



ZSL

LIVING CONSERVATION

THE YEAR IN REVIEW

2011



Our vision:
*A world where animals
are valued, and their
conservation assured*

Our mission:
*To promote and
achieve the worldwide
conservation of animals
and their habitats*

Introduction

The President and Director General of the Zoological Society of London look back on the successes, challenges and new developments of 2011.



Conservation in action

As human populations prosper and grow, mounting challenges are threatening the very survival of our planet's biodiversity. From habitat degradation to the resurgence of the world's illegal ivory trade and the spread of fatal diseases,

all species groups are enduring worrying losses.

Predictions for the future state of the natural world, should human activity continue in the same vein as the present, offer little comfort. But while life exists, so does hope.

Immediate action to counter these threats is required if we are to forge a new and healthy path for the natural world, and ZSL is at the forefront of this action – both at home and overseas.

Pioneering work at our Institute of Zoology is furthering the Society's – and, indeed, the world's – understanding of the issues facing biodiversity, and the solutions we must employ to solve them. Using this strong foundation of scientific research, our field conservationists are working successfully in more than 50 countries to protect animals and their habitats.

Closer to home, the Society's two world-leading zoos are continuing to act as important hubs for the conservation breeding of endangered species, and also as centres of inspiration. Every year at ZSL London and Whipsnade Zoos, millions of visitors discover more about the beauty of nature and how they can help to preserve it, and a new generation of conservationists is inspired.

As ever, our achievements this year – at both Zoos, in our scientific research, and through our fieldwork – simply could not have taken place without the tremendous efforts of all our staff, volunteers and members. Our thanks go out, once again, to you all.

Sir Patrick Bateson FRS

President, Zoological Society of London



A year of achievements

There has been a great deal for us to celebrate in 2011. At ZSL London Zoo, the opening of our new flagship exhibit, *Penguin Beach*, proved an enormous hit with visitors and offered an opportunity to inform the public

about our conservation work in Antarctica.

It was also a landmark year for ZSL Whipsnade Zoo, as we celebrated its 80th anniversary and continued success with conservation breeding. Exciting births included pygmy hippo and Asian elephant calves.

In the field our conservationists had a busy and triumphant year, from deterring rhino poachers in Nepal to the launch of *Project Ocean*, our creative collaboration with Selfridges & Co department store. The campaign not only drew attention to the plight of the world's sea life, but enabled the creation of an important new marine reserve in the Philippines.

Scientists at the Institute of Zoology continued to lead the way in animal research, from charting the decline of mammals in Africa's national parks to shedding light on a disease that is decimating global amphibian populations.

And despite the wider economic downturn, ZSL is delighted to report a successful year financially, as well as continued generosity from the many donors who make our work possible.

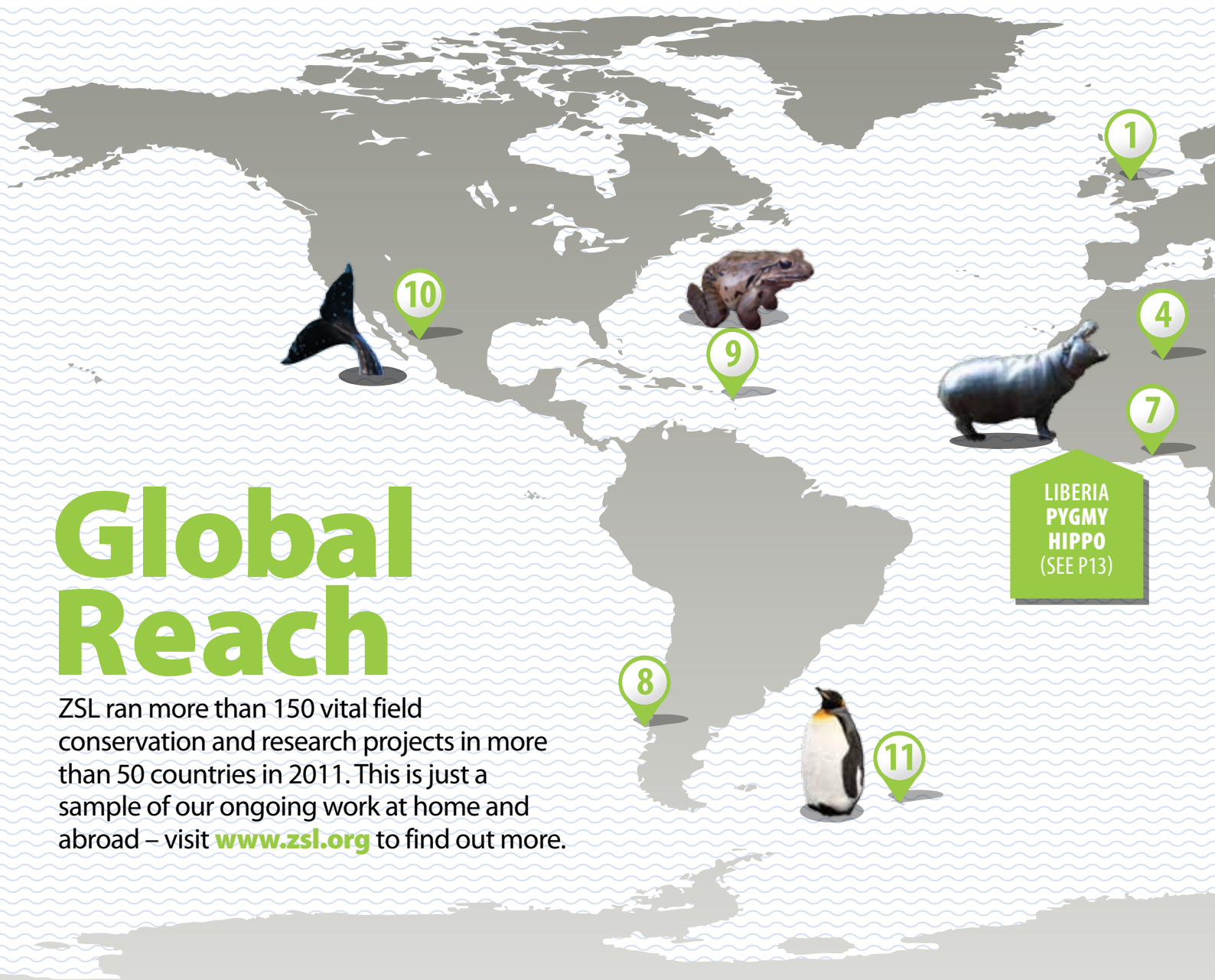
I, too, would like to pay tribute to all the hard work of our staff and supporters. The commitment and enthusiasm they consistently demonstrate help the Society to achieve increasingly more, year on year – as you will discover in the pages that follow.

Ralph Armond

Director General, Zoological Society of London

Global Reach

ZSL ran more than 150 vital field conservation and research projects in more than 50 countries in 2011. This is just a sample of our ongoing work at home and abroad – visit www.zsl.org to find out more.



1 UK: GARDEN BIRDS
Through its Garden Bird Health Initiative, ZSL is investigating the causes of avian deaths across the UK in order to protect our small birds. The project's recent focus has been the worrying emergence of the deadly trichomoniasis disease in European species.

3 ITALY: SARDINIAN NEWT
Scientists are studying the effects of the virulent chytrid fungus on the endangered Sardinian mountain newt. The species appears to be very susceptible to infection, and ZSL is working to protect the remaining individuals.

5 DEMOCRATIC REPUBLIC OF THE CONGO: OKAPI
ZSL conservationists are investigating the largely unknown population of these rare mammals in the Virunga National Park and developing community-based projects to help prevent poaching.

7 GHANA AND CAMEROON: WILDLIFE WOOD PROJECT
This innovative ZSL project is continuing to work with logging companies to encourage them to play an active role in wildlife conservation in their concessions.

9 DOMINICA: AMPHIBIANS
ZSL is working to mitigate the threat of infectious diseases in the island's amphibians. The mountain chicken frog is being bred in captivity locally, while awareness-raising projects include introducing school children to this iconic local resident.

2 TURKEY AND GREECE: FISH NET
The Fish Net consortium protects critically endangered freshwater fish through conservation breeding, education, research and field conservation. Thirteen focal species, many of them extinct in the wild, are bred at ZSL London Zoo Aquarium.

4 ALGERIA: NORTHWEST AFRICAN CHEETAH
This elusive cheetah was first caught on film in the wild through camera traps set up by ZSL scientists and their partners, who hope to better understand and protect the population.

6 NAMIBIA: TSAOBIS BABOON
Our long-term study on desert baboons has been underway since 2000 and continues to shed light on dining etiquette, sexual signalling and defensive behaviour in these fascinating and social animals.

8 CHILE: DARWIN'S FROG
ZSL sponsors a Chilean EDGE Fellow to study these unusual frogs. In 2011 the team discovered a new population in southern Chile. Individuals rescued from a volcanic eruption will be used for conservation breeding.

10 MEXICO: WHALES
Researchers previously found that whales suffer skin damage from ultraviolet radiation that is similar to acute sunburn in humans. They are now investigating whether whales can enhance their sun protection, for example, via skin pigmentation.



**NEPAL
GREATER
ONE-HORNED
RHINO**
(SEE P18)

**THAILAND
ASIAN
ELEPHANT**
(SEE P21)

**SRI LANKA
RED
SLENDER
LORIS**
(SEE P20)

**PHILIPPINES
SEAHORSES**
(SEE P19)

**11 ANTARCTICA:
PENGUINS**

The effects of climate change are most prominent at the poles, so wildlife there can tell us much about its impact. ZSL scientists are monitoring penguins using high-tech satellite-linked cameras and DNA analysis.

**12 BANGLADESH:
TIGERS**

ZSL is working with the Wildlife Trust of Bangladesh and local people to conserve one of the world's largest remaining tiger populations in the Sundarbans. Measures include a response team to protect villagers from tiger attacks.

**13 INDIA:
VULTURES**

Indian vulture populations have almost disappeared – a decline ZSL has linked to drugs contaminating the cattle carcasses they feed on. With the problem far from solved, our breeding, research and monitoring continues.

**14 RUSSIA: AMUR
LEOPARDS**

With only 30 of these magnificent predators believed to remain in the wild, reintroducing captive Amur leopards will be vital to increase numbers. ZSL is coordinating breeding programmes across Europe and Russia.

**15 SAUDI ARABIA:
GAZELLES**

Managed by ZSL on behalf of Saudi Arabia's national Wildlife Authority, the King Khalid Wildlife Research Centre is breeding endangered gazelle species and reintroducing them to secure habitats.

**16 MONGOLIA:
WILDLIFE
PICTURE INDEX**

The Wildlife Picture Index, currently on trial, measures species conservation using advanced camera trapping techniques. In 2011 several new areas were added to the protected sites under observation.

**17 CHAGOS
ARCHIPELAGO**

Since it became the largest, fully protected marine area in the world in 2010, thanks in part to ZSL's scientific work, further research, community projects and management strategies have been developed for this amazingly rich island ecosystem.

**18 NEW ZEALAND:
HIHI BIRD**

The island-dwelling hihi is a vulnerable species with no close relations in the bird kingdom. Protecting the colonies reintroduced by ZSL could prove challenging, as fungal spores were recently found to be a problem for the birds.

**19 SOUTH AFRICA:
HEWITT'S
GHOST FROG**

Conservationists are studying these secretive and endangered amphibians, highlighted by ZSL's EDGE of Existence programme, to find out more about the threats they face.





ZSL in the news

From helping save the Sumatran tiger to developing a real-life Batphone, ZSL has rarely been out of the headlines in 2011.

★ JANUARY



↑ REEFS AT RISK

With the launch of our EDGE Coral Reefs programme, conservationists at ZSL revealed which species of coral are most at risk. This new project is working with in-country scientists to protect some of the world's most fascinating and unusual species of tropical coral, such as the critically endangered elkhorn coral, above.

OUT FOR THE COUNT

Baby slender lorises and silvery marmosets were among the exciting additions to ZSL's annual animal stocktake. Under the watchful gaze of the media, keepers at our Zoos braved the cold to count more than 20,000 animals.

NO LEFTOVERS FOR T.REX

Research by ZSL's Institute of Zoology revealed that *Tyrannosaurus rex* hunted like a lion rather than scavenging like a hyena. Backed up by an ecological model based on predator relationships in the Serengeti, the findings ended years of debate about the hunting behaviour of this amazing creature.

★ FEBRUARY



A GIANT DELIVERY

Aquarium staff at ZSL London Zoo were kept especially busy in February with the unexpected arrival of 800 giant clams seized by Customs at Heathrow Airport. The surprise guests were all in a day's work for the Aquarium, which has a long-standing relationship with the UK Border Agency and often helps care for and rehome confiscated wildlife.

↑ TIGER SOS

The Society's largest-ever fundraising campaign, *Tiger SOS*, was launched to help save the magnificent Sumatran tiger. The appeal is raising much-needed funds for our field conservation work with this critically endangered subspecies in the forests of Indonesia, as well as a state-of-the-art new tiger exhibit at ZSL London Zoo.

★ MARCH

UP CLOSE WITH ADDERS

Britain's only venomous snake, the adder, is receiving the first vital health checks from experts after its worrying population decline in recent years. A team of intrepid scientists headed into the undergrowth to carry out harmless DNA swab tests that will help determine the level of genetic diversity in the adder population.

★ APRIL

ROYAL APPROVAL

It was the wedding of the year – and ZSL was delighted to be chosen by Prince William and the Duchess of Cambridge as one of the beneficiaries of their wedding charitable gift fund. This funding will help support our field conservation work with black rhinos, Asian elephants and Sumatran tigers.

**↑ SMUGGLED CHEETAHS RESCUED**

Three adult cheetahs were successfully released back into the wild after being confiscated from an illegal wildlife trader in Tanzania. Conservationists from ZSL and partner organisations worked to secure their swift release into the Tarangire National Park, complete with radio tracking collars.

★ MAY

**↑ PENGUIN BEACH LAUNCHES**

Making a mighty splash with visitors and media alike, the launch of ZSL London Zoo's latest flagship exhibit, *Penguin Beach*, was a tremendous success. With more than 60 rockhopper and Humboldt penguins, England's largest penguin pool even features a crèche for newly hatched chicks.

**↑ FISH MEETS FASHION**

Department store Selfridges teamed up with ZSL to launch *Project Ocean*, a unique and urgently needed initiative to help protect the world's sea life. Within three months of launching, the project had raised more than £100,000 for ZSL's marine conservation work, and made serious headway in encouraging people to eat more sustainably sourced fish.

**↑ WHIPSNADE AT 80**

ZSL Whipsnade Zoo commemorated its 80th anniversary in style. Since opening in 1931 as Europe's first open zoo, Whipsnade has led the way as a conservation and breeding centre. Its famous white chalk lion was spruced up in honour of the occasion, with fresh chalk cleared to ensure the landmark can be enjoyed from afar.



★ JUNE

↑ WILD SUMMER NIGHTS

Silent discos, animal talks and after-work merriment were the order of the evening at our *Zoo Lates* every Friday in June and July. More than 60,000 tickets were sold for this popular event, proving once again that, for a roaring night out in the capital, ZSL London Zoo is the place to be.



THE REAL BATPHONE

Scientists at ZSL brought the Batphone to life with the launch of a clever new smartphone app. As part of a global bat monitoring programme, volunteer bat-trackers can now capture the mammals' ultrasonic calls using the innovative *iBats* app.



★ JULY

↑ SOAPBOX SCIENCE

Scientists hit the streets of London as part of ZSL's annual *Soapbox Science* event. Setting out to enthuse the public about the role of science, 12 prominent scientists gave inspiring talks on subjects from 'our knowledge of the universe' to 'how plants make decisions'.

★ AUGUST

ZOO ACADEMY

Aspiring vets and zookeepers got a practical taste of their future careers by taking part in the first ZSL Zoo Academy. Designed for 15 to 17-year-olds, the exciting zoo-based courses at London and Whipsnade offered students practical and theoretical studies on species from elephants to emus.

★ SEPTEMBER

FUN FOR EVERYONE

Special Children's Day returned to ZSL London Zoo, bigger and better than ever! Organised specifically for families of children with disabilities and special needs, the weekend-long event helped make the wonders of the animal kingdom accessible to all.

★ OCTOBER



↑ **RECORD BREAKER**

An Asian elephant calf born at ZSL Whipsnade Zoo set a new record for the Zoo's longest recorded pregnancy, following a whopping 700-day gestation period. Born to experienced mother Azizah, the exuberant male was also the smallest elephant baby ever at ZSL.

★ NOVEMBER

➔ **INSTANT WILD**

The launch of a unique iPhone app is helping to revolutionise the way ZSL monitors wildlife hotspots around the world. The *Instant Wild* app allows willing 'citizen scientists' to help identify species that appear in camera-trap images, saving conservationists an enormous amount of time.



↑ **FROGS v FUNGUS**

ZSL discovered that the global trade in frogs, toads and other amphibians may have contributed to a worldwide disease. Exchanging non-lethal strains of the chytrid fungus appears to have created a new, deadly variety, thought to have made more than 200 species of amphibian extinct.

★ DECEMBER

↓ **SEASON TO BE JOLLY**

Festive spirit was embraced at ZSL's Zoos with the help of Father Christmas and his little helpers. In specially created grottos, children enjoyed seasonal treats and the chance to get close to the season's hardest-working delivery service – Santa's very own herd of reindeer.



The Living Collections

New life, new arrivals and new exhibitions are all helping ZSL Zoos retain their leading edge – but not without some tough decisions along the way.

The overwhelming success of 2011 was the opening of *Penguin Beach*, an exhibit that encapsulates the essence of a modern zoo. Dramatic views of these amazing birds, coupled with interactive interpretation and the expansion of our ever-popular penguin feeding, have resulted in resounding approval ratings from visitors.

Meanwhile, the successful breeding of animals at our Zoos continues to reflect much investment, research and patience. Highlights of 2011 included the births of pygmy and common hippos, François' langur monkeys and Mount Apo lorikeets, and excellent results for all our invertebrate breeding programmes, including rare Bermudian and *Partula* land snails. Another highlight has been our success with the slender loris. Alongside our main loris group, a secondary group was established with an older male, and both groups have produced and reared youngsters. With 11 of these enigmatic primates in the collection, ZSL London Zoo now has the largest captive population in the world. Through the European Endangered Species Programme, young lorises are being transferred to other zoos, including Antwerp and Frankfurt.

Hand-rearing an animal is fraught with complications, and the consequences on an individual's long-term welfare must outweigh all other considerations. So while other zoos might choose to hand-rear a highly endangered species like the

NEW FOR 2011

From beetles to elephants, here are some of the exciting newcomers at both Zoos.

BIRTHS

Lynx, moose, Asian elephant, Hercules beetles, Turkish killifish, Rodrigues fruit bats, Asian lions, Humboldt penguins, Francois' langur monkey, naked mole rats.

ARRIVALS

Reindeer, golden mantella frogs, freshwater stingrays, Partula mooreana snails, Persian onager, reticulated giraffes, crested screamer birds, Bactrian camels, white-winged ducks, Grévy's zebras.

hyacinthine macaw, at ZSL London Zoo this year adult macaws were left to rear their own chick, making sure that it too learns how to become a successful parent.

The decision not to hand-rear our male gorilla infant was particularly difficult, especially as he subsequently died at seven months after a scuffle in the group. But he had grown up away

from the complexities of gorilla society and the guidance of a silverback male, he would have remained socially excluded for the rest of his life.

Sometimes, however, hand-rearing can work. The integration of our hand-reared white-naped mangabey into a new group at Zoo Landau is particularly pleasing, and we may be able to transfer some of the techniques used here to other species.

The welfare of the animals in our care is our priority. Proactive welfare audits and an ongoing improvement programme ensured that both Zoos continued to raise standards of care. For example, at ZSL London Zoo's Aquarium, environmental regulation of temperate water systems was a major issue until this was converted to a warm water system, giving us greater control of the aquatic habitats on display. Featuring freshwater species from around the globe, these exhibits have also had huge visitor appeal.

After continued investment in our amphibian and reptile facilities, ZSL now has one of the finest collections of venomous snakes in Europe. As well as fulfilling exhibition and education roles, these species will also be the focus of conservation breeding and research initiatives.

ZSL London Zoo won Best UK Attraction for Children in the 2011 Group Leisure Awards, seeing off tough competition from the likes of Alton Towers and Legoland Windsor



‘The overwhelming success of 2011 was the opening of *Penguin Beach*, an exhibit that encapsulates the essence of a modern zoo’



FOCUS ON
ADRIAN WALLS, HEAD KEEPER OF BIRDS, ZSL LONDON ZOO

Since arriving at ZSL London Zoo as a senior keeper almost a decade ago, Adrian Walls has risen through the ranks to become head keeper of the bird section and co-chair of the British and Irish Association of Zoos and Aquariums (BIAZA) Bird Working Group. With a passion for all things avian, Adrian has earned the reputation of being a bird-breeder extraordinaire. But it is the creation of Penguin Beach (pictured above) that he counts as one of his greatest achievements. From day one of the planning process, Adrian and his team worked closely with builders and architects to create a world-class exhibit and the best possible penguin environment – from installing the right water filters to importing the preferred pebbles and sand for each species.

Within a week of the penguins arriving from collections across Europe, eggs were already being laid; a tremendous achievement that reflects just how quickly the new residents have settled in. Having worked with these much-loved birds since he was 16, Adrian says they can always bring a smile to his face.



PENGUIN POWER

England's largest penguin pool, *Penguin Beach*, opened to the public at ZSL London Zoo in May 2011, and showed just how popular these characterful birds have become. More than 300,000 visitors came to see the 64 Humboldt and rockhopper penguins in the first two months of opening. With 49% citing it as their primary reason for visiting the Zoo, the pool has proved to be a smash hit.

The launch was also an undisputed success in terms of public relations. An extensive advertising campaign, which

featured in London Underground stations, captured the imaginations of the public, while the press launch generated national and international media coverage that would have cost an estimated £800,000 to buy – an impressive return on investment of £1,000 per £1 spent.

Penguin Beach was also an opportunity to realise ZSL's long-term aim of linking exhibits to the vital work being carried out by our scientists and conservationists. In this case, ZSL penguinologist Tom Hart, whose research in Antarctica involves using DNA samples from penguin feathers to

plot the movement of colonies, helping decipher how best to protect them from the effects of climate change.

GREENER ZOOS

At both Zoos, tree work continued to be a priority for our horticulture teams. It is essential that ZSL's thousands of trees are kept in good condition – not only for the trees themselves, but also for the safety of visitors and animals. Extra areas at ZSL London Zoo were secured for native planting and to provide browse for animals. Four thousand saplings were planted

to establish a mix of trees, hedges and shrubberies, as well as coppice for browse.

Horticulture teams also did their bit to maintain and increase biodiversity. At ZSL Whipsnade Zoo, the construction of two log piles on the downs, using wood left over from pollarding work, not only provides an ideal habitat for insect life but also offers shelter to free-roaming wallabies, maras and deer. There was also positive news about Whipsnade's Site of Special Scientific Interest (SSSI). In June, an encouraging inspection by Natural England concluded that this chalk grassland site was continuing to recover from its former state of decline.

RHINO BREEDING

An assortment of supersized scanners, probes and other paraphernalia were the order of the day when a female southern white rhino was artificially inseminated at ZSL Whipsnade Zoo. In South Africa, once a stronghold for this species, hundreds of rhinos have been poached for their horns, so maintaining a healthy population in captivity is crucial. And with few southern white rhinos in zoos, every birth is extremely important.

However, for Whipsnade female Nowana, a foot injury meant natural conception was not feasible. Instead, ZSL's team drafted in experts from the Leibniz Institute for Zoo and Wildlife Research, in Germany, to give nature a helping hand. After obtaining sperm from a male rhino at Whipsnade, the artificial insemination took place under sedation. Since then, Nowana's hormones have been monitored, and ZSL was delighted to discover at the end of 2011 that she is now pregnant. This shows how important it is for European zoos to work together to achieve success.

HIPPO NEWBORNS

The ever-fertile ZSL Whipsnade Zoo continued to deliver, in every sense, with the births of pygmy and common hippo calves last year. While the birth



The magisterial Sumatran tiger, Lumpur – in a limited edition print (below), and in the flesh (above). Below right: Lola the common hippo keeping a watchful eye on her calf, Hula



All species of owl housed on ZSL London Zoo's north bank bred successfully in 2011, including white-faced scops, spectacled and burrowing owls, and the northern hawk owl



of common hippo Hula was a cause for celebration, male pygmy hippo calf Sapo was of particular significance. Not only is Sapo the first successful offspring of parents Flora and Tapon, but he is one of just three male pygmy hippos to have been born in Europe in the past five years. Although no one is sure why, only 20% of pygmy hippos born in zoos are male, making little Sapo an important individual for the overall zoo population. The adorable youngster has also become

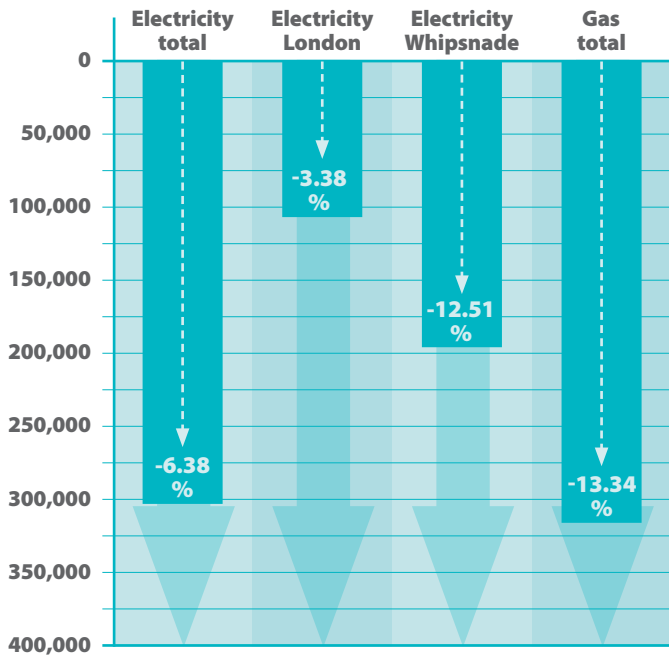
a poster boy for ZSL's fieldwork in Liberia, and near his enclosure visitors can find out more about the Society's efforts to protect this elusive and endangered mammal.

TIGER SOS

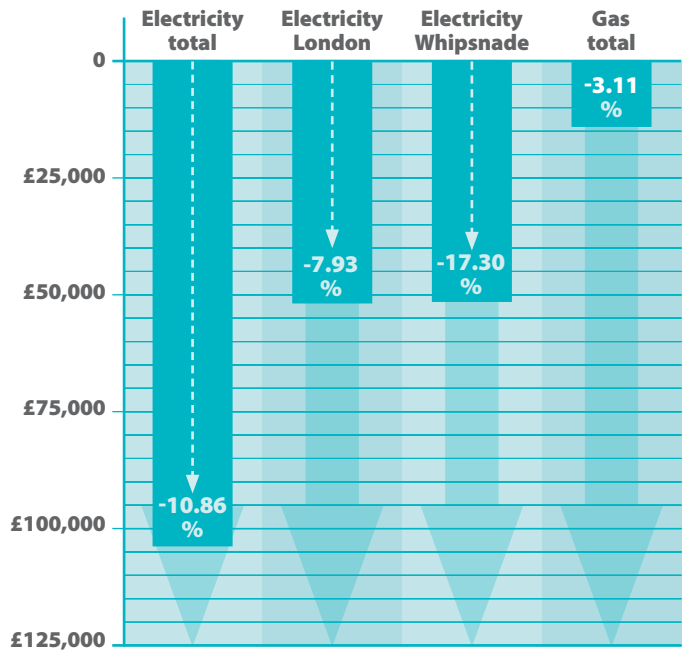
Last year also saw the launch of ZSL's largest-ever fundraising campaign, *Tiger SOS*. As the Society is active in both wild Sumatran tiger conservation and zoo breeding programmes, we have used our unique position to expand our role in their future protection. *Tiger SOS* is raising funds for a new *Tiger Territory* enclosure,

IN DETAIL: SUSTAINABLE SUCCESS 2010-2011

REDUCTION IN CO₂ EMISSIONS (KG)



REDUCTION IN COSTS



ZSL London Zoo was delighted to be awarded a gold standard Green Tourism Award in 2011 for its efforts to reduce energy and water consumption. Shop refurbishments at the Zoo provided an opportunity to introduce energy-efficient lighting and heating systems, while a new

shop extension was completed with the use of natural and sustainable materials. At ZSL Whipsnade Zoo, new insulation in the Discovery Centre halved the amount of heating diesel used compared to the previous year. In the 2010-11 financial year, both Zoos made huge steps in reducing their carbon emissions (see chart, above).

The use of sustainable palm oil to combat deforestation also remained high on our agenda. Both Zoos completed a thorough review of their procurement policies to ensure that, wherever possible, only sustainable palm oil products are used and sold throughout ZSL.

in London as well as for our field conservation projects in Indonesia.

The ambitious project included a number of exciting new initiatives and generated huge press interest. Woop Studios designed a limited-edition print based on our male tiger Lumpur, with half the proceeds going to the campaign, while we have created a paw-print trail around the *Tiger Territory*. Those who donate £400 or more to the campaign will be named on a paw print, giving them an enduring reminder of their commitment to these remarkable animals. The campaign raised an impressive £1.14m in 2011.

Meanwhile, tiger keeper Teague Stubbington was awarded the annual Michael Brambell travel grant to visit our field conservation team in Indonesia. His experiences there are now being used by ZSL to shape the development of *Tiger Territory*, helping ensure an authentic experience for visitors while remaining true to the integrity of the fieldwork.

IN THE FIELD

Staff from ZSL's Living Collections continued to contribute to the Society's global conservation work. One highlight was chief veterinary officer Andrew Routh's continued involvement with ZSL's vulture conservation programmes. During 2011 Andrew not only provided vital veterinary expertise but also represented the Society at the launch of an important new vulture consortium, Saving Asia's Vultures from Extinction (SAVE), in India and Nepal.

Meanwhile, Aquarium curator Brian Zimmerman swapped London for the east of Liberia for a month-long expedition to the Putu Mountains. There, Brian and his team undertook an extensive freshwater fish biodiversity assessment, which has proven hugely rewarding. Not only will their survey work hopefully secure a lasting conservation plan for the area, but it is likely that at least two new species will be scientifically described as a result.

A JUMBO CELEBRATION

Celebrating all things jumbo, ZSL Whipsnade Zoo hosted Elephant Appreciation Day in September to raise money for its elephant conservation projects. For the first time, keepers proudly exhibited paintings by a talented artist: Karishma, the Asian elephant. The handiwork of the pachyderm Picasso was on display for art-lovers to admire throughout the weekend. Elephant Appreciation Day visitors could also enjoy a special 'Elephantastic' demonstration, have their faces painted as elephants, and join the Zoo's herd of heavyweights on their daily stroll around the 600-acre site.

POISONERS WELCOME

ZSL London Zoo has always had plenty of venomous snakes, but in 2011 its collection expanded to become the biggest in Europe. Having completely refurbished its off-show facilities (and, of course, stocked up on all the right antivenoms), the Zoo was ready

for its new arrivals, including the inland taipan, the bushmaster, the McGregor's and rhinoceros vipers, and the Mangshan pitviper. Another important addition is the European adder, which ZSL experts are working to protect in the wild following its recent decline. It is important to draw attention to this iconic native of the British countryside.

Alongside this collection of snakes, the Reptile House is becoming one of the world's top destinations to admire other wonders of natural toxicity, with Gila monsters and beaded lizards as well as the beautiful but deadly poison dart frog, the most toxic animal on the planet.



Above left: Andrew Routh's vulture work. Above right: Brian Zimmerman (left) in the Putu Mountains. Below (top): Kristen Steele's project on the European eel. Below: Mangshan pitviper

CORALS ON SHOW

As part of our *Project Ocean* campaign with Selfridges & Co, the store's Ultralounge space was converted into a beautiful live coral exhibition in June and July with the help of the ZSL London Zoo Aquarium. Planned, installed, maintained and dismantled by our team, the exhibit was the first of its kind to showcase living corals as individual species, rather than as part of a reef community. To best show off the corals' shapes, colours and movements, each species was displayed on a range of dramatically lit jewellery plinths and mini-stages, with stunning results.



GRADUATE NEWS

Graduates of our Masters courses in Wild Animal Biology and Wild Animal Health continue to progress both their careers and conservation around the world. Alumni include Dr Norman Mukarati, now Lecturer in Wildlife and Exotic Medicine at the University of Zimbabwe, and Fernando Gual Sill, who holds professorships at the National Autonomous University of Mexico (UNAM) and the Metropolitan Autonomous University – Xochimilco, and is UNAM's California Condor Project leader. Dr Wigganson Matandiko is head of the Zambia Wildlife Authority's veterinary unit, while Dr Ian Smith has become senior veterinarian at Zoos South Australia.

Meanwhile, 24 of the latest students graduated in 2011. Their research projects were not only of a high standard, but

Only sustainable species of fish are now being used by ZSL animal and catering departments

also tackled important conservation and welfare issues. Kristen Steele from the USA gained the highest aggregate marks on the Wild Animal Biology course, as well as the award for the best piece of research. Her project, 'A study of ecological correlates of European eel (*Anguilla anguilla* H) populations in five marshes of the Thames Estuary', shed light on possible factors in the distribution of this endangered species. On the Wild Animal Health MSc, Mhairi Fleming came out on top, also winning the prize for best research project: 'Behavioural assessment of dental pain in Malayan sun bears (*Helarctos malayanus*)'. Her work identified telltale pain markers that could be used to intervene earlier when bears are suffering.





Field conservation

Through its work with animals and habitats all around the world, ZSL is positioned to play a crucial role in protecting future biodiversity.

Three major challenges must be addressed if we are to halt the decline of species and ecosystems on a global scale. The first is to demonstrate beyond any doubt the negative impact that people are having on biodiversity, and make clear the risks to humanity and all life. The second is to ensure that society is presented with reasonable, sustainable alternatives and evidence-based solutions. The third is to influence society's relationship with nature so that the true value of biodiversity is recognised in everything we do, from political decision-making to global investment.

As one of the world's strongest science-based conservation organisations, ZSL is uniquely placed to help with these challenges. In 2011, we helped assess the conservation status of more than 3,500 species for the International Union for Conservation of Nature (IUCN) Red List, monitored trends in more than 2,500 vertebrate species, and assisted with national Red Lists in Nepal and Mongolia.

With conservation projects in more than 50 countries, ZSL is also well placed to seek solutions and help build evidence of what works and what does not. Many projects running in 2011 have the potential to deliver major conservation benefits if scaled up, such as our reforestation initiative in Berbak, Indonesia. Here, we are assessing the

potential of a market-based approach to reducing deforestation, such as creating sustainable local incentives for conservation. There is also much to be learned from our coastal rehabilitation project in the Philippines, where 100 hectares of mangrove forest have been restored.

Meanwhile, we are working with the influential Marine Reserve Coalition to

'In 2011, we helped assess the conservation status of more than 3,500 species for the IUCN Red List, monitored trends in more than 2,500 vertebrate species, and assisted with national Red Lists in Nepal and Mongolia'

promote the implementation of Marine Protected Areas (MPAs), and have recently created a new MPA in the Philippines as part of our *Project Ocean* collaboration with Selfridges & Co. We also run several tiger projects focusing on these predators' last strongholds. Last year our locally trained tiger response teams in Bangladesh prevented several animals being killed.

Finally, our EDGE of Existence programme continues to reverse the

decline of some of the world's most threatened wildlife, launching EDGE Coral Reefs in 2011 and supporting in-country conservationists working with such little-known species as the Sunda pangolin in Vietnam, the olm in Croatia and the Victoria caecilian in Cameroon.

To influence the way society values nature, ZSL has an important role to play

in engaging the public. With two Zoos, an extensive online and media presence, and numerous scientific talks and symposia, ZSL brings its environmental message to millions of people each year. We also train hundreds of future conservation leaders through our Masters programmes, PhD studentships, post-doctorates and field training courses. Through all these efforts, ZSL aims to make a significant contribution to halting the loss of the world's species and ecosystems.



**FOCUS ON
PROF DR HEATHER
KOLDEWEY,
HEAD OF GLOBAL
PROGRAMMES**

When she joined ZSL as a research associate in 1994, Heather had no idea that she would one day receive its highest employee honour, the ZSL Staff Medal, for outstanding achievement in the service of the Society. After two years at our Institute of Zoology, Heather was appointed curator of ZSL London Zoo's Aquarium and Reptile House. Her interest in the practical application of conservation science – integrating aquatic breeding programmes with active field projects – helped establish the Aquarium's global reputation. Now head of global conservation, she shares her expertise with many national and international groups.

Heather is especially proud to have co-founded the hugely successful Project Seahorse. The initiative has championed the conservation of these remarkable creatures, gaining them special protection under the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Heather's team provided the scientific work that led to the Chagos Archipelago being designated the world's largest marine reserve, and she also played a key role in 2011's flagship initiative Project Ocean.



SAVING RHINOS

Between 2000 and 2007, Nepal lost more than a third of its greater one-horned rhino population to poachers. At this critical time, ZSL responded to an appeal for support from its long-term conservation partner in Nepal with a three-year programme funded by the UK government, *Crisis to Biological Management: rhinoceros, grassland and public engagement*. It is a testament to all the hard work by our partners that, for the first time in more than a quarter of a century, not a single rhino was poached in the past year. In the past three years, rhino numbers have increased by an estimated 7%. This achievement is even more remarkable given that in Africa more than 500 rhinos were lost to poachers in 2011, with losses in South Africa alone reaching a record 448 (more than half of which were killed inside the Kruger National Park).

With losses like these, and with three of the world's five rhino species classified as Critically Endangered on the IUCN Red List, conservation efforts are more important than ever. Sadly, 2011 also brought official confirmation of the extinction of two subspecies, the Vietnamese lesser one-horned rhino and the western black rhino. Yet the latest news from Nepal demonstrates how well-managed, targeted action can contribute to the survival of a species.

PROJECT OCEAN

Launched last May, *Project Ocean* is an ambitious collaboration between ZSL and the department store Selfridges & Co. The initiative has two primary goals in the fight against over-exploitation of our oceans. The first is to increase public awareness of the plight of commercial fish stocks, and encourage sustainable fish consumption. The second is to raise funds for the



Left: greater one-horned rhinos. Above: Selfridges joining *Project Ocean* to raise awareness of fish stocks. Below left: Prince Charles at the project's launch. Below right: studying seahorses



development of new Marine Protected Areas in valuable but highly threatened marine ecosystems across the globe.

The public campaign ran online and in Selfridges' flagship London store throughout June and July 2011. Reaching millions of people, it was supported by high-profile figures such as the Prince of Wales and celebrity chef Hugh Fearnley-Whittingstall. The results speak for themselves: *Project Ocean* has raised more than £120,000 so far, enabling ZSL's *Project Seahorse* to create a new 'Selfridges MPA' in a rare double-barrier coral reef in the Philippines. This community-managed area on the Danajon Bank covers 0.5km², and will offer protection from overfishing to the reef's vast array of species, which include seahorses and angelfish.

CORALS ON THE EDGE

ZSL's EDGE of Existence programme has been working to highlight and protect

unique and endangered species for five years now, and in January 2011 it extended its focus to a new group: corals. The EDGE Coral Reefs project has created a list of the ten most evolutionarily distinctive and globally threatened reef inhabitants. These include the pearl bubble coral – a favourite food of hawksbill turtles – and the mushroom coral, which supports many colourful shrimp species, including the popcorn shrimp, that live within its tentacles. EDGE Coral Reefs is now supporting conservation work in regions where these priority species can still be found, training a network of in-country scientists and developing community-based management schemes for protected areas and reef resources. In July, the first EDGE Coral Reefs field course took place in Indonesia, equipping up-and-coming conservationists with vital research, monitoring and reef management skills. Another of the project's priority areas is

the Chagos Archipelago in the British Indian Ocean Territory, the world's largest marine reserve.

SAVING SUMATRAN TIGERS

In 2011, ZSL's *Tiger SOS* project gave a boost to our vital conservation work with the critically endangered Sumatran tiger. The Society is collaborating with local organisations, communities and the government to find workable solutions to the threats facing the tiny population of Sumatran tigers before it is too late. Measures will include increasing anti-poaching patrols in Sumatra's Berbak National Park, developing a new REDD (Reducing Emissions from Deforestation and Forest Degradation) carbon trading initiative to provide sustainable funding for forest protection, and creating a tiger-friendly landscape by maintaining wildlife corridors to connect their remaining areas of habitat.



Clockwise from above: a Philippines reforestation project; a rescued cheetah back in the wilds of Tarangire National Park; astounding camera-trap night images from the *Instant Wild* app



REPLANTING FORESTS

Two exciting ZSL reforestation projects were underway in the Philippines and Sri Lanka in 2011. The Society's mangrove rehabilitation project in the Philippines continued to manage projects in six communities, restoring more than 100 hectares of abandoned fish ponds to ecologically valuable mangrove forest. This involved planting tens of thousands of mangrove seedlings, which are nurtured in locally run nurseries, as well as working with community members, academics, the government and non-government agencies to promote mangrove conservation and teach vital skills.

Far from the coastal forests of the Philippines are the central highlands of Sri Lanka, where ZSL's EDGE of Existence programme launched a new reforestation campaign in June to protect the Horton Plains slender loris. This virtually unknown creature was believed to be extinct until

it was rediscovered two years ago by the research team. The Society is working with local authorities and communities to replant 100 hectares of scrubland with native seedlings and create vital ecological corridors between remaining patches of forest. This should benefit not only the 80 or so remaining lorises in the region, but also other declining native species such as leopards and the Sri Lankan spiny mouse.

NEW HOME FOR CHEETAHS

The Society's wide-ranging cheetah and wild dog conservation planning initiative came to the rescue of three adult cheetahs being held in captivity by a Tanzanian wildlife trader in April 2011. Two females and a male were being kept in cramped cages in a house in Arusha, the safari capital of Tanzania. Conservationists from ZSL and other non-government organisations worked with the Tanzania Wildlife Research Institute to secure the

animals' speedy release. After being fitted with radio collars, the cheetahs were sent to Tarangire National Park, and a team in Arusha is tracking their progress as they settle into their new home.

CAUGHT ON FILM

ZSL's *Instant Wild* app is a new tool to help conservationists monitor remote wildlife hotspots all over the planet. The app sends live images from camera trap feeds to iPhones and computers, and asks 'citizen scientists' to help identify the animals snapped in the photographs.

Since its launch in November 2011, camera feeds from Sri Lanka, Mongolia, Kenya and the UK have already acquired avid followings, with each new image receiving hundreds of identifications and comments. The tool could save researchers vast amounts of time in sorting and logging camera-trap data, allowing them to stretch their limited resources further



Above: Belinda Stewart-Cox receiving her OBE.
Below: a camp abandoned by tiger poachers



when monitoring scarce species. It also engages the public with ZSL's conservation efforts, enabling them to get directly involved with our animal projects around the globe.

ROYAL RECOGNITION

Conservationist Belinda Stewart-Cox, who works closely with ZSL on its projects with Asian elephants, was awarded an OBE in the 2011 Queen's Birthday Honours for her services to conservation. A founder of the Elephant Conservation Network (ECN), the Society's partner organisation in Thailand, Belinda has spent the past 25 years working to protect wildlife in the country. With humans and wild elephants living in closer proximity due to loss of habitat, ZSL and the ECN are working with local communities to tackle the ensuing human-elephant conflicts that are threatening lives and livelihoods.

IN DETAIL: NEW DISCOVERIES



Automatically triggered camera traps in the Boni-Dodori region of western Kenya have already revealed many surprising facts about this little-studied coastal ecosystem. Last year the cameras again demonstrated the surprising biodiversity of Boni-Dodori by revealing a previously unknown population of the critically endangered Aders' duiker. These small relatives of the grazing antelope were the most frequently photographed species in the survey, which captured nearly 63,000 images overall.



In February, a clouded leopard was filmed for the first time in Indonesia by ZSL conservationists in Berbak National Park on Sumatra's eastern coast. This elusive cat was only recently reclassified as the Sundaland clouded leopard (*Neofelis diardi*), a species distinct from its nearest living relations, the mainland Asia clouded leopard (*Neofelis nebulosa*). ZSL's survey work in this region has further highlighted the need to protect one of Sumatra and Borneo's most beautiful cats, with only a few thousand estimated to remain in the wild.

Conservation Science

ZSL's Institute of Zoology delivers world-class research and education as part of its overarching mission to further the conservation of animals and their habitats.

The Institute of Zoology (IoZ) is primarily funded by the Higher Education Funding Council for England, with extra contributions from other UK research councils and charities. Recently, IoZ was involved in the campaign to persuade Parliament to freeze the science budget in its Comprehensive Spending Review. Our evidence helped demonstrate the value of effective scientific research, and IoZ was one of the few government-funded organisations to escape cuts in 2011. Led by its senior Research Fellows, the Institute's scientific research programmes cover five key areas:

Biodiversity and macroecology research

aims to describe the patterns of diversity in the biology, ecology and distribution of animal species and their habitats at regional and global scales. Last year we used data going back over 30 years to investigate large mammal populations in Africa's national parks, showing that these have decreased by an average of 59% between 1970 and 2005, with the most severe declines in the west. Elsewhere, we looked at the effects of unequal adult sex ratios in a reintroduced population of the hihi bird. Although breeding females experienced more harassment in the male-dominated group, the good news was that this seemed to have little or no effect on adult female survival or the number of fledglings produced.

Behavioural and population ecology research

sets out to further understand wild species and the human populations that interact with them, informing conservation policy and management. A recent study has looked at cooperation in the mating strategies of mammal and bird species. In groups of pied babbler birds, a dominant pair monopolise breeding, helped by offspring from previous years, who do not get to breed themselves or inherit their parents' territory. Instead, they seem to use 'home' as a haven from which to seek nearby breeding opportunities. In contrast, dominant individuals in cooperative mammal groups, such as meerkats, were less able to prevent

diversity and structure affect individual fitness and the survival of the wider population, so we can manage animal populations more effectively. 2011 research focused on hybridisation between three species of gadfly petrel on Round Island in Mauritius, the effects of inbreeding in endangered birds, and developing genetic marker techniques to estimate relatedness.

Wildlife epidemiology research

investigates diseases that threaten wildlife, including emerging threats (see 'In Detail' case study overleaf). Understanding what consequences these might have – on both wildlife health epidemiology and human welfare – is especially important when

'Our evidence helped demonstrate the value of effective scientific research, and IoZ was one of the few government-funded organisations to escape cuts in 2011'

their social subordinates from breeding. This difference between mammals and birds is partly due to their reproductive physiologies: birds lay eggs in nest sites, whereas mammals gestate internally.

Genetic variation, fitness and adaptability research

describes patterns of relatedness among individuals, populations and species. We are investigating how genetic

these changes are driven by our own influence on the natural world.

Reproductive biology research

explores the bewildering diversity in reproductive adaptations, and aims to use this knowledge to develop applied technologies. We are also investigating the possible effects of environmental change on reproductive and developmental processes.



MEASURING BIODIVERSITY

International environmental agreements such as the Convention on Biological Diversity (CBD) have set stringent goals for conserving biodiversity. But to understand the way to achieve these goals and how we are progressing towards them we need scientifically robust indicators of global biodiversity status and trends. The Indicators and Assessments Unit was set up in 2006 for precisely this purpose, and comprises around 20 staff, students and interns. This year, its work has expanded to build a new understanding of wildlife population and range dynamics, and develop new techniques for monitoring species. Many of our projects will provide the science to inform global biodiversity policy for CBD 2020.

COMMUNICATING SCIENCE

In 2011, the institute was involved in two major public science communication events. A team from IoZ and the University of Cambridge, led by Andrew Cunningham, showcased important work on the spread of diseases in the exhibit *Bats and Bugs: Balancing Conservation and Public Health* at the Royal Society's Summer Science Exhibition. Many bat species carry pathogens that can cause serious diseases in livestock and humans. The exhibit featured research on the risks for human infection and the measures that can be taken while also protecting bats from persecution.

Meanwhile, *Soapbox Science*, organised by IoZ researchers Nathalie Pettorelli and Seirian Sumner, and the L'Oréal-UNESCO For Women in Science Programme, took place on the South Bank, London. Featuring 12 women who have made major contributions to UK science, it aimed to raise awareness of the issues facing female scientists and encourage more young women to consider careers in the field.

OUR PUBLICATIONS

Journal of Zoology

Our monthly Journal presents theory-driven studies of animals and their systems. The year's Thomas Henry Huxley Review, celebrating the evolution champion's outstanding contribution to science, was 'Cuckoo adaptations:



Further details of ZSL's activities can be found in our report Science for Conservation 2010-2011 at www.zsl.org/science

trickery and tuning', by Nick Davies, published in May. Influential works from pioneering explorers and zoologists, including Huxley himself as well as Richard Owen, Alfred Russel Wallace and John Gould, can be viewed from the journal homepage in volumes of *Proceedings of the Zoological Society of London* and *Transactions of the Zoological Society of London*. The Journal's podcasts can be heard at www.wiley.com/bw/podcast/jzo.asp.

Animal Conservation

This is our forum for the rapid publication of research into the conservation of animal species and habitats. Papers and commentaries are published in each issue. Two virtual issues were also produced in 2011: *Conservation Conflicts* and *Marine Mammal Conservation*.

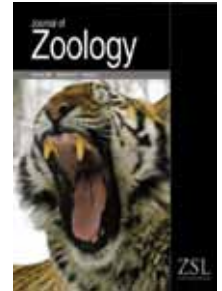
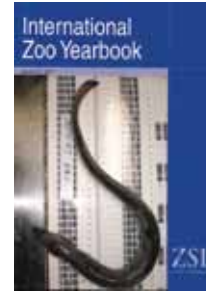
International Zoo Yearbook

Published in 2011, Volume 45 of the *International Zoo Yearbook* continues to

uphold its reputation as an invaluable resource for researchers, animal managers and anyone with an interest in wildlife conservation. Focusing on research in zoos, the volume deals with the rapidly expanding opportunities to carry out zoo and aquarium-based research, arguing that the urgency of the conservation challenge means these should be used much more widely than they are at present. Articles looked at some of the latest conservation research done with animals in zoological collections.

Conservation Science and Practice

Each book in the Wiley-Blackwell/ZSL *Conservation Science and Practice* series aims to address the multidisciplinary aspects of conservation, looking at how biological scientists and ecologists are interacting with social scientists to effect long-term, sustainable conservation measures. Recent titles include *Urban Biodiversity and Design* and *Trade-offs in Conservation: deciding what to save*.



Left: Andrew Cunningham's *Bats and Bugs: Balancing Conservation and Public Health* team. Above: 2011 publications from the IoZ. Below: our work helps shed light on wildlife population dynamics



SCIENCE AND CONSERVATION EVENTS

Symposia ZSL's two-day symposia allow international experts to discuss important topics in conservation science, giving them an opportunity to exchange ideas on best practice and communicate their own research. A symposium on *Marine Protected Areas on the high seas* in February assessed our progress towards establishing new areas of protection as well as the barriers we have encountered, particularly in regions outside the reaches of national jurisdiction.

Key scientists, policymakers, NGOs and private-sector representatives attended our May symposium, *Sustainable palm oil challenges, a common vision and the way forward*. This aimed to develop a common environmental and socioeconomic vision for sustainable palm oil production, and stimulate stakeholders into taking action.

Finally, *Antelope conservation in the 21st century: from diagnosis to action* was held in November. International experts discussed trends in global antelope

IN DETAIL: FIGHTING FUNGAL DISEASES



An important study by IoZ scientists looked at the evolution of the fungal infection *Batrachochytrium dendrobatidis* (*Bd*), a form of chytrid fungus that is causing amphibian biodiversity loss worldwide.

The researchers discovered three distinct forms of *Bd* in amphibians. Two are known to have been introduced as a result of the amphibian trade. We showed

that the third type, *BdGPL*, is hypervirulent, causing devastating disease outbreaks in North and Central America, the Caribbean, Australia and Europe, and may have developed as a result of renewed contact between previously genetically isolated populations of the fungus. Its spread is having catastrophic consequences for amphibian species across the globe.



**FOCUS ON
DR NICHOLA
RAIHANI,
POSTDOCTORAL
RESEARCH FELLOW**

Dr Nichola Raihani began work at the Institute of Zoology as a Postdoctoral Research Fellow in July 2008, having completed her PhD at the University of Cambridge. Nichola's research focuses on the evolution of cooperation in nature. She studies a diverse range of species – from the cleaner wrasse fish, pied babbler birds in the Kalahari desert and Damaraland mole rats to humans – to find out what makes individuals cooperate and behave unselfishly in situations where they may otherwise be tempted to exploit one another.

Nichola's research also examines the ecological causes and evolutionary consequences of individual variation in cooperative behaviour.

In 2011, Nichola was awarded a prestigious Royal Society University Research Fellowship at University College London (UCL) to research the mechanisms, such as punishment and partner choice, that sustain cooperation between individuals.

The project will also explore how asymmetries between players affect the outcome of cooperative interactions. Nichola's new position will help to create closer ties between IoZ and UCL, which in August 2011 became our new university partner.



A major part of IoZ's work is to promote the communication of science between researchers, zoologists and the public

biodiversity in order to understand the major threats and conservation priorities, considering both biological and socioeconomic factors. Focusing on antelopes provides a case study through which we can gain more general insight into conservation threats and how to mitigate them.

Public lectures Held monthly throughout the academic year, ZSL's *Communicating Science and Wildlife Conservation* public lecture series remains as popular as ever. Each free lecture provides an opportunity for zoologists, conservation practitioners, policymakers and the public to discuss the latest developments in conservation and zoological research. This year's subjects included *Life on the EDGE*, *Why be nice? Understanding cooperative behaviour in humans and other animals* and *Cryptozoology: science or pseudoscience?* Visit www.zsl.org/science/scientific-meetings for full programme information and details of upcoming lectures.

The Stamford Raffles Lecture

In 2011 our prestigious Stamford Raffles Lecture was given by Armand Marie Leroi, Professor of Evolutionary Developmental Biology at Imperial College, London. His lecture, *Possible creatures: an evolutionary vision*, explored how evolutionary theory allows us to explain the design that creatures show, and described how it might be possible to compute all possible creatures – and perhaps even predict the future of life.

OUR SCIENTIFIC AWARDS

ZSL recognises outstanding achievements in conservation and zoological research through its annual awards and prizes. These reward all levels of achievement, from the Prince Philip Award and Marsh Prize for the best A-Level or Higher student project (awarded to Edmund Bradbury in 2011) and the Charles Darwin Award and Marsh Prize for best undergraduate work (Rudi Verspoor), to the Thomas Henry Huxley Award and Marsh Prize for an



Clockwise from left: ZSL's award winners; Rebecca Kilner receiving her ZSL Scientific Medal; Armand Marie Leroi delivering the Stamford Raffles Lecture; artistic highlights from the library



exceptional doctoral thesis (Sam Weber). Original and significant contributions by professional zoologists are acknowledged with ZSL's Scientific Medal (Edward Feil, Rebecca Kilner and Andrew Rambaut) and Frink Medal (Ziheng Yang).

The Marsh Awards for Conservation Biology (Paul Donald) and Marine and Freshwater Conservation (Stephen Ormerod) recognise exceptional work on fundamental science and its application to conservation. The Thomson Reuters Zoological Record Award (Windfall Films for *Inside Nature's Giants*) and ZSL's Silver Medal (Michael McCarthy) honour distinguished contributions to the communication, understanding and appreciation of zoology and conservation. The Stamford Raffles Medal for outstanding amateur zoologists was presented to wildlife illustrator Richard Lewington, while the ZSL Award for Outstanding Contributions to the Zoo Community was awarded to William Conway of the Wildlife Conservation Society.

THE ZSL LIBRARY

More than 4,100 book titles were added to the online catalogue in 2011, 2,580 journal issues accessioned and 2,255 loans made to Fellows and ZSL staff, while the ZSL Library online catalogue was used 16,600 times. Lending services were extended so that both ZSL Volunteers and Student Fellows may now borrow books.

ZSL's retrospective book cataloguing project – which is producing electronic records for our online catalogue – continued apace, with more than 5,000 records added during the year. This enormous task is going ahead thanks to a generous bequest to the library from former member of staff Connie Nutkins.

Many of the library's holdings are just as much works of art as works of science, and Tate Britain recently borrowed one of our Edward Lear watercolours, *Macropus parryi*, as well as Volume III of John Gould's *A monograph of the Trochilidae, or family of humming-birds*, to display at its 2011 exhibition *Watercolour*.

There has been great interest in the fascinating Nepalese and Indian bird and mammal manuscripts of naturalist Brian Houghton Hodgson. All of Hodgson's English notes are now available in electronic format, and can be found on the library pages of the main ZSL website.

Interest in ZSL's Archives also continued to increase, with a variety of researchers visiting the library and a number of 'meet the archives' events and introductory tours for Fellows. Library tours for external visitors have included members of Visit London and the University, College and Research Libraries group.

Highlights of the 'Artefact of the month' feature on ZSL's website included a sketch from the visitors' book by artist Joan Miró, and photographs of 'First class keeper' Ernie Bowman, who was awarded ZSL's Bronze Medal in 1927. An image of Bowman with a young hippo he had reared was featured in the National Portrait Gallery exhibition *Hoppé Portraits: Society, Studio and Street*.

Invertebrates

What is biodiversity?

There is an incredible variety of invertebrate animals.



Discovery and Learning

With an increasingly diverse workload, a busy programme of events and a brand-new learning strategy, the department is going from strength to strength.

There were several significant changes in the Discovery and Learning department in 2011. Unfortunately, March saw the end of 10 years of subsidised school visits to ZSL London Zoo through the Greater London Authority. Despite this financial blow, an encouraging number of schools were willing to pay for their trip, with 107,606 education visits made to ZSL London Zoo in 2011. This may be a 28% decrease from 2010, but it demonstrates the readiness of many schools to continue benefiting from the exceptional learning experiences provided by the Zoo.

At ZSL Whipsnade Zoo, education visits rose for a second year, with 39,515 taking place in the past 12 months – a 6% increase from 2010. The Zoo is proving so popular with school groups that an extra classroom is planned at Whipsnade for 2012 to meet the increase in demand for teaching sessions.

The opening of *Penguin Beach* not only quadrupled the size of the London penguin pool, but also enabled visitors to find out more about ZSL's field conservation work through the eyes of a penguinologist, aided by our live interpretation team. Hugely enjoyed by visitors, it was the highest-scoring exhibit in the summer report by the Visitor Attraction Quality Assurance Scheme. Research also showed that visitors had

learned more about the threats to penguins in the wild and the work of ZSL.

As part of the same development, London's interpretation team also contributed to the look and feel of the new *Penguin Beach* shop and visitor exit, a precursor to a larger 'way-finding' project that will take place in 2012, helping to make the Zoo easier to navigate than ever.

'Research showed that visitors to *Penguin Beach* had learned about the threats to penguins in the wild and the work of ZSL'

There were smaller improvements to the London site, too, notably film projections and signage in the giraffe house, a new fruit-bat exhibition, updates in the Aquarium, and refurbishment of the Zoo's East Tunnel. The interpretation team also provided banners and signage for the extremely successful *Project Ocean* and hosted a Wildlife Crime exhibition highlighting the alarming illegal trade in endangered species.

Meanwhile, Whipsnade celebrated its 80th birthday in style in 2011 with a souvenir booklet, photo exhibitions and heritage signs created by the interpretation team. Our explainers

had special birthday treats for and talks on a different animal during each week of the summer holidays, all of which were especially popular with our members. There were updates to the tiger interpretation, as well as the flamingo, silvery marmoset and woodland bird experiences, plus easy-to-follow signage for the new Trunk Line land train that carries visitors around the Whipsnade site.

In recent years, and in response to the changes in the funding of school visits and the increasing diversity of the work of the department, a new learning strategy has been developed by the whole Discovery and Learning team. Our strategic aims all fit into the following categories: informal learning; formal learning; communication, education and public awareness (CEPA); evaluation; arts and culture; and putting learning at the heart of ZSL. Our goal is to develop and expand our provision in these key areas, to help achieve ZSL's mission targets and to become world leaders in learning.

CEPA EXPLAINED

The Discovery and Learning department has been getting more involved with colleagues in ZSL's conservation programmes to ensure that communication, education and public awareness (CEPA), the people side of conservation, is given the attention it deserves. The department has provided several training days for staff and EDGE of Existence Fellows dealing with CEPA and social change for conservation.

Engagement and interpretation manager Becky Day visited ZSL's conservation partners in Nepal to observe community involvement in vulture conservation. Here, money from the Disney Worldwide Conservation Fund has allowed local community groups to set up 'vulture restaurants' where endangered birds can eat carcasses free from the harmful veterinary drug diclofenac. Becky was hugely impressed by the groups' enthusiasm. Training on CEPA was also included in a conservation action planning course for ZSL global programme managers.



ZOO ACADEMY LAUNCH

In 2011, ZSL launched a new eight-day course for 15 to 17-year-olds wishing to pursue a career with animals. The ZSL Zoo Academy ran at both our Zoos, and covered all aspects of working at ZSL. Each day began with a theory session on selected animal groups, followed by a series of practical tasks including preparing food, cleaning out enclosures and helping keepers. One day was also dedicated to a behaviour study on either squirrel monkeys (London) or ring-tailed lemurs (Whipsnade). By the end of the course, each student had put together a portfolio of evidence to help them with future job or university applications, and their proud families attended a graduation ceremony with certificates presented by senior ZSL staff. After phenomenal feedback from participants, six more courses are planned for both Zoos in 2012.

One hundred per cent of Barclays volunteers at our Special Children's Day said it was a worthwhile experience and 92% said they would volunteer at ZSL again

EXPLAINERS IN ACTION

With the arrival of *Penguin Beach*, explainers at ZSL London Zoo were given the chance to create an interactive talk based on one of our most popular residents. Over 95,000 visitors have enjoyed *Penguin Beach Live* at the enclosure's 300-seat stadium since May 2011. This high-energy presentation not

only offers a chance for visitors to get an excellent view of penguin feeding times, but also communicates key conservation messages through audience participation. At Whipsnade, explainer highlights included the veterinary-focused touch tables. Using toy animals, visitors could experience how our vets check for microchips and bandage limbs – as well as discovering some of the more unusual equipment needed for working with exotic animals.

VALUABLE VOLUNTEERS

At both Zoos, our volunteers have continued to provide an exemplary

service for ZSL visitors. Long-service award evenings for volunteers took place at both Zoos, with 80 individuals in London receiving certificates for service of five years or more, and 41 at Whipsnade. Volunteers have been invaluable at many of our 2011 events, including *Zoo Lates* and all our Easter, Halloween and Christmas activities.

A SPECIAL DAY

It was another successful year for *Special Children's Day*, with 3,000 people attending. Running over two days, this annual event for disabled youngsters helped us build closer ties with children's charities, including an online charity hub. With new activity zones, including one for children with autism, and improved onsite facilities, the celebration also acquired its first event partner in Barclays, which donated £15,000 and provided 60 eager volunteers. Children's charity Daytrippers also contributed £3,000. The event raised £40,000 and generated fantastic publicity, with a feature in the *Evening Standard* and the *Telegraph* listing it as one of the 'top five things to do in London this week.'



THE BIG DRAW

Around 1,500 children of all ages took part in our *Big Hairy Bug Draw* during autumn half-term – and naturally our *B.U.G.S!* exhibit made the perfect venue. The event was sponsored by Derwent, who supplied art materials and prizes, and ably assisted by student volunteers from London's City & Guilds. Cartoonist and Zoo Advisory Committee member Martin Rowson also joined the



Left: enthusiastic members of last year's popular Zoo Academy, designed to teach young people how they might pursue a career with animals. Above: making new friends at ZSL Zoos

fun, painting a political satire on the wall in *B.U.G.S!*. Six-year-old Alex Williams scooped top prize for his drawing of a red-kneed spider, and will receive a behind-the-scenes tour of *B.U.G.S!*, while all the creepy-crawly pictures from this and previous years' events are being archived by the British Library.

HALLOWEEN TOURS

ZSL London Zoo explainers got into the spooky spirit in October with six Halloween ghost tours. Guided by our explainers, visitors encountered three 'ghosts', who relayed the stories of the Zoo's most haunted areas. Inside the Aquarium the tour became even more chilling, with a team of volunteer 'ghouls' on hand to scare visitors in true Halloween style. The sold-out



evening was described by one terrified participant as the 'best ghost tour I've been on!'

THE LIVING NATIVITY

In December, our Formal Learning team welcomed 4,000 school children and 900 teachers and parents to *The Living Nativity* at ZSL London Zoo. The story of the first Christmas was brought to life by experienced actors and the Zoo's very own animals. Children enjoyed a magical Christmas experience as the Wise Men introduced their camels, shepherds tended their sheep and goats, and Mary invited them into the stable. The visit ended with the chance to meet Santa. The event was a great success, with all the teachers saying they were likely to return in future.



FOCUS ON GEORGE FITT, EDUCATION VOLUNTEER

Outstanding volunteer George Fitt has been helping at ZSL London Zoo for an incredible 55 years. George and his late wife Sheila both volunteered at the mammals section in the 1960s, where the couple got to know not only the keepers, but also the gorillas, chimpanzees and orangutans. Chimpanzee Koko was particularly fond of George, and used to call whenever he approached.

George later became an education volunteer, and now spends his time next to the tiger enclosure, charming visitors, talking about tiger conservation, and promoting ZSL's Tiger SOS campaign. A real Zoo character, everyone knows George – he'll have a morning cup of tea with the keepers before joining the daily volunteer briefing. On receiving his long-service award in December, George was given a spontaneous standing ovation. A very special man, and a very special volunteer.



Finances

In 2011, ZSL recorded a consolidated surplus on operations of £4.2m (2010 – £0.9m) and a total surplus, before loss on the pension fund, of £4m (2010 – £1.2m) after a £0.2m loss (2010 – £0.3m gain) on investments. The actuarial loss on the pension fund was £1.1m (2010 – £0.2m). This leaves the net movement in funds as a surplus of £2.9m (2010 – £1.0m).

Incoming resources increased by £4.8m, which chiefly related to higher levels of animal collections income and voluntary income.

ZSL remains dependent on its two Zoos for the bulk of its incoming resources. In 2011, ZSL London Zoo visitor numbers reached 1,090,741, an increase of 79,484 (7.9%) on 2010. At ZSL Whipsnade Zoo visitor numbers were 502,785, an increase of 74,101 (17.3%) on 2010. The total number of visitors to the two Zoos in 2011 was 1,593,526 (2010 – 1,439,941).

Incoming resources included Gift Aid recoveries which on day entry to our Zoos amounted to £1.6m (2010 – £1.5m) whilst in total, on all sources of income, amounted to £2.3m (2010 – £1.9m).

The Institute of Zoology – within science and research incoming resources – and conservation programmes

maintained their revenues with new grants received in 2011, but these were mainly connected to specific projects and, although they supported ZSL's mission, they did not contribute to the unrestricted funds of the Society to fund future development.

Resources expended increased by £1.4m in the year, which primarily related to animal collections.

The total capital spend of £3.3m (2010 – £2.0m) included completion of *Penguin Beach*, our main animal exhibit for 2011, located at ZSL London Zoo, and the extension of the main gift shop, together with a new exit into Regent's Park for visitors to the Zoo. We continue to invest in our infrastructure to improve visitors' experiences and the Society's compliance with disability discrimination legislation, as well as its sustainability profile.

The June 2011 triennial actuarial valuation of the ZSL 1988 defined

benefit pension scheme showed that it remains fully funded. On the basis of the Accounting Standard Board's financial reporting standard 17, it had a £0.4m deficit at the end of 2011 (2010 – £0.3m surplus). Funding levels continue to be monitored by ZSL and the pension fund trustees on a regular basis. Whilst this scheme is now closed to employees joining ZSL after 30 June 2011, a new stakeholder defined contribution scheme is available for those employees.

Our main trading subsidiaries, Zoo Enterprises Limited and Whipsnade Wild Animal Park Limited, produced better results than in 2010, despite the continuing difficult economic conditions. While turnover at £10m was marginally ahead of 2010, cost reductions, aided by the outsourcing of some catering activity, and new income streams helped total net profits rise to £2.3m (2010 – £1.9m).

'Incoming resources increased by £4.8m, which chiefly related to higher levels of animal collections income and voluntary income'

Group Summarised Financial Statements

SUMMARY GROUP STATEMENT OF FINANCIAL ACTIVITIES FOR THE YEAR ENDED 31 DECEMBER 2011

	Year to 31.12.11 £000	Year to 31.12.10 £000
Incoming resources		
<i>Incoming resources from generated funds</i>		
Voluntary income	3,238	1,993
<i>Activities for generating funds</i>		
Subsidiaries' trading turnover	10,010	9,908
Other	–	2
Interest and investment income	446	294
<i>Incoming resources from charitable activities</i>		
Animal collections	25,139	22,306
Science and research	5,084	4,839
Conservation programmes	1,928	1,746
Total incoming resources	45,845	41,088
Resources expended		
<i>Cost of generating funds</i>		
Costs of generating voluntary income	641	588
<i>Fundraising trading</i>		
Subsidiaries' cost of goods sold and other costs	7,732	8,009
Investment management costs	–	14
<i>Charitable activities</i>		
Animal collections	23,667	22,402
Science and research	5,731	5,715
Conservation programmes	3,654	3,275
Governance costs	181	158
Other resources expended – Biota	–	2
Total resources expended	41,606	40,163
Net incoming resources before other recognised gains/(losses)	4,239	925
<i>Other recognised (losses)/gains</i>		
(Loss)/gain on investments	(223)	312
Actuarial loss on pension scheme	(1,100)	(200)
Net movement in funds	2,916	1,037
Reconciliation of funds		
Total funds balance brought forward	47,499	46,462
Total funds balance carried forward	50,415	47,499

The above results are all for continuing operations.

No statement of total recognised gains and losses has been prepared as all such gains and losses have been included above.

Group Summarised Financial Statements (continued)

SUMMARY GROUP BALANCE SHEET AT 31 DECEMBER 2011

	31.12.11 £000	31.12.10 £000
Fixed assets		
<i>Tangible assets</i>	35,179	35,066
<i>Investments</i>	3,687	3,879
	38,866	38,945
Current assets		
<i>Stocks</i>	730	647
<i>Debtors</i>	3,396	3,719
<i>Short-term deposits</i>	6,000	2,000
<i>Cash at bank and in hand</i>	7,622	7,397
	17,748	13,763
Creditors: amounts falling due within one year	(5,799)	(5,509)
Net current assets	11,949	8,254
Net assets excluding pension scheme (liability)/asset	50,815	47,199
Defined benefit pension scheme (liability)/asset	(400)	300
Net assets	50,415	47,499
Funds		
<i>Unrestricted – General</i>	7,619	5,459
<i>– Designated</i>	36,209	35,084
Unrestricted funds excluding pension (liability)/asset	43,828	40,543
<i>Unrestricted – Pension (liability)/asset</i>	(400)	300
Total unrestricted funds	43,428	40,843
<i>Restricted – Endowments</i>	640	661
<i>– Other</i>	6,347	5,995
Total funds	50,415	47,499

Trustees' statement accompanying the group summarised financial statements

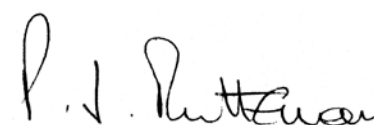
The group summarised financial statements are not the statutory accounts, but a summary of information relating to the group statement of financial activities and the group balance sheet.

The full Trustees' Report and financial statements, from which the summarised financial statements are derived, have been externally examined by Baker Tilly UK Audit LLP and its audit report on them is unqualified.

The full Trustees' Report and financial statements and Baker Tilly UK Audit LLP's audit report on them were approved on 17 April 2012 and 19 April 2012 respectively and will be submitted to the Charity Commission.

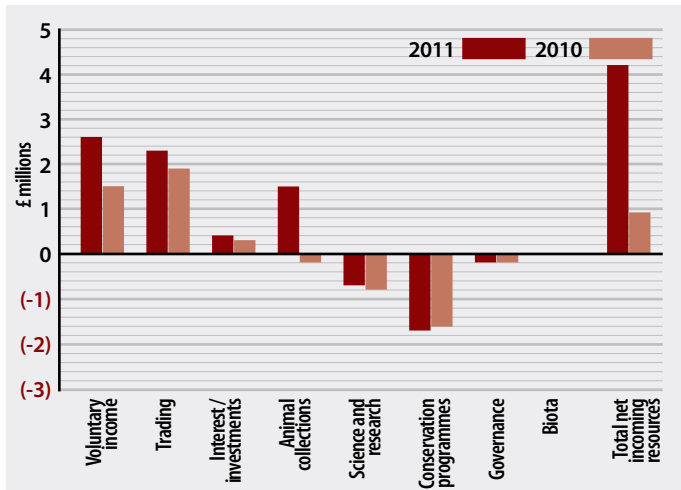
Copies can be obtained from the Finance Director at The Zoological Society of London, Regent's Park, London NW1 4RY.

Signed on behalf of the Trustees on 19 April 2012.



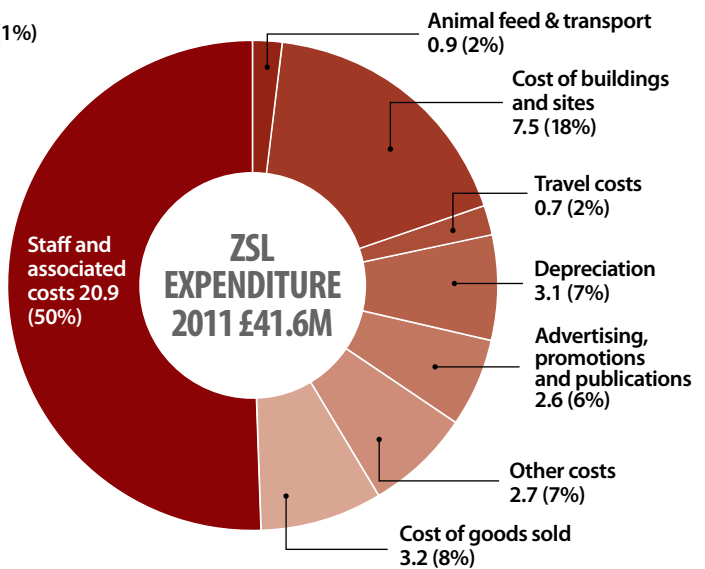
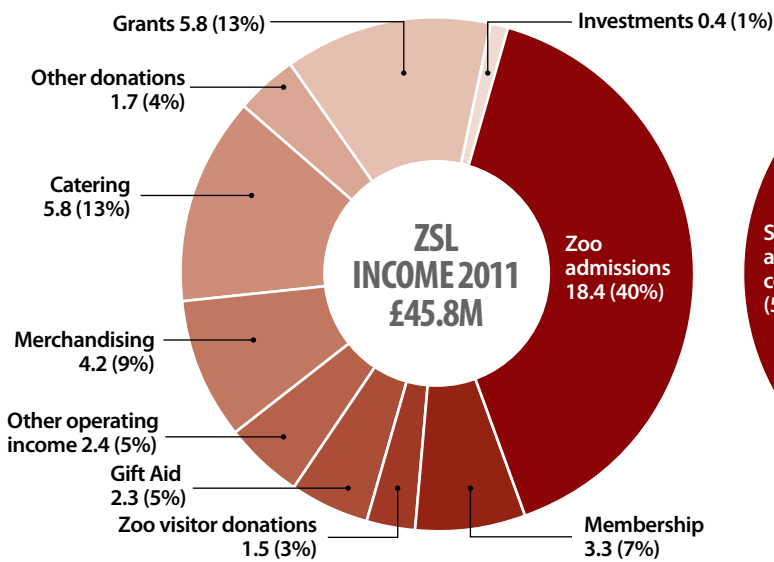
Paul Rutteman CBE BSc (Econ) FCA
Treasurer

Net income/expenditure by activity



	Net 2011 £m	Net 2010 £m
Voluntary income	2.6	1.5
Trading	2.3	1.9
Interest/investments	0.4	0.3
Animal collections	1.5	(0.2)
Science and research	(0.7)	(0.8)
Conservation programmes	(1.7)	(1.6)
Governance	(0.2)	(0.2)
Biota	0	0
Total net incoming resources	4.2	0.9

Income/expenditure



Independent auditor's statement to the Trustees of The Zoological Society of London (an unincorporated charity)

We have examined the summarised financial statements of the Zoological Society of London on pages 32 to 35.

RESPECTIVE RESPONSIBILITIES OF TRUSTEES AND AUDITORS

The Trustees are responsible for preparing the summarised financial statements in accordance with applicable UK law and the recommendations of the charities statement of recommended practice.

Our responsibility is to report to you our opinion on the consistency of the summarised financial statements in the summarised Annual Report with the full annual financial statements and Trustees' Annual Report.

We also read the other information contained in the summarised Annual Report and consider the implications for our report if we become aware of any apparent misstatements or material inconsistencies with the summarised financial statements. The other information comprises only the financial review ('finances').

We conducted our work in accordance with Bulletin 2008/3 issued by the Auditing Practices Board.

OPINION

In our opinion the summarised financial statements are consistent with the full financial statements and the

Trustees' Annual Report of the Zoological Society of London for the year ended 31 December 2011.

We have not considered the effects of any events between the date on which we signed our report on the full annual financial statements (19 April 2012) and the date of this statement.

Baker Tilly UK Audit LLP

Baker Tilly UK Audit LLP
Statutory Auditor
25 Farringdon Street
London EC4A 4AB
19 April 2012

Thanks for your support

From fundraising challenges and individual gifts to mutually rewarding corporate partnerships and funding grants, there are many ways to help our work – and ZSL's supporters were as generous as ever in 2011.

JOIN THE CHALLENGE

ZSL saw a number of very successful fundraising events in 2011, with a record number of committed fundraisers taking part in our challenges. We also ventured into new events, gaining places in the Virgin London Marathon that raised more than £17,000, as well as taking part in overseas challenge events for the first time.

The intrepid Ryan Cooke cycled 480km across Rajasthan in India, facing high temperatures, tricky terrain and long days, to raise funds for ZSL's *Tiger SOS* campaign. Thank you to all of our fundraisers and organisations who helped raise more than £50,000 – a new record for ZSL – in challenge events throughout 2011.

BE AN INDIVIDUAL

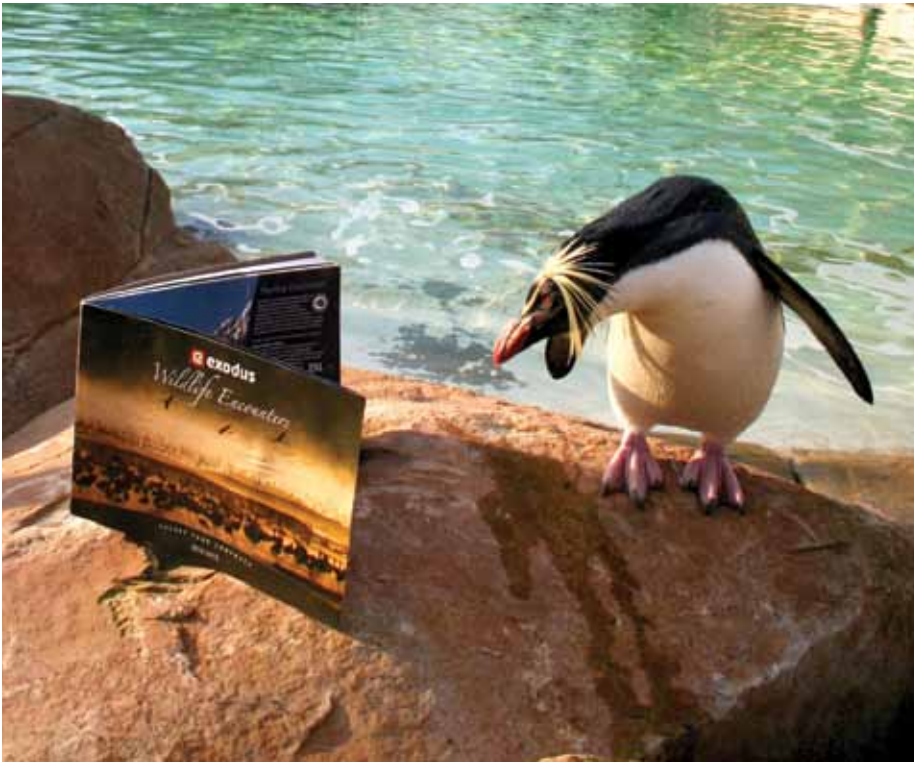
Individual supporters and donors remain at the heart of our work. Long-term ZSL supporters Robert and Jenny Akester have generously donated £19,000 in the past four years towards the Mongolia Steppe Forward Programme, which aims to empower Mongolian people by providing them with the skills necessary to manage their own conservation programmes. Jenny and Robert are ZSL Patrons and Jenny has been a ZSL Fellow since 2003. They are a great example of individuals whose support reaches across the breadth of ZSL's work at home and abroad.



REMEMBER US IN YOUR WILL

Legacy gifts are an important – and hugely appreciated – source of funding for ZSL's work, helping us achieve our mission by supporting not just our Living Collections but also our conservation programmes and scientific research. In 2011, we received a generous legacy gift of £110,000 from Edna Groves for our research and conservation work at the Institute of Zoology. A true Londoner, Edna was born in Brixton and her father was a policeman at the Albany Street station, close to ZSL London Zoo. As a member of the constabulary, her father could visit the Zoo for free, and Edna had happy memories of feeding the animals on regular family days out.

As an adult, Edna worked as a wages clerk and was a member of the Territorial Army in Primrose Hill. Always a kind and thoughtful person, Edna will be sadly missed by those who knew her. Her commitment to making the world a better place is shown by her support of many worthwhile charities, including ZSL. As a ZSL Lifetime Fellow, Edna was a regular visitor to the Zoo and got to know many of the staff. Her decision to make a gift in her will was both personal and practical. Edna wanted to show her appreciation for a lifetime of pleasure derived from visits to and friendships made at the two Zoos, and also support her conviction that our scientists have the expertise and dedication needed in research and conservation.



From left: ZSL is helping conserve Mongolian species such as Bactrian camels, photographed here by supporter Robert Akester; Ricky the rockhopper penguin planning his holidays; Patron Jan-Philipp Pfander running the Royal Parks Foundation Half Marathon for ZSL

‘ZSL saw a number of very successful fundraising events in 2011, with a record number of committed fundraisers taking part in our challenges’



HOLIDAY WITH EXODUS

How many Antarctic holidays can you go on with ZSL’s very own penguinologist? Thanks to our partnership with Exodus, the answer is two. Adventure holiday company Exodus became ZSL’s official wildlife travel partner in May 2011. With a focus on low-impact tourism and a wealth of extraordinary wildlife experiences across all seven continents, Exodus is ideally placed to support the work of ZSL.

In their first eight months supporting ZSL, Exodus generously provided us with £50,000, helping to fund both our penguin conservation work in Antarctica and our new exhibit, *Penguin Beach*, at ZSL London Zoo. Supporters and visitors can also benefit from the partnership by receiving 5% off any Exodus holiday.

We hope this is the beginning of a long and wonderful partnership between ZSL and Exodus.



THE MOHAMED BIN ZAYED SPECIES CONSERVATION FUND

Many areas of ZSL’s work benefit from the generous support of charitable foundations, but finding organisations that are able to make grants for the conservation of individual species can be particularly challenging.

The Mohamed bin Zayed Species Conservation Fund recognises that bigger-picture environmental issues can sometimes overshadow species conservation, and its grant-making strategy seeks to address this. In 2011, the fund supported no less than nine species-level initiatives at ZSL, including our work with the Hainan gibbon and our programme with cheetahs and wild dogs in Africa. As well as helping us with much-needed financial support, we are grateful to the Fund for highlighting the value of species conservation in the ongoing global debate about our environmental priorities.



THE RUFFORD FOUNDATION

The Rufford Foundation is an independent grant-making trust that has worked closely with ZSL for several years, providing seed funding for new initiatives, finance for fieldwork and committed support for ZSL’s work on the International Union for Conservation of Nature Red List of Threatened Species, a key information tool for biodiversity conservation and all those involved in policy and decision-making.

The Society is fortunate to have benefited from the proactive approach that the Rufford Foundation takes to its funding. Two of the four new grants we received in 2011 – supporting the projects *Tiger conservation in the Sundarbans* and *Monitoring bushmeat imports to Europe* – stemmed from a call to action by those within the foundation, seeking to address their immediate conservation concerns. We are grateful to the Trustees of The Rufford Foundation for their foresight.

ZSL WOULD LIKE TO THANK ALL OUR SUPPORTERS, MEMBERS, FRIENDS, PATRONS, FELLOWS AND VOLUNTEERS FOR THEIR CONTRIBUTION AND COMMITMENT IN 2011. WE SIMPLY COULD NOT CARRY OUT OUR MISSION WITHOUT YOUR ONGOING DEDICATION AND SUPPORT. SPECIAL THANKS GO TO THOSE MENTIONED ON THESE PAGES.

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 Big Lottery Fund
 Darwin Initiative
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 Deutsche Gesellschaft für Internationale Zusammenarbeit
 Environment Agency
 European Commission
 Mayor of London
 Natural England
 Natural Environment Research Council (NERC)
 The Royal Society

United States Fish and Wildlife Service
 Veterinary Laboratories Agency

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10th Duke of Rutland Memorial Conservation Trust
 21st Century Tiger
 American Friends of London Zoo, Inc (AFOLZ)
 Arcus Foundation
 AXA Foundation
 BBC Wildlife Fund
 Blue Marine Foundation
 Bruce Wake Charitable Trust
 Cecil King Memorial Fund
 Charities Advisory Trust
 Dolly Knowles Charitable Trust
 Dorothy Howard Charitable Trust
 Dr Robert Andrew Rutherford Trust
 Durrell Wildlife Conservation Trust
 EcoHealth Alliance
 Edinburgh Trust No 2 Account
 Esmée Fairbairn Foundation
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 Gilchrist Educational Trust
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 Lindeth Charitable Trust
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 N Smith Charitable Settlement
 National Fish and Wildlife Foundation
 Newman's Own Foundation
 Oak Foundation
 Ocean Park Conservation Foundation (Hong Kong)
 Panthera/Save the Tiger Fund
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 Philippine Tropical Forest Foundation
 Rockefeller Philanthropy Advisors

Sahara Conservation Fund
 Save Our Seas Foundation
 SeaWorld & Busch Gardens Conservation Fund
 Steppe Forward Programme
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 The Barbara and Stanley Fink Foundation
 The Ernest Kleinwort Charitable Trust
 The Foundation of Prince William and Prince Harry
 The Hobson Charity
 The Michael Marks Charitable Trust
 The Mohamed bin Zayed Species Conservation Fund
 The Prince William & Miss Catherine Middleton Charitable Gift Fund
 The Privy Purse Charitable Trust
 The Rose Foundation
 The Rufford Foundation
 The Waterloo Foundation
 The Wixamtree Trust
 Thoiry-Peaugres Conservation
 Tigris Foundation
 UK Trust for Nature Conservation in Nepal
 Vodafone Foundation
 Zebra Foundation

LEGACIES FROM THE ESTATES OF

Shirley Biggs
 Doris Leslie Bowen
 Sameer John Clifford Bowyer
 Hugh David Clark
 Vera Gertrude Cumming
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 Colette Anna Fontaine
 Edna Mary Groves
 Jacqueline Diane Howard
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 Kate Humble
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 Bob and Sarah Rihal
 Mike Staunton
 Jonathan Stephens

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Biodiversity and Agricultural Commodities Program
 British Ecological Society
 British Herpetological Society
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 Copenhagen Zoo
 Daytrippers
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 International Union for Conservation of Nature
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 NaturZoo Rheine
 Oceanites
 Paignton Zoo Environmental Park
 Rewilding Europe
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 Royal Geographical Society
 Royal Society for the Protection of Birds
 Royal Zoological Society of Scotland
 Shepreth Wildlife Park
 Saint Louis Zoo

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United Nations Office at Nairobi
Wildlife Conservation Society
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WorldWide Volunteering
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WWF UK
Zoologische Gesellschaft für
Arten- und
Populationschutz (ZGAP)

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Professor Ian Owens
Professor Andy Purvis
Professor Charles Tyler
Professor Paul Watson

* Stepped down during 2011
+ Joined during 2011
** via American Friends
of London Zoo (AFOLZ)

ZSL would like to thank those
who specifically wish to
remain anonymous.

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Her Majesty the Queen

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Professor Geoff Boxshall FRS (from 19 April 2011)
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James Wren BA (from 19 September 2011)

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Managing editor: Amy Harris

Editor: Claire Sargent **Designer:** Dom Scott

Sub-editors: Gemma Green, Alec Johnson

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recycled paper.

We extend our thanks to ZSL staff and other colleagues

for the use of photos in this publication:

D Vidanapthirana, Jonathan Baillie, Lauren Baily, Richard Boycott,
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Sprawson, Brian Zimmerman. **Cover image:** Ben Collen



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LIVING CONSERVATION

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ZSL Whipsnade Zoo
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