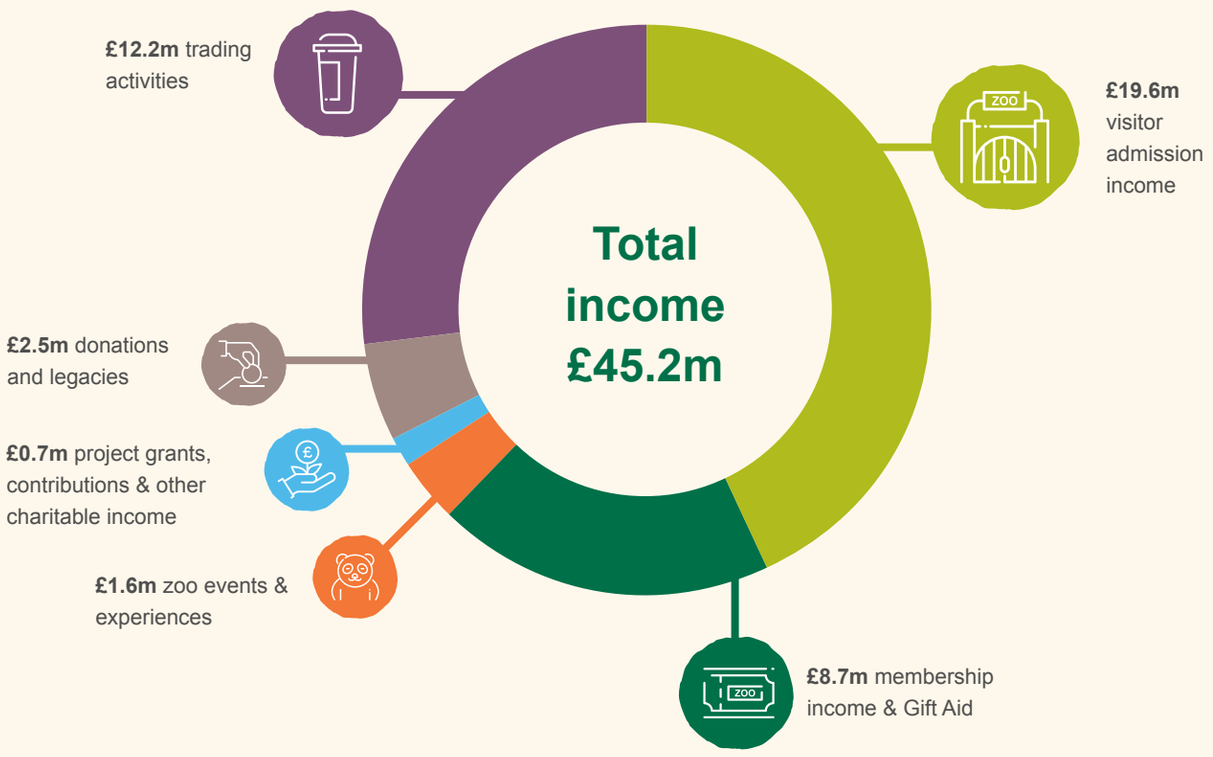
Total income from our charitable activities for 2021, which includes admission fees, membership income and income from events and experiences, increased to £30.5m (2020: £20.7m).

As a registered charity, the Society generates voluntary income from visitor donations (and Gift Aid thereon), animal adoptions, legacies, grants and other donations. Donations and Gift Aid fell to £0.9m (2020: £1.8m) and remained impacted by the change in public behaviour, with most visitors in 2021 booking tickets online where the propensity to donate and Gift Aid reduces.

Income from animal adoptions, legacies and other donations reduced to £1.1m (2020: £5.4m), with 2020 adoption income having been boosted by adoptions during the first lockdowns. 2020 income also included £3.3m from the Save Our Zoo campaign.

The Society's trading subsidiary, Chester Zoo Enterprises Limited, which provides retail and food & beverage offerings across the zoo site, had a turnover of £11.9m in 2021 (2020: £6.8m). While this income was impacted by the closure of the zoo, when visitors returned the propensity to spend in both food and beverage and retail outlets increased.

In 2021 the Society and its trading subsidiary claimed £0.9m from the Job Retention Scheme and received £37,000 of other COVID-19-related grants (2020: £1.8m from Job Retention Scheme, no other grants).



Resources expended

In 2021 the Society spent £44.3m (2020: £36.0m), which included a £2.3m exceptional cost relating to the defined benefit pension scheme (2020: no exceptional cost).

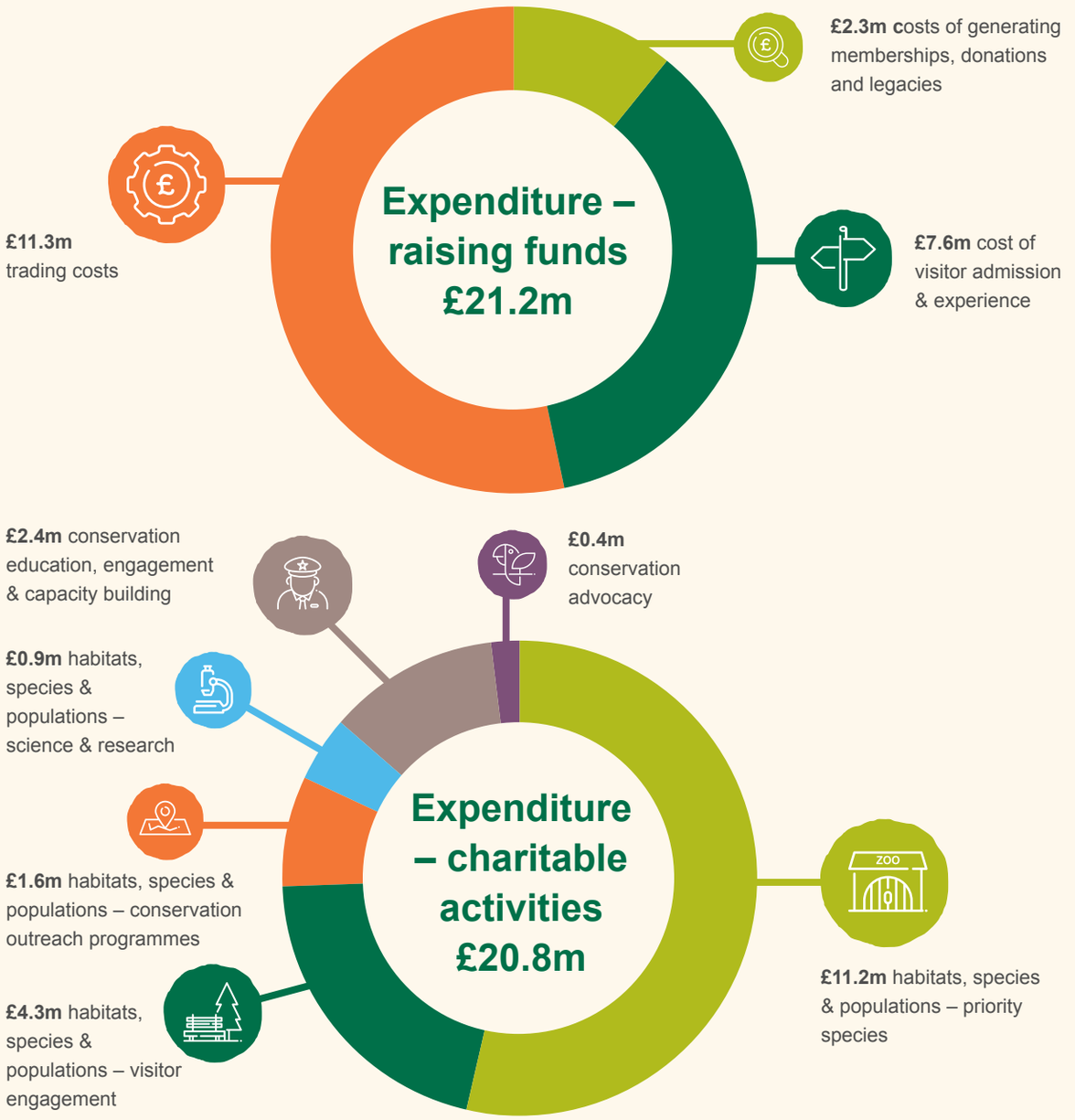
After a difficult year in 2020, when due to the significant fall in income the Society had to reduce spend across the organisation, including the funding for charitable activities, the recovery in our income allowed us to start to increase this spend again.

Resources expended on our charitable activities increased to £20.8m (2020: £19.6m). In 2021 we updated the presentation of our expenditure on charitable activities to better align with the focus of our work in support of our mission of preventing extinction.

In 2021 we spent £21.2m raising funds, with £2.3m spent on generating membership income, donations and legacies. The costs of visitor admission and experience at the zoo rose to £7.6m (2020: £6.8m).

With its significantly increased income, Chester Zoo Enterprises had trading costs of £11.3m (2020: £7.1m), excluding rent paid to the Society of £0.5m (2020: £0.3m), which included a reduction in rent while the zoo was closed. Chester Zoo Enterprises made an operating surplus of £0.4m in 2021 (2020: operating loss of £0.6m).

By far the biggest element of operating expenditure (2021: £17.2m, 2020: £16.0m) is the Society's payroll cost for its employees. After undertaking a cost reduction exercise in 2020, which led to 47 employees leaving our employment, we started to recruit to replace a number of roles towards the end of 2021. With the zoo open without restrictions from



the summer, we also started to increase the number of staff employed under a seasonal contract during the year. Our average Full Time Equivalent (FTE) head count for 2021 was 529 compared to 502 in 2020, and 618 in 2019.

Capital expenditure

Having put all major capital plans on hold in March 2020, we were pleased to be able to undertake some smaller projects in 2021, with the majority of the £2.4m spend (2020: £7.3m, including £5.7m on the refurbishment of the Monsoon Forest building after the fire) being spent on major repairs and infrastructure. Works undertaken included a full replacement of the roof at June's restaurant, refurbishment of a rhino house, and the commencement of refurbishment works to the listed Oakfield Stable block.

Borrowings, investments and reserves

It is the general policy of the Society to apply towards its charitable objectives as much funding as it reasonably can, to avoid accumulating excessive cash reserves. Where considered appropriate, borrowings are undertaken to fund elements of significant capital projects.

In setting its cash reserves policy, the Society takes account of its continuing financial commitments in terms of staffing and overheads, including the costs of maintaining the animal and plant collection and funding its charitable activities together with any contractual commitments for capital projects. The Society also considers the risk that its income for any particular year may be impacted by a number of factors outside the Society's control – such incidents that could close all or part of the zoo to visitors for prolonged periods, competition from other visitor attractions, social trends and recession. The experience of COVID-19 provided evidence of the impact of such an event.

Throughout 2021 the Society maintained minimum available cash reserves of £3.8m, which were supplemented by a minimum £1.9m of undrawn committed borrowing facilities – such reserves being sufficient for the zoo to operate without significant curtailment of its activities for a period of up to three months.

At the end of 2021, the Society had borrowed £2.0m and had £4.8m of cash reserves, including £0.5m of cash reserves held in escrow for the defined benefit pension scheme (2020: £9.2m borrowings and £5.8m of cash reserves). At 31 December 2021, the Society's borrowing facility comprised a £22m unsecured revolving credit facility, which is in place until April 2025 and a £2.0m overdraft facility, which is renewable annually in August. At 31 December 2021, the Society had access to £22m of undrawn borrowings and £4.3m of cash reserves (excluding the escrow account).

Pensions

The Society's defined benefit pension scheme was closed to future accrual in 2012 and the Society has, for a number of years, been working with the scheme Trustees towards securing the scheme benefits with an insurer and had agreed to set aside funds each year, which were paid into an escrow account to do so. In November 2021, an agreement was reached to enter into a buy-in policy with Aviva, which fully matches the scheme liabilities, and a contribution of £2.1m was made. A balance of £0.5m remains in the escrow account, which will be used to fund the wind-up of the scheme in 2022, and any excess funds will then be released from escrow.

The Society operates a defined contribution scheme that is open to all employees. For permanent employees who contribute 3% or more, the Society makes a contribution that is 2% more than the employee contribution up to a maximum of 9%. Qualifying seasonal employees are enrolled into the NEST pension scheme, with contributions in line with government rates.

Restricted and designated funds

Restricted income funds derive from donations, grants and legacies received and are put towards a variety of specific capital projects and conservation activities. Unrestricted income funds may be designated or freely available for the Society's general charitable purposes.

After setting aside restricted income funds, the Society keeps a minimum cash deposit of £3.8m set aside as a free reserve. The balance of available funds at the balance sheet date are designated as follows:

- To the defined benefit pension scheme; with funds held in escrow to cover the wind-up of the scheme in 2022
- To funds that could only be realised by disposing of fixed assets held for charitable use, up to a maximum of the net book value of those fixed assets at the balance sheet date.

The Trustees do not consider it necessary to retain income in respect of the Society's designated activities. While these funds have been earmarked by the Trustees for particular purposes or uses, they are not committed or restricted legally.

At 31 December 2021 the Society had total funds employed of £62.4m (2020: £61.5m) of which £1.1m (2020: £2.2m) were restricted, £3.8m were free (2020: £3.8m) and the balance of £57.5m (2020: £55.5m) were designated.

Other information

Information in respect of our grant making, fundraising and engagement with volunteers is included within the additional information on pages 80-82 along with information on how the Trustees had due regard to public benefit.

WORKING WITH PARTNERS

Chester Zoo works with many partner organisations and individuals who help us deliver our mission of preventing extinction. While there are too many to name individually, the major organisations who we work closely with are set out below.

Conservation and zoo organisations

Working with global and national conservation organisations, and in particular other zoos, is key to the delivery of charitable mission.

IUCN – International Union for Conservation of Nature

Chester Zoo actively supports the chair of the IUCN Species Survival Commission, and our staff are involved within many specialist groups as active members, especially within the conservation planning, conservation translocation, Galliformes, Asian Wild Cattle and Butterfly & Moth specialist groups.

BIAZA – British and Irish Association of Zoos and Aquariums

Chester Zoo has strong links with BIAZA, with members of our staff taking up voluntary roles as BIAZA trustees and being actively involved in working groups. This engagement helps us work as part of a collaborative zoo community, providing support and guidance.

EAZA – European Association of Zoos and Aquaria

Chester Zoo has a significant role within EAZA, being members of and chairing numerous committees and taxon advisory groups. Chester Zoo is actively involved in 139 EAZA breeding programmes.

WAZA – World Association of Zoos and Aquariums

Chester Zoo plays an active role in WAZA activities, including its global species management programmes and is a member of its Conservation Committee. We work closely with WAZA as part of their global campaign to support deforestation-free, sustainable palm oil.

Cheshire RECORD

We share skills and expertise with Cheshire RECORD to enable us to monitor biodiversity on the zoo estate so that we can evaluate the habitat management and maximise its impact on reversing species decline on our doorstep.

Nature's Safe

We provide samples and work closely with Nature's Safe to develop their biobank, which is designed to provide long-term storage of living cells from animal species that are at the greatest risk of extinction in order to safeguard their future.

Universities (formal partnerships)

Chester Zoo supports 35 scholars and fellows engaged in doctoral and post-doctoral training on projects commissioned by the zoo through 13 universities. We have formal research and training partnerships with the following organisations.

University of Surrey

Chester Zoo works in partnership with the University of Surrey on research into Elephant Endotheliotropic Herpes Virus (EEHV) and is piloting a study of a new vaccine. Read more about this in our case study on pages 40-41.

University of Oxford, Wildlife Conservation Research Unit – WildCRU

Chester Zoo supports a number of projects, with a particular focus on human–wildlife conflict research, which includes our field programme to protect Andean bears in the mountains of Bolivia.

Manchester Metropolitan University

Chester Zoo staff codeliver Manchester Metropolitan University's Masters in Zoo Conservation Biology and collaborate with the university on a number of research projects, including conservation research on black rhinos in Kenya.

University of Liverpool (School of Veterinary Science)

The zoo has a very close working relationship with the veterinary school, especially regarding veterinary pathology and the training of veterinary residents.

Field partners

Chester Zoo works with over 60 field partners in more than 20 countries, who deliver conservation work in the field. There are too many to mention individually in this report but in 2021 some of our key partners included the following:

Madagasikara Voakajy

Madagasikara Voakajy are Chester Zoo's main partners in Madagascar for our Mangabe forest landscape project – working to conserve many species including lemurs, golden mantella frogs and Pronk's day gecko. Their Director, Julie Razafimanahaka, received a prestigious Tusk Conservation Award in Africa in December 2021.

Wildlife Trust of India

The Wildlife Trust of India are our partner for the Assam elephant project, delivering practical help to local communities living alongside wild Asian elephants close to the Manas National Park. Chester Zoo is working with them to scale this up across a wider landscape.

Hutan

Chester Zoo has a close working relationship with Hutan in Sabah, Malaysian Borneo, to deliver practical conservation such as forest replanting and restoration, hornbill nest boxes and primate rope bridges. Hutan also work with local sustainable palm oil producers to allow wildlife and plantations to coexist.

Other organisations

ALVA – Association of Leading Visitor Attractions

Chester Zoo is a council member of ALVA, and works with ALVA and fellow members to tackle issues impacting the visitor economy in the UK.

West Cheshire and North Wales Chamber of Commerce

Chester Zoo is an active member of the local Chamber of Commerce and we have partnered with the Chamber to introduce the government-backed Kickstart Scheme.

Marketing Cheshire – Cheshire and Warrington

Chester Zoo's CEO sit as an elected board member of Marketing Cheshire, and the Chester Zoo team provide support and partnership in particular through Destination Chester – a city network ensuring resilience for the local visitor economy.

Cheshire and Warrington Local Enterprise Partnership (LEP)

We have an active relationship with the LEP, who have provided support throughout the pandemic, and we partner with them on the ambition to make Cheshire & Warrington a better place to live, work and visit.

Cheshire West and Chester Council (CWAC)

CWAC have provided support to Chester Zoo throughout the pandemic. We engage with CWAC on a number of topics, with Chester Zoo representatives being members of the CWAC Climate Emergency Task Force and the external business & economy group.

Charity Tax Group

Chester Zoo is an active member of the Charity Tax Group who work to improve the understanding of tax on charities and lobby to secure a fair deal for charities.

Ignite Institute

We work with Ignite Institute to deliver our annual programme of Continuous Professional Development that supports teachers to embed conservation themes across their curriculum.

Green Recovery Challenge Fund partners

In 2021, Chester Zoo secured a £1m grant from the Government's Green Recovery Challenge Fund to develop a Nature Recovery Corridor, to restore biodiversity and promote community action for wildlife in Chester and Ellesmere Port. Our delivery partners for this significant project are:

- Cheshire West and Chester Council
- The Canal and River Trust Canal & River Trust
- The Land Trust
- Sustrans Home
- Cheshire West Communities Together

CASE STUDY – COMMERCIAL RECOVERY FROM COVID-19

After a turbulent 2020 – with the various UK lockdowns and restrictions – 2021 began with cautious anticipation of what was to come. Within the first few days of January, the country was again plunged into another national lockdown, which meant we were unable to open and welcome visitors to the zoo. We had plans in place ready to manage a further lockdown and our team responded well – pulling together as one and doing whatever was needed of them.

Just over three months later, we were finally able to reopen the zoo on 12 April – enabling us to reconnect with our visitors and to start to generate the vital income we now desperately needed. Initially, the restrictions in place meant that we could only allow a certain number of people into the zoo at any one time, and strict cleaning and social distancing measures were once again in place. This was operationally challenging but we knew how important it was that we played our part in keeping everyone safe.

As restrictions started to ease in May, and lift further in July, it was clear that there was a desire – even a need – from our members and visitors to reconnect with each other and to the zoo. In August, we welcomed record visitor numbers, driven by this spirit of people wanting to connect with real experiences and supported by a boom in UK holidays (or 'staycations') – with international travel restrictions still in place.

While our income was impacted by the long period of closure, we still achieved some significant milestones in 2021, which aided our recovery. Ending the year with just over 1.6 million visitors (compared to 1.2 million in 2020 and 2.1 million in 2019) was an incredible achievement that would have seemed unattainable at the start of the year. Our members played a huge role in supporting us yet again – by the end of the year, they had reached over 130,000 in number (2020: 120,539) – providing us with a stable level of income that's so vital for our continued sustainability. Day visitors returned in numbers close to those seen in 2019, which was a record year for us. Finally, in 2021 our annual Christmas event, The Lanterns, welcomed the highest number of visitors ever.

We were delighted that this recovery saw us ranked as the third most visited attraction in the UK in 2021 by ALVA and we were proud to receive both the Large Visitor Attraction of the Year and Resilience and Innovation awards at the Marketing Cheshire Annual Awards.

Most of our visitors now book their tickets online – a digital shift that has been accelerated by the pandemic. While this helps us manage numbers and connect with visitors through our digital communications, it has impacted the likelihood of visitors donating to us when buying tickets, and has therefore had a significant impact on voluntary income and the levels of Gift Aid we are able to claim.

Our retail operations had a record year, supported by the levels of day visitors and the relaunch of our online shop. While food & beverage operations have not beaten previous records, due to restrictions on restaurant capacity throughout the year, the amount our visitors spent each time did increase. All the money generated from these commercial operations is ploughed back into the zoo.

Looking forward to 2022, we are mindful that there are a number of cost pressures heading our way. Most notably, staffing costs (driven by increases to the national living wage), utility costs and the costs of goods and materials will have an impact, and will need to be factored into our pricing. The team are focused on ensuring a visit to Chester Zoo remains great value for money, and are continually looking to find ways of developing the visitor experience and generating income to support our mission of preventing extinction as we continue our recovery.

Sustainable Development Goals:

Our commercial recovery from COVID-19 supports SDG 8 (Decent Work & Economic Growth)

RISKS & UNCERTAINTIES

Trustees have a risk management strategy that sets out responsibilities for risk management across the Society, the Society's risk appetite, a process for reporting, review and escalation in relation to identified risks, and links to the internal control environment and external legal frameworks.

Through maintaining a risk register, Trustees actively review the major risks that the Society faces on a regular basis against the relevant mitigating internal controls and actions being taken to manage risk. By ensuring cash reserves are kept at agreed levels and through putting in place appropriate insurances, Trustees are satisfied that there will be sufficient resources in the event of the most adverse conditions.

The effectiveness of the Society's risk assessment procedures is reviewed by the Audit & Risk Management Committee. The Society's internal auditors undertake a schedule of internal audits determined and scoped by the Audit & Risk Management Committee and report back to the committee on a regular basis. The internal auditors also provide advice and guidance on the Society's overall risk management process.

There are over 20 risks identified within the risk register. The risks identified by the Trustees as likely to have the most significant impact on the Society are set out below.

Risk:

Major incident

That there is a major incident that threatens human or animal safety and/or risks the Society's assets and reputation.

An example of such could be a dangerous animal escape, an act of terrorism, an outbreak of disease or a cyber-security attack.

Potential impact

Such an incident could cause major financial loss and significantly risk the Society's ability to operate in the future.

The Society relies on visitors, members and donors for the majority of its income, and therefore keeping the zoo open and welcoming visitors is key to financial sustainability.

How do we manage the risk?

The Society has in place documented risk assessments, emergency procedures and business recovery plans. Regular practice drills are undertaken, consulting with emergency services.

A number of independent audits take place each year to review and check compliance with internal policies, procedures and controls.

A schedule of insurances is reviewed annually by the Audit & Risk Management Committee. A cash reserve is held to mitigate any period when the zoo is closed, the level of reserve having been increased following COVID-19.

Risk:

Reputation of zoos

If the reputation of zoos in general is undermined, leading to a change in public sentiment, or if lobbying from anti-zoo organisations leads to significant restrictions in how zoos can operate, then this would impact the Society's ability to achieve its mission.

Potential impact

Significant change in public perception of zoos could significantly impact the Society's income from visitors.

Changes in legislation could mean that the Society has to significantly change its way of operating, or the collection that it holds, potentially reducing the impact it can have in preventing extinction.

How do we manage the risk?

The Society regularly talks publicly about its role as a world class zoo, with the highest standards in animal welfare, and impact of its conservation work, both within the zoo and in the field, to achieve its mission of preventing extinction.

The Society's staff work closely with, and hold positions on, a number of umbrella organisations representing zoos, animal welfare and conservation, striving to continually improve standards in husbandry.

The Society's Public Affairs team work with a number of stakeholder groups to communicate the approach to conservation and the impact that the Society's activities have. We also regularly research public sentiment in this area.

» **Find out more** about how we engage with stakeholders on **page 38.**

Risk:

Cost inflation

Significant inflation, particularly in respect of wages, utilities and construction materials, driving the Society's operating costs upwards.

Potential impact

At a time of increasing inflation, rising costs could impact the Society's financial sustainability and curtail its activities.

How do we manage the risk?

The Society regularly undertakes procurement reviews of its supply chain to ensure it is getting best value for money.

Annual budgets, and longer-term forecasts, take account of anticipated cost increases, and pricing is adjusted accordingly. Independent professional advice is taken when planning major capital developments.

Commitments made to reduce the Society's carbon footprint and waste generation are focused on reducing usage, by improving existing operations and having sustainability at the heart of future plans and developments.

Risk:

Prolonged downturn in financial performance

A significant downturn in the financial performance, with a failure to meet budgeted income targets.

Potential impact

The Society has in place 10-year plans for both increasing its conservation activities and for the physical development of the zoo. These plans are reliant on sustained financial performance.

How do we manage the risk?

A 10-year business plan is in place that supports both the Society's Conservation Masterplan and Strategic Development Plan, and is updated annually.

Three to five-year forecasts are used to support the approval of major capital projects, and sensitivity analysis is used to model scenarios and to consider risks and mitigating actions.

Monthly financial reports and quarterly reforecasts are used to monitor performance.

Risk:

Recruiting, developing and looking after our employees

Failing to be an attractive employer, bringing relevant skills into the organisation, or to look after our employees through providing a safe working environment with opportunities to train and develop.

Potential impact

Emerging from dealing with COVID-19, there is significant activity in job market with individuals reassessing what they want from a career and employer.

How do we manage the risk?

We have invested in recruitment software to make the recruitment journey more accessible to all.

We have a clear and transparent job grading process that is independently reviewed.

All staff take part in an annual performance and development review, which helps determine training needs.

All staff undertake a detailed induction and have access to both mandatory and optional training each year.

Our Staff Association, comprising representatives from across the organisation, meet regularly with the executive directors to discuss matters impacting staff. An annual staff survey provides insight into engagement levels and what is important to our people.

We have an internal occupational health resource and a Health & Safety team to support staff, and systems in place for staff to report issues and concerns.

All staff receive weekly bulletins, regular updates from individual directors and are able to attend quarterly briefings where they can ask questions of the Director team.

In 2021 we ran a number of well-being activities to support staff, particularly acknowledging the impact of COVID-19. A team of senior managers are working together on a number of well-being related projects, including a review of our staff welfare facilities.

STAKEHOLDER ENGAGEMENT

Every year at Chester Zoo, we engage, inform and collaborate with a broad range of audiences. Accurately mapping our stakeholders is a vital first step in ensuring that we fully understand their interests, needs and influence. This in turn allows us to build effective relationships, in pursuit of our mission of preventing extinction. Below are some examples of how we interacted with key stakeholder groups in 2021.

Parliamentarians

Chester Zoo is committed to shaping the political agenda when it comes to policies and debates that affect wildlife here in the UK and overseas.

We measure this by:

- Measuring progress against our Conservation Masterplan policy target
- Monitoring the political environment and our prominence within parliament and other political settings
- Mapping our stakeholders and tracking levels of engagement.

Our focus issues for 2021 included:

- Animal welfare
- Deforestation-free commodities
- Conservation education
- Biodiversity and climate change
- The conservation and wider societal and economic impact of zoos.

Our wide-ranging engagement in this area includes activities such as:

- Hosting stakeholders in the zoo and building direct relationships with politicians and their advisors
- Responding to government consultations and calls for evidence
- Attending and speaking at conferences and events.

Peer organisations

Chester Zoo aims to be a leader within both the zoo and conservation sectors and, as the most visited attraction in England outside of London, play a vital role within the visitor economy.

We track this via numerous means, including:

- Considering what constitutes our unique Chester Zoo contribution when interacting with peer organisations
- Measuring the breadth and volume of relationships and partnerships we engage in
- Assessing the reputation and profile of the UK zoo sector.

Our engagement with this stakeholder group is shaped by issues such as:

- Regulation, legislation and government policy
- Financial stability and sustainability
- Public attitudes towards conservation, the environment, and the role of zoos.

Chester Zoo is by nature a collaborative organisation, none more so than with our peers. In 2021 this included:

- Joint campaigning and lobbying
- Working with membership bodies (such as BIAZA and ALVA) and as part of charity coalitions
- Peer-to-peer relationships, spanning many different specialisms.

Corporate partners

As important as it is, our relationships with corporates are not just about raising money to support our mission. Our aim is to work in genuine partnership, helping companies to engage their employees with vital conservation issues and to pursue more sustainable business models.

Chester Zoo works with partners whose intent is to find opportunities to inspire and engage their employees, to build confidence in their brand and reputation, and for a trusted partner to help guide them on their sustainability journey.

In developing our corporate portfolio, we seek balance across the following:

- We think holistically about our policy targets, funding needs and ability to influence corporate practice
- We aim to maximise our reach, both geographically and the number of employees and customers we engage
- We seek to partner with companies with positive corporate governance and regulatory affairs
- We look to create a fit with our audiences and with consumer trends.

Our engagement with corporates spans a range of approaches and activities:

- We are helping companies to reduce their environmental impact through our Sustainable Palm Oil Communities project.
- We invite partners to visit the zoo and see our incredible work for themselves, as well as offering volunteering opportunities.
- We lead by example by pursuing our own ambitious sustainability and procurement goals.

General public

We engage with our general public audience both on-site at the zoo and through owned and paid media channels.

As well as engaging around visits to the zoo, we also engage the public around a wide range of issues such as:

- Our work in preventing extinction through breeding programmes at the zoo
- Our field work in conservation
- Ongoing scientific programmes and breakthroughs
- Our schools and education programmes
- Our policy work – for example, sustainable palm oil
- Lifestyle and behaviour changes that our audiences can make to benefit the environment.

CASE STUDY – ADVANCES IN ELEPHANT CONSERVATION

After five years of dedicated research with our partners at the University of Surrey, in 2021 we began a pilot study of a new vaccine for Elephant Endotheliotropic Herpes Virus (EEHV). The vaccine aims to 'educate' the immune system of the Asian elephant to fight this deadly virus – it has previously affected our herd and is posing a threat to this endangered species globally, both in zoos and the wild. It is the first vaccine of its kind to enter a pilot study phase anywhere in the world.

The initial study is being carried out on our elephant herd here at Chester Zoo, but we are also supported by other major conservation zoos that hold Asian elephants in the UK and Ireland.

EEHV is a major threat to the long-term survival of the Asian elephant, of which just 40,000 now remain. Reports of wild elephant fatalities at the hands of the disease are on the rise in India, Nepal, Myanmar and Thailand, while cases have been recorded in five further countries across its native range, as well as in zoo conservation breeding programmes worldwide. Controlling this disease is becoming an important part of efforts to reverse the decline of Asian elephants (target 2 of our Conservation Masterplan).

Vaccines work by giving the immune system a practice run at fighting a disease in a safe environment, equipping its 'long-term memory' with the knowledge of how to fight the real infection. Part of our approach includes inserting a small piece of the DNA (the genetic code) from the EEHV into a benign virus that doesn't harm the elephant. This tiny slice of DNA relates to the external markers that viruses carry, and that animal cells use to identify the viruses and signal to their immune system. After years of painstaking research, we have identified candidate parts of EEHV DNA to use safely for this process. When injected into an elephant, the immune system mounts a response and, in the process, forms a 'memory' of what EEHV looks like – setting up an advanced alert system for when real EEHV arrives.

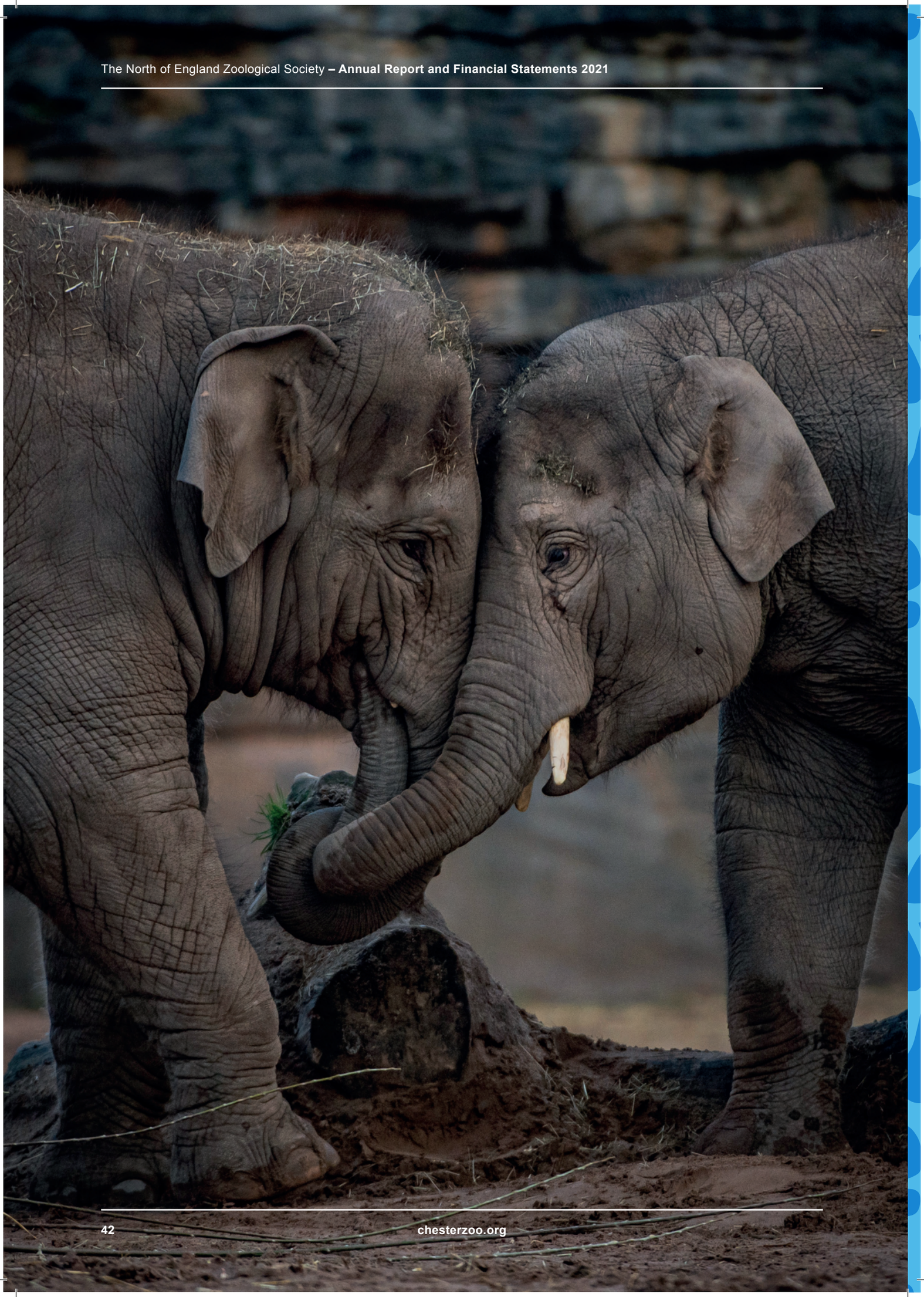
Although we still have some way to go, this is an important milestone for elephant conservation. The initial results from the pilot study are encouraging, not least because the vaccine appears to stimulate an immune response. These are still early days, however, and we are yet to prove the vaccine will prevent young elephants from dying of EEHV. It will be several months until the first stage of our work to select the best candidate vaccine and determine optimal dosages and frequencies is complete. Then, if successful, trials in zoos and in the field will need to take place to fully ascertain its efficacy at preventing disease.

Our EEHV work is part of our wider programme designed to reverse the decline of Asian elephants by reducing the threats they face (target 2). As well as EEHV, elephants in the wild face increased habitat degradation and attacks from people whose lives and livelihoods are affected when they come into contact with them.

Our longstanding work on this in Assam – where we are in partnership with the Wildlife Trust of India to support communities living alongside elephants in the Manas forest landscape – forms one of our conservation landscape programmes aimed at achieving target 3 of our Conservation Masterplan. In 2021, work with 20 villages in this landscape resulted in a 100% reduction in human deaths due to human–elephant conflict and almost no elephant mortalities due to retaliation, a 95% reduction in crop loss, and 80% reduction in commercial fuelwood extraction in the forest habitat bordering the villages. We now aim to scale this successful approach up across the whole 9,600ha landscape.

Sustainable Development Goals:

The EEHV and fieldwork both support SDG 15 (Life on Land) and our landscape work in Assam also supports SDGs 1 (No Poverty), 2 (Zero Hunger) and 8 (Decent Work and Economic Growth) through support for sustainable livelihoods.



GOVERNANCE

OUR CORPORATE STRUCTURE

Who is NEZS?

The North of England Zoological Society ("the Society") is a registered charity (No. 306077) and a company limited by guarantee (No. 00287902), regulated by its Memorandum and Articles of Association. Its principal and registered office is Cedar House, Chester Zoo, Caughall Road, Upton, Chester CH2 1LH.

What does NEZS do?

The Society, which owns and operates Chester Zoo, also wholly owns a trading subsidiary company, Chester Zoo Enterprises Limited, registered in England with company number 02669535, whose taxable profits are distributed to the Society via Gift Aid.

Other NEZS subsidiaries

The Society also has two dormant subsidiaries – Chester Zoo Foundation Nigeria ("CZFN"), an unlimited company (registered in England with company number 08904330) which is a wholly owned subsidiary of Chester Zoo (Nigeria) Limited ("CZNL"), a limited company (registered in England, No. 08374657) and a wholly owned subsidiary of the Society. Both CZNL and CZFN had originally been established to facilitate the Society's conservation activities in Nigeria.

NEZS' pension arrangements

The Society is also the sole member of the North of England Zoological Society Pension Trustee Company Limited, a company limited by guarantee (registered in England with company number 09173532), which provides governance of the Society's defined benefit pension scheme.

Trustees and executive directors

The Board of Trustees, as a body of charity Trustees and as directors for the purposes of company law, have responsibility for the activities of the Society.

The Trustees manage the business of the Society and hold the Society "in trust" for current and future beneficiaries by:

- Ensuring that the Society has a clear mission and strategic direction, in line with the charitable objectives, and is focused on achieving these
- Being responsible for the performance of the Society, its employees and its culture
- Ensuring that the Society complies with legal and regulatory requirements
- Acting as guardians of the Society's assets, both tangible and intangible, taking all due care over their security, deployment and proper application
- Ensuring that the Society's governance is of the highest possible standard.

The Board of Trustees delegate the day-to-day management of the Society's activities and the implementation of the strategic plan to the Executive Director team, led by the Chief Executive Officer.

Trustees act on advice and information provided by the Executive Director team and, where appropriate, take independent external professional advice.

The number of Trustees shall be not less than three and not more than 16, of whom not more than 13 shall be Elected Trustees and not more than three shall be Co-opted Trustees. Elected Trustees, who must be members of the Society, are elected by the members at the Annual General Meeting to serve for a maximum of six years. Co-opted Trustees are co-opted by the Trustees and may serve for up to 15 months from being appointed. The Trustees hold at least six formal meetings each year, together with an Annual General Meeting. The Chair and Vice Chair are elected by the Trustees from their current membership, for a period not exceeding three years before re-election for a maximum of one further term not exceeding three years. They are not required to retire as Trustees in accordance with the six-year maximum in this circumstance.

The Board of Trustees, all of whom had been elected by the membership, at the date of this report and serving during the year, were:

Malcolm Ardron – Chair ..... *(joined 24/11/06)*
William Beale ..... *(joined 6/2/15)*
Jen Carter ..... *(joined 25/6/19)*
David Chinn ..... *(joined 17/9/20)*
Edwin Christmas ..... *(joined 27/6/17)*
Penny Coates – Vice Chair ..... *(joined 27/6/17)*
Sandra Donnelly ..... *(joined 8/9/15)*
Professor Richard Griffiths ..... *(joined 6/11/15)*
Professor David MacDonald ..... *(joined 2/3/18)*
Lee Rawlinson ..... *(joined 25/6/19)*
Bruce Ursell ..... *(joined 8/6/10)*
Simon Venables ..... *(joined 24/6/14)*

The role of Company Secretary is undertaken by Aarco Services Limited, represented by Nick Clarke.

The executive directors at the date of this report and serving during the year were:

Jamie Christon	Elizabeth Carnie	Simon Dowell	Mike Jordan	Dominic Strange
Chief Executive Officer	Corporate Director	Science Director	Animal & Plant Director	Commercial Director
(joined 22/7/13)	*(joined 27/1/14)*	*(joined 11/5/16)*	*(joined 5/8/15)*	*(joined 18/1/10)*

Youth Board

The Youth Board gives advice and makes recommendations to the Board of Trustees on a number of matters, but particularly those that impact young people. Members of the Youth Board attend Trustee Board meetings and are also invited to attend Committee meetings. The Youth Board met six times in 2021 and further information on their role can be found on page 48.

Trustee meetings

The Board of Trustees meets formally at least six times a year and has a rolling business cycle that is used to set the agenda for each meeting. Meetings, which are also attended by the executive directors, are generally held as hybrid meetings, with Trustees encouraged to attend in person where practicable. The rolling business cycle includes approval of the annual budget, updates on the animal and plant collection, annual health & safety review, review of the Society's risk management strategy and risk register, updates on field conservation work, fundraising updates and progress reports against the Society's strategic development plan, Conservation Masterplan and the business plans that underpin them.

Trustee Committees

The Board of Trustees delegates aspects of their powers to five committees whose members are appointed by the Board and consist of both Board members and, where appropriate, specialist advisors. These committees report to the Trustees at each Board meeting.

The **Ethical Review Committee** acts in an advisory capacity to the executive and the Board of Trustees to ensure that the Society pursues its mission while adhering to the highest possible ethical principles, as they apply to both animals and people. The Committee met three times in 2021 and conducted independent reviews of a number of conservation projects, including those involving the reintroduction of species to their habitats. The Committee receives regular reports from the zoo's Head Vet in relation to welfare and husbandry matters where there may be an ethical concern. Once a year, the Committee also reviews the Society's ethical business practices, including matters relevant to the management of the zoo's employees.

The Ethical Review Committee has three external specialist advisors: Dr Ian Dunbar, Professor Richard Preziosi and Dr Thomas Webb.

The **Audit & Risk Management Committee** has responsibility to review the effectiveness and integrity of the Society's systems for internal control, its risk assessment procedures and appoints the Society's external and internal auditors. The Committee met four times in 2021 and received a report from the external auditor on the 2020 financial statements, with a focus on matters relating to the impact of COVID-19 on going concern. The internal auditors reported on five audits undertaken in the year, the Society's risk register was reviewed and a number of presentations were made by management on topics such as health & safety, information governance, IT security and insurance.

The **Remuneration Committee** has responsibility for determining the remuneration of the Chief Executive Officer on behalf of the Trustees. Remuneration for other executive directors are set by the Chief Executive Officer in consultation with the Remuneration Committee and with advice from independent consultancy Korn Ferry. The Remuneration Committee met twice in 2021 and as well as considering executive remuneration, they received a report from independent consultants Korn Ferry on the wider pay structure for the Society's employees, with a focus on management of rises in national living wage and benchmarking against other not-for-profit organisations. In 2021 the Remuneration Committee also reviewed succession planning arrangements for the Executive and Senior Management team with a view to ensuring resilience in those teams for delivery of strategic plans.

The **Trustee Nominations Committee** takes responsibility for ensuring that the Board has the relevant skills, experience, characteristics and backgrounds to provide

high-quality, effective governance of the Society's affairs. The Committee is responsible for identifying and proposing new Trustees to the membership, for election at the Annual General Meeting. New Trustees roles are advertised through a number of channels including the Society's regular communications with its membership, the website, external job boards and, where specialist skills are sought, the use of executive search organisations. The nominations committee is also responsible for the induction, support and development of new Trustees.

The nomination committee met formally once in 2021, and since that meeting have worked formally with a professional executive search organisation to develop a succession planning strategy for Trustees.

The **Strategic Development Committee** is responsible for ensuring that the long-term Strategic Development Plan (SDP) for the physical development of the zoo estate is implemented in accordance with the strategy set out by Trustees. The Committee monitors progress, scrutinises and makes decisions in respect of individual strategic capital projects in respect of the overall SDP with regard to quality, cost and overall programme and makes recommendations to the Board of Trustees for any issues of significance in respect of the SDP and its implementation. The Strategic Development Committee met four times in 2021 and the main focus for its meetings was the reprogramming of the SDP following COVID-19. The Committee approved the business case for redevelopment of the Oakfield Stable block into an events venue and also approved a number of smaller building projects around the zoo.

The **Conservation Masterplan Committee** provides oversight of the 10-year Conservation Masterplan, as approved by the Trustee Board, and assurance that it is being properly implemented in accordance with the strategic objectives and against measurable targets set for its delivery. The Conservation Masterplan Committee met three times in 2021, starting after the launch of the Masterplan, and as well as receiving regular updates from project teams the committee focused on setting impact measures and a communication plan.

Trustee involvement in each committee at 31 December 2021 is set out in the table below:

	Committees (Chair = ♙ Member = ▭)					
	Ethical Review	Audit and Risk Management	Remuneration	Trustee Nominations	Strategic Development	Conservation Masterplan
Malcolm Ardron			▭	▭	▭	▭
William Beale	▭				▭	♙
Jen Carter		▭				
David Chinn	▭				♙	
Edwin Christmas					▭	
Penny Coates		▭	♙	♙	▭	
Sandra Donnelly						▭
Prof Richard Griffiths	♙					▭
Prof David MacDonald						▭
Lee Rawlinson						▭
Bruce Ursell					▭	
Simon Venables		♙				

Trustee Third Party Indemnity

The Society purchases liability insurance cover for the Society, its Trustees and other employees which provides appropriate cover against claimants' damages, judgements, settlements or the costs incurred in the defence of actions.

Our professional advisors

Our professional advisors include:

External Independent Auditor

Grant Thornton UK LLP, Royal Liver Building, Liverpool L3 1PS

Internal Independent Auditor

RSM UK Risk Assurance Services LLP, 20 Chapel Street, Liverpool L3 9AG

Legal Advisors

Aaron & Partners LLP, Grosvenor Court, Foregate Street, Chester CH1 1HG

Hill Dickinson LLP, No.1 St. Paul's Square, Liverpool L3 9SJ

Knights plc, HQ Offices, 58 Nicholas Street, Chester CH1 2NP

Brabners LLP, Horton House, Liverpool L2 3YL

Bankers

Santander UK plc, 7th Floor, 4 St Paul's Square, Liverpool L3 9SJ

HSBC UK Bank plc, 47 Eastgate Street, Chester, Cheshire CH1 1XW

Lloyds Bank Plc, 33 Old Broad Street, London EC2N 1HZ

Actuaries

Spence & Partners Limited, The Culzean Building, 36 Renfield Street, Glasgow G2 1LU.

Section 172 Statement

The Board of Trustees, as directors of The North of England Zoological Society, are aware of their duty under section 172 of the Companies Act 2006 to act in the way which they consider, in good faith, would be most likely to promote the success of the charity in order for it to achieve its charitable objects. This annual report provides information on how the Board meet this duty, as follows:

- The strategic report, from pages 6-41 provides an overview of our mission to prevent extinction, the plans that support that mission, and the activities we undertake to achieve our mission.
- Details of how the Society engages with stakeholders can be found on pages 38-39 and information on some of the organisations that the Society fosters relationships with in order to achieve its mission is on pages 32-33.
- Information on how the Society has engaged with its employees in 2021 is within the case study on page 22, and there is information on equal opportunities on page 82.
- As a conservation and education charity, we must demonstrate a commitment sustainability and the impact of our operations on the environment. Page 24 sets out how we are doing this.
- Information on governance arrangements can be found on pages 44-46, where details of how the Board of Trustees and its various committees operate and make decisions are set out, alongside details of the executive team. There is also information of the Society's professional advisors who provide regular advice and guidance to the Board and executive team.
- Page 80 sets out how the Board of Trustees consider public benefit, including engagement with schools and community groups.

Chester Zoo Youth Board

Our Youth Board was established in 2020 and is made up of 13 young people, from a range of backgrounds, aged 18 to 25 years old. Members contribute to the Board on a voluntary basis, elect their own Chair and are accountable to the Board of Trustees. They work collaboratively with Trustees, directors, zoo staff and other young people to enable the zoo to achieve its mission, with a particular focus on empowering the next generation of conservationists. Youth Board members participate in the governance of the organisation by attending Youth Board, Trustee and other meetings and acting as ambassadors for the zoo's work with young people. They provide a voice for young people and support the zoo to develop its programmes for and appeal to teenagers and young adults.

As part of their work, in 2021, the Youth Board have actioned the following:

- Developed and delivered two workshops at the IUCN One Nature, One Future Global Youth Summit in April. During the workshops they hosted speakers and 120 delegates from across the globe to shape a discussion about the value and mechanics of youth governance in conservation.
- Copresented a paper at the EAZA/IZE International Conservation Education Conference about the role of young governance in conservation education.
- Hosted the first-ever Chester Zoo Youth Symposium, which was attended by over 100 young people and provided a forum for young people to share and discuss different aspects of their engagement in conservation.
- Worked with senior zoo staff to further our Equality, Diversity and Inclusion work, in particular through completing audits of the zoo site and making recommendations for accessibility improvements.
- Contributed to the zoo's youth programmes, including participating in a panel discussion as part of our inaugural Careers Festival.
- Offered advice and support to several organisations interested in setting up their own youth governance structures.
- Provided advice and challenge to the board of Trustees on a range of topics.

YOUTH BOARD MISSION:

"PREVENTING EXTINCTION BY EMPOWERING FUTURE GENERATIONS"

Sustainable Development Goals:

Our work with Coqueral's sifaka here in the zoo supports SDG 15 (Life on Land)

CASE STUDY – WORKING TO SAVE ONE OF MADAGASCAR'S MOST BEAUTIFUL LEMURS

Some of the most striking lemurs of Madagascar are undoubtedly the sifakas. In a group of nine closely related lemur species with generally very limited distributions and all heavily threatened with extinction, eight of them are critically endangered while the ninth is endangered. They are amongst the most beautifully marked of all the lemurs and also iconic for their side-to-side hopping gait when moving along the ground – sometimes giving them the colloquial name of dancing lemurs!

They have traditionally been a very difficult group of lemurs to care for out of their natural habitat – mainly due to their highly selective feeding strategy on leaves – eating a wide variety of foliage from different species of trees, which is sometimes hard to replicate out of their natural Madagascan forests. Despite this, many of the species are in urgent need of conservation breeding and would benefit from species preservation programmes as both an 'insurance' against further decline and also as a source for direct population restoration of already low and fragile populations.

At Chester Zoo, we already work with a number of very threatened lemurs and had considered using our expertise to keep sifakas as long ago as 2007. But a number of circumstances needed to align in order to make this feasible – facilities to house them, a sufficient and reliable source of fresh food, staff training and, not least, the availability of the sifakas themselves as part of a coordinated conservation programme. With the planning of the new Madagascar Forest Zone, these started to become reality, and a sifaka habitat was built as an integral part of the new Madagascar Forest lemur walk-through and Fossa area, which opened in 2019.

A huge effort to plant the appropriate food trees has been carried out over the last few years in preparation for the long-awaited arrival of sifakas at Chester Zoo. Now hundreds of specially selected trees have been planted in the zoo's browse plantations to provide continuous, fresh palatable leaves, including such common garden trees as Buddleja, Photinia, Robinia and Rhus. Arrangements were finally made to bring the very first Coquerel's sifaka (*Propithecus coquereli*) from Duke Lemur Centre in North Carolina in the United States.

In order to build a foundation from which a professionally managed species preservation programme could grow, it was decided to move four pairs into Europe (a first for this species in Europe!), with the first pair coming to us here at Chester Zoo in May 2021, and following that success, a further three pairs to zoos in Germany in June, with all four being managed as a European Association of Zoos and Aquaria conservation breeding programme. Coquerel's sifaka are critically endangered and restricted to a highly fragmented habitat in the north of Madagascar, where their population has dropped by 80% over the last 30 years – so these four pairs represent an important start to a species preservation programme for a species that could be heading rapidly to extinction in the wild.

Trustees' responsibilities

Statement of Trustees' Responsibilities

The Trustees (who are also directors of the North of England Zoological Society for the purposes of company law) are responsible for preparing the Trustees' Annual Report (including the Strategic Report) and the financial statements in accordance with applicable law and regulation.

Company law requires the Trustees to prepare financial statements for each financial year. Under that law the Trustees have elected to prepare the financial statements in accordance with United Kingdom Accounting Standards, comprising FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland", and applicable law (United Kingdom Generally Accepted Accounting Practice). Under company law the Trustees must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of the affairs of the charitable company and the Group and of the incoming resources and application of resources, including the income and expenditure, of the charitable group for that period. In preparing these financial statements, the Trustees are required to:

- Select suitable accounting policies and then apply them consistently
- Observe the methods and principles in the Charities Statement of Recommended Practice (FRS102)
- Make judgements and accounting estimates that are reasonable and prudent
- State whether applicable UK Accounting Standards, comprising FRS 102, have been followed, subject to any material departures disclosed and explained in the financial statements
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the charitable group will continue in business.

The Trustees are responsible for keeping adequate accounting records that are sufficient to show and explain the charitable company's transactions, and disclose with reasonable accuracy at any time the financial position of the charitable company and the Group and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the charitable company and the Group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Disclosure of Information to Auditor

Each of the persons who are Trustees at the date of approval of this report confirms that:

- So far as the Trustee is aware, there is no relevant audit information of which the Society's auditor is unaware
- The Trustee has taken all the steps that he/she ought to have taken as a Trustee in order to make himself/herself aware of any relevant audit information and to establish that the Society's auditor is aware of that information.

The confirmation is given and should be interpreted with the provisions of section 418 of the Companies Act 2006.

The Trustees are responsible for the maintenance and integrity of the corporate and financial information included on the charitable company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Independent Auditor

A resolution to formally reappoint Grant Thornton UK LLP as independent auditors will be proposed at the Annual General Meeting.

The Trustees Annual Report and Financial Statements were approved by the Trustees on 6 May 2022 and signed on their behalf by:

Malcolm Ardron
Chair of Trustees

FINANCIAL STATEMENTS

INDEPENDENT AUDITOR'S REPORT

Independent Auditor's Report to the members of The North of England Zoological Society

Opinion

We have audited the financial statements of The North of England Zoological Society (the 'parent charitable company') and its subsidiaries (the 'Group') for the year ended 31 December 2021, which comprise the Consolidated Statement of Financial Activities, the Consolidated and Society Balance Sheets, the Consolidated Cash Flow Statement and Notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting Standard 102; The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

In our opinion, the financial statements:

- Give a true and fair view of the state of the Group's and parent charitable company's affairs as at 31 December 2021 and of the Group's incoming resources and application of resources, including its income and expenditure for the year then ended;
- Have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- Have been prepared in accordance with the requirements of the Companies Act 2006.

Basis for opinion

We have been appointed as auditor under the Companies Act 2006 and report in accordance with regulations made under that Act. We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the 'Auditor's responsibilities for the audit of the financial statements' section of our report. We are independent of the Group and parent charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

We are responsible for concluding on the appropriateness of the Trustees' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the parent charitable company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify the auditor's opinion. Our conclusions are based on the audit evidence obtained up to the date of our report. However, future events or conditions may cause the Group or parent charitable company to cease to continue as a going concern.

In our evaluation of the Trustees' conclusions, we considered the inherent risks associated with the Group's and parent charitable company's business model including effects arising from macro-economic uncertainties such as Brexit and COVID-19, and we assessed and challenged the reasonableness of estimates made by the Trustees and the related disclosures and analysed how those risks might affect the Group's and parent charitable company's financial resources or ability to continue operations over the going concern period.

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the Group's and parent charity's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

In auditing the financial statements, we have concluded that the Trustees' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

The responsibilities of the Trustees with respect to going concern are described in the 'Responsibilities of Trustees for the financial statements' section of this report.

Other information

The Trustees are responsible for the other information. The other information comprises the information included in the Strategic Report, Governance and additional information sections other than the financial statements and our Auditor's Report thereon. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express

any form of assurance conclusion thereon. In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinion on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- The information given in the Strategic Report and the Directors' Report, prepared for the purposes of company law, included in the Trustees' Report for the financial year for which the financial statements are prepared is consistent with the financial statements.
- The Strategic Report and the Directors' Report included in the Trustees' Report have been prepared in accordance with applicable legal requirements.

Matters on which we are required to report under the Companies Act 2006

In light of the knowledge and understanding of the Group and parent charitable company and its environment obtained in the course of the audit, we have not identified material misstatements in the Strategic Report or the Directors' Report included in the Trustees' Report.

Matters on which we are required to report by exception

We have nothing to report in respect of the following matters where the Companies Act 2006 requires us to report to you if, in our opinion:

- Adequate accounting records have not been kept by the parent charitable company
- Returns adequate for our audit have not been received from branches not visited by us
- The parent charitable company's financial statements are not in agreement with the accounting records and returns
- Certain disclosures of Trustees' remuneration specified by law are not made
- We have not received all the information and explanations we require for our audit.

Responsibilities of Trustees for the financial statements

As explained more fully in the Statement of Trustees' Responsibilities set out on page 52, the Trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the Trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Trustees are responsible for assessing the Group and the parent charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the Group or parent charitable company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

Explanation as to what extent the audit was considered capable of detecting irregularities, including fraud

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. Owing to the inherent limitations of an audit, there is an unavoidable risk that material misstatements in the financial statements may not be detected, even though the audit is properly planned and performed in accordance with the ISAs (UK).

The extent to which our procedures are capable of detecting irregularities, including fraud is detailed below:

- We obtained an understanding of the legal and regulatory frameworks applicable to the Group and parent charitable company, and the industry in which it operates and determined which may influence the financial statements. Given the nature of its operating activities, the Group and parent charitable company is subject to several laws and regulations where the consequences of non-compliance could have a material effect on amounts or disclosures in the financial statements.
  We determined that the following laws and regulations are the most significant which are directly relevant to specific assertions in the financial statements.
  - Those that relate to reporting frameworks being FRS 102 and the Statement of Recommended Practice ("Charities SORP (FRS 102)") and Charities Act 2011 and the Companies Act 2006 and the relevant tax compliance regulations.
  - Those that relate to the operational activities of the Group and parent charitable company as a Zoo being the Zoo Licencing Act 1981, including subsequent amendments, Health and Safety requirements of the animal, visitors and employees, data protection and bribery and corruption practices
- We assessed the susceptibility of the Group's and parent charitable company's financial statements to material misstatements, including how fraud might occur. We performed the following audit procedures to address the risks related to irregularities and fraud:
  - Evaluation of the processes and controls in place to address the risks related to irregularities and fraud.
  - Challenge of the assumptions and judgements made by management in its significant accounting estimates.
  - Review of performance targets and conditions to funding received and their propensity to influence efforts made management to manage earnings.
  - Review and testing of journal entries, in particular manual journal entries, relating to management estimates and journal entries, impacting the reported result for the year.
  - Consideration of the potential for fraud in revenue recognition through the manipulation of revenue from membership income, cut off in respect of visitor admissions and claims in respect of the Coronavirus Job Retention Scheme grant.
  - Identifying related parties and through our data interrogation tools performed a review for any related party transactions in the year.
- These audit procedures were designed to provide reasonable assurance that the financial statements were free from fraud or error. The risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error and detecting irregularities that result from fraud is inherently more difficult than detecting those that result from error, as fraud may involve collusion, deliberate concealment, forgery or intentional misrepresentations. Also, the further removed non-compliance with laws and regulations is from events and transactions reflected in the financial statements, the less likely we would become aware of it.
- We have enquired of management, the compliance officer, the Audit and Risk Management Committee and the internal auditors whether there was any awareness of instances of non-compliance with laws and regulations or whether they had any knowledge of actual or suspected fraud. We corroborated the results of our enquiries to supporting documentation such as board minute reviews.
- In assessing the potential risks of material misstatements, we obtained an understanding of the Group's and parent charitable company's operations, the applicable statutory provisions and business risks that may result in risk of material misstatement, and the Group's and parent charitable company's control environment, including the adequacy for authorisation of transactions.
- The engagement team's experience with similar engagements, their understanding and knowledge

of the Group's and parent charitable company's industry and their understanding of the industry and regulatory requirements were considered in assessing the appropriateness of the collective competence and capabilities of the engagement team.

Use of our report

This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the charitable company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charitable company and the charitable company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Grant Thornton UK LLP

Deborah Watson BSc (Hons) FCA
Senior Statutory Auditor

for and on behalf of Grant Thornton UK LLP
Statutory Auditor, Chartered Accountants
Liverpool

6 May 2022

FINANCIAL STATEMENTS

Consolidated Statement of Financial Activities (including a consolidated income and expenditure account) for the year ended 31 December 2021

	Notes	Unrestricted funds £'000	Restricted funds £'000	**Total 2021 £'000**	Total 2020 £'000 Restated
Income from:					
Charitable activities					
Visitor admission income		19,567	-	**19,567**	10,604
Membership income & related Gift Aid		8,669	-	**8,669**	8,672
Zoo events & experiences		1,593	-	**1,593**	1,074
Project grants & contributions		37	345	**382**	1
Other charitable income		301	-	**301**	336
Total income from charitable activities		30,167	345	**30,512**	20,687
Donations, grants and legacies					
Donations from zoo visitors & related Gift Aid		875	-	**875**	1,847
Animal adoptions		386	-	**386**	1,185
Save Our Zoo campaign		46	-	**46**	3,260
Legacies & other voluntary income		326	302	**628**	954
Job retention scheme grant – Charity		-	558	**558**	1,326
Total income from donations, grants and legacies		1,633	860	**2,493**	8,572
Trading activities					
Trading income – Chester Zoo Enterprises Limited	2	11,871	-	**11,871**	6,369
Job retention scheme grant – Trading	2	-	327	**327**	453
Total income from trading activities		**11,871**	**327**	**12,198**	6,822
Investments					
Investment income		23	-	**23**	14
Total income		**43,694**	**1,532**	**45,226**	36,095
Expenditure on:					
Raising funds					
Cost of generating memberships donations and legacies	5a	(2,240)	(26)	**(2,266)**	(2,536)
Cost of visitor admission & experience	5a	(7,366)	(267)	**(7,633)**	(6,827)
Trading costs – Chester Zoo Enterprises Limited	2, 5a	(10,956)	(327)	**(11,283)**	(7,092)
Total expenditure on raising funds		**(20,562)**	**(620)**	**(21,182)**	(16,455)
Charitable activities					
Habitats, species & populations	4, 5a	(17,613)	(386)	**(17,999)**	(17,553)
Conservation education, engagement & capacity building	4, 5a	(2,115)	(300)	**(2,415)**	(1,734)
Conservation advocacy	4, 5a	(356)	(1)	**(357)**	(264)
Total expenditure on charitable activities		**(20,084)**	**(687)**	**(20,771)**	(19,551)
Other expenditure					
Settlement of DB pension scheme	23	(181)	(2,146)	**(2,327)**	-
Total expenditure		**(40,827)**	**(3,453)**	**(44,280)**	(36,006)
Transfer between funds		(879)	879	-	-
Net income		**1,988**	**(1,042)**	**946**	89
Net movement in funds		**1,988**	**(1,042)**	**946**	89
Reconciliation of funds	19				
Total funds brought forward		**59,333**	**2,166**	**61,499**	61,410
Total funds carried forward		**61,321**	**1,124**	**62,445**	61,499

The North of England Zoological Society made an unconsolidated surplus of £516,000 of which £2,843,000 (2020: £502,000) related to normal continuing operations and £2,327,000 (2020: £Nil) resulted from exceptional expenditure.

No Statement of Changes in Equity has been presented as all such gains and losses have been included above. The notes on pages 66 to 77 form part of these financial statements. Details in respect of the restatement to the classification of expenditure are given in notes 4 and 5a.

Consolidated & Society Balance Sheets as at 31 December 2021

	Notes	Consolidated 2021 £'000	Consolidated 2020 £'000	Society 2021 £'000	Society 2020 £'000
Fixed Assets					
Intangible assets	10	**857**	1,010	**857**	1,010
Tangible assets	11	**64,426**	69,101	**64,426**	69,101
Investment in subsidiary companies	12	**-**	-	**-**	-
		65,283	70,111	**65,283**	70,111
Current assets					
Stocks	13	**920**	743	**153**	132
Debtors	14	**1,991**	955	**2,452**	1,751
Cash at bank and in hand	15	**4,767**	5,814	**4,707**	5,807
		7,678	7,512	**7,312**	7,690
Creditors: amounts falling due within one year	16	**(9,516)**	(7,424)	**(9,178)**	(7,189)
Net current (liabilities) / assets		**(1,838)**	88	**(1,866)**	501
Total assets less current liabilities		**63,445**	70,199	**63,417**	70,612
Creditors: amounts falling due after more than one year	17	**(1,000)**	(8,700)	**(1,000)**	(8,700)
Net assets		**62,445**	61,499	**62,417**	61,912
Funds employed					
Income funds – restricted	19	**1,124**	2,166	**1,124**	2,166
Income funds – unrestricted	19	**61,321**	59,333	**61,293**	59,746
Total funds employed		**62,445**	61,499	**62,417**	61,912

The financial statements were approved and authorised by the Trustees on 6 May 2022 and signed on their behalf by:

Malcolm Ardron, Chair of Trustees

Company number – 00287902 – The North of England Zoological Society

The notes on pages 66 to 77 form part of these financial statements.

Consolidated Cash Flow Statement for the year ended 31 December 2021

	Notes	**2021 £'000**	2020 £'000
Cash flows from operating activities:			
Net movement in funds as per the Statement of Financial Activities		**946**	89
Adjustments for:			
Interest paid		**206**	270
Interest received		**(23)**	(14)
Amortisation charge	10	**259**	149
Depreciation charge	11	**6,993**	6,435
Impairment charge		**-**	208
(Increase)/decrease in stocks	13	**(177)**	17
(Increase) in debtors	14	**(1,036)**	(97)
Increase/(decrease) in creditors due within one year	16	**1,745**	(2,649)
Net cash generated from operating activities		**8,913**	4,408
Cash flows from investing activities:			
Interest received		**23**	14
Insurance proceeds received		**-**	7,101
Purchase of fixed assets	10,11	**(2,666)**	(7,328)
Net cash used in investing activities		**(2,643)**	(213)
Cash flow from financing activities:			
Cash (outflows) from borrowing	15	**(7,700)**	(2,750)
Interest paid		**(206)**	(270)
Net cash generated from financing activities		**(7,906)**	(3,020)
Operating cash (outflow)/inflow in year		**(1,636)**	1,175
(Decrease)/increase in net cash at bank in the year		**(1,636)**	1,175
Cash and cash equivalents at 1 January	15	**5,357**	4,182
Cash and cash equivalents at 31 December	15	**3,721**	5,357

The notes on pages 66 to 77 form part of these financial statements.

Principal Accounting Policies

The following accounting policies have been applied in dealing with items that are considered material in relation to the financial statements of The North of England Zoological Society ("the Society"). They are consistent with those adopted in the financial statements for the prior year.

Basis of Preparation

The financial statements have been prepared on a going concern basis under the historical cost convention and in accordance with applicable accounting standards in the United Kingdom. The financial statements comply with the Charities Act 2011, the Companies Act 2006, the Memorandum and Articles of Association, and Accounting and Reporting by Charities: Statement of Recommended Practice ("Charities SORP (FRS102)") applicable to charities preparing their financial statements in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS102). The functional currency of the charity is sterling (£).

The Group's activities, together with the factors likely to affect its future development, performance and position are set out in the Trustees' report. The financial position of the Society and its subsidiaries, its cash flows and liquidity position are shown in these financial statements.

Significant estimates and judgements made in preparing the financial statements are set out on page 65. The Trustees' report also notes the principal risks and uncertainties that impact on the Group.

The Society has taken advantage of the exemption allowed from preparing a cash flow statement on the basis that it is a qualifying entity and the consolidated cash flow statement included in these financial statements includes the Society's cash flows.

Going Concern

The financial statements have been prepared on a going concern basis. In determining the appropriate basis of preparation of the financial statements, the Trustees are required to consider whether the Society and the Group can continue in operational existence for the foreseeable future.

Having been closed for 14 weeks at the beginning of 2021, the zoo re-opened on the 12 April and remained open for the remainder of 2021. While the closure had a material impact on the Group's income at the start of the year, subsequent trading saw income return to pre-pandemic levels.

The Group has continued to utilise its banking facility provided by Santander, albeit to a much lesser extent than the prior year. The facility comprised of a £22m Revolving Credit Facility and a £2m overdraft throughout the period and was intended to be used in the main to fund the delayed Grasslands development. The facility instead provided additional headroom during a period of uncertainty caused by COVID-19.

The facility is subject to two financial covenants which are tested quarterly: net debt to EBITDA (leverage) and EBITDA to net finance charges. In recognition of the macroeconomic uncertainty in 2020, the Society's bank agreed to suspend testing of these covenants until June 2021. The Group has generated sufficient income to meet the covenant tests in the facility during the year. The forecasts, together with reasonable sensitivity analysis on key assumptions, show that the Group believes it will continue to meet the covenant tests to 31 May 2023. We are grateful to Santander for their support during those uncertain times.

The Trustees consider that the Society and Group are well placed to manage the risks within its control and mitigate those outside its control. Forecasts, with sensitivity analysis on key assumptions such as visitor numbers show the Group is confident it will continue to operate beyond 12 months from the date of signing. The likelihood of further closures due to COVID-19 is much diminished and while there remains some uncertainty that remains outside the control of the Society, there is sufficient headroom in the Society's cash reserves and banking facility to manage another period of closure.

After the review of the budget and predictions for the period to 31 May 2023 and having considered the uncertainties described above, the Trustees are of the opinion that the Society and Group has adequate resources to continue in operational existence

for the foreseeable future, being a period of not less than 12 months from the date of approval of these financial statements. Accordingly, they continue to adopt the going concern basis in preparing the financial statements.

Consolidation

The consolidated statement of financial activities (SOFA), consolidated balance sheet and consolidated cash flow statement include the financial statements of the Society and its subsidiary undertakings, Chester Zoo Enterprises Limited and the North of England Zoological Society Pension Trustee Company Limited made up to 31 December 2021 and comply with recommended practice for accounting by charities. The results of the subsidiaries are consolidated on a line-by-line basis. No separate SOFA has been presented for the charity alone as permitted by Section 408 of the Companies Act 2006. Chester Zoo (Nigeria) Limited, Chester Zoo Foundation Nigeria have not been included because they are dormant and not considered material to the Group.

Funds Employed

All funds employed must be expended in furtherance of the objectives of the Society. Restricted income funds must be used in furtherance of some specific aspect of those objectives.

Designated funds are those that have been set aside by the Trustees out of unrestricted funds for identifiable future expenditure, but the designation has an administrative purpose only and does not legally restrict the Trustees' discretion to apply the funds.

The unrestricted fund represents the funds to provide for the working capital of the Group and contingent expenditure.

Incoming Resources

In accordance with the SORP, all incoming resources becoming receivable by the Group during the year are recognised in the SOFA, regardless of their source or of the purpose to which they are to be allocated. Income, both unrestricted and restricted, is recognised at the time of receipt except where it relates to a service to be provided in the following financial year. Such income is deferred and released over the period the service is provided. An example of this is the treatment of annual membership income.

Where income is restricted to a specific purpose, as specified by a donor, the income is included in restricted funds. Legacies are recognised when payment is received or assets transferred, or where there has been a grant of probate and the executors have established that there are sufficient assets in the estate after meeting its liabilities to pay the legacy. Grants from government and non-government sources are recognised when there is entitlement, conditions have been met and there is certainty of receipt.

Resources Expended

Expenditure is recognised when a liability is incurred. In accordance with the Charities SORP, support costs have been allocated to charitable activities and fundraising, apportioned by usage according to relative cost-driving activities. Support costs also include governance costs as a separate component in line with the Charities SORP. Governance costs comprise of all costs involving public accountability of the Group and its compliance with regulations and good practice.

VAT

Visitor admission income is treated as VAT-exempt. Accordingly, the Society is a partially exempt body and may not recover all VAT incurred on costs, with the exception of VAT incurred in connection with the catering, retail and event operations for which the sales are subject to VAT. These operate through the trading subsidiary Chester Zoo Enterprises Limited, and the VAT directly related to these operations can be recovered in full. The cost of irrecoverable VAT is apportioned in the SOFA under other resources expended. Any irrecoverable VAT relating to the purchase of fixed assets is capitalised as part of the asset value.

Taxation

The Society is considered to pass the tests set out in Paragraph 1 Schedule 6 Finance Act 2010 and therefore it meets the definition of a charitable company for UK corporation tax purposes. Accordingly, the charity is potentially exempt from taxation in respect of income or capital gains received within categories covered by Chapter 3 Part 11 Corporation Tax Act 2010 or Section

256 of the Taxation of Chargeable Gains Act 1992, to the extent that such income or gains are applied exclusively to charitable purposes.

Investments in Subsidiary Undertakings

These are included at cost less any provision for impairment.

Intangible Fixed Assets

Computer software is included in the balance sheet at historic purchase cost less accumulated amortisation. Assets in the course of construction are stated at cost, less any recognised impairment loss and are amortised when the assets are ready for their intended use.

Asset class	Rate of amortisation applied
Computer software	10% to 25% straight line

Tangible Fixed Assets

Tangible assets are included in the balance sheet at historic purchase cost less accumulated depreciation and any recognised impairment loss. Assets in the course of construction are stated at cost, less any recognised impairment loss.

Depreciation

The rates and method of depreciation are consistent with those used in previous years. Depreciation is calculated using a straight line basis. Freehold land is not depreciated and assets in the course of construction are only depreciated when the assets are ready for their intended use.

Asset class	Rate of depreciation applied
Freehold properties	2% to 10%
Buildings and enclosures	4% to 25%
Machinery and equipment	10% to 25%

No annual assessment is made of the value of the animal and plant collection. It is valued consistently at a nominal sum of £1,000 and not depreciated.

Impairment

The carrying amounts of assets are reassessed when impairment indicators are present. An impairment loss is recognised to the extent the carrying amount of an asset exceeds its estimated recoverable amount. The estimated recoverable amount is reviewed at subsequent balance sheet dates where further information is available.

Leases

All leases currently held by the Group are operating leases and the rental charges are taken as expenditure when incurred. The Group has not entered into any finance leases.

Stocks

Stocks are valued at the lower of cost and estimated net realisable value. Where necessary, provision is made for obsolete, slow moving and defective stocks.

Pensions

The Group operates two voluntary pension schemes.

The Group makes contributions to a defined contribution pension scheme for all qualifying permanent employees and to the NEST scheme for all qualifying seasonal employees. Employees are automatically enrolled on the pension scheme unless the Group is notified by the employee that they wish to opt out. The cost of these contributions is charged to the SOFA when payable.

The defined benefit scheme was closed to future accrual in March 2012. The Group has historically made payments in order to reduce the scheme's solvency deficit over time. These payments have been recognised within actuarial gains and losses in the net movement in funds in the SOFA. To the extent that the scheme is in surplus on a technical provision basis, the Group does not recognise this in the financial statements, as the Group is unable to recover any surplus either through reduced contributions in the future or through refunds from the scheme.

The trustee of the defined benefit scheme, secured member benefits with Aviva on 23rd November 2021. The payment and professional fees attributable to the transaction have been recognised in the SOFA as a settlement of the scheme within other expenditure. The policy with Aviva represents an asset within the scheme that is an insurance policy that exactly matches the amount and timing of all of the benefits payable under the plan. As a result, the fair value of the asset is deemed to be the present value of the obligations under the defined benefit plan.

Grant-making

The Group supports a wide range of conservation and research activities both in the zoo and externally, often in partnership with other organisations. Liabilities relating to grants are recognised once the Group is irrevocably committed to the provision of the grant.

Related Party Transactions

Details of transactions with entities that are part of The North of England Zoological Society Group are disclosed in the notes to the financial statements.

Debtors

Trade and other debtors are recognised at transaction price less any impairment.

Cash at Bank and in Hand

Cash at bank and in hand includes cash, overdrafts and short-term highly liquid investments with a short maturity of three months or less from the date of acquisitions, or opening of the deposit, or similar account.

Creditors

Creditors are recognised where the Group has a present obligation resulting from a past event that will probably result in the transfer of funds to a third party and the amount due to settle the obligation can be measured or estimated reliably. Creditors are normally recognised at their settlement amount after allowing for any trade discounts due.

Financial Instruments

The Group only enters into basic financial instrument transactions that result in the recognition of financial assets and liabilities, like accounts receivable and payable.

Financial assets that are measured at cost and amortised cost are assessed at the end of each reporting period for objective evidence of impairment. If objective evidence of impairment is found, an impairment loss is recognised in the SOFA.

For financial assets measured at amortised cost, the impairment loss is measured as the difference between an asset's carrying amount and the present value of estimated cash flows discounted at the asset's original effective interest rate. If a financial asset has a variable interest rate, the discount rate for measuring any impairment loss is the current effective interest rate determined under the contract.

For financial assets measured at cost less impairment, the impairment loss is measured as the difference between an asset's carrying amount and best estimate, which is an approximation of the amount that the charitable company would receive for the asset if it were to be sold at the balance sheet date.

Financial assets and liabilities are offset and the net amount reported in the balance sheet when there is an enforceable right to set off the recognised amounts and there is an intention to settle on a net basis or to realise the asset and settle the liability simultaneously.

Significant Judgements

Preparation of the financial statements requires management to make significant judgements. The items in the financial statements where these judgements have been made include:

- **Properties owned by the Group that are rented out:** The Group owns a number of properties that are rented out. These properties are accounted for at cost less accumulated depreciation rather than as investment properties as the Group does not hold these properties for investment purposes. They are held in furtherance of the charitable purposes of the Group.
- **Impairment of tangible fixed assets:** Impairment tests will only be undertaken where there has been some indication that impairment has actually occurred. In a situation where the net book value of a tangible fixed asset will be greater than its recoverable amount, the value of the asset will be written down to this recoverable amount. At 31 December 2021 the Society had spent £1.1m on the Grasslands project, which is included in Tangible Assets under construction. Construction work on this project was due to commence in autumn 2020, but due to the impact of COVID-19, the main construction is now expected to start in 2023, with enabling work taking place in 2022. It is therefore not considered that there is any impairment of the costs incurred to date on the Grasslands project.
- **Defined benefit pension scheme and buy-in with Aviva:** As explained in note 23, the Trustees of the scheme secured a buy-in with Aviva. As at 31 December 2021, the Society has not transferred its legal obligation in respect of the scheme to Aviva and has no legal or constructive obligation to do so. However, at the time of completing the buy-in, it was the Trustees' intention to move towards a buy-out of the scheme, which will see the Society discharge its obligations in respect of the pension scheme. As a result of this intention, the Trustees have reflected the cost of this policy with Aviva amounting to £2.1m as a settlement of the DB Pension Scheme within the Consolidated Statement of Financial Activities.

Significant Estimates

Preparation of the financial statements requires management to make significant estimates. The items in the financial statements where these estimates have been made include:

- **Depreciation rates:** Depreciation rates used in respect of both tangible and intangible assets reflect the expected useful life of those assets based on historic experience. For major projects, component parts are allocated varying depreciation rates depending on their nature. The depreciation charge for the year ending 31 December 2021 was £7.3m.
- **Defined benefit pension scheme:** The scheme still remains the responsibility of the Group and the present value of the pension scheme asset depends on a number of factors that are determined on an actuarial basis using a variety of assumptions. The assumptions used in determining the net cost (income) for pensions include the discount rate. Any changes in these assumptions, which are disclosed in note 23, will impact the carrying amount of the pension liability. The Group has not recognised this pension scheme asset on the balance sheet as, despite the fact that as a result of the surplus, the Group is not currently making any contributions into the scheme, the scheme is closed to future accrual, and the Group is not entitled to a refund from the scheme.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1. Status

The Society is a company limited by guarantee and has no share capital. Members have guaranteed the liabilities of the Society to the extent of £1 each in the event of the charity being wound up. The registered address is Cedar House, Caughall Road, Chester, CH2 1LH. The principal activity of the Society is as a conservation and education charity that owns and operates Chester Zoo.

2. Trading activities

The Society has a wholly owned trading subsidiary, Chester Zoo Enterprises Limited, incorporated in the UK (representing an investment of £100 in ordinary £1 shares), which operates the catering, retail and event activities of the Zoo from outlets rented from the Society. It distributes its annual taxable profit via Gift Aid to the Society.

During 2020, the subsidiary did not have sufficient reserves to distribute the previous year's profits and, as a result, the Society agreed to waive the Gift Aid payment in 2020. The corporation tax paid on its 2019 profit was then reclaimed, having been offset against losses made in 2020.

The Society provided a rent concession during 2020 and again in 2021, whereby the subsidiary would pay no rent during periods of closure due to COVID-19. Rents during periods of operation have been capped at the lower of the 10% of turnover in an outlet or the rent payable in the lease agreement. Additionally, no rent was charged during the closure of Junes restaurant for repairs to the roof and flooring.

Audited financial statements for Chester Zoo Enterprises Limited for the year ended 31 December 2021 will be filed with the Registrar of Companies.

Chester Zoo Enterprises Limited trading results	**Total 2021 £'000**	Total 2020 £'000
Trading income	**11,871**	6,369
Job retention scheme grant	**327**	453
Total income	**12,198**	6,822
Resources expended		
Labour and cost of goods sold	**(8,297)**	(4,989)
Gross trading profit for the year	**3,901**	1,833
Indirect costs		
Operating and support costs paid to the Society	**(2,986)**	(2,008)
Property rents paid to the Society	**(475)**	(325)
Redundancy costs	**-**	(96)
Operating profit/(loss)	**440**	(596)
Taxation	**1**	35
Profit/(loss) for the financial year	**441**	(560)
Donation (payable)/waived to parent under gift aid scheme	**(10)**	148
Surplus/(deficit) retained in subsidiary	**431**	(412)

3. Investment income

	Total 2021 £'000	Total 2020 £'000
Interest on cash deposits	**23**	14
Total investment income	**23**	14

4. Expenditure on charitable activities

	Total 2021 £'000	Total 2020 £'000 Restated
Habitats, species & populations		
• Priority species	**11,156**	10,880
• Visitor engagement species	**4,325**	4,218
• Conservation outreach programmes	**1,573**	921
• Science & research	**945**	1,534
Conservation education, engagement & capacity building	**2,415**	1,734
Conservation advocacy	**357**	264
Total expenditure on charitable activities	**20,771**	19,551

Prior year reclassification

The expenditure on charitable activities has been revisited in order to improve transparency of where funds are allocated. As such, there has been a prior year adjustment to reflect the changes in allocation. There was no impact on total expenditure, the surplus for the year ended 31 December 2020, or the net asset position for the Group at 31 December 2020.

5a. Analysis of total expenditure

	Employee costs	Other direct costs	Support costs (Note 5b)	Depreciation and amortisation	**Total 2021**	Total 2020 Restated
	£'000	£'000	£'000	£'000	**£'000**	£'000
Raising funds						
Costs of generating memberships donations and legacies	403	367	933	563	**2,266**	2,536
Costs of visitor admission & experience	2,075	1,156	2,629	1,773	**7,633**	6,827
Trading costs – Chester Zoo Enterprises Limited	3,512	4,785	2,986	-	**11,283**	7,092
Total expenditure on raising funds	**5,990**	**6,308**	**6,548**	**2,336**	**21,182**	16,455
Charitable activities						
Habitats, species & populations	5,440	2,891	5,237	4,431	**17,999**	17,553
Conservation education, engagement & capacity building	941	305	702	467	**2,415**	1,734
Conservation advocacy	64	12	262	19	**357**	264
Total expenditure on charitable activities	6,445	3,208	6,201	4,917	**20,771**	19,551
Total expenditure for Group	**12,435**	**9,516**	**12,749**	**7,253**	**41,953**	**36,006**

Prior year reclassification

The allocation of costs within the analysis of total expenditure has been revisited in order to better reflect where expenditure was incurred. As such, there has been a prior year adjustment to reflect the changes in allocation. There was no impact on last year's Statement of Financial Activities or the financial position of the Group and Society.

5b. Analysis of support costs

	Total 2021 £'000	Total 2020 Restated £'000
Direct employee costs	**4,978**	5,147
Other costs	**7,771**	6,299
Total of support costs	**12,749**	11,446

Support costs have been allocated to the activities set out in note 5a on the basis of their usage of cost driving activities attributable to each support service, as follows:

Support cost breakdown by activity	Costs of generating donations & legacies £'000	Cost of visitor admission & experience £'000	Trading costs – Chester Zoo Enterprises Limited £'000	Habitats species & population £'000	Conservation education, engagement & capacity building £'000	Conservation advocacy £'000	**Total 2021 £'000**	Total 2020 Restated £'000
Governance	68	216	110	539	57	110	**1,100**	922
Marketing	244	545	289	231	116	115	**1,540**	817
Human Resources	38	160	268	427	84	4	**981**	1,096
Information technology	62	194	803	485	51	2	**1,597**	1,187
Finance Department	118	246	415	383	59	17	**1,238**	2,041
Site operations	31	97	404	244	26	1	**803**	812
Utilities	124	390	586	976	103	4	**2,183**	1,692
Facilities estates and development	248	781	111	1,952	206	9	**3,307**	2,879
Total	933	2,629	2,986	5,237	702	262	**12,749**	11,446

6. Grants payable in furtherance of the charity's objectives

The Society makes institutional grants payable in furtherance of the charity's objects, to support field and zoo conservation and research. The grants have been included in the other direct costs analysis of total resources expended within the Statement of Financial Activities.

	Grants to institutions £'000	Grants to individuals £'000	**Total 2021 £'000**	Total 2020 £'000
Habitats, species & population	759	52	**811**	609
Conservation education and capacity building	47	-	**47**	-
Total grants payable	806	52	**858**	609

7. Net income before other recognised gains and losses

This is after charging:	**Total 2021 £'000**	Total 2020 £'000
Services provided by the Society's auditor		
Fees payable for the audit of the charity and consolidated accounts	**40**	35
Fees payable for the audit of the subsidiaries	**11**	8
Fees payable for taxation advice for the charity	**8**	3
Fees payable for taxation compliance for the subsidiary	**6**	5
Operating leases	**127**	119
Amortisation of intangible fixed assets	**259**	149
Depreciation of tangible fixed assets	**6,993**	6,435
Impairment of tangible fixed assets (see next page)	**-**	208

The impairment charge of £0.2m in 2020 represents costs incurred and capitalised in 2019 for decommissioning of the monorail as an enabler for the Grasslands development. As that project was subsequently delayed, with construction expected to start in 2023, the monorail decommissioning project was considered independently and related costs written off.

8. Trustees' remuneration

The Trustees, being charity Trustees, received no remuneration (2020: £nil) and received reimbursement totalling £nil (2020: £447 last year for travel and accommodation expenses necessarily incurred). Indemnity insurance costing £26,880 (2020: £16,074) has been taken out by the Society to protect the Society, its Trustees and other employees.

9. Employee costs

The average monthly head count employed by the Society during the year was 725 (2020: 595) including seasonal employees. The average monthly number of full-time equivalent employees (FTE) analysed by category were as follows:

	Number of FTE Employees	
	2021 Number	2020 Number
Habitat species and population	**175**	180
Conservation education	35	33
Conservation advocacy	**1**	1
Memberships donations and legacies	**16**	13
Visitor admission & experience	**66**	51
Trading subsidiary	**110**	93
Support and governance	**126**	131
Total FTE employees	**529**	502

The aggregate payroll costs of these persons were as follows:

	Total 2021 £'000	Total 2020 £'000
Wages and salaries cost	**14,637**	13,377
Social security cost	**1,134**	1,167
Pension cost:		
Defined benefit pension scheme	**2,327**	-
Defined contribution pension scheme	**1,439**	1,449
Total employee costs	**19,537**	15,993

During the year the Society made payments totalling £110,300 (2020: £30,500) on exit of employment contracts. This figure in 2020 excludes any redundancy costs incurred as a result of the COVID-19 pandemic.

The number of employees, including those employed for only part of the year, whose emoluments for the year (excluding pension contributions) fell within each band of £10,000 from £60,000 upwards is shown below. All of these employees had benefits accruing to them under the defined contribution pension scheme. Only two had benefits accruing to them on the defined benefit scheme. Contributions to the defined contribution scheme for all of these employees totalled £166,369 (2020: £103,864).

	2021 Number	2020 Number
From £140,001 to £150,000	**1**	-
From £130,001 to £140,000	**-**	-
From £120,001 to £130,000	**1**	2
From £110,001 to £120,000	**-**	-
From £100,001 to £110,000	**-**	-
From £90,001 to £100,000	**-**	-
From £80,001 to £90,000	**-**	1
From £70,001 to £80,000	**6**	3
From £60,001 to £70,000	**1**	2

The key management personnel employed by the Society comprise five members of the executive team who reported to the Board of Trustees during the year, including the former Chief Executive Officer who left on 12th March 2021. Their total employee benefits for 2021 including salary, bonus, pension contributions, and payments on exit were £697,693 (2020: £545,915).

10. Intangible assets

	Assets under course of construction £'000	Computer software £'000	Total £'000
Cost			
At 1 January 2021	**22**	**1,142**	**1,164**
Transfers	(22)	22	-
Additions	-	106	106
At 31 December 2021	-	**1,270**	**1,270**
Amortisation			
At 1 January 2021	-	**154**	**154**
Charge for the year	-	259	259
At 31 December 2021	-	**413**	**413**
Net book value			
At 31 December 2021	-	**857**	**857**
At 31 December 2020	22	988	1,010

11. Tangible assets

	Assets under construction £'000	Freehold property £'000	Buildings and enclosures £'000	Machinery and equipment £'000	Animals and plant collection £'000	**Total £'000**
Cost						
At 1 January 2021	2,344	5,151	98,452	14,898	1	120,846
Additions	1,356	-	707	256	-	**2,319**
Transfers	(1,097)	-	1,097	-	-	-
At 31 December 2021	**2,603**	**5,151**	**100,256**	**15,154**	**1**	**123,165**
Depreciation						
At 1 January 2021	-	2,817	41,194	7,735	-	51,745
Charge for the year	-	16	5,504	1,473	-	**6,993**
At 31 December 2021	-	**2,833**	**46,698**	**9,208**	-	**58,739**
Net book value						
At 31 December 2021	2,603	2,318	53,558	5,946	1	**64,426**
At 31 December 2020	2,344	2,333	57,258	7,165	1	**69,101**

The Trustees consider that the Society holds no fixed assets for investment purposes. While some of the fixed assets do yield a rental income, they were not acquired for that purpose, but to facilitate the operation of the zoo, which is a primary charitable purpose of the Society.

The Trustees consider that it is not meaningful to consider the market value of most of the Society's land and buildings. Where an assessment can be made, the Trustees consider that the market value exceeds the book value.

All the tangible fixed assets included in the consolidated statement above relate entirely to the Society.

The Society considers that none of its assets meet the definition of heritage assets under FRS102. Although certain assets may have a heritage quality, these are all used for operational purposes in the running of the zoo and are therefore classified as operating assets.

At 31 December 2021, the Society had spent £1.1m on the Grasslands project, which is included in Tangible Assets under construction. Construction work on this project was due to commence in autumn 2020, but due to the impact of COVID-19, the main construction is now expected to start in 2023, with enabling work taking place in 2022.

12. Investments in subsidiary companies

	2021 £	2020 £
Investment in Chester Zoo Enterprises Limited	**100**	100
Investment in Chester Zoo (Nigeria) Limited	**1**	1
North of England Zoological Society Pension Trustee Company Limited	**1**	1

The principal undertakings in which the Society's interest at the year-end is more than 20% are as follows:

Subsidiary undertakings	**Company number**	**Country of incorporation**	**Principal activity**	**Class and percentage of shares held**	
				Group	Company
Chester Zoo Enterprises Limited	02669535	UK	Catering and Retail	100% ordinary	100% ordinary
Chester Zoo (Nigeria) Limited	08374657	UK	Dormant	100% ordinary	100% ordinary
Chester Zoo Foundation Nigeria	08904330	UK	Dormant	100% ordinary	-

All the above undertakings are registered at Cedar House, Caughall Road, Upton-by-Chester, Chester CH2 1LH. Activities in Nigeria have now ceased and Chester Zoo (Nigeria) Limited and Chester Zoo Foundation Nigeria are now dormant.

13. Stocks

	Group		**Society**	
	2021 £'000	2020 £'000	**2021 £'000**	2020 £'000
Goods for resale	**755**	611	**-**	-
Consumables	**165**	132	**153**	132
Total	**920**	743	**153**	132

14. Debtors: Amounts falling due within one year

	Group		**Society**	
	2021 £'000	2020 £'000	**2021 £'000**	2020 £'000
Trade debtors	**404**	170	**313**	163
Amount owed by subsidiary undertaking	**-**	-	**588**	838
VAT and other debtors	**46**	8	**46**	8
Corporation Tax repayable	**35**	35	**-**	-
Prepayments and accrued income	**1,506**	742	**1,505**	742
Total	**1,991**	955	**2,452**	1,751

Amounts owed by the subsidiary is unsecured, interest free and repayable on demand.

15. Net funds/(debt)

	At 1 January 2021 £'000	Cash flows £'000	At 31 December 2021 £'000
Cash deposits	4,043	220	4,263
Cash held in escrow	1,771	(1,267)	504
Cash at bank and in hand	**5,814**	**(1,047)**	**4,767**
Bank overdraft	(457)	(589)	(1,046)
Cash and cash equivalents	**5,357**	**(1,636)**	**3,721**
Revolving credit facility	(8,700)	7,700	(1,000)
Net (debt) / funds	**(3,343)**	**6,064**	**2,721**

Cash at bank and in hand includes £0.5m (2020: £1.77m) of cash held in escrow, set aside for the Trustee of the Society's defined benefit pension scheme and to be used to conclude the wind-up of the scheme (see note 23 for further details on the buy in of the scheme). The money would also be paid to the pension scheme if the Society were to become insolvent.

16. Creditors: Amounts falling due within one year

	Group		Society	
	2021 £'000	2020 £'000	**2021 £'000**	2020 £'000
Bank overdraft	**1,046**	457	**1,046**	457
Trade creditors	**1,516**	867	**1,178**	632
Other taxes and social security costs	**653**	478	**653**	478
Accruals	**2,753**	2,557	**2,753**	2,557
Other creditors	**211**	495	**211**	495
Deferred income (see below)	**3,337**	2,570	**3,337**	2,570
Total	**9,516**	7,424	**9,178**	7,189

The Society has a £2m bank overdraft facility, which is renewed annually. The purpose of the overdraft is for short-term working capital purposes. Interest on the overdraft is charged at 1.50% or 1.75% above LIBOR depending on meeting certain covenant criteria.

	Balance at 31 Dec 2020 £'000	Utilised advanced purchases £'000	Advanced purchases £'000	**Balance at 31 Dec 2021 £'000**
Deferred income				
Memberships	**2,211**	(2,211)	2,752	**2,752**
Gift vouchers	**290**	(290)	191	**191**
Event deposits	**69**	(68)	60	**61**
Experiences	**-**	-	333	**333**
Total deferred income	**2,570**	**(2,569)**	**3,336**	**3,337**

	Balance at 31 Dec 2019 £'000	Utilised advanced purchases £'000	Advanced purchases £'000	**Balance at 31 Dec 2020 £'000**
Deferred income				
Memberships	**2,639**	(2,639)	2,211	**2,211**
Gift vouchers	**148**	(148)	290	**290**
Event deposits	**42**	(15)	42	**69**
Total deferred income	**2,829**	(2,802)	2,543	**2,570**

17. Creditors: Amounts falling due after more than one year

	Group		Society	
	2021 £'000	2020 £'000	**2021 £'000**	2020 £'000
Revolving credit facility	**1,000**	8,700	**1,000**	8,700
Total	**1,000**	8,700	**1,000**	8,700

An unsecured £22m revolving credit facility was taken out with Santander in April 2020. The facility bears interest at a margin of between 1.5% and 1.75% above LIBOR on utilised amounts and a fee of 35% of the margin is paid on unutilised amounts. As part of compliance with the terms of the facility, the Society is obliged to meet two covenants. These are:

i. Interest cover – EBITDA must be at least four times the interest payable

ii. Leverage – Net debt must not exceed three times EBITDA.

The facility expires in April 2025, when it must be repaid in full.

18. Financial instruments

The carrying amount of the Group's and Society's financial instruments at the year-end were:

	Group		Society	
	2021 £'000	2020 £'000	**2021 £'000**	2020 £'000
Financial assets: debt instruments measured at amortised cost	**5,217**	5,992	**5,654**	6,816
Financial liabilities: financial liabilities measured at amortised cost	**6,526**	13,076	**6,188**	12,841

Financial assets that are debt instruments measured at amortised cost comprise cash and other assets that have the contractual rights to receive cash.

Financial liabilities measured at amortised cost comprise liabilities, which have a contractual obligation to deliver cash.

19. Movement in consolidated funds

	Balance at 31 Dec 2020 £'000	New funds £'000	Funds utilised £'000	Transfers £'000	Balance at 31 Dec 2021 £'000
Restricted funds					
Animal and plant collections	**30**	28	(15)	-	**43**
Conservation science and education projects	**259**	620	(407)	-	**472**
Monsoon Forest fire donations	**106**	-	-	-	**106**
Escrow account – defined benefit pension scheme (note 15)	**1,771**		(2,146)	879	**504**
Job retention scheme grant	**-**	885	(885)	-	**-**
Total restricted funds	**2,166**	**1,532**	**(3,453)**	**879**	**1,124**
Unrestricted funds					
Designated funds					
Defined benefit pension scheme	**1,130**	-	(251)	(879)	**-**
Funds tied to fixed assets	**54,393**	3,126	-	-	**57,519**
Total designated funds	**55,523**	3,126	(251)	(879)	**57,519**
Free reserves					
Cash reserve	**3,810**	40,568	(40,576)	-	**3,802**
Total free reserves	**3,810**	**40,568**	**(40,576)**	-	**3,802**
Total Group funds employed	**61,499**	**45,226**	**(44,280)**	**-**	**62,445**

	Balance at 31 Dec 2019 £'000	New funds £'000	Funds utilised £'000	Transfers £'000	Balance at 31 Dec 2020 £'000
Restricted funds					
Animal and plant collections	58	26	(10)	(44)	**30**
Conservation science and education projects	371	254	(410)	44	**259**
Monsoon Forest fire donations	258	-	(152)	-	**106**
Escrow account – defined benefit pension scheme (note 15)	1,712	-	-	59	**1,771**
Job retention scheme grant	-	1,779	(1,779)	-	**-**
Insurance income	5,276	-	-	(5,276)	**-**
Total restricted funds	**7,675**	**2,059**	**(2,351)**	**(5,217)**	**2,166**
Unrestricted funds					
Designated funds					
Defined benefit pension scheme	1,194	-	-	(64)	**1,130**
Funds tied to fixed assets	50,641	-	-	3,752	**54,393**
Total designated funds	**51,835**	**-**	**-**	**3,688**	**55,523**
Free reserves					
Cash reserve	**1,900**	35,815	(35,434)	1,529	**3,810**
Total free reserves	**1,900**	**35,815**	**(35,434)**	**1,529**	**3,810**
Total Group funds employed	**61,410**	**37,874**	**(37,785)**	**-**	**61,499**

	Unrestricted			
	Free £'000	Designated £'000	Restricted £'000	**2021 Total Funds £'000**
Fixed assets	-	65,283	-	**65,283**
Current assets	3,802	2,752	1,124	**7,678**
Creditors: amounts falling due within one year	-	(9,516)	-	**(9,516)**
Creditors: amounts falling due after more than one year	-	(1,000)	-	**(1,000)**
Net assets	**3,802**	**57,519**	**1,124**	**62,445**

	Unrestricted			
	Free £'000	Designated £'000	Restricted £'000	**2020 Total Funds £'000**
Fixed assets	-	70,111	-	**70,111**
Current assets	3,810	1,536	2,166	**7,512**
Creditors: amounts falling due within one year	-	(7,424)	-	**(7,424)**
Creditors: amounts falling due after more than one year	**-**	(8,700)	-	**(8,700)**
Net assets	3,810	55,523	2,166	61,499

Restricted income funds include income from certain donations, grants and legacies received and money set aside in escrow for the defined benefit pension scheme (note 23).

Designated funds relate both to the movement in the Society's defined benefit pension scheme as it secured benefits with an insurer and to its fixed assets.

The Society sets aside a minimum £3.8m (2020: £3.8m) cash reserve, held separately from the Society's other cash balances. Such a sum is sufficient to operate for a period of two months without significant curtailment of its activities.

20. Capital commitments

	Group		Society	
	2021 £'000	2020 £'000	**2021 £'000**	2020 £'000
Capital expenditure, contracted for but not provided in the financial statements	**270**	-	**270**	-

21. Leasing Commitments

The Group and Society had no non-cancellable operating lease commitments at 31 December 2021 and December 2020.

22. Related party transactions

The Society received a charitable donation by Gift Aid from Chester Zoo Enterprises Limited of £9,780 (2020: £nil). The Society leases retail and F&B outlets to Chester Zoo Enterprises Limited and the 2021 lease costs were £475,467 (2020: £325,000) with a concession to reflect the impact of COVID-19 on the operations on its subsidiary. The Society also charged staff and support costs totalling £2,986,092 (2020: £2,007,635). As at 31 December 2021, the Society was owed £588,099 (2020: £837,978) from Chester Zoo Enterprises Limited.

23. Pensions

The Society operates two pension schemes: a defined benefit scheme and a defined contribution scheme.

Defined benefit scheme

The defined benefit scheme holds assets in a separately administered fund and closed to future accrual in March 2012.

On closing the scheme to future accrual in 2012, the Society committed to funding the scheme on a solvency basis over a 10-year period and to work towards securing member benefits with an insurer, and in November 2021 the Trustees of the scheme secured a buy-in with Aviva. The Society contributed £2.1m, from funds held in escrow for the scheme, as part of the buy-in transaction. Professional fees of £181,000 were also incurred in relation to this transaction.

The remaining escrow balance of £0.5m forms part of the Society's cash and cash equivalents balance (note 15) and is treated as restricted funds (note 19). This money will be used to fund the final wind-up of the scheme.

The Trustees of the Scheme have a first legal charge over certain assets of the Society with a market value of circa £10m, which will be released ahead of the scheme being wound up.

A full actuarial valuation was carried out as at 31 December 2020, and updated to 31 December 2021 for the purpose of these disclosures by Spence & Partners Limited, qualified independent actuaries.

	2021 £'000	2020 £'000
Present value of funded defined benefit obligations	**17,455**	17,650
Fair value of plan assets	**17,455**	21,405
Surplus	**-**	3,755
Effect of asset ceiling	**-**	(3,755)
Net defined benefit asset/(liability) recognised	**-**	-

In line with FRS102, a surplus can only be recognised in the balance sheet to the extent that the Society can gain economic benefit from it. As the scheme is closed to future accrual, a surplus can only be recognised to the extent of an agreed refund. There is no recognition of any surplus at the year end.

The major assumptions made by the actuary for the defined benefit scheme were as follows:

Weighted average assumptions used to determine benefit obligations at:	**2021**	2020
Discount rate	**1.89%**	1.34%
Rate of price Inflation (RPI)	**3.51%**	3.13%
Rate of pension increases (5% RPI)	**3.30%**	3.00%
Rate of pension increases (2.5% RPI)	**2.18%**	2.07%
Assumed life expectations on retirement at age 65:		
Male member retiring today (member age 65)	**22.5**	22.4
Male member retiring in 20 years (member age 45 today)	**24.1**	24.0
Female member retiring today (member age 65)	**24.9**	24.8
Female member retiring in 20 years (member age 45 today)	**26.5**	26.5

The fair value of the plan assets were as follows:

	Fair value at 31 Dec 2021 £'000	**2021 %**	**Fair value at 31 Dec 2020 (£'000)**	**2020 %**
Cash and cash equivalents	273	1.6	214	1.0
Equities	-	-	2,098	9.8
Debt Instruments	-	-	19,093	89.2
Insurance policy	17,231	98.7	-	-
Net current assets	(49)	(0.3)	-	-
Total	**17,455**	**100.0**	**21,405**	**100.0**

	2021 £'000	2020 £'000
Change in defined benefit obligation		
Benefit obligation at beginning of year	**17,650**	16,365
Interest cost	**234**	340
Past service cost	**-**	379
Remeasurement: actuarial (gain)/loss	**(2,891)**	961
Benefits and expenses paid	**(405)**	(395)
Losses on settlements/curtailments	**2,867**	-
Benefit obligation at end of year	**17,455**	17,650

	2021 £'000	2020 £'000
Change in scheme assets		
Fair value of scheme assets at beginning of year	**21,405**	19,646
Interest income	**298**	408
Employer contributions (incl. employer direct benefit payments)	**2,146**	-
Benefits and expenses paid	**(405)**	(395)
Remeasurements – return on scheme assets less interest income	**(5,989)**	1,971
Arrears allowance in respect of benefit rectification	**-**	(225)
Fair value of scheme assets at end of year	**17,455**	21,405

	2021 £'000	2020 £'000
Expense recognised in the statement of financial activities		
Current service cost	**-**	-
Net interest on net defined benefit obligation	**(65)**	(68)
Past service cost	**-**	604
Gains and losses on settlements and curtailments	**2,867**	-
Gains and losses due to surplus limitation	**65**	(536)
Total net interest cost	**2,867**	-
Remeasurements:		
Effect of changes in assumptions	**(856)**	1,301
Effect of experience adjustments	**(2,035)**	(340)
Return on plan assets (excluding interest income)	**5,989**	(1,971)
Remeasurement on effect of asset ceiling	**(2,377)**	1,010
Pension deficit reduction accrual	**-**	-
Total remeasurements included in other gains and losses in the SOFA	**721**	-
Total pension cost recognised in the pension scheme	**2,146**	-
Professional fees on pension scheme buyout	**181**	-
Total pension costs recognised in the SOFA	**2,327**	-

Defined contribution scheme

Contributions to the defined contribution scheme totalled £1,439,316 (2020: £1,449,165). The expenditure is taken from unrestricted funds.

ADDITIONAL INFORMATION

PUBLIC BENEFIT, GRANT-MAKING AND FUNDRAISING

Public benefit

The Trustees have complied with the duty in section 4 of the Charities Act 2011 to have due regard to public guidance published by the Charity Commission, including its supplementary guidance on fee charging.

The Society relies on income from admission fees, food & beverage and retail sales and other charges to cover its operating costs. We have a number of different approaches to mitigating financial barriers to participation, which includes provision of concessionary rate tickets to certain groups alongside free and discounted tickets to targeted groups including one-to-one carers. In 2021, 165,317 children under three visited the zoo for free. Despite being impacted by COVID-19, our winter free tickets scheme for schools enabled free entry for 9,039 educational visits in 2021, and a further 2,981 pupils visited for free as part of our outreach project work.

Through our educational project work, we provide a range of services to schools and community groups that aim to increase access to our programmes and services, all without charge. In 2021 this included 420 young people participating in careers webinars as part of our online Careers in Conservation Festival and pupils from 24 different schools in low-income areas (creating 11,796 engagements) participating in outreach projects led by our Education team.

We also provide a variety of support for young people looking to gain experience, ranging from teenagers completing the volunteering element of their Duke of Edinburgh Award (20 across the year) through to early career conservationists being supported to study for their PhDs (22 supported in 2021). We also work actively with local partners to provide participation opportunities for people who might not otherwise be able to access them – for example, providing supported volunteering opportunities for young people from Ancora House (a local youth mental health service).

Our online engagement programme provides alternatives for those who, for whatever reason, are unable to visit the zoo. We provide over 300 quality learning resources free to download from our website. At the start of the year, when the zoo was closed during the national lockdown, this was enhanced with the provision of free-to-access live educational streams from our zoo's keepers and education staff.

Our Nature Reserve is open to all without charge, providing year-round access to nature. In September 2021, over 2,000 people attended our free Wildlife Connections Festival, engaging with fun and educational activities and experiences linked to the nature reserve.

Grant-making

The Society supports a wide range of conservation and research activities, both in the zoo and externally – often in partnership with other organisations to whom we provide ongoing financial support. Grants towards scholarships are also awarded. Rather than providing one-off grants, the Society works in partnership with other like-minded organisations with whom projects are codeveloped in line with our mission and Conservation Masterplan.

Criteria for funding support for such projects include alignment with Chester Zoo Conservation Masterplan, feasibility, expected conservation outcomes, qualification of project personnel, capacity building, benefits to local communities, relevance to other conservation initiatives of the zoo and regions or countries where the zoo already has a field conservation focus, links to species within the collection plan, and opportunities for technical support from zoo employees.

Primarily, support is provided to those projects that are judged to have potential to make a significant positive conservation impact and a contribution to one or more of the six targets of our Conservation Masterplan. Applications are requested to be made on our standard grant application forms and these are reviewed internally against standardised criteria before a funding decision is made.

Fundraising

The Society is committed to making fundraising a fair, responsible and enjoyable experience for our supporters and those who fundraise on our behalf. We want people to feel connected to our work and understand the incredible impact their donations make.

The Society is wholly committed to best fundraising practice and, as such, we're signed up with the Fundraising Regulator. Both the organisation, and the fundraisers operating within it, abide by the Code of Fundraising Practice. We do not undertake fundraising that we consider to be intrusive or not akin to the inclusive culture of our

organisation, and have taken the decision to eliminate the following activities from our fundraising:

- Telephone fundraising (either in-house or third party)
- Mass unaddressed direct-mail postal fundraising campaigns
- Door-to-door fundraising campaigns
- Wealth screening of our databases
- Direct cold telephone asks to individuals where there is no personal link or connection
- Direct outbound SMS fundraising campaigns.

Our Fundraising team is made up of both core members and consultants who operate as an extension of our internal team. Consultant fundraisers contracted to work on our behalf are either a member of the Institute of Fundraising, or are contracted on terms that directly embrace the Fundraising Promise, the Code of Practice and our own fundraising ethics. Consultants are not remunerated by commission or commission-only methods, and have regular update meetings to assess proposals, applications or asks, quality assurance and compliance. The permanent fundraising team report to the Director of Marketing and hold regular meetings to monitor activity. The fundraising team also regularly report to the Board of Trustees to ensure there is a clear understanding of the zoo's fundraising activities, and the Trustees are aware of their responsibilities in relation to fundraising.

Individuals, community groups, corporate social committees and schools often want to fundraise to donate to Chester Zoo. We support by providing free and accessible guides to responsible and safe fundraising, pointing them to guidance provided by the Fundraising Regulator through the Code of Fundraising Practice. Where appropriate, we issue communities and individuals wishing to fundraise for us with a letter of authority, solicitation statement or commercial participation agreement.

The Fundraising T&Cs section of the Chester Zoo website outlines our fundraising complaints process and the steps we take to resolve any issue brought to us. From here, we also help people to access the Fundraising Regulator for advice and guidance. In 2021 we did not receive any complaints relating to our fundraising activities and received no action requests from the Fundraising Preference Service.

Safeguarding, and treating donors fairly, is paramount to our work. We support people on their donation journey with us, in whatever capacity requested or needed, responding to the needs of the individual as per the Code of Fundraising Practice. With relevant permissions, we communicate with our supporters so any indicators of additional required care become apparent (such as bereavement or personal circumstances). We take measures to protect donors including delaying the acceptance of gifts, returning gifts (cooling-off period), monitoring online giving for gifts made in error or malicious activity, and ensuring there is clear transparency as to where a gift will be used.

If we believe an individual lacks sound capacity to make a donation, it will not be taken. Returned donations will be logged on our dedicated database, so we can prepare if another donation is made or attempted, making a reasoned judgment and acting appropriately. Supporters under the age of 16 must have explicit guardian approval, and must be accompanied by their guardian during any telephone communications and during their fundraising. They will not receive any general fundraising communications from us.

We take all reasonable steps to ensure that supporters understand the context, implications and use of their donation and our campaigns are carefully managed to never place undue emotional pressure to donate.

Equal opportunities

The Society is an equal opportunities employer and is committed to promoting equal opportunity for all staff and job applicants, supported by clear policies and procedures.

During 2021 we have continued to seek out opportunities to support our commitment of encouraging equality, diversity and inclusion among our workforce. The implementation of a new applicant tracking system has provided an accessibility and language toolbar feature designed to assist candidates who need further adjustments to their user experience, such as font size and type, colour background and contrast, magnification and text into audio. Our six-month hybrid working trial has provided greater flexibility and work life balance for members of staff whose job roles lend themselves to partial, voluntary homeworking, while also striving to reduce our carbon footprint and our impact on the environment.

An independent salary benchmarking exercise was undertaken in 2021, salaries were benchmarked against 150 organisations in the not-for-profit sector outside of London and the results informed the pay award for 2022.

As a large charity, the Society publishes a Gender Pay Gap report, the results of which highlight the equal opportunities available regardless of gender. Details of the report can be found at chesterzoo.org.

THANK YOU

231 people volunteered time to support us in the zoo during 2021. Between them they donated 19,307 hours to the zoo, with time spent on engaging visitors with conservation and enabling them to have a great day out, completing admin tasks and supporting education activities and seasonal events. In April 2021, we achieved the Investing in Volunteers award, the quality standard for good practice in volunteer management.

2021 saw the continuation of a truly unbelievable level of support from our donors, fundraisers and corporate partners, as we continued to experience closures and limitations due to Covid restrictions. We are so grateful to everyone who stood by us, despite experiencing difficulties themselves, and shared the belief in our mission to prevent extinction.

Much of our fieldwork and research relies on funding from grant-giving bodies, and we appreciate the continued support we have had from them this past year – the progress we are making would simply not be possible without them.

Our Never Forget campaign to raise funds for research around EEHV has continued to attract some significant funding from supporters. This means that we now find ourselves in the test phase of this incredible venture and that bit closer to putting a stop to the devastation this terrible disease causes for both zoo-based and wild elephant populations.

Another huge success made possible thanks to generous donations and legacies was the translocation of a new breeding population of snails back to Bermuda – saving this species from extinction.

Our corporate partners have also continued to support our conservation work as we continue towards our masterplan targets, despite the challenges faced by many sectors over the past year. These partnerships include work to significantly progress our sustainable palm oil programme.

We would also like to thank our many regular donors, fundraisers and those who have anonymously made major donations. We thank and value you all!

WITH HUGE THANKS TO OUR SUPPORTERS...

Corporate champions

- Chester Race Course Company
- Co-operative Group
- Ferrero Group
- Saputo Dairy UK
- Airbus
- Darwin Escapes
- MBNA
- Urenco

Trusts, foundations and grants

- Charles Brotherton Charitable Trust
- Chester Bluecoat Charity
- Vivo Community Fund
- Sandra Charitable Trust
- Geoff's Ludford Charitable Trust
- Michael Testler Foundation
- Green Recovery Challenge Fund
- Ronald and Kathleen Pryor Charity
- Stiftung Artenschutz
- Whitley Fund for Nature
- Sir Donald and Lady Edna Wilson Trust
- Darwin Initiative
- Kenneth Russell Hardy Will Trust
- William Dean Countryside and Educational Trust
- Marjorie Coote Animal Charity Trust
- Asian Species Action Partnership (ASAP)
- Marsh Charitable Trust

Corporate supporters

- M&S Bank
- Stage Coach
- Sykes Cottages Ltd
- Toyota Motor Manufacturing Ltd

Major donors

- Dr Mike Hennell and LDRA Ltd
- Carole Brown
- Mrs Glynis Wilson
- Mrs Sandra Birnie

GLOSSARY – SUSTAINABLE DEVELOPMENT GOALS (SDGS)

GOAL 1: NO POVERTY

GOAL 2: ZERO HUNGER

GOAL 3: GOOD HEALTH AND WELL-BEING

GOAL 4: QUALITY EDUCATION

GOAL 5: GENDER EQUALITY

GOAL 6: CLEAN WATER AND SANITATION

GOAL 7: AFFORDABLE AND CLEAN ENERGY

GOAL 8: DECENT WORK AND ECONOMIC GROWTH

GOAL 9: INDUSTRY, INNOVATION, AND INFRASTRUCTURE

GOAL 10: REDUCED INEQUALITIES

GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES

GOAL 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

GOAL 13: CLIMATE ACTION

GOAL 14: LIFE BELOW WATER

GOAL 15: LIFE ON LAND

GOAL 16: PEACE, JUSTICE AND STRONG INSTITUTIONS

GOAL 17: PARTNERSHIPS

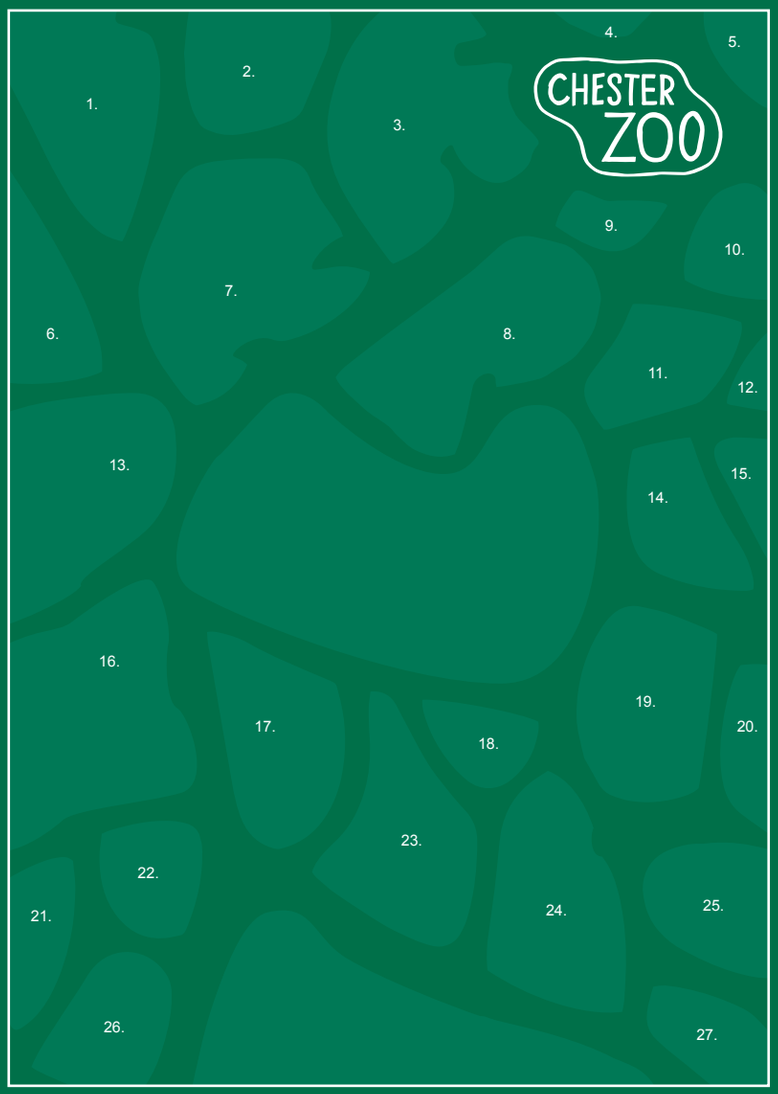
SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere.

Read more online un.org/sustainabledevelopment/

Front cover images:

1. Eastern black rhino: A critically endangered priority species for the zoo, which not only coordinates the EAZA European breeding programme but also supports active conservation for the subspecies in Kenya, Tanzania and Rwanda.
2. Harvest mouse: A native species reintroduced to the zoo estate during the 1990s and 2000s and still doing well decades later.
3. Turbinicarpus mandragora pailianus: A critcally endangered cactus and part of the zoo's Turbinicarpus National Collection.
4. Lake Titicaca Frog: A critically endangered frog totally endemic to Lake Titicaca in Latin America; the zoo helped found the population in European zoos and continues to work with this species that is on the edge of extinction and can now be seen in Spirit of the Jaguar.
5. Stanhopea oculata: A stunning highly fragrant South-east Asian orchid grown at the zoo.
6. Copiapoa laui: A conservation Insurance species part of the zoo's Copiapoa National Collection.
7. A newly hatched Discula lyelliana snail: One of three species of Madeiran endemic snails that the zoo began working with in 2021, all three are very close to extinction on the tiny Madeiran island of Desertas Grande.
8. Asian elephants: A priority species for the zoo and 2021 has seen significant progress in our efforts to develop and vaccine against the killer disease EEHV.
9. Asiatic lion: A new lion experience for visitors will be opening during spring 2022.
10. Rothschild's giraffe: Not only is the breeding herd managed at the zoo but we also work in the field in Uganda to help restore populations of this species.
11. Blue-throated macaw: A critically endangered parrot cared for at the zoo as part of the EAZA European breeding programme.
12. Black-necked stilt: One of the new species in the mixed species walk-through Latin American Wetland Aviary, which opened in spring 2021.
13. Caribbean Flamingos: Moved into their new mixed species walk-through Latin American Wetland Aviary in spring 2021.
14. Conservationist at Chester Zoo.
15. Nepenthes bokorensis: A newly described pitcher plant from Cambodia and one of the zoo's hundreds of pitcher plants.
16. Sumatran Orangutan: A critically endangered species heavily threatened by forest clearance in their native Sumatra.
17. Victoria crowned pigeon: Breeding birds can be found in both Monsoon Forest and Tropical Realm.
18. Buff-tailed bumblebee worker: One of a growing number of bees thriving on the zoo's land as a result of our gardens, nature reserve and other biodiversity areas.
19. Northern babirusa: Chester Zoo is the main European zoo holding an breeding Northern babirusa as well as working with the Indonesian government and zoo association on their conservation.
20. Panther Chameleon: A beautiful large chameleon from Northern Madagascar, which the zoo is working hard to breed.
21. Red-billed curassow chick: Chicks from eggs incubated artificially at the zoo were successfully fostered back to their parents during the year.
22. Lab Tech at Chester Zoo.
23. 'Love it for Longer 'exhibition piece.
24. Coquerel's sifaka: The first animals to arrive in Europe came to the zoo during 2021.
25. *Nepenthes ampullaria* (flask shaped pitcher plant).
26. Tequila splitfin fish: This is one of Chester's rarest animals, extinct in the wild in its native Mexico, the zoo is working to reintroduce them back to their natural habitat.
27. Chester Zoo Keeper with Rothschild giraffes.



chesterzoo.org

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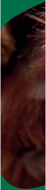

AMPHIBIANS STOCKLIST - 2021

		Stock 31/12/2020			Acquisitions			Births			Deaths			Dispositions			Stock 31/12/2021		
Preferred Scientific Name	**Common Name**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**
*Typhlonectes natans**	Rio Cauca Caecilian	4	3	3	0	0	0	0	0	6	2	2	6	0	0	1	1	1	3
*Ambystoma dumerilii**	Lake Patzcuaro salamander	2	2	0	1	0	0	0	0	0	2	0	0	0	0	0	1	2	0
*Calotriton arnoldi**	Montseny brook newt	11	8	14	0	0	0	0	0	20	0	1	12	0	0	0	11	7	22
Phyrnoides asper	Asian giant toad	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0	5	1	0
*Dendrobates azureus**	Dyeing Poison Dart Frog	0	2	17	0	0	0	0	0	20	0	0	1	0	0	12	0	0	27
*Phyllobates terribilis**	Golden poison dart frog	2	2	3	0	0	0	0	0	6	0	0	0	0	1	0	4	2	6
*Oophaga pumilio**	Strawberry poison frog	0	0	29	0	0	0	0	0	0	1	0	0	0	0	0	6	2	18
*Ranitomeya imitator**	Mimic poison frog	1	1	8	0	0	0	0	0	1	0	0	0	0	0	0	7	2	2
*Ranitomeya amazonica**	Poison dart frog	2	3	6	0	0	0	0	1	6	0	0	2	0	0	3	2	6	5
*Excidobates mysteriosus**	Marañón poison frog	0	0	28	0	0	0	0	0	10	0	0	0	0	0	0	0	0	37
Boana pictura	Imbabura tree frog	0	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	5
*Heterixalus alboguttatus**	Whitebelly reed frog	0	0	25	0	0	0	0	0	0	0	0	5	0	0	0	4	8	8
Leptodactylus fallax	Mountain chicken frog	5	13	0	0	0	0	0	0	0	1	2	0	0	0	0	4	11	0
*Telmatobius culeus**	Lake Titicaca frog	14	9	18	0	0	0	0	0	0	0	0	1	4	0	15	10	9	2
*Mantella aurantiaca**	Golden mantella	21	11	137	0	0	0	0	0	7	1	0	22	0	0	10	34	25	80
*Mantella expectata**	Blue-legged mantella	7	4	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	2
*Scaphiophryne madagascariensis**	Madagascar rain frog	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
*Sylvirana maosonensis**	Mao-Son frog	2	2	31	0	0	0	0	0	0	0	0	6	0	0	0	2	2	25
*Staurois guttatus**	Black-spotted rock frog	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
*Staurois parvus**	Splash frog	0	0	59	0	0	0	0	0	64	0	0	2	0	0	20	0	0	85
*Nyctixalus pictus**	Painted Indonesian tree	0	0	77	0	0	0	0	0	71	0	0	52	9	8	22	11	10	47
*Rhacophorus feae**	Fea's tree frog	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1
*Mannophryne trinitatis**	Trinidad poison dart frog	0	0	52	0	0	0	0	0	0	0	0	0	4	4	14	0	0	30
*Agalychnis moreletii**	Morelet's tree frog	12	4	0	0	0	0	0	0	0	1	1	0	0	0	0	11	3	0
*Agalychnis dacnicolor**	Mexican giant tree frog	3	1	28	0	0	0	0	0	0	0	0	0	5	2	5	17	2	0
		90	67	537	6	1	6	0	1	211	10	6	110	22	15	114	132	95	405
		694			**13**			**212**			**126**			**151**			**632**		

** denotes managed in groups*

BIRDS STOCKLIST - 2021

		Stock 31/12/20			Acquisitions			Births			Deaths			Dispositions			Stock 31/12/21		
Preferred Scientific Name	**Common Name**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**
Eudromia elegans	Elegant crested tinamou	3	1	7	0	0	0	0	0	13	1	0	10	0	0	7	2	1	3
Casuarius casuarius	Southern cassowary	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Crax blumenbachii	Red-billed curassow	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	4	2	0
Guttera pucherani	Eastern Crested Guineafowl	2	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0
Arborophila javanica	Chestnut-bellied tree partridge	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Arborophila gingica	Collared Partridge	2	4	0	0	0	0	0	0	2	0	1	1	0	1	0	2	2	1
Rollulus rouloul	Crested wood partridge	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Tragopan caboti	Cabot's tragopan	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2	0
Lophophorus impejanus	Himalayan impeyan pheasant	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Gallus gallus	Red junglefowl	0	0	0	1	2	0	0	0	0	0	1	0	0	0	0	1	1	0
Lophura inornata	Salvadori's pheasant	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Lophura edwardsi	Vietnam pheasant	1	0	0	3	2	0	0	0	0	1	0	0	0	0	0	3	2	0
Polyplectron chalcurum	Bronze-tailed peacock pheasant	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2	0
Polyplectron inopinatum	Rothschild's peacock pheasant	2	2	0	0	0	0	1	0	0	1	0	0	0	1	0	2	1	0
Polyplectron napoleonis	Palawan peacock pheasant	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0
Argusianus argus	Great argus	1	3	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3	2
Dendrocygna autumnalis autumnalis	Southern black-bellied whistling	3	1	0	1	2	3	0	0	13	0	0	3	0	0	10	4	3	3
Dendrocygna viduata *	White-faced whistling duck	0	0	43	0	0	0	0	0	28	0	0	7	0	0	19	0	0	38
Thalassornis leuconotus leuconotus	African white-backed duck	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Amazonetta brasiliensis	Brazilian teal	3	2	0	0	0	0	4	2	12	0	0	9	4	2	0	3	2	3
Anas capensis	Cape teal	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Anas erythrorhyncha	Red-billed pintail	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Aythya baeri *	Baer's pochard	0	0	18	0	0	0	0	0	0	1	0	0	0	0	0	0	0	14
Aythya fuligula *	Tufted duck	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Aythya nyroca	Ferruginous Duck	6	4	1	0	0	0	0	0	9	1	1	1	0	0	0	5	3	9
Cairina moschata	Muscovy duck	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Callonetta leucophrys	Ringed teal	3	2	0	1	1	0	5	6	16	1	1	0	0	4	11	8	4	5
Marmaronetta angustirostris *	Marbled teal	0	0	3	1	4	0	0	0	0	0	0	1	0	0	0	1	4	2
Neochen jubata	Orinoco goose	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Oxyura leucocephala *	White-headed duck	1	4	12	0	0	0	0	0	0	0	0	3	0	0	0	1	4	9
Oxyura maccoa	Maccoa duck	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Oxyura vittata	Argentine ruddy duck	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Sarkidiornis melanotos	African comb duck	1	5	0	0	0	0	0	0	0	0	0	0	0	4	0	1	1	0
Tadorna ferruginea	Ruddy shelduck	2	4	0	0	0	0	0	0	0	1	0	0	0	0	0	1	4	0
Spatula hottentota	Hottentot teal	4	2	0	0	0	0	0	0	6	2	0	2	0	0	0	2	2	4
Spatula platalea	Red shoveler	0	0	0	0	1	0	2	3	1	0	0	1	0	0	0	2	4	0
Spatula puna *	Puna teal	0	0	0	1	2	0	0	2	0	0	0	0	0	0	0	1	4	0
Asarcornis scutulata	White-winged duck	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Phoenicopterus	Flamingo	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Phoenicopterus ruber	Caribbean Flamingo	59	53	10	0	0	0	4	3	1	0	0	1	0	0	0	63	56	10
Caloenas nicobarica nicobarica	Nicobar pigeon	5	8	5	0	0	0	0	1	3	0	1	2	0	0	0	5	8	6
Chalcophaps indica	Emerald Dove	10	5	1	0	0	0	1	0	4	2	0	4	0	0	0	9	5	1
Ducula bicolor *	Pied imperial pigeon	3	2	1	0	0	0	1	1	0	0	0	0	0	0	0	4	3	1
Gallicolumba criniger	Mindanao bleeding heart dove	4	3	0	0	0	0	0	0	0	2	0	0	0	1	0	2	2	0
Gallicolumba luzonica	Luzon bleeding heart dove	7	3	1	0	0	0	0	0	1	0	0	0	4	0	0	3	3	2
Gallicolumba rufigula	Cinnamon ground dove	3	5	0	0	0	0	0	1	3	0	0	1	0	1	0	3	5	2
Geopelia cuneata	Diamond dove	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0
Goura victoria	Victoria crowned pigeon	4	6	0	0	0	0	1	0	1	0	0	1	0	1	0	5	5	0
Otidiphaps aruensis	White-naped pheasant-pigeon	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0
Ptilinopus melanospilus	Black-naped fruit-dove	3	1	0	0	0	0	2	0	0	2	0	0	0	0	0	3	1	0
Ptilinopus porphyrea	Pink-headed fruit dove	1	1	0	1	0	0	0	0	2	1	0	1	0	0	0	1	1	1
Ptilinopus superbus	Superb fruit dove	11	6	1	0	0	0	3	1	6	3	0	6	2	1	0	9	6	1
Streptopelia risoria	Java (Barbary) Dove	8	7	0	0	0	0	0	0	0	5	4	0	3	3	0	0	0	0

Treron vernans	Pink-necked pigeon	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Treron waalia	Bruce's green pigeon	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Zenaida graysoni	Socorro dove	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Nesoenas mayeri	Pink pigeon	3	3	0	0	0	0	0	1	0	1	1	0	0	0	0	2	3	0
Tauraco schalowi	Schalow's turaco	3	4	0	0	0	0	1	1	5	0	0	1	1	2	0	3	3	4
Tauraco leucolophus	White-crested turaco	1	3	0	0	0	0	3	0	1	0	0	1	0	1	0	4	2	0
Eurypyga helias	Sunbittern	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0
Porphyrio porphyrio	Purple swamphen	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Balearica pavonina pavonina	West African Crowned Crane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Balearica regulorum	Grey crowned-crane	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
Bugeranus carunculatus	Wattled crane	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Spheniscus humboldti	Humboldt penguin	24	25	0	0	0	0	0	0	21	0	6	21	0	0	0	24	19	0
Ciconia nigra	Black stork	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Eudocimus ruber	Scarlet ibis	15	11	0	0	0	0	0	0	2	1	2	1	0	0	0	14	9	1
Geronticus eremita	Waldrapp ibis	13	8	0	0	0	0	0	0	0	0	1	0	0	0	0	13	7	0
Platalea ajaja	Roseate spoonbill	3	2	0	0	0	0	0	0	0	2	0	0	0	0	0	1	2	0
Scopus umbretta	Hamerkop	4	1	0	0	0	0	1	1	3	0	0	2	3	0	0	2	2	1
Himantopus himantopus mexicanus	Black-necked stilt	1	2	0	0	0	0	0	0	3	0	0	0	0	0	0	1	2	3
Vanellus armatus	Blacksmith lapwing	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Otus megalotis	Luzon Lowland Scops Owl	1	1	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0
Ptilopsis leucotis	Northern white-faced owl	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Pulsatrix perspicillata	Spectacled owl	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Strix leptogrammica	Brown wood owl	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Aegypius monachus	European Black Vulture	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Gyps africanus	African white-backed vulture	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Trigonoceps occipitalis	White-headed vulture	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Sagittarius serpentarius	Secretary bird	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Urocolius macrourus	Blue-naped mousebird	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
Trogon collaris	Collared trogon	5	3	0	0	0	0	0	0	1	1	1	0	2	0	0	2	2	1
Buceros rhinoceros silvestris	Rhinoceros hornbill	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0
Buceros bicornis	Great Hornbill	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Penelopides panini panini	Visayan tarictic hornbill	4	2	0	0	0	0	0	2	0	0	1	0	1	0	0	3	3	0
Rhabdotorrhinus corrugatus	Wrinkled hornbill	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Coracias caudatus	Lilac-breasted roller	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0
Pteroglossus viridis	Green aracari	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Psilopogon pyrolophus	Fire-tufted barbet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Megalaima oorti	Black-browed barbet	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Trichoglossus forsteni forsteni	Scarlet-breasted lorikeet	1	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0
Trichoglossus forsteni mitchellii	Mitchell's lorikeet	4	5	0	0	0	0	0	3	0	0	1	0	0	0	0	4	7	0
Trichoglossus johnstoniae	Mount Apo Lorikeet	5	1	0	0	0	0	0	1	2	0	1	2	0	0	0	5	1	0
Lorius garrulus flavopalliatus	Yellow-backed chattering lory	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Lorius domicella	Purple-naped lory	2	2	0	0	0	0	0	1	0	0	0	0	0	1	0	2	2	0
Psittacula derbiana	Derbyan parakeet	9	11	0	0	0	0	0	4	3	0	1	3	0	0	0	9	14	0
Loriculus galgulus	Blue-crowned parrot	9	15	3	0	0	0	2	3	1	0	4	0	0	0	0	11	14	4
Anodorhynchus hyacinthinus	Hyacinth macaw	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Ara ambiguus	Buffon's macaw	3	1	0	0	0	0	2	0	0	0	0	0	0	0	0	5	1	0
Ara glaucogularis	Blue-throated macaw	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Pyrrhura griseipectus	Gray-breasted parakeet	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0
Amazona lilacina	Lilacine amazon	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4	0
Cacatua haematuropygia	Red-vented cockatoo	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
Oriolus chinensis	Black-naped oriole	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	2	2	0
Cissa thalassina	Javan Green Magpie	7	8	0	0	0	0	1	0	0	0	1	0	1	0	0	7	7	0
Cyanopica cyanus	Azure-winged magpie	8	9	0	0	0	0	0	0	1	0	1	0	0	0	0	8	8	1
Urocissa erythrorhyncha	Red-billed Blue Pie	1	1	0	0	0	0	1	2	0	0	0	0	0	0	0	2	3	0
Spizixos semitorques	Collared finch-billed bulbul	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
*Pycnonotus jocosus **	Red-whiskered bulbul	4	3	1	0	0	0	0	0	8	0	0	8	0	0	0	4	3	3
Zosterops eurycricotus	African montane white-eye	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Irena puella	Fairy bluebird	4	4	1	0	0	0	4	1	4	2	2	5	0	0	0	6	3	0
Garrulax bicolor	Sumatran laughing thrush	7	10	0	1	0	0	0	1	0	2	0	0	2	4	0	4	7	0
Garrulax courtoisi	Blue-crowned laughingthrush	6	4	0	0	0	0	1	4	1	0	1	1	3	1	0	4	6	0
Sturnidae	Starlings & oxpeckers	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0

Aplonis panayensis *	Asian Glossy Starling	12	10	390	0	0	0	0	0	15	2	3	33	11	0	30	18	35	197
Lamprotornis iris *	Emerald starling	0	0	79	0	0	0	0	0	2	0	0	0	0	0	0	0	0	35
Lamprotornis purpureus	Purple glossy starling	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Lamprotornis superbus	Superb starling	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lamprotornis regius	Golden-breasted starling	2	1	0	0	0	0	0	1	2	0	1	1	0	0	0	2	1	1
Leucopsar rothschildi	Bali myna	1	9	0	0	0	0	0	0	0	0	1	0	0	0	0	1	8	0
Mino dumontii	Yellow-faced mynah	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Onychognathus morio	Red-winged starling	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Scissirostrum dubium	Scissor-billed Starling	13	12	0	0	0	0	9	6	8	1	3	8	0	0	0	21	15	0
Copsychus saularis	Magpie robin	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Cossypha niveicapilla	Snowy-headed robin chat	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0
Ianthocincla ocellata artemisiae	White-spotted laughing thrush	4	4	0	0	1	0	1	3	0	0	0	0	2	0	0	3	8	0
Kittacincla malabarica	White-rumped shama	5	3	0	0	0	0	2	1	4	2	0	4	2	0	0	3	4	0
Euplectes afer	Yellow-crowned bishop	7	4	6	0	0	0	0	0	12	0	0	6	0	0	0	7	4	12
Foudia madagascariensis *	Red fody	0	0	77	0	0	0	0	0	4	4	1	13	18	18	10	4	4	40
Ploceus cucullatus *	Black-headed weaver	0	0	46	0	0	0	0	0	4	0	0	1	0	0	0	0	0	40
Ploceus nigricollis nigricollis	Black-necked weaver	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Estrilda astrild	Common waxbill	23	17	2	0	0	0	1	2	9	1	0	2	4	5	7	19	14	2
Amandava amandava	Red avadavat	2	11	0	0	0	0	0	0	0	1	1	0	0	0	0	1	10	0
Amandava subflava	Zebra waxbill	3	5	0	0	0	0	0	0	0	1	1	0	0	0	0	2	4	0
Erythrura tricolor	Tricoloured parrot finch	3	2	0	0	0	0	0	0	0	2	0	0	0	0	0	1	2	0
Lonchura maja	White-headed munia	11	7	0	0	0	0	0	0	0	0	0	0	0	0	0	11	7	0
Lonchura oryzivora *	Javan sparrow	0	0	150	0	0	0	0	0	21	0	0	34	10	0	28	0	0	153
Lonchura fuscata	Timor sparrow	1	2	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0
Coccothraustes affinis	Collared grosbeak	2	2	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0
Icterus oberi	Montserrat oriole	1	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0
Paroaria dominicana	Pope cardinal	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Ramphocelus bresilius	Brazilian tanager	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Ramphocelus passerinii	Scarlet-rumped tanager	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Tangara cyanicollis	Blue-necked tanager	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Geokichla citrina melli	Orange-headed thrush	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Geokichla dohertyi	Chestnut-backed thrush	4	2	0	0	0	0	1	1	10	2	1	9	0	1	0	3	1	1
Turdus boulboul	Grey-winged blackbird	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Leiothrix argentauris	Silver-eared mesia	4	4	0	2	1	0	0	0	2	1	1	0	1	1	0	4	3	2
Leiothrix lutea *	Pekin robin	4	7	45	0	0	0	0	0	16	0	2	16	0	0	0	2	3	20
Liocichla omeiensis	Grey-cheeked Liocichla	4	7	0	0	0	0	2	2	7	0	2	7	0	0	0	6	7	0
Trochalopteron milnei	Red-tailed laughing thrush	3	3	0	0	0	0	0	0	1	0	1	1	0	0	0	3	2	0
		497	452	915	18	21	3	59	64	298	60	56	236	74	58	122	494	472	650
** denotes managed in groups*		**1864**			**42**			**421**			**352**			**254**			**1616**		

FISH STOCKLIST - 2021

		Stock 31/12/21			
Preferred Scientific Name	**Common Name**	**M**	**F**	**U**	
Erpetoichthys calabaricus *	Reedfish	0	0	3	
Pantodon buchholzi *	African freshwater butterflyfish	0	0	2	
Gnathonemus petersii *	Long-nosed Elephant Trunk Fish	0	0	4	
Barilius *	Barb	0	0	7	
Garra barreimiae *	Omani Blind Cave Fish	0	0	41	
Garra flavatra *	Panda garra	0	0	10	
Notropis chrosomus *	Rainbow shiner	0	0	371	
Puntius titteya *	Cherry barb	0	0	100	
Rasbora trilineata *	Threelined scissortail rasbora	0	0	380	
Tanichthys albonubes *	White cloud mountain minnow	0	0	15	
Trigonostigma hengeli *	Rasbora	0	0	2	
Dawkinsia assimilis *	Mascara barb	0	0	107	
Dawkinsia filamentosa *	Filament barb	0	0	70	
Dawkinsia tambraparniei *	Tambraparini barb	0	0	61	
Dawkinsia rohani *	Rohan's barb	0	0	58	
Pethia padamya *	Odessa barb	0	0	9	
Pethia bandula *	Barb	0	0	7	**
Sahyadria denisonii *	Denison's barb	0	0	43	
Desmopuntius pentazona *	Fiveband barb	0	0	20	
Desmopuntius rhomboocellatus *	Barb	0	0	41	
Puntigrus tetrazona *	Sumatra barb	0	0	1531	**
Enteromius hulstaerti *	Butterfly barb	0	0	89	
Opsarius pulchellus *	Barb	0	0	5	
Botia kubotai *	Angelicus loach	0	0	6	
Chromobotia macracanthus *	Clown loach	0	0	4	
Acantopsis choirorhynchos *	Horseface loach	0	0	2	

Ambastaia sidthimunki *	Dwarf loach	0	0	5	
Gastromyzon borneensis *	Loach	0	0	2	
Distichodus noboli *	Nobol distichodus	0	0	1	
Distichodus teugelsi *	Distichodus teugelsi	0	0	4	
Bathyaethiops greeni *	Tetra	0	0	1	
Hemiodus gracilis	Red tail hemiodus	0	0	20	
Semaprochilodus insignis *	Insignis	0	0	1	
Hemigrammus coeruleus *	Cerulean tetra	0	0	1	
Hyphessobrycon *	Tetra	0	0	53	
Hyphessobrycon erythrostigma *	Bleeding heart tetra	0	0	88	
Hyphessobrycon wadai *	Tetra	0	0	18	
Hyphessobrycon hexastichos *	Tetra	0	0	58	
Moenkhausia *	Tetra	0	0	16	
Moenkhausia pittieri *	Diamond tetra	0	0	199	
*Nematobrycon palmeri**	Emperor tetra	0	0	99	
Paracheirodon axelrodi *	Cardinal tetra	0	0	3012	
Kryptopterus macrocephalus *	Glass catfish	0	0	17	
Pareutropius debauwi *	African glass catfish	0	0	12	
Synodontis flavitaeniatus *	Striped catfish	0	0	5	
Synodontis njassae *	Lake Malawi Upside-down Catfish	0	0	3	
*Synodontis petricola**	African catfish	0	0	5	
Synodontis polli *	Poll's upsidedown catfish	0	0	2	
Bunocephalus coracoideus *	Twocolored banjo catfish	0	0	4	
Brochis splendens *	Brochis Catfish	0	0	1	
Corydoras sterbai *	Sterba's catfish	0	0	45	
Corydoras duplicareus *	Corydoras catfish	0	0	8	
Baryancistrus demantoides *	Catfish	0	0	4	
Farlowella vittata *	Catfish	0	0	8	
Hemiancistrus dolichopterus *	Bristlenoe Plecostomus	0	0	39	
Sturisoma aureum *	Royal catfish	0	0	5	
*Lepadogaster lepadogaster**	Shore clingfish	0	0	1	
Melanotaenia	Rainbowfish	0	0	56	**
Melanotaenia lacustris *	Lake Kutubu Rainbow Fish	0	0	20	**
Melanotaenia parkinsoni *	Parkinson's rainbowfish	0	0	20	**

Epiplatys bifasciatus *	Panchax	0	0	10	
Pachypanchax sakaramyi *	Killiefish	0	0	8	
Fundulus bermudae *	Bermuda killifish	0	0	37	
Allotoca zacapuensis *	Zacapu allotoca	0	0	56	**
Allotoca diazi *	Pátzcuaro allotoca	0	0	11	**
Ameca splendens *	Butterfly Goodeid	0	0	350	
Characodon audax *	Bold characodon	0	0	46	
Skiffia francesae *	Golden Saw-finned Goodeid	0	0	29	**
Xenotoca doadrioi *	Redtail splitfin	0	0	574	**
Zoogoneticus tequila *	Crescent Zoe	0	0	30	**
Hippocampus abdominalis *	Big-bellied Seahorse	0	0	11	**
Serranus tortugarum *	Chalk seabass	0	0	10	
Pseudanthias squamipinnis *	Sea goldie	0	0	9	
Pterapogon kauderni *	Emporor/Banggai Cardinal Fish	0	0	48	
Chelmon rostratus *	Copperband butterflyfish	0	0	1	
Centropyge tibicen *	Keyhole angelfish	0	0	1	
Nandus nandus *	Ganges leaffish	0	0	10	
*Dario hysignon**	Dario	0	0	3	
*Geophagus sveni**	Eartheater	0	0	1	
Lethrinops *	Lake Malawi cichlid	0	0	15	
Nanochromis splendens *	Congo dwarf cichlid	0	0	80	
Paretroplus damii *	Cichlid	0	0	14	
Paretroplus kieneri *	Kieneri cichlid	0	0	14	
Paretroplus menarambo *	Pin Striped Damba	0	0	5	
Pelvicachromis sacrimontis *	Cichlid	0	0	4	
Rhamphochromis *	Torpedo cichlid	0	0	11	
Amphiprion frenatus *	Tomato Clownfish	0	0	1	
Amphiprion ocellaris *	Common Clownfish	0	0	8	
Chrysiptera hemicyanea *	Yellow-tailedBlue Damsel Fish	0	0	5	
Chrysiptera parasema *	Goldtail damselfish	0	0	1	
Ctenolabrus rupestris *	Goldsinny wrasse	0	0	6	
Macropharyngodon meleagris *	Leopard wrasse	0	0	5	
Pseudocheilinus hexataenia *	Sixline wrasse	0	0	1	
Lipophrys pholis *	Shanny blenny	0	0	3	

Hypseleotris compressa *	Empire gudgeon	0	0	2	
Gobiodon okinawae *	Golden goby	0	0	1	
Pomatoschistus minutus *	Sand goby	0	0	1	
Siganus vulpinus *	Foxface rabbitfish	0	0	1	
Acanthurus triostegus *	Convict surgeon	0	0	1	
Ctenochaetus tominiensis *	Bristle-tooth Tang	0	0	1	
Zebrasoma flavescens *	Yellow tang	0	0	6	
Parosphromenus linkei *	Liquorice Gourami	0	0	19	**
Parosphromenus paludicola *	Pallid licorice gourami	0	0	65	**
Parosphromenus opallios *	Licorice gourami	0	0	13	**
Trichogaster leerii *	Pearl Gourami	0	0	308	
Betta patoti *	Betta	0	0	8	
		0	0	8665	
			8665		

* denotes managed in groups

** denotes bred in the collection in 2021

INVERTEBRATES STOCKLIST - 2021

Preferred Scientific Name	Common Name	Stock 31/12/20		
		M	F	U
Cassiopea *	Frilled upside-down jellyfish	0	0	145
Euplexaura *	Gorgonian	0	0	1
Erythropodium caribaeorum +	Encrusting gorgonian	0	0	1
Briareum sp. *	Green star polyp	0	0	1
Lobophytum *	Leather coral	0	0	14
Sinularia *	Soft Coral	0	0	2
Sinularia flexibilis *	Slimy leather coral	0	0	27
Xenia umbellata *	Pulsing xenia	0	0	16
Actinia equina *	Beadlet anemone	0	0	20
Anemonia viridis *	Snakelocks anemone	0	0	80
Entacmaea quadricolor *	Bladdertipped anemone	0	0	7
Urticina felina *	Northern red anemone	0	0	4
Metridium senile *	Clonal plumose anemone	0	0	2
*Discosoma**	Umbrella false coral	0	0	420
Acropora *	Staghorn coral	0	0	2
Montipora *	Montipora coral	0	0	32
Montipora confusa *	Encrusting coral	0	0	21
Montipora danae *	Coral	0	0	6
Montipora digitata *	Finger coral	0	0	9
Pocillopora damicornis *	Brush coral	0	0	8
Stylophora *	Cauliflower coral	0	0	16
Euphyllia	Crescent coral	0	0	1
Euphyllia ancora *	Crescent coral	0	0	1
Plerogyra sinuosa *	Bubble coral	0	0	7
Duncanopsammia axifuga *	Coral	0	0	6
Turbinaria mesenterina	Bowl Coral	0	0	2

Turbinaria peltata *	Bowl Coral	0	0	3	
Turbinaria reniformis	Coral	0	0	1	
Favia sp. *	Star coral	0	0	1	
Hydnophora *	Horn coral	0	0	1	
Acanthophyllia deshayesiana *	Doughnut coral	0	0	2	
Blastomussa wellsi *	Pineapple coral	0	0	1	
Micromussa lordhowensis *	Coral	0	0	1	
Galaxea fascicularis *	Ivory coral	0	0	2	
Fungia fungites *	Mushroom coral	0	0	2	
Porites sp. *	Coral	0	0	4	
Trochus *	Snail	0	0	24	
Lithopoma tectum *	Lightfoot snail	0	0	15	
Neritina *	Olive nerite	0	0	15	
Marisa cornuarietis *	Giant ramshorn snail	0	0	12	
Tylomelania *	Freshwater snail	0	0	65	
Strombus *	Fighting conch	0	0	7	
Nassarius *	Sharp-knobbed mud snail	0	0	3	
Nassarius vibex *	Common eastern mud snail	0	0	12	
*Bertia cambojiensis**	Vietnamese giant magnolia	0	0	37	**
*Poecilozonites circumfirmatus**	Lesser Bermuda land snail	0	0	7245	**
Poecilozonites bermudensis *	Greater Bermuda land snail	0	0	48691	**
Discula lyelliana *	Snails	0	0	2362	**
Discula polymorpha *	Snails	0	0	70	
*Caseolus innominatus**	Snails	0	0	8	
Geomitra grabhami *	Snails	0	0	935	**
Atlantica calathoides	Snails	0	0	37	
Hirudinaria manillensis *	Buffalo leech	0	0	46	**
Pandinus imperator *	Common emperor scorpion	0	2	0	
Avicularia avicularia *	Pink-toed tarantula	0	0	9	
Cyrtopholis femoralis *	Montserrat tarantula	0	5	0	
Lampropelma violaceopes *	Singapore blue tarantula	0	1	0	
Lasiodora parahybana *	Brazilian salmon tarantula	0	1	0	
Monocentropus balfouri *	Tarantula	0	0	5	
Nhandu tripepii *	Brazilian giant blonde tarantula	0	0	4	

Caribena versicolor *	Tarantula	0	0	15	
Nephila inaurata *	Golden silk spider	0	6	0	
Stenopus hispidus *	Banded coral shrimp	0	0	2	
Atya gabonensis *	Shrimp	0	0	4	
Neocaridina *	Red Cherry Shrimp	0	0	135	
Lysmata amboinensis *	Cleaner Shrimp	0	0	4	
Lysmata debelius *	White-booted cleaner shrimp	0	0	2	
Lysmata boggessi *	Peppermint shrimp	0	0	10	
Paguristes cadenati *	Red reef hermit	0	0	7	
*Geosesarma hagen**	'Red Devil' Vampire Crab	93	67	540	**
Mithraculus sculptus *	Green reef crab	0	0	3	
Periplaneta americana *	American cockroach	0	0	1600	
Therea olegrandjeani *	Cockroach	55	55	250	**
Gromphadorhina oblongonota *	Madagascar hissing cockroach	0	0	50	
Deroplatys desiccata *	Malaysian dead-leaf mantis	3	6	0	
Stilpnochlora couloniana *	Florida Leaf Katydid	33	19	100	
Ancylecha fenestrata *	Malaysian Leaf Katydid	0	0	8	**
Phaeophilacris bredoides *	Cricket	0	0	100	
Homoeogryllus xanthographus *	Cricket	0	0	100	
Tropidacris collaris *	Violet-winged grasshopper	0	0	14	
Heteropteryx dilatata *	Malaysian Jungle Nymph	10	36	24	**
Phyllium giganteum *	Giant leaf insect	0	22	50	**
*Marmessoidea**	Walkingstick	4	0	20	**
Achrioptera manga *	Walkingstick	0	0	350	**
Manticora imperator *	Ground beetle	1	1	0	
Dynastes hercules *	Western hercules beetle	6	7	123	**
Mecynorrhina ugandensis *	Beetle	9	0	665	**
*Graphium agamemnon**	Tailed Jay	0	0	16	
Papilio demoleus *	Lime Swallowtail	0	0	13	
Papilio lowi *	Great yellow mormon	0	0	4	
Papilio rumanzovia *	Scarlet swallowtail	0	0	20	
*Danaus plexippus**	Monarch butterfly	0	0	13	
Coenonympha tullia *	Large heath butterfly	0	0	28	**
Caligo atreus *	Owl butterfly	0	0	4	

Caligo memnon *	Giant Owl	0	0	36	
*Eryphanis polyxena**	Purple Mort Bleu	0	0	13	
Morpho peleides *	Blue Morpho	0	0	66	
Morpho polyphemus *	White Morpho	0	0	5	
Heliconius erato *	Red Postman	0	0	4	
Heliconius melpomene *	Postman	0	0	100	
Hypolimnas bolina *	Great Eggfly	0	0	19	
Salamis parhassus *	Mother-of-Pearl Beaty	0	0	1	
Siproeta stelenes *	Malachite	0	0	42	
Tithorea tarricina *	Cream-spotted Tigerwing	0	0	2	
Attacus atlas *	Atlas moth	0	0	3	
Atta cephalotes *	Leafcutter ant	0	0	1	colony
*Polyrhachis dives**	Ant	0	0	1	colony
Ampulex compressa *	Emerald cockroach wasp	125	74	115	**
*Apis mellifera mellifera**	Honeybee	0	0	2	colonies
Epibolus pulchripes *	Mombassan train millipede	28	19	540	**
Archaster typicus *	Sea star	0	0	1	
Asterias rubens *	Common Starfish	0	0	4	
Ophiarachna incrassata *	Green Brittle Starfish	0	0	27	
Ophiocomina fragilis *	Brittlestar	0	0	6	
Mespilia globulus *	Colored tuxedo urchin	0	0	8	
Psammechinus miliaris *	Shore urchin	0	0	4	
		367	321	65745	
			66433		

* denotes managed in groups

** denotes bred in the collection in 2021

MAMMALS STOCKLIST - 2021

		Stock 31/12/20			Acquisitions			Births			Deaths			Dispositions			Stock 31/12/21		
Preferred Scientific Name	**Common Name**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**
Dendrolagus goodfellowi	Goodfellow's tree kangaroo	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0
Thylogale brunii	Dusky pademelon	3	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3	2	0
Setifer setosus	Greater Madagascar hedgehog tenre	4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
Macroscelides proboscideus	Short-eared elephant shrew	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Orycteropus afer	Aardvark	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Procavia capensis	Rock hyrax	2	4	0	0	0	0	1	0	0	2	0	0	0	0	0	1	4	0
Elephas maximus	Asian elephant	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0
Choloepus didactylus	Linne's two-toed sloth	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Myrmecophaga tridactyla	Giant anteater	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Tamandua tetradactyla	Southern tamandua	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Tupaia belangeri	Northern tree shrew	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0
Eulemur coronatus	Crowned lemur	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0
Eulemur macaco	Black lemur	3	1	0	0	0	0	0	0	1	0	0	0	0	0	0	3	1	1
Eulemur rubriventer	Red-bellied lemur	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0
Hapalemur alaotrensis	Alaotran gentle lemur	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Lemur catta	Ring-tailed lemur	22	10	0	0	0	0	1	2	0	0	2	0	4	3	0	19	7	0
Varecia rubra	Red ruffed lemur	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Varecia variegata subcincta	White-belted ruffed lemur	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0
Propithecus coquereli	Coquerel's sifaka	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Daubentonia madagascariensis	Aye-aye	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Cebuella pygmaea niveiventris	Eastern pygmy marmoset	3	3	0	0	0	0	0	0	4	0	0	0	0	0	0	3	3	4
Leontopithecus chrysomelas	Golden-headed lion tamarin	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0
Saguinus bicolor	Pied tamarin	6	8	0	0	0	0	1	0	2	2	1	2	0	0	0	5	7	0
Saguinus imperator subgrisescens	Emperor tamarin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Saguinus oedipus	Cotton-top tamarin	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Sapajus xanthosternos	Buffy-headed capuchin	3	1	0	0	0	0	0	0	0	2	0	0	0	0	0	1	1	0
Alouatta caraya	Black howler	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ateles fusciceps rufiventris	Black-headed spider monkey	3	6	0	0	0	0	0	0	2	0	0	0	0	0	0	3	6	2
Macaca nigra	Sulawesi crested macaque	6	10	0	0	0	0	1	0	0	0	0	0	0	0	0	7	10	0
Macaca silenus	Lion-tailed macaque	3	9	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9	0
Mandrillus sphinx	Mandrill	1	10	0	0	0	0	1	1	0	0	0	0	0	0	0	2	11	0
Hylobates lar	Lar gibbon	1	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0
Hylobates moloch	Javan gibbon	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Pan troglodytes	Chimpanzee	6	15	0	0	0	0	0	0	0	0	1	0	0	0	0	6	14	0
Pongo pygmaeus	Bornean orangutan	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0
Pongo abelii	Sumatran orangutan	2	5	0	0	0	0	0	1	0	0	0	0	0	0	0	2	6	0
Callosciurus prevostii rafflesii	Prevost's squirrel	5	6	0	0	0	0	1	1	8	0	1	7	1	0	0	5	6	1
Tamiops swinhoei	Swinhoe's striped squirrel	8	4	0	0	0	0	7	5	7	5	3	7	0	0	0	10	6	0
Hypogeomys antimena	Votsovotsa/Giant jumping rat	2	4	0	0	0	0	0	0	0	0	0	0	1	1	0	1	3	0
Acomys cilicicus *	Asia minor spiny mouse	37	52	5	0	0	0	0	0	179	40	19	112	0	0	0	39	67	22
Mus minutoides *	Pygmy mouse	65	100	29	0	0	0	0	0	13	111	129	44	0	0	0	52	61	0
Phloeomys pallidus	Northern Luzon Giant Cloud Rat	2	4	0	0	0	0	1	0	0	0	0	0	1	3	0	2	1	0
Thallomys paedulcus *	Acacia rat	5	4	3	0	0	0	0	0	0	2	4	1	1	0	0	3	1	0
Heterocephalus glaber *	Naked mole-rat	4	8	62	0	0	0	0	0	113	0	12	82	0	0	0	22	47	12
Hydrochoerus hydrochaeris	Capybara	1	3	0	0	0	0	0	1	1	0	2	1	0	0	0	1	2	0
Dasyprocta azarae	Azara's agouti	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0
Pteropus rodricensis	Rodrigues Fruit Bat	71	125	1	0	0	0	7	3	6	3	8	6	0	8	0	75	112	1
Carollia perspicillata *	Seba's short-tailed bat	0	0	297	0	0	0	52	31	386	67	59	389	0	0	0	0	0	251
Acinonyx jubatus soemmeringii	Central African cheetah	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
Felis silvestris grampia	Scottish wild cat	1	2	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0
Leopardus wiedii	Margay	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Panthera leo persica	Asiatic lion	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Panthera onca	Jaguar	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Panthera tigris sumatrae	Sumatran tiger	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Arctictis binturong whitei	Palawan binturong	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Cryptoprocta ferox	Fossa	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Galidictis grandidieri	Grandidier's Vontsira	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0
Mungotictis decemlineata	Narrow-striped mongoose	2	1	0	0	0	0	0	0	2	0	0	1	0	0	0	2	1	1
Helogale parvula	Dwarf mongoose	6	4	0	0	0	0	2	2	4	0	0	4	4	0	0	4	6	0

Herpestes auropunctatus	Small indian mongoose	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Suricata suricatta	Slender-tailed meerkat	6	9	0	0	0	0	3	3	5	0	0	4	0	1	0	9	11	1
Lycaon pictus	African hunting dog	4	4	0	0	0	0	0	0	10	0	0	10	0	0	0	4	4	0
Speothos venaticus	Bush dog	2	8	0	0	0	0	1	0	0	0	0	0	0	1	0	3	7	0
Helarctos malayanus	Malayan sun bear	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Tremarctos ornatus	Andean bear	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Aonyx cinereus	Asian small-clawed otter	3	5	0	0	1	0	0	0	0	0	0	0	0	2	0	3	4	0
Pteronura brasiliensis	Giant otter	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Ailurus fulgens fulgens	Red panda	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Equus grevyi	Grevy's zebra	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0
Equus hemionus onager	Persian onager	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
Tapirus indicus	Malayan tapir	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	0
Tapirus terrestris	South American tapir	3	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0
Diceros bicornis michaeli	Eastern Black rhinoceros	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0
Rhinoceros unicornis	One-horned rhinoceros	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Babyrousa sp.	Babirusa	4	9	0	0	0	0	2	0	1	0	0	1	0	0	0	6	9	0
Phacochoerus africanus	Warthog	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0
Potamochoerus porcus	Red River hog	1	5	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4	0
Sus cebifrons	Visayan warty pig	3	4	0	0	0	0	1	0	1	0	0	1	2	0	0	2	4	0
Camelus bactrianus	Bactrian camel	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Tragulus nigricans	Philippine mouse-deer	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Pudu puda	Southern pudu	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	2	2	0
Rucervus eldii thamin	Burmese brow-antlered deer	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
Rusa alfredi	Philippine Spotted Deer	2	1	0	0	0	0	0	1	0	0	0	0	1	0	0	1	2	0
Giraffa camelopardalis rothschildi	Baringo giraffe	2	6	0	0	0	0	1	0	0	0	0	0	0	0	0	3	6	0
Okapia johnstoni	Okapi	1	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	4	0
Damaliscus pygargus phillipsi	Blesbok	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
Madoqua kirkii	Kirk's dik-dik	2	1	0	0	1	0	1	1	0	0	1	0	1	0	0	2	2	0
Bos javanicus	Javan Banteng	1	13	0	0	0	0	0	2	1	0	1	1	0	3	0	1	11	0
Bubalus depressicornis	Lowland Anoa	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3	2	0
Syncerus caffer nanus	Congo buffalo	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0
Tragelaphus eurycerus isaaci	Eastern bongo	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Tragelaphus spekii gratus	West African Sitatunga	1	12	0	0	0	0	0	0	0	0	1	0	0	0	0	1	11	0
Capra hircus	Domestic goat	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	8	0	0
Cephalophus natalensis	Red forest duiker	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Hippotragus equinus	Roan antelope	0	7	0	0	0	0	0	0	0	0	1	0	0	0	0	0	6	0
		374	583	397	11	11	0	86	57	746	237	249	673	23	25	0	385	581	296
		1354			**22**			**889**			**1159**			**48**			**1262**		

* denotes managed in groups

REPTILES STOCKLIST - 2021

		Stock 31/12/20			Acquisitions			Births			Deaths			Dispositions			Stock 31/12/21		
Preferred Scientific Name	**Common Name**	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U
Astrochelys radiata	Radiated tortoise	4	6	3	0	0	0	0	0	1	0	0	0	0	0	2	4	6	2
Astrochelys yniphora	Ploughshare tortoise	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
Malacochersus tornieri	African pancake tortoise	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Manouria emys	Asian brown tortoise	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
Batagur borneoensis	Malaysian painted river terrapin	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1
Cuora trifasciata	Chinese three-striped box turtle	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Cuora zhoui	Zhou's box turtle	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Geoclemys hamiltonii	Spotted pond turtle	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Geoemyda spengleri	Black-breasted leaf turtle	1	4	0	0	0	0	0	0	0	0	2	0	0	0	0	1	2	0
Heosemys spinosa	Spiny hill turtle	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Orlitia borneensis	Malaysian giant pond turtle	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Sphenodon punctatus	Tuatara	1	9	3	0	0	0	0	0	0	0	1	0	0	0	0	1	8	3
Acanthosaura capra *	Mountain Horned Lizard	0	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Acanthosaura nataliae *	Horn-headed lizard	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Bronchocela cristatella *	Green Crested Lizard	1	1	7	0	0	0	0	0	5	1	1	3	0	0	0	0	0	9
Gonocephalus bellii	Bell's angle-headed dragon	1	1	2	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0
Hydrosaurus amboinensis	Malayan sail-finned lizard	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	2	1	0
Hypsilurus magnus *	Arboreal agamid lizard	1	2	4	0	0	0	0	0	0	0	0	2	1	0	1	0	2	1
Uromastyx geyri *	Geyr's spiny-tailed lizard	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
Calumma parsonii	Parson's chameleon	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Furcifer pardalis	Panther Chameleon	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Rieppeleon brevicaudatus *	Bearded pygmy chameleon	0	0	7	0	0	0	0	0	6	0	3	5	0	0	0	0	0	5
Trioceros montium	Cameroon two-horned mountain chameleon	2	4	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2	0
Anolis grahami *	Jamaican anole	7	7	6	0	0	0	0	0	23	2	2	12	2	6	0	5	0	9
Anolis leachii *	Antigua anole	3	2	5	0	0	0	0	0	9	1	0	2	0	0	0	5	5	6
Laemanctus serratus *	Casque-headed iguana	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Oplurus cuvieri	Cuvier's Madagascar swift	2	1	1	0	0	0	0	0	0	0	1	0	0	0	0	2	0	1
Oplurus cyclurus	Madagascar iguana	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Paroedura ibityensis	Madagascar ground gecko	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Phelsuma	Day gecko	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Phelsuma laticauda	Flat-tailed day gecko	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Phelsuma grandis *	Giant madagascar day gecko	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Phelsuma pronki	Pronk's day gecko	1	1	0	0	0	0	0	0	2	0	0	2	0	0	0	1	1	0
Uroplatus henkeli *	Henkel's leaf-tailed gecko	3	2	4	0	0	0	0	0	1	0	0	0	0	0	0	3	4	3
Smaug mossambicus	Gorongosa girdled lizard	5	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5	2	0
Zonosaurus laticaudatus	Western girdled lizard	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	1	1	2
Zonosaurus maxima *	Southeastern girdled lizard	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0
Lacerta agilis *	Sand lizard	3	8	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	9
Takydromus sexlineatus *	Six-lined grass lizard	0	5	2	0	0	0	0	0	0	0	2	0	1	4	0	0	0	0
Lamprolepis smaragdina *	Philippine tree skink	1	6	4	0	0	0	0	0	3	0	0	1	0	0	0	1	6	6
Plestiodon longirostris *	Bermuda skink	4	6	17	0	0	0	0	0	5	0	0	0	0	0	0	5	7	20
Eutropis multifasciata *	Common sun skink	2	6	7	0	0	0	0	0	21	0	1	3	0	0	0	2	5	25
Lepidothyris fernandi *	Fire skink	1	0	8	0	0	0	0	0	1	0	0	1	1	0	5	0	0	3
Dracaena guianensis	Caiman lizard	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Diploglossus warreni *	Haitian giant galliwasp	2	6	17	0	0	0	0	0	1	1	4	13	0	0	2	1	2	5
Varanus komodoensis	Komodo Dragon	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0
Varanus melinus	Quince monitor	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Varanus prasinus	Emerald monitor	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Shinisaurus crocodilurus *	Chinese crocodile lizard	1	3	10	0	0	0	0	0	3	0	0	0	0	0	13	1	3	0
Malayopython reticulatus	Reticulated python	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Simalia boeleni	Boelen's python	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0
Corallus batesii	Emerald tree boa	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Boiga dendrophila	Mangrove snake	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Elaphe moellendorfi	One hundred flower ratsnake	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0
Gonyosoma oxycephala	Red-tailed ratsnake	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Cryptelytrops albolabris	White-lipped Viper	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Trimeresurus insularis	White-lipped island pitviper	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0

Trimeresurus venustus	Beautiful pitviper	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Bitis rhinoceros	Western gaboon viper	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Vipera berus	Common adder	1	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	1	2
Erpeton tentaculatum	Tentacled snake	3	4	0	0	0	5	0	0	0	0	0	0	0	0	0	3	4	5
Tomistoma schlegelii	False gharial	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Caiman crocodilus	Spectacled caiman	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
		79	128	125	7	6	12	0	0	82	7	20	49	8	16	25	76	102	133
		332			**25**			**82**			**76**			**49**			**311**		

* denotes managed in groups

MAMMALS STOCKLIST - 2021

		Stock 31/12/20			Acquisitions			Births			Deaths			Dispositions			Stock 31/12/21		
Preferred Scientific Name	**Common Name**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**
Dendrolagus goodfellowi	Goodfellow's tree kangaroo	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0
Thylogale brunii	Dusky pademelon	3	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3	2	0
Setifer setosus	Greater Madagascar hedgehog tenre	4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
Macroscelides proboscideus	Short-eared elephant shrew	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Orycteropus afer	Aardvark	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Procavia capensis	Rock hyrax	2	4	0	0	0	0	1	0	0	2	0	0	0	0	0	1	4	0
Elephas maximus	Asian elephant	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0
Choloepus didactylus	Linne's two-toed sloth	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Myrmecophaga tridactyla	Giant anteater	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Tamandua tetradactyla	Southern tamandua	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Tupaia belangeri	Northern tree shrew	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0
Eulemur coronatus	Crowned lemur	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0
Eulemur macaco	Black lemur	3	1	0	0	0	0	0	0	1	0	0	0	0	0	0	3	1	1
Eulemur rubriventer	Red-bellied lemur	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0
Hapalemur alaotrensis	Alaotran gentle lemur	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Lemur catta	Ring-tailed lemur	22	10	0	0	0	0	1	2	0	0	2	0	4	3	0	19	7	0
Varecia rubra	Red ruffed lemur	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Varecia variegata subcincta	White-belted ruffed lemur	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0
Propithecus coquereli	Coquerel's sifaka	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Daubentonia madagascariensis	Aye-aye	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Cebuella pygmaea niveiventris	Eastern pygmy marmoset	3	3	0	0	0	0	0	0	4	0	0	0	0	0	0	3	3	4
Leontopithecus chrysomelas	Golden-headed lion tamarin	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0
Saguinus bicolor	Pied tamarin	6	8	0	0	0	0	1	0	2	2	1	2	0	0	0	5	7	0
Saguinus imperator subgrisescens	Emperor tamarin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Saguinus oedipus	Cotton-top tamarin	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Sapajus xanthosternos	Buffy-headed capuchin	3	1	0	0	0	0	0	0	0	2	0	0	0	0	0	1	1	0
Alouatta caraya	Black howler	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ateles fusciceps rufiventris	Black-headed spider monkey	3	6	0	0	0	0	0	0	2	0	0	0	0	0	0	3	6	2
Macaca nigra	Sulawesi crested macaque	6	10	0	0	0	0	1	0	0	0	0	0	0	0	0	7	10	0
Macaca silenus	Lion-tailed macaque	3	9	0	0	0	0	0	0	0	0	0	0	0	0	0	3	9	0
Mandrillus sphinx	Mandrill	1	10	0	0	0	0	1	1	0	0	0	0	0	0	0	2	11	0
Hylobates lar	Lar gibbon	1	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0
Hylobates moloch	Javan gibbon	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Pan troglodytes	Chimpanzee	6	15	0	0	0	0	0	0	0	0	1	0	0	0	0	6	14	0
Pongo pygmaeus	Bornean orangutan	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0
Pongo abelii	Sumatran orangutan	2	5	0	0	0	0	0	1	0	0	0	0	0	0	0	2	6	0
Callosciurus prevostii rafflesii	Prevost's squirrel	5	6	0	0	0	0	1	1	8	0	1	7	1	0	0	5	6	1
Tamiops swinhoei	Swinhoe's striped squirrel	8	4	0	0	0	0	7	5	7	5	3	7	0	0	0	10	6	0
Hypogeomys antimena	Votsovotsa/Giant jumping rat	2	4	0	0	0	0	0	0	0	0	0	0	1	1	0	1	3	0
Acomys cilicicus *	Asia minor spiny mouse	37	52	5	0	0	0	0	0	179	40	19	112	0	0	0	39	67	22
Mus minutoides *	Pygmy mouse	65	100	29	0	0	0	0	0	13	111	129	44	0	0	0	52	61	0
Phloeomys pallidus	Northern Luzon Giant Cloud Rat	2	4	0	0	0	0	1	0	0	0	0	0	1	3	0	2	1	0
Thallomys paedulcus *	Acacia rat	5	4	3	0	0	0	0	0	0	2	4	1	1	0	0	3	1	0
Heterocephalus glaber *	Naked mole-rat	4	8	62	0	0	0	0	0	113	0	12	82	0	0	0	22	47	12
Hydrochoerus hydrochaeris	Capybara	1	3	0	0	0	0	0	1	1	0	2	1	0	0	0	1	2	0
Dasyprocta azarae	Azara's agouti	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0
Pteropus rodricensis	Rodrigues Fruit Bat	71	125	1	0	0	0	7	3	6	3	8	6	0	8	0	75	112	1
Carollia perspicillata *	Seba's short-tailed bat	0	0	297	0	0	0	52	31	386	67	59	389	0	0	0	0	0	251
Acinonyx jubatus soemmeringii	Central African cheetah	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
Felis silvestris grampia	Scottish wild cat	1	2	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0
Leopardus wiedii	Margay	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Panthera leo persica	Asiatic lion	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Panthera onca	Jaguar	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Panthera tigris sumatrae	Sumatran tiger	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Arctictis binturong whitei	Palawan binturong	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Cryptoprocta ferox	Fossa	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Galidictis grandidieri	Grandidier's Vontsira	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0
Mungotictis decemlineata	Narrow-striped mongoose	2	1	0	0	0	0	0	0	2	0	0	1	0	0	0	2	1	1
Helogale parvula	Dwarf mongoose	6	4	0	0	0	0	2	2	4	0	0	4	4	0	0	4	6	0

Herpestes auropunctatus	Small indian mongoose	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Suricata suricatta	Slender-tailed meerkat	6	9	0	0	0	0	3	3	5	0	0	4	0	1	0	9	11	1
Lycaon pictus	African hunting dog	4	4	0	0	0	0	0	0	10	0	0	10	0	0	0	4	4	0
Speothos venaticus	Bush dog	2	8	0	0	0	0	1	0	0	0	0	0	0	1	0	3	7	0
Helarctos malayanus	Malayan sun bear	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Tremarctos ornatus	Andean bear	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Aonyx cinereus	Asian small-clawed otter	3	5	0	0	1	0	0	0	0	0	0	0	0	2	0	3	4	0
Pteronura brasiliensis	Giant otter	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Ailurus fulgens fulgens	Red panda	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Equus grevyi	Grevy's zebra	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0
Equus hemionus onager	Persian onager	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
Tapirus indicus	Malayan tapir	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	0
Tapirus terrestris	South American tapir	3	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0
Diceros bicornis michaeli	Eastern Black rhinoceros	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0
Rhinoceros unicornis	One-horned rhinoceros	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Babyrousa sp.	Babirusa	4	9	0	0	0	0	2	0	1	0	0	1	0	0	0	6	9	0
Phacochoerus africanus	Warthog	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0
Potamochoerus porcus	Red River hog	1	5	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4	0
Sus cebifrons	Visayan warty pig	3	4	0	0	0	0	1	0	1	0	0	1	2	0	0	2	4	0
Camelus bactrianus	Bactrian camel	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Tragulus nigricans	Philippine mouse-deer	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Pudu puda	Southern pudu	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	2	2	0
Rucervus eldii thamin	Burmese brow-antlered deer	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
Rusa alfredi	Philippine Spotted Deer	2	1	0	0	0	0	0	1	0	0	0	0	1	0	0	1	2	0
Giraffa camelopardalis rothschildi	Baringo giraffe	2	6	0	0	0	0	1	0	0	0	0	0	0	0	0	3	6	0
Okapia johnstoni	Okapi	1	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	4	0
Damaliscus pygargus phillipsi	Blesbok	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
Madoqua kirkii	Kirk's dik-dik	2	1	0	0	1	0	1	1	0	0	1	0	1	0	0	2	2	0
Bos javanicus	Javan Banteng	1	13	0	0	0	0	0	2	1	0	1	1	0	3	0	1	11	0
Bubalus depressicornis	Lowland Anoa	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3	2	0
Syncerus caffer nanus	Congo buffalo	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0
Tragelaphus eurycerus isaaci	Eastern bongo	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Tragelaphus spekii gratus	West African Sitatunga	1	12	0	0	0	0	0	0	0	0	1	0	0	0	0	1	11	0
Capra hircus	Domestic goat	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	8	0	0
Cephalophus natalensis	Red forest duiker	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Hippotragus equinus	Roan antelope	0	7	0	0	0	0	0	0	0	0	1	0	0	0	0	0	6	0
		374	583	397	11	11	0	86	57	746	237	249	673	23	25	0	385	581	296
		1354			**22**			**889**			**1159**			**48**			**1262**		

* denotes managed in groups

BIRDS STOCKLIST - 2021

		Stock 31/12/20			Acquisitions			Births			Deaths			Dispositions			Stock 31/12/21		
Preferred Scientific Name	**Common Name**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**
Eudromia elegans	Elegant crested tinamou	3	1	7	0	0	0	0	0	13	1	0	10	0	0	7	2	1	3
Casuarius casuarius	Southern cassowary	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Crax blumenbachii	Red-billed curassow	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	4	2	0
Guttera pucherani	Eastern Crested Guineafowl	2	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0
Arborophila javanica	Chestnut-bellied tree partridge	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Arborophila gingica	Collared Partridge	2	4	0	0	0	0	0	0	2	0	1	1	0	1	0	2	2	1
Rollulus rouloul	Crested wood partridge	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Tragopan caboti	Cabot's tragopan	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2	0
Lophophorus impejanus	Himalayan impeyan pheasant	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Gallus gallus	Red junglefowl	0	0	0	1	2	0	0	0	0	0	1	0	0	0	0	1	1	0
Lophura inornata	Salvadori's pheasant	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Lophura edwardsi	Vietnam pheasant	1	0	0	3	2	0	0	0	0	1	0	0	0	0	0	3	2	0
Polyplectron chalcurum	Bronze-tailed peacock pheasant	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2	0
Polyplectron inopinatum	Rothschild's peacock pheasant	2	2	0	0	0	0	1	0	0	1	0	0	0	1	0	2	1	0
Polyplectron napoleonis	Palawan peacock pheasant	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0
Argusianus argus	Great argus	1	3	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3	2
Dendrocygna autumnalis autumnalis	Southern black-bellied whistling	3	1	0	1	2	3	0	0	13	0	0	3	0	0	10	4	3	3
Dendrocygna viduata *	White-faced whistling duck	0	0	43	0	0	0	0	0	28	0	0	7	0	0	19	0	0	38
Thalassornis leuconotus leuconotus	African white-backed duck	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Amazonetta brasiliensis	Brazilian teal	3	2	0	0	0	0	4	2	12	0	0	9	4	2	0	3	2	3
Anas capensis	Cape teal	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Anas erythrorhyncha	Red-billed pintail	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Aythya baeri *	Baer's pochard	0	0	18	0	0	0	0	0	0	1	0	0	0	0	0	0	0	14
Aythya fuligula *	Tufted duck	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Aythya nyroca	Ferruginous Duck	6	4	1	0	0	0	0	0	9	1	1	1	0	0	0	5	3	9
Cairina moschata	Muscovy duck	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Callonetta leucophrys	Ringed teal	3	2	0	1	1	0	5	6	16	1	1	0	0	4	11	8	4	5
Marmaronetta angustirostris *	Marbled teal	0	0	3	1	4	0	0	0	0	0	0	1	0	0	0	1	4	2
Neochen jubata	Orinoco goose	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Oxyura leucocephala *	White-headed duck	1	4	12	0	0	0	0	0	0	0	0	3	0	0	0	1	4	9
Oxyura maccoa	Maccoa duck	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Oxyura vittata	Argentine ruddy duck	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Sarkidiornis melanotos	African comb duck	1	5	0	0	0	0	0	0	0	0	0	0	0	4	0	1	1	0
Tadorna ferruginea	Ruddy shelduck	2	4	0	0	0	0	0	0	0	1	0	0	0	0	0	1	4	0
Spatula hottentota	Hottentot teal	4	2	0	0	0	0	0	0	6	2	0	2	0	0	0	2	2	4
Spatula platalea	Red shoveler	0	0	0	0	1	0	2	3	1	0	0	1	0	0	0	2	4	0
Spatula puna *	Puna teal	0	0	0	1	2	0	0	2	0	0	0	0	0	0	0	1	4	0
Asarcornis scutulata	White-winged duck	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Phoenicopterus	Flamingo	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Phoenicopterus ruber	Caribbean Flamingo	59	53	10	0	0	0	4	3	1	0	0	1	0	0	0	63	56	10
Caloenas nicobarica nicobarica	Nicobar pigeon	5	8	5	0	0	0	0	1	3	0	1	2	0	0	0	5	8	6
Chalcophaps indica	Emerald Dove	10	5	1	0	0	0	1	0	4	2	0	4	0	0	0	9	5	1
Ducula bicolor *	Pied imperial pigeon	3	2	1	0	0	0	1	1	0	0	0	0	0	0	0	4	3	1
Gallicolumba criniger	Mindanao bleeding heart dove	4	3	0	0	0	0	0	0	0	2	0	0	0	1	0	2	2	0
Gallicolumba luzonica	Luzon bleeding heart dove	7	3	1	0	0	0	0	0	1	0	0	0	4	0	0	3	3	2
Gallicolumba rufigula	Cinnamon ground dove	3	5	0	0	0	0	0	1	3	0	0	1	0	1	0	3	5	2
Geopelia cuneata	Diamond dove	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0
Goura victoria	Victoria crowned pigeon	4	6	0	0	0	0	1	0	1	0	0	1	0	1	0	5	5	0
Otidiphaps aruensis	White-naped pheasant-pigeon	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0
Ptilinopus melanospilus	Black-naped fruit-dove	3	1	0	0	0	0	2	0	0	2	0	0	0	0	0	3	1	0
Ptilinopus porphyrea	Pink-headed fruit dove	1	1	0	1	0	0	0	0	2	1	0	1	0	0	0	1	1	1
Ptilinopus superbus	Superb fruit dove	11	6	1	0	0	0	3	1	6	3	0	6	2	1	0	9	6	1
Streptopelia risoria	Java (Barbary) Dove	8	7	0	0	0	0	0	0	0	5	4	0	3	3	0	0	0	0

Treron vernans	Pink-necked pigeon	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Treron waalia	Bruce's green pigeon	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Zenaida graysoni	Socorro dove	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Nesoenas mayeri	Pink pigeon	3	3	0	0	0	0	0	1	0	1	1	0	0	0	0	2	3	0
Tauraco schalowi	Schalow's turaco	3	4	0	0	0	0	1	1	5	0	0	1	1	2	0	3	3	4
Tauraco leucolophus	White-crested turaco	1	3	0	0	0	0	3	0	1	0	0	1	0	1	0	4	2	0
Eurypyga helias	Sunbittern	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0
Porphyrio porphyrio	Purple swamphen	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Balearica pavonina pavonina	West African Crowned Crane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Balearica regulorum	Grey crowned-crane	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
Bugeranus carunculatus	Wattled crane	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Spheniscus humboldti	Humboldt penguin	24	25	0	0	0	0	0	0	21	0	6	21	0	0	0	24	19	0
Ciconia nigra	Black stork	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Eudocimus ruber	Scarlet ibis	15	11	0	0	0	0	0	0	2	1	2	1	0	0	0	14	9	1
Geronticus eremita	Waldrapp ibis	13	8	0	0	0	0	0	0	0	0	1	0	0	0	0	13	7	0
Platalea ajaja	Roseate spoonbill	3	2	0	0	0	0	0	0	0	2	0	0	0	0	0	1	2	0
Scopus umbretta	Hamerkop	4	1	0	0	0	0	1	1	3	0	0	2	3	0	0	2	2	1
Himantopus himantopus mexicanus	Black-necked stilt	1	2	0	0	0	0	0	0	3	0	0	0	0	0	0	1	2	3
Vanellus armatus	Blacksmith lapwing	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Otus megalotis	Luzon Lowland Scops Owl	1	1	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0
Ptilopsis leucotis	Northern white-faced owl	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Pulsatrix perspicillata	Spectacled owl	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Strix leptogrammica	Brown wood owl	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Aegypius monachus	European Black Vulture	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Gyps africanus	African white-backed vulture	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Trigonoceps occipitalis	White-headed vulture	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Sagittarius serpentarius	Secretary bird	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Urocolius macrourus	Blue-naped mousebird	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
Trogon collaris	Collared trogon	5	3	0	0	0	0	0	0	1	1	1	0	2	0	0	2	2	1
Buceros rhinoceros silvestris	Rhinoceros hornbill	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0
Buceros bicornis	Great Hornbill	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Penelopides panini panini	Visayan tarictic hornbill	4	2	0	0	0	0	0	2	0	0	1	0	1	0	0	3	3	0
Rhabdotorrhinus corrugatus	Wrinkled hornbill	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Coracias caudatus	Lilac-breasted roller	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0
Pteroglossus viridis	Green aracari	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Psilopogon pyrolophus	Fire-tufted barbet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Megalaima oorti	Black-browed barbet	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Trichoglossus forsteni forsteni	Scarlet-breasted lorikeet	1	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0
Trichoglossus forsteni mitchellii	Mitchell's lorikeet	4	5	0	0	0	0	0	3	0	0	1	0	0	0	0	4	7	0
Trichoglossus johnstoniae	Mount Apo Lorikeet	5	1	0	0	0	0	0	1	2	0	1	2	0	0	0	5	1	0
Lorius garrulus flavopalliatus	Yellow-backed chattering lory	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Lorius domicella	Purple-naped lory	2	2	0	0	0	0	0	1	0	0	0	0	0	1	0	2	2	0
Psittacula derbiana	Derbyan parakeet	9	11	0	0	0	0	0	4	3	0	1	3	0	0	0	9	14	0
Loriculus galgulus	Blue-crowned parrot	9	15	3	0	0	0	2	3	1	0	4	0	0	0	0	11	14	4
Anodorhynchus hyacinthinus	Hyacinth macaw	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Ara ambiguus	Buffon's macaw	3	1	0	0	0	0	2	0	0	0	0	0	0	0	0	5	1	0
Ara glaucogularis	Blue-throated macaw	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Pyrrhura griseipectus	Gray-breasted parakeet	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0
Amazona lilacina	Lilacine amazon	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4	0
Cacatua haematuropygia	Red-vented cockatoo	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
Oriolus chinensis	Black-naped oriole	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	2	2	0
Cissa thalassina	Javan Green Magpie	7	8	0	0	0	0	1	0	0	0	1	0	1	0	0	7	7	0
Cyanopica cyanus	Azure-winged magpie	8	9	0	0	0	0	0	0	1	0	1	0	0	0	0	8	8	1
Urocissa erythrorhyncha	Red-billed Blue Pie	1	1	0	0	0	0	1	2	0	0	0	0	0	0	0	2	3	0
Spizixos semitorques	Collared finch-billed bulbul	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
*Pycnonotus jocosus **	Red-whiskered bulbul	4	3	1	0	0	0	0	0	8	0	0	8	0	0	0	4	3	3
Zosterops eurycricotus	African montane white-eye	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Irena puella	Fairy bluebird	4	4	1	0	0	0	4	1	4	2	2	5	0	0	0	6	3	0
Garrulax bicolor	Sumatran laughing thrush	7	10	0	1	0	0	0	1	0	2	0	0	2	4	0	4	7	0
Garrulax courtoisi	Blue-crowned laughingthrush	6	4	0	0	0	0	1	4	1	0	1	1	3	1	0	4	6	0
Sturnidae	Starlings & oxpeckers	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0

Aplonis panayensis *	Asian Glossy Starling	12	10	390	0	0	0	0	0	15	2	3	33	11	0	30	18	35	197
Lamprotornis iris *	Emerald starling	0	0	79	0	0	0	0	0	2	0	0	0	0	0	0	0	0	35
Lamprotornis purpureus	Purple glossy starling	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Lamprotornis superbus	Superb starling	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lamprotornis regius	Golden-breasted starling	2	1	0	0	0	0	0	1	2	0	1	1	0	0	0	2	1	1
Leucopsar rothschildi	Bali myna	1	9	0	0	0	0	0	0	0	0	1	0	0	0	0	1	8	0
Mino dumontii	Yellow-faced mynah	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Onychognathus morio	Red-winged starling	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Scissirostrum dubium	Scissor-billed Starling	13	12	0	0	0	0	9	6	8	1	3	8	0	0	0	21	15	0
Copsychus saularis	Magpie robin	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Cossypha niveicapilla	Snowy-headed robin chat	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0
Ianthocincla ocellata artemisiae	White-spotted laughing thrush	4	4	0	0	1	0	1	3	0	0	0	0	2	0	0	3	8	0
Kittacincla malabarica	White-rumped shama	5	3	0	0	0	0	2	1	4	2	0	4	2	0	0	3	4	0
Euplectes afer	Yellow-crowned bishop	7	4	6	0	0	0	0	0	12	0	0	6	0	0	0	7	4	12
Foudia madagascariensis *	Red fody	0	0	77	0	0	0	0	0	4	4	1	13	18	18	10	4	4	40
Ploceus cucullatus *	Black-headed weaver	0	0	46	0	0	0	0	0	4	0	0	1	0	0	0	0	0	40
Ploceus nigricollis nigricollis	Black-necked weaver	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Estrilda astrild	Common waxbill	23	17	2	0	0	0	1	2	9	1	0	2	4	5	7	19	14	2
Amandava amandava	Red avadavat	2	11	0	0	0	0	0	0	0	1	1	0	0	0	0	1	10	0
Amandava subflava	Zebra waxbill	3	5	0	0	0	0	0	0	0	1	1	0	0	0	0	2	4	0
Erythrura tricolor	Tricoloured parrot finch	3	2	0	0	0	0	0	0	0	2	0	0	0	0	0	1	2	0
Lonchura maja	White-headed munia	11	7	0	0	0	0	0	0	0	0	0	0	0	0	0	11	7	0
Lonchura oryzivora *	Javan sparrow	0	0	150	0	0	0	0	0	21	0	0	34	10	0	28	0	0	153
Lonchura fuscata	Timor sparrow	1	2	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0
Coccothraustes affinis	Collared grosbeak	2	2	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0
Icterus oberi	Montserrat oriole	1	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0
Paroaria dominicana	Pope cardinal	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Ramphocelus bresilius	Brazilian tanager	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Ramphocelus passerinii	Scarlet-rumped tanager	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Tangara cyanicollis	Blue-necked tanager	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Geokichla citrina melli	Orange-headed thrush	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Geokichla dohertyi	Chestnut-backed thrush	4	2	0	0	0	0	1	1	10	2	1	9	0	1	0	3	1	1
Turdus boulboul	Grey-winged blackbird	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Leiothrix argentauris	Silver-eared mesia	4	4	0	2	1	0	0	0	2	1	1	0	1	1	0	4	3	2
Leiothrix lutea *	Pekin robin	4	7	45	0	0	0	0	0	16	0	2	16	0	0	0	2	3	20
Liocichla omeiensis	Grey-cheeked Liocichla	4	7	0	0	0	0	2	2	7	0	2	7	0	0	0	6	7	0
Trochalopteron milnei	Red-tailed laughing thrush	3	3	0	0	0	0	0	0	1	0	1	1	0	0	0	3	2	0
		497	452	915	18	21	3	59	64	298	60	56	236	74	58	122	494	472	650
** denotes managed in groups*		**1864**			**42**			**421**			**352**			**254**			**1616**		

REPTILES STOCKLIST - 2021

		Stock 31/12/20			Acquisitions			Births			Deaths			Dispositions			Stock 31/12/21		
Preferred Scientific Name	**Common Name**	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U
Astrochelys radiata	Radiated tortoise	4	6	3	0	0	0	0	0	1	0	0	0	0	0	2	4	6	2
Astrochelys yniphora	Ploughshare tortoise	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
Malacochersus tornieri	African pancake tortoise	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Manouria emys	Asian brown tortoise	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
Batagur borneoensis	Malaysian painted river terrapin	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1
Cuora trifasciata	Chinese three-striped box turtle	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Cuora zhoui	Zhou's box turtle	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Geoclemys hamiltonii	Spotted pond turtle	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Geoemyda spengleri	Black-breasted leaf turtle	1	4	0	0	0	0	0	0	0	0	2	0	0	0	0	1	2	0
Heosemys spinosa	Spiny hill turtle	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Orlitia borneensis	Malaysian giant pond turtle	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Sphenodon punctatus	Tuatara	1	9	3	0	0	0	0	0	0	0	1	0	0	0	0	1	8	3
Acanthosaura capra *	Mountain Horned Lizard	0	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Acanthosaura nataliae *	Horn-headed lizard	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Bronchocela cristatella *	Green Crested Lizard	1	1	7	0	0	0	0	0	5	1	1	3	0	0	0	0	0	9
Gonocephalus bellii	Bell's angle-headed dragon	1	1	2	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0
Hydrosaurus amboinensis	Malayan sail-finned lizard	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	2	1	0
Hypsilurus magnus *	Arboreal agamid lizard	1	2	4	0	0	0	0	0	0	0	0	2	1	0	1	0	2	1
Uromastyx geyri *	Geyr's spiny-tailed lizard	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
Calumma parsonii	Parson's chameleon	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Furcifer pardalis	Panther Chameleon	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Rieppeleon brevicaudatus *	Bearded pygmy chameleon	0	0	7	0	0	0	0	0	6	0	3	5	0	0	0	0	0	5
Trioceros montium	Cameroon two-horned mountain chameleon	2	4	0	0	0	0	0	0	0	1	2	0	0	0	0	1	2	0
Anolis grahami *	Jamaican anole	7	7	6	0	0	0	0	0	23	2	2	12	2	6	0	5	0	9
Anolis leachii *	Antigua anole	3	2	5	0	0	0	0	0	9	1	0	2	0	0	0	5	5	6
Laemanctus serratus *	Casque-headed iguana	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Oplurus cuvieri	Cuvier's Madagascar swift	2	1	1	0	0	0	0	0	0	0	1	0	0	0	0	2	0	1
Oplurus cyclurus	Madagascar iguana	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Paroedura ibityensis	Madagascar ground gecko	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Phelsuma	Day gecko	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Phelsuma laticauda	Flat-tailed day gecko	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Phelsuma grandis *	Giant madagascar day gecko	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0
Phelsuma pronki	Pronk's day gecko	1	1	0	0	0	0	0	0	2	0	0	2	0	0	0	1	1	0
Uroplatus henkeli *	Henkel's leaf-tailed gecko	3	2	4	0	0	0	0	0	1	0	0	0	0	0	0	3	4	3
Smaug mossambicus	Gorongosa girdled lizard	5	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5	2	0
Zonosaurus laticaudatus	Western girdled lizard	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	1	1	2
Zonosaurus maxima *	Southeastern girdled lizard	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0
Lacerta agilis *	Sand lizard	3	8	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	9
Takydromus sexlineatus *	Six-lined grass lizard	0	5	2	0	0	0	0	0	0	0	2	0	1	4	0	0	0	0
Lamprolepis smaragdina *	Philippine tree skink	1	6	4	0	0	0	0	0	3	0	0	1	0	0	0	1	6	6
Plestiodon longirostris *	Bermuda skink	4	6	17	0	0	0	0	0	5	0	0	0	0	0	0	5	7	20
Eutropis multifasciata *	Common sun skink	2	6	7	0	0	0	0	0	21	0	1	3	0	0	0	2	5	25
Lepidothyris fernandi *	Fire skink	1	0	8	0	0	0	0	0	1	0	0	1	1	0	5	0	0	3
Dracaena guianensis	Caiman lizard	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Diploglossus warreni *	Haitian giant galliwasp	2	6	17	0	0	0	0	0	1	1	4	13	0	0	2	1	2	5
Varanus komodoensis	Komodo Dragon	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0
Varanus melinus	Quince monitor	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Varanus prasinus	Emerald monitor	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Shinisaurus crocodilurus *	Chinese crocodile lizard	1	3	10	0	0	0	0	0	3	0	0	0	0	0	13	1	3	0
Malayopython reticulatus	Reticulated python	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Simalia boeleni	Boelen's python	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0
Corallus batesii	Emerald tree boa	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Boiga dendrophila	Mangrove snake	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Elaphe moellendorfi	One hundred flower ratsnake	1	2	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0
Gonyosoma oxycephala	Red-tailed ratsnake	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Cryptelytrops albolabris	White-lipped Viper	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Trimeresurus insularis	White-lipped island pitviper	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0

Trimeresurus venustus	Beautiful pitviper	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Bitis rhinoceros	Western gaboon viper	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Vipera berus	Common adder	1	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	1	2
Erpeton tentaculatum	Tentacled snake	3	4	0	0	0	5	0	0	0	0	0	0	0	0	0	3	4	5
Tomistoma schlegelii	False gharial	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Caiman crocodilus	Spectacled caiman	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
		79	128	125	7	6	12	0	0	82	7	20	49	8	16	25	76	102	133
		332			**25**			**82**			**76**			**49**			**311**		

* denotes managed in groups

AMPHIBIANS STOCKLIST - 2021

		Stock 31/12/2020			Acquisitions			Births			Deaths			Dispositions			Stock 31/12/2021		
Preferred Scientific Name	**Common Name**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**	**M**	**F**	**U**
*Typhlonectes natans**	Rio Cauca Caecilian	4	3	3	0	0	0	0	0	6	2	2	6	0	0	1	1	1	3
*Ambystoma dumerilii**	Lake Patzcuaro salamander	2	2	0	1	0	0	0	0	0	2	0	0	0	0	0	1	2	0
*Calotriton arnoldi**	Montseny brook newt	11	8	14	0	0	0	0	0	20	0	1	12	0	0	0	11	7	22
Phyrnoides asper	Asian giant toad	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0	5	1	0
*Dendrobates azureus**	Dyeing Poison Dart Frog	0	2	17	0	0	0	0	0	20	0	0	1	0	0	12	0	0	27
*Phyllobates terribilis**	Golden poison dart frog	2	2	3	0	0	0	0	0	6	0	0	0	0	1	0	4	2	6
*Oophaga pumilio**	Strawberry poison frog	0	0	29	0	0	0	0	0	0	1	0	0	0	0	0	6	2	18
*Ranitomeya imitator**	Mimic poison frog	1	1	8	0	0	0	0	0	1	0	0	0	0	0	0	7	2	2
*Ranitomeya amazonica**	Poison dart frog	2	3	6	0	0	0	0	1	6	0	0	2	0	0	3	2	6	5
*Excidobates mysteriosus**	Marañón poison frog	0	0	28	0	0	0	0	0	10	0	0	0	0	0	0	0	0	37
Boana pictura	Imbabura tree frog	0	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	5
*Heterixalus alboguttatus**	Whitebelly reed frog	0	0	25	0	0	0	0	0	0	0	0	5	0	0	0	4	8	8
Leptodactylus fallax	Mountain chicken frog	5	13	0	0	0	0	0	0	0	1	2	0	0	0	0	4	11	0
*Telmatobius culeus**	Lake Titicaca frog	14	9	18	0	0	0	0	0	0	0	0	1	4	0	15	10	9	2
*Mantella aurantiaca**	Golden mantella	21	11	137	0	0	0	0	0	7	1	0	22	0	0	10	34	25	80
*Mantella expectata**	Blue-legged mantella	7	4	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	2
*Scaphiophryne madagascariensis**	Madagascar rain frog	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
*Sylvirana maosonensis**	Mao-Son frog	2	2	31	0	0	0	0	0	0	0	0	6	0	0	0	2	2	25
*Staurois guttatus**	Black-spotted rock frog	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
*Staurois parvus**	Splash frog	0	0	59	0	0	0	0	0	64	0	0	2	0	0	20	0	0	85
*Nyctixalus pictus**	Painted Indonesian tree	0	0	77	0	0	0	0	0	71	0	0	52	9	8	22	11	10	47
*Rhacophorus feae**	Fea's tree frog	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1
*Mannophryne trinitatis**	Trinidad poison dart frog	0	0	52	0	0	0	0	0	0	0	0	0	4	4	14	0	0	30
*Agalychnis moreletii**	Morelet's tree frog	12	4	0	0	0	0	0	0	0	1	1	0	0	0	0	11	3	0
*Agalychnis dacnicolor**	Mexican giant tree frog	3	1	28	0	0	0	0	0	0	0	0	0	5	2	5	17	2	0
		90	67	537	6	1	6	0	1	211	10	6	110	22	15	114	132	95	405
		694			**13**			**212**			**126**			**151**			**632**		

** denotes managed in groups*

FISH STOCKLIST - 2021

		Stock 31/12/21			
Preferred Scientific Name	**Common Name**	**M**	**F**	**U**	
Erpetoichthys calabaricus *	Reedfish	0	0	3	
Pantodon buchholzi *	African freshwater butterflyfish	0	0	2	
Gnathonemus petersii *	Long-nosed Elephant Trunk Fish	0	0	4	
Barilius *	Barb	0	0	7	
Garra barreimiae *	Omani Blind Cave Fish	0	0	41	
Garra flavatra *	Panda garra	0	0	10	
Notropis chrosomus *	Rainbow shiner	0	0	371	
Puntius titteya *	Cherry barb	0	0	100	
Rasbora trilineata *	Threelined scissortail rasbora	0	0	380	
Tanichthys albonubes *	White cloud mountain minnow	0	0	15	
Trigonostigma hengeli *	Rasbora	0	0	2	
Dawkinsia assimilis *	Mascara barb	0	0	107	
Dawkinsia filamentosa *	Filament barb	0	0	70	
Dawkinsia tambraparniei *	Tambraparini barb	0	0	61	
Dawkinsia rohani *	Rohan's barb	0	0	58	
Pethia padamya *	Odessa barb	0	0	9	
Pethia bandula *	Barb	0	0	7	**
Sahyadria denisonii *	Denison's barb	0	0	43	
Desmopuntius pentazona *	Fiveband barb	0	0	20	
Desmopuntius rhomboocellatus *	Barb	0	0	41	
Puntigrus tetrazona *	Sumatra barb	0	0	1531	**
Enteromius hulstaerti *	Butterfly barb	0	0	89	
Opsarius pulchellus *	Barb	0	0	5	
Botia kubotai *	Angelicus loach	0	0	6	
Chromobotia macracanthus *	Clown loach	0	0	4	
Acantopsis choirorhynchos *	Horseface loach	0	0	2	

Ambastaia sidthimunki *	Dwarf loach	0	0	5	
Gastromyzon borneensis *	Loach	0	0	2	
Distichodus noboli *	Nobol distichodus	0	0	1	
Distichodus teugelsi *	Distichodus teugelsi	0	0	4	
Bathyaethiops greeni *	Tetra	0	0	1	
Hemiodus gracilis	Red tail hemiodus	0	0	20	
Semaprochilodus insignis *	Insignis	0	0	1	
Hemigrammus coeruleus *	Cerulean tetra	0	0	1	
Hyphessobrycon *	Tetra	0	0	53	
Hyphessobrycon erythrostigma *	Bleeding heart tetra	0	0	88	
Hyphessobrycon wadai *	Tetra	0	0	18	
Hyphessobrycon hexastichos *	Tetra	0	0	58	
Moenkhausia *	Tetra	0	0	16	
Moenkhausia pittieri *	Diamond tetra	0	0	199	
*Nematobrycon palmeri**	Emperor tetra	0	0	99	
Paracheirodon axelrodi *	Cardinal tetra	0	0	3012	
Kryptopterus macrocephalus *	Glass catfish	0	0	17	
Pareutropius debauwi *	African glass catfish	0	0	12	
Synodontis flavitaeniatus *	Striped catfish	0	0	5	
Synodontis njassae *	Lake Malawi Upside-down Catfish	0	0	3	
*Synodontis petricola**	African catfish	0	0	5	
Synodontis polli *	Poll's upsidedown catfish	0	0	2	
Bunocephalus coracoideus *	Twocolored banjo catfish	0	0	4	
Brochis splendens *	Brochis Catfish	0	0	1	
Corydoras sterbai *	Sterba's catfish	0	0	45	
Corydoras duplicareus *	Corydoras catfish	0	0	8	
Baryancistrus demantoides *	Catfish	0	0	4	
Farlowella vittata *	Catfish	0	0	8	
Hemiancistrus dolichopterus *	Bristlenoe Plecostomus	0	0	39	
Sturisoma aureum *	Royal catfish	0	0	5	
*Lepadogaster lepadogaster**	Shore clingfish	0	0	1	
Melanotaenia	Rainbowfish	0	0	56	**
Melanotaenia lacustris *	Lake Kutubu Rainbow Fish	0	0	20	**
Melanotaenia parkinsoni *	Parkinson's rainbowfish	0	0	20	**

Epiplatys bifasciatus *	Panchax	0	0	10	
Pachypanchax sakaramyi *	Killiefish	0	0	8	
Fundulus bermudae *	Bermuda killifish	0	0	37	
Allotoca zacapuensis *	Zacapu allotoca	0	0	56	**
Allotoca diazi *	Pátzcuaro allotoca	0	0	11	**
Ameca splendens *	Butterfly Goodeid	0	0	350	
Characodon audax *	Bold characodon	0	0	46	
Skiffia francesae *	Golden Saw-finned Goodeid	0	0	29	**
Xenotoca doadrioi *	Redtail splitfin	0	0	574	**
Zoogoneticus tequila *	Crescent Zoe	0	0	30	**
Hippocampus abdominalis *	Big-bellied Seahorse	0	0	11	**
Serranus tortugarum *	Chalk seabass	0	0	10	
Pseudanthias squamipinnis *	Sea goldie	0	0	9	
Pterapogon kauderni *	Emporor/Banggai Cardinal Fish	0	0	48	
Chelmon rostratus *	Copperband butterflyfish	0	0	1	
Centropyge tibicen *	Keyhole angelfish	0	0	1	
Nandus nandus *	Ganges leaffish	0	0	10	
*Dario hysignon**	Dario	0	0	3	
*Geophagus sveni**	Eartheater	0	0	1	
Lethrinops *	Lake Malawi cichlid	0	0	15	
Nanochromis splendens *	Congo dwarf cichlid	0	0	80	
Paretroplus damii *	Cichlid	0	0	14	
Paretroplus kieneri *	Kieneri cichlid	0	0	14	
Paretroplus menarambo *	Pin Striped Damba	0	0	5	
Pelvicachromis sacrimontis *	Cichlid	0	0	4	
Rhamphochromis *	Torpedo cichlid	0	0	11	
Amphiprion frenatus *	Tomato Clownfish	0	0	1	
Amphiprion ocellaris *	Common Clownfish	0	0	8	
Chrysiptera hemicyanea *	Yellow-tailedBlue Damsel Fish	0	0	5	
Chrysiptera parasema *	Goldtail damselfish	0	0	1	
Ctenolabrus rupestris *	Goldsinny wrasse	0	0	6	
Macropharyngodon meleagris *	Leopard wrasse	0	0	5	
Pseudocheilinus hexataenia *	Sixline wrasse	0	0	1	
Lipophrys pholis *	Shanny blenny	0	0	3	

Hypseleotris compressa *	Empire gudgeon	0	0	2	
Gobiodon okinawae *	Golden goby	0	0	1	
Pomatoschistus minutus *	Sand goby	0	0	1	
Siganus vulpinus *	Foxface rabbitfish	0	0	1	
Acanthurus triostegus *	Convict surgeon	0	0	1	
Ctenochaetus tominiensis *	Bristle-tooth Tang	0	0	1	
Zebrasoma flavescens *	Yellow tang	0	0	6	
Parosphromenus linkei *	Liquorice Gourami	0	0	19	**
Parosphromenus paludicola *	Pallid licorice gourami	0	0	65	**
Parosphromenus opallios *	Licorice gourami	0	0	13	**
Trichogaster leerii *	Pearl Gourami	0	0	308	
Betta patoti *	Betta	0	0	8	
		0	0	8665	
			8665		

* denotes managed in groups

** denotes bred in the collection in 2021

INVERTEBRATES STOCKLIST - 2021

Preferred Scientific Name	Common Name	Stock 31/12/20		
		M	F	U
Cassiopea *	Frilled upside-down jellyfish	0	0	145
Euplexaura *	Gorgonian	0	0	1
Erythropodium caribaeorum +	Encrusting gorgonian	0	0	1
Briareum sp. *	Green star polyp	0	0	1
Lobophytum *	Leather coral	0	0	14
Sinularia *	Soft Coral	0	0	2
Sinularia flexibilis *	Slimy leather coral	0	0	27
Xenia umbellata *	Pulsing xenia	0	0	16
Actinia equina *	Beadlet anemone	0	0	20
Anemonia viridis *	Snakelocks anemone	0	0	80
Entacmaea quadricolor *	Bladdertipped anemone	0	0	7
Urticina felina *	Northern red anemone	0	0	4
Metridium senile *	Clonal plumose anemone	0	0	2
*Discosoma**	Umbrella false coral	0	0	420
Acropora *	Staghorn coral	0	0	2
Montipora *	Montipora coral	0	0	32
Montipora confusa *	Encrusting coral	0	0	21
Montipora danae *	Coral	0	0	6
Montipora digitata *	Finger coral	0	0	9
Pocillopora damicornis *	Brush coral	0	0	8
Stylophora *	Cauliflower coral	0	0	16
Euphyllia	Crescent coral	0	0	1
Euphyllia ancora *	Crescent coral	0	0	1
Plerogyra sinuosa *	Bubble coral	0	0	7
Duncanopsammia axifuga *	Coral	0	0	6
Turbinaria mesenterina	Bowl Coral	0	0	2

Turbinaria peltata *	Bowl Coral	0	0	3	
Turbinaria reniformis	Coral	0	0	1	
Favia sp. *	Star coral	0	0	1	
Hydnophora *	Horn coral	0	0	1	
Acanthophyllia deshayesiana *	Doughnut coral	0	0	2	
Blastomussa wellsi *	Pineapple coral	0	0	1	
Micromussa lordhowensis *	Coral	0	0	1	
Galaxea fascicularis *	Ivory coral	0	0	2	
Fungia fungites *	Mushroom coral	0	0	2	
Porites sp. *	Coral	0	0	4	
Trochus *	Snail	0	0	24	
Lithopoma tectum *	Lightfoot snail	0	0	15	
Neritina *	Olive nerite	0	0	15	
Marisa cornuarietis *	Giant ramshorn snail	0	0	12	
Tylomelania *	Freshwater snail	0	0	65	
Strombus *	Fighting conch	0	0	7	
Nassarius *	Sharp-knobbed mud snail	0	0	3	
Nassarius vibex *	Common eastern mud snail	0	0	12	
*Bertia cambojiensis**	Vietnamese giant magnolia	0	0	37	**
*Poecilozonites circumfirmatus**	Lesser Bermuda land snail	0	0	7245	**
Poecilozonites bermudensis *	Greater Bermuda land snail	0	0	48691	**
Discula lyelliana *	Snails	0	0	2362	**
Discula polymorpha *	Snails	0	0	70	
*Caseolus innominatus**	Snails	0	0	8	
Geomitra grabhami *	Snails	0	0	935	**
Atlantica calathoides	Snails	0	0	37	
Hirudinaria manillensis *	Buffalo leech	0	0	46	**
Pandinus imperator *	Common emperor scorpion	0	2	0	
Avicularia avicularia *	Pink-toed tarantula	0	0	9	
Cyrtopholis femoralis *	Montserrat tarantula	0	5	0	
Lampropelma violaceopes *	Singapore blue tarantula	0	1	0	
Lasiodora parahybana *	Brazilian salmon tarantula	0	1	0	
Monocentropus balfouri *	Tarantula	0	0	5	
Nhandu tripepii *	Brazilian giant blonde tarantula	0	0	4	

Caribena versicolor *	Tarantula	0	0	15	
Nephila inaurata *	Golden silk spider	0	6	0	
Stenopus hispidus *	Banded coral shrimp	0	0	2	
Atya gabonensis *	Shrimp	0	0	4	
Neocaridina *	Red Cherry Shrimp	0	0	135	
Lysmata amboinensis *	Cleaner Shrimp	0	0	4	
Lysmata debelius *	White-booted cleaner shrimp	0	0	2	
Lysmata boggessi *	Peppermint shrimp	0	0	10	
Paguristes cadenati *	Red reef hermit	0	0	7	
*Geosesarma hagen**	'Red Devil' Vampire Crab	93	67	540	**
Mithraculus sculptus *	Green reef crab	0	0	3	
Periplaneta americana *	American cockroach	0	0	1600	
Therea olegrandjeani *	Cockroach	55	55	250	**
Gromphadorhina oblongonota *	Madagascar hissing cockroach	0	0	50	
Deroplatys desiccata *	Malaysian dead-leaf mantis	3	6	0	
Stilpnochlora couloniana *	Florida Leaf Katydid	33	19	100	
Ancylecha fenestrata *	Malaysian Leaf Katydid	0	0	8	**
Phaeophilacris bredoides *	Cricket	0	0	100	
Homoeogryllus xanthographus *	Cricket	0	0	100	
Tropidacris collaris *	Violet-winged grasshopper	0	0	14	
Heteropteryx dilatata *	Malaysian Jungle Nymph	10	36	24	**
Phyllium giganteum *	Giant leaf insect	0	22	50	**
*Marmessoidea**	Walkingstick	4	0	20	**
Achrioptera manga *	Walkingstick	0	0	350	**
Manticora imperator *	Ground beetle	1	1	0	
Dynastes hercules *	Western hercules beetle	6	7	123	**
Mecynorrhina ugandensis *	Beetle	9	0	665	**
*Graphium agamemnon**	Tailed Jay	0	0	16	
Papilio demoleus *	Lime Swallowtail	0	0	13	
Papilio lowi *	Great yellow mormon	0	0	4	
Papilio rumanzovia *	Scarlet swallowtail	0	0	20	
*Danaus plexippus**	Monarch butterfly	0	0	13	
Coenonympha tullia *	Large heath butterfly	0	0	28	**
Caligo atreus *	Owl butterfly	0	0	4	

Caligo memnon *	Giant Owl	0	0	36	
*Eryphanis polyxena**	Purple Mort Bleu	0	0	13	
Morpho peleides *	Blue Morpho	0	0	66	
Morpho polyphemus *	White Morpho	0	0	5	
Heliconius erato *	Red Postman	0	0	4	
Heliconius melpomene *	Postman	0	0	100	
Hypolimnas bolina *	Great Eggfly	0	0	19	
Salamis parhassus *	Mother-of-Pearl Beaty	0	0	1	
Siproeta stelenes *	Malachite	0	0	42	
Tithorea tarricina *	Cream-spotted Tigerwing	0	0	2	
Attacus atlas *	Atlas moth	0	0	3	
Atta cephalotes *	Leafcutter ant	0	0	1	colony
*Polyrhachis dives**	Ant	0	0	1	colony
Ampulex compressa *	Emerald cockroach wasp	125	74	115	**
*Apis mellifera mellifera**	Honeybee	0	0	2	colonies
Epibolus pulchripes *	Mombassan train millipede	28	19	540	**
Archaster typicus *	Sea star	0	0	1	
Asterias rubens *	Common Starfish	0	0	4	
Ophiarachna incrassata *	Green Brittle Starfish	0	0	27	
Ophiocomina fragilis *	Brittlestar	0	0	6	
Mespilia globulus *	Colored tuxedo urchin	0	0	8	
Psammechinus miliaris *	Shore urchin	0	0	4	
		367	321	65745	
			66433		

* denotes managed in groups

** denotes bred in the collection in 2021