



ZSL

LIVING CONSERVATION

Conservation Review 2011

LIVING CONSERVATION

Founded in 1826, the Zoological Society of London (ZSL) is an international scientific, conservation and educational charity whose mission is to promote and achieve the worldwide conservation of animals and their habitats. Our mission is realised through our ground breaking science, our active conservation projects in more than 50 countries and our two zoos, ZSL London Zoo and ZSL Whipsnade Zoo.

The current economic crisis means that organisations involved in conservation, like the Zoological Society of London (ZSL), must deliver successful outcomes for minimal financial input. ZSL continued to achieve this difficult balance in 2011, with the Society generating ground-breaking conservation initiatives at low cost.

Through both its popular zoos in London and Whipsnade and its extensive education and outreach programmes, ZSL works tirelessly to engage the public in conservation. It is for this reason that I am particularly proud of the achievements of Project Ocean, ZSL's groundbreaking collaboration with the stalwart of the British high street, Selfridges. With the 'No More Fish in Sea' banner dominating Oxford Street, this event reached over 16 million people and raised over £120,000. The initiative also led to the establishment of the Selfridges marine protected area in the Philippines and the formation of the Marine Reserves Coalition.

The launch of Instant Wild, a network of remote camera traps transmitting images directly from the field to users of the website or iPhone application, heralded a new era for the involvement of the lay public in science. This tool enables users to identify instantly images of wild animals captured digitally at ZSL's field conservation sites.

With the Rio +20 United Nations conference on sustainable development and the IUCN World Conservation Congress, 2012 will be a year of both challenges and opportunity for the global conservation community. With its firm focus on science-based conservation, I believe that ZSL is ideally placed to both inform and lead the conservation agenda. I congratulate the ZSL team on their achievements to date and look forward to witnessing their continued success in ensuring the preservation of some of the most unique, endangered species on the planet.

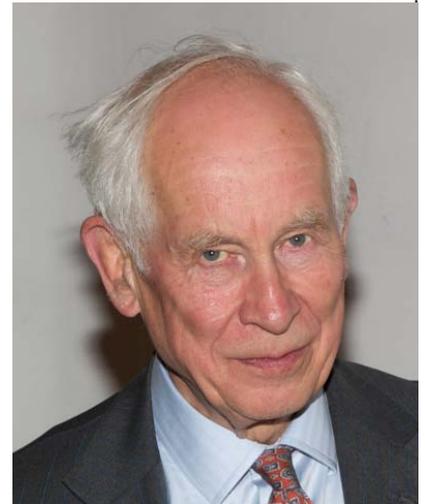
Professor Sir Patrick Bateson FRS
President, Zoological Society of London

2011 saw ZSL maintain its reputation as one of the world's premier science-based conservation organisations with the development of innovative technological solutions to global conservation issues. These revolutionary tools will ensure the society remains at the forefront of monitoring and assessing species trends.

Poised to celebrate its fifth birthday in 2012, ZSL's pioneering EDGE of Existence programme has continued to grow in ambition and scope. The programme focuses on the protection of the world's most endangered and unique species and, since its inception in 2008, has trained 38 conservation professionals in developing countries, led six expeditions, and developed priority lists for mammals, amphibians and corals.

The conservation achievements described in the following pages are a reflection of the dedicated work across the Society, from teams in education, science, the zoos and conservation programmes. However, they would not have been possible without the support of our generous donors and partners. This support, coupled with the enthusiasm of ZSL's staff, has ensured that in 2012 the Society will be well placed to ensure the worldwide conservation of animals and their habitats.

Ralph Armond MA
Director General, Zoological Society of London



Patrick Bateson



Ralph Armond



© ZSL



© Teguh Tirtaputra



© John White



INTRODUCTION

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 empirically demonstrate the negative impact people are having on biodiversity and ecosystems and clearly articulate the risks to humanity, and to all life. The second is to ensure that society is presented with reasonable, practical and sustainable alternatives and sound, evidence-based solutions. The third is to influence society's relationship with nature so that the true value of biodiversity is integrated into everything we do from resource use to political decision making to investing in global markets. Success will require all sectors of society to initiate and implement solutions.

Three major challenges must be addressed if we are to halt the decline of species and ecosystems on a global scale

As one of the world's strongest science-based conservation organisations, ZSL is uniquely placed to help address the first challenge. ZSL scientists are leaders in defining the status of species and ecosystems and developing global biodiversity indicators. In 2011, ZSL continued to develop the WWF Living Planet Index, coordinated the assessment of over 3,500 species for the IUCN Red List, expanded the National Red List website, and helped to complete the Mongolian Red List of Birds, the Mongolian Red List of Medicinal Plants and the Nepal Red List of Mammals. The Wildlife Picture Index (camera trapping) was implemented in East Africa, West Africa and central Asia. InstantWild was also launched, transmitting images from camera traps in the wild directly to an iPhone or the web and encouraging the public to help identify the images. The application had over 70,000 downloads in the first week! ZSL scientists also produced significant scientific papers, reports and films addressing the relationships between biodiversity and climate change, disease and food security.

With conservation projects in over 50 countries, ZSL is also well placed to seek solutions, test conservation interventions in a broad range of settings and help to rapidly build an evidence-base of what works and what does not.

In 2011, a novel partnership between ZSL and Selfridges through Project Ocean resulted in many new conservation initiatives. Two notable outcomes were a new 50 hectare Marine Protected Area (MPA) in the Philippines (the 34th implemented through Project Seahorse) and the Marine Reserve Coalition - six influential conservation organisations committed to rapidly scaling up MPA implementation globally. ZSL has also been developing and testing the best approaches for coastal restoration, including integrating mangroves into MPAs as well as active rehabilitation of over 100 hectares of mangrove forest in the Philippines.

Over the past year ZSL further developed the REDD+ (Reducing Emissions from Deforestation and Degradation) initiative in Berbak, Indonesia. The objective is to assess the potential of this market-based approach to reducing deforestation and degradation and simultaneously create a sustainable funding stream for forest conservation.

ZSL is committed to conserving the last rhino and tiger strongholds and has been implementing and testing approaches for reducing human wildlife conflict and poaching. In Bangladesh, the new tiger response teams successfully intervened to save tigers that wandered into villages and would otherwise have been killed. In Chitwan and Bardia National Parks in Nepal ZSL has supported monitoring and surveillance interventions which have resulted in a significant reduction in rhino poaching.

Since its inception in 1826, ZSL has been a leader in the development of animal husbandry techniques and continues to develop these skills for conservation breeding (where rare species are bred in captivity and reintroduced to the wild). In 2011, ZSL and partners built up the mountain chicken breeding group in Dominica; had the most successful year to date in vulture breeding; and further enhanced corncrake populations in the UK through the release programme. At the King Khalid Wildlife Research Centre in the Kingdom of Saudi Arabia, 17 mountain gazelles were reintroduced to Mahazat as-Sayd Reserve.

Influencing the way in which society values nature will require mainstreaming biodiversity conservation and sustainability. In this, ZSL has an extremely important role to play through training future conservation leaders. In addition to PhD students, post docs and Masters students, ZSL supports a large number of in-country field staff.

ZSL conducted its first EDGE regional training courses for in-country conservationists in 2011, including the EDGE corals workshop in Indonesia and an EDGE mammals and amphibians workshop in Nepal. ZSL also supports young conservationists living in Britain through the Erasmus Darwin Barlow awards.

ZSL is uniquely placed to engage the public and policy makers. The Society reaches many millions of people each year; through ZSL London and Whipsnade zoos, through the online, print and broadcast media, and through its symposia, scientific talks and publications. In 2011, ZSL embarked on an experiment with Selfridges to reach an entirely new audience: Project Ocean. The objective was to “sell” to the general public the need for marine protected areas and sustainable fisheries. Over 16 million people were exposed to Project Ocean and there have subsequently been major mainstream commitments to ocean conservation.

Over the next year ZSL will focus on defining the status of invertebrates and understanding trends in the world’s protected areas. ZSL will greatly scale up efforts to implement, monitor and effectively manage marine protected areas. New technology and software will be developed that will revolutionise the way we monitor and protect conservation areas globally. REDD initiatives will be further tested and the climate change research agenda increased. The EDGE initiative will be expanded to include birds and sharks with two expeditions planned for poorly known EDGE species (the pygmy sloth and Mexican lungless salamanders). Capacity will be increased for the tiger and rhino stronghold initiatives and the ZSL oil palm and Congo basin forestry strategies will be finalised and implementation will begin. ZSL will also have a notable presence at Rio + 20 and the IUCN World Conservation Congress focusing on the importance of effectively managing natural capital. Finally, ZSL will lead a major initiative to raise awareness of the top 100 most threatened species.

With this effort ZSL aims to make an important contribution to addressing the three major challenges and play a significant role in halting the loss of the world’s species and ecosystems.

Most of the world’s governments endorsed the Aichi Biodiversity targets in 2010 at the Convention on Biological Diversity. They agreed to 20 targets that will essentially help society transition to a more sustainable world. ZSL is committed to helping achieve these ambitious targets and we have identified a number of areas where we can make a direct contribution. These are expressed as our ZSL Mission Targets, under which we highlight the major activities we will undertake to ensure we are successful. We will closely monitor our progress and aim to achieve our Mission Targets before our 200th Anniversary in 2026.



A handwritten signature in blue ink that reads "J. E. Baillie". The signature is written in a cursive style.

Professor Jonathan E M Baillie
Director of Conservation Programmes

2026 TARGETS

By 2026, the 200th anniversary of the Society, ZSL will have:

Defined and monitored the status of the world's protected areas and 20,000 species

To achieve this ZSL will:

1. Continue to improve global biodiversity indicators (Living Planet Index and Red List Index)
2. Help define the conservation status of all vertebrates and a representative subset of invertebrates
3. Develop new technology for remote wildlife monitoring
4. Establish a global satellite monitoring system for conservation areas
5. Build a website containing all National Red Lists and Action Plans and help create of a large fund enabling countries to implement National Red Lists
6. Create a new standard for National Biodiversity Strategies and Action Plans (NBSAPs)

Improved the status of 100 of the world's most threatened and distinct species

To achieve this ZSL will:

1. Build conservation capacity through a global conservation initiative to reverse the decline of the world's most Evolutionarily Distinct and Globally Endangered (EDGE) Species
2. Identify ecosystems essential for human security and develop and implement strategies to manage the relevant biodiversity sustainably
3. Establish a large scale collaborative initiative to protect the last remaining tiger and rhino strongholds
4. Undertake ambitious conservation breeding initiatives focusing on desert species, amphibians, invertebrates and fish

Protected and restored one million km² of coastal and marine habitat and half a million km² of terrestrial habitat

To achieve this ZSL will:

1. Work with the Marine Reserves Coalition to develop and implement a Marine Protected Area strategy focusing on protecting 30% of the world's oceans
2. Develop and help coordinate a global mangrove protection and restoration strategy
3. Invest in protected areas that contain a disproportionate amount of evolutionarily distinct species (unique species)
4. Work to implement REDD+ and BLUE carbon initiatives to provide financial incentives to protect forests and oceans
5. Develop a standard biodiversity monitoring system and associated software that can be used by protected area managers throughout the world (BASE monitoring)
6. Use new technology to develop a simple remote surveillance system that can be implemented in protected areas globally
7. Develop publically available protected area management training material and conduct courses to build capacity

Ensured best practice for natural resource use in at least 1 million km² of priority production landscape

To achieve this ZSL will:

1. Assist industry in measuring and reporting impacts on biodiversity.
2. Work with agribusinesses and extractive industries to ensure best practice
3. Work with investors to identify and mitigate risks associated with unsustainable biodiversity related practices
4. Develop land use planning tools (capable of future scenario modelling) for the agribusinesses and the extractive sector that will help minimise negative impacts on biodiversity
5. Work with the agricultural sector to explore water efficiency and methods for reducing negative impacts on freshwater ecosystems

Through our zoos, research and public engagement activities, enable over 70 million people to adopt positive steps to support conservation and value nature

To achieve this ZSL will:

1. Lead on the science of behaviour change as it relates to conservation
2. Promote citizen science engagement tools
3. Promote natural capital/green accounting, and appropriate measuring tools and methods, to governments, CBD, UNFCCC, IUCN WCC and CMS
4. Continue to generate awareness of global issues through our website, social media and exhibits
5. Increase the number and quality of symposiums, public talks and educational programmes conducted by ZSL
6. Consolidate and present the best conservation science for policy and decision makers

CONTENTS

Section I: Features

- 10 Project Ocean: fish meets fashion
- 12 Responding to climate change challenges
- 14 Five years on the EDGE

Section II: Conservation Science and Research

- 16 Defining the status and trends of the planet's biodiversity
- 18 New discoveries
- 20 Conservation research
- 22 Conservation success stories

Section III: Sharing Conservation Knowledge

- 24 Education and outreach
- 26 Advising industry and government
- 28 Engaging the public
- 30 Convening conservation leaders

Section IV: People and Projects

- 32 Funders
- 34 Governance and Fellows
- 36 ZSL conservation projects
- 40 Collaborators



NO
FE
IN
S

PROJECT

NO END THIS WASTE
Loria Damanski and all MIPs. Standard text rates apply.

CTED

THE NORTH SEA
SANE WASTE.

Waste

HUGH FEARHLEY-WHITTINGSTALL





MORE
FRESH
THE
SEA?

OCEAN

Project Ocean was a collaboration between ZSL and Selfridges to bring the crisis facing the world's oceans to new audiences.

Image © Selfridges & Co

PROJECT OCEAN

In 2011 ZSL launched the exciting new concept of “retail activism” with Project Ocean, a ground-breaking partnership with luxury department store Selfridges which brought the crisis facing the world’s oceans to new audiences. This truly collaborative experiment in conservation communication involved no less than 22 NGOs and saw celebrities, scientists, royalty, parliamentarians, fishers, artists and young people take part in events ranging from political forums to live music and celebrity chef demonstrations.

The “action” part of the work included a commitment from Selfridges to stock only sustainable fish, based on Marine Conservation Society guidance supported by a ZSL / NGO technical working group. Working with Fish2Fork, Sustain and Greenpeace, ZSL then expanded this idea to establish the ‘Oxford Street Marine Reserve’, carrying out a seafood audit of all 150 eateries on Oxford Street and providing information and support to encourage sustainable options. The Project Ocean/Selfridges guide to sustainable seafood was given away in-store and is also available as an iPhone app which incorporates information from Fish2Fork to identify the nearest sustainable seafood restaurant.

Project Ocean opened with a spectacular launch combining Selfridges’ quirkiness with hard-hitting messages, notably the opening speech from HRH the Prince of Wales surrounded by frogmen with placards. The launch party caused quite a splash, with celebrity supporters including Elle MacPherson, Cat Deeley, Neve Campbell and Lily Cole and a great performance by the band Noah and the Whale. Sustainable seafood canapés and Project Ocean cupcakes were supplied to all.

The windows along Selfridges’ famous facade were one of the highlights of Project Ocean, with the slogan ‘No More Fish in the Sea?’ dominating the store’s main entrance. One of the most striking windows was a giant panda ‘swimming’ next to a southern bluefin tuna with the message ‘You wouldn’t eat a panda’, highlighting the fact that this tuna is actually more endangered (Critical on the IUCN Red List) than the giant panda (Endangered). Once inside, the Project Ocean theme ran throughout the store, with artists producing a range of extraordinary marine-themed art and fashion.



© Selfridges & Co

17 million

people were directly exposed to Project Ocean while media coverage reached over 400 million people in 37 countries

FISH MEETS FASHION

50ha of new Marine Protected Areas established



© Selfridges & Co



© ZSL



© Katie Miller



© ZSL

The focal point for Project Ocean activities was the Ultralounge, a special in-store exhibition area which included two permanent installations – a film by artist Beth Derbyshire and a set of live coral displays designed, installed and managed by the ZSL Aquarium team. These Customs-seized animals superbly illustrated the beauty, diversity and fragility of corals, which are rarely seen alive by most people. The Ultralounge also hosted a variety of NGO events, including some that profiled ZSL's marine conservation projects and partnerships (Tidal Thames, Project Seahorse, EDGE Coral Reefs). ClientEarth organised schoolchildren to march around the store calling for government action on biodiversity conservation, and ZSL, Greenpeace and the Earth Security Initiative brought in fishing leaders from the UK, West Africa and the Pacific Island nations to highlight the effects of EU fishing fleets on local fisheries. The finale, on World Oceans Day, took the project right into the policy arena when ZSL and GLOBE International worked with European legislators to support reform of the Common Fisheries Policy.

As with the sustainable seafood initiative, Selfridges led by example in promoting marine reserves – their third key objective alongside getting their own house in order and reaching the general public. Working with the Project Seahorse team in the Philippines, the community of Matabao used a generous donation from Selfridges to implement a new 50 hectare marine reserve, equivalent to 60 football fields. This reserve continues to develop with the construction of a guardhouse, in-water surveys and improved community management capacity. Dedicated product sales and the use of touch-screen technology in the store windows raised £120,000 over the course of Project Ocean for collaborative projects to strengthen existing marine reserves and support new ones; already this generous funding has helped to train eight young conservationists at ZSL's first EDGE Coral Reefs training course, held in Indonesia in 2011.

One of the most exciting initiatives arising from Project Ocean was the establishment of the Marine Reserves Coalition between ZSL, Greenpeace, Marine Conservation Society, ClientEarth, Blue Marine Foundation and the Pew Environment Group. The coalition's goal is to advance the creation of marine reserves. It has already launched a manifesto for the purpose and is aiming to have 30% of UK and Overseas Territories waters designated as no-take marine reserves by 2020. Funds raised through Project Ocean will be used to realise this goal, support an expedition to develop the management plan for the Chagos marine reserve, and improve the implementation and enforcement of new marine reserves in Sierra Leone through the Environmental Justice Foundation.

The overall impact of Project Ocean extended well beyond Selfridges. Over 12 million people were exposed to the advertising, more than four million passed the Oxford Street windows and at least one million experienced Project Ocean in the store. Interest from international media resulted in coverage reaching over 400 million people in at least 37 countries, with an estimated publicity value of £4 million. Plans for 2012 are currently under development, with both Selfridges and ZSL committed to continuing to advance Project Ocean's goals.

RESPONDING TO CLIMATE CHANGE CHALLENGES

ZSL is committed to developing and implementing climate change management and mitigation measures that are both appropriate and effective, and is working closely with international organisations such as GLOBE international and the International Union for the Conservation of Nature (IUCN) to this end. In addition to its involvement in the international political process, ZSL has established a range of climate change research and mitigation projects throughout the world, from using satellites to monitor the impact of climate change on ecosystems, to developing mechanisms for implementing United Nations 'Reducing Emissions from Deforestation and Degradation' (REDD+) initiatives in Indonesia.



The British Ambassador to Indonesia, Martin Hatfull, and the ZSL team in Berbak © ZSL

Berbak Carbon Value Initiative

Peatlands are extremely valuable habitats, providing refuge for a range of endangered species while also storing approximately eight times as much carbon as forests on mineral soils. It follows that destruction of peatland forests is an important driver of climate change – but without alternative ways of generating revenue from these areas, governments have few incentives to prevent their loss. The United Nations REDD+ initiative provides just such an economic incentive, enabling the sale of carbon credits generated by stopping peatland logging, burning or plantation conversion. There is immense scope for REDD+ to also finance the protection of forest wildlife by including biodiversity values in such plans, and with this in mind ZSL has established the Berbak Carbon Value Initiative project. Based in the Berbak ecosystem on the east coast of Sumatra in Indonesia, the project includes Berbak National Park, encompasses 240,000 hectares of peat swamp forest and currently stores approximately 45 million tonnes of carbon.

To date, ZSL has been ensuring that sound scientific baselines are set for both carbon and biodiversity values and working with local communities to ensure their needs are met when carbon revenues are generated. Camera-trap photos and first-hand sightings have revealed clouded leopard, Asian tapir, sunbear, false gharial, rhinoceros hornbills and, crucially, the Critically endangered Sumatran tiger. The 30 or so villages which depend on the forest for part of their income are situated around the edges rather than deep within it, making it easier both to involve them in the planning work and to ensure that they benefit from the revenues without too much impact on their lifestyles. A visit from British Ambassador Martin Hatfull in 2010, followed by a reception at the Ambassadorial residence, was hugely helpful in increasing the project's profile and it is now recognised as a formal Indonesian government pilot project for REDD+. Next steps include setting up a management body for the revenue flow and getting the eventual credits certified. "Tiger-friendly carbon credits" could be the ideal win-win option for the wildlife, the people, and the government of Indonesia.

MANGROVE MANAGEMENT IN THE PHILIPPINES

Over 100 ha
of mangrove seedlings have
been planted and two
eco-parks established

Mangrove forests are one of the most ecologically important and endangered habitats in the world and are also key in mitigating the impact of climate change. The trees thrive in intertidal zones and estuaries, providing not only habitat for a variety of species but also a range of ecosystem services, including coastal protection against typhoon and tsunamis, carbon storage, and protection from coastal erosion. Storm frequency and intensity are likely to increase as a result of climate change, so it is important to ensure that these natural systems are restored and protected.

In the Philippines, mangroves are primarily cleared to make way for commercial shrimp and milkfish ponds, which intrinsically unsustainable aquacultures account for around 50% of mangrove destruction. ZSL's community-based mangrove project aims to protect existing mangroves and rehabilitate degraded mangrove habitat, and has so far planted more than 100 hectares with young seedlings. The team are also dealing with a legal issue; fishponds created on mangrove habitat are often abandoned while still under a valid "Fishpond Lease Agreement" (FLA) and, until these agreements have been cancelled, are legally ineligible for rehabilitation. Working with local and national government, academia and the local communities, ZSL aims to highlight all abandoned FLA sites within Panay and ensure that lessons learned from the FLA removal process are fed into national policy amendments.

Community involvement is key to success here, and ZSL has provided training in management of both the mangrove nurseries and the planted seedlings, as well as supporting the development of formal local management groups eligible for "Community-based Forest Management Agreements" which empower them to manage their mangroves sustainably for the next 25 years. The project has also supported the creation of two mangrove eco-parks, which provide not only increased awareness but also jobs; the Ibajay eco-park opened in January 2011 and has proved a great success with tourists, island residents and school groups alike, and the Pedada ecopark is due to open in summer 2012. Further details on this project can be found on page 28.

FIVE YEARS ON THE EDGE

Looking back

As 2011 draws to a close ZSL's EDGE of Existence programme (EDGE) will approach its fifth birthday. It has been an eventful five years with many significant achievements, most notably the development of EDGE priority lists for mammals, amphibians and corals. These assessments combine measures of a species' "uniqueness" (Evolutionary Distinctiveness) with measures of its rarity (Global Endangerment) to produce "EDGE scores" which enable species to be ranked in order of priority. This is a great way of highlighting evolutionarily important animals that have previously received little or no conservation attention.

Training potential conservation leaders around the world is a key focus for the EDGE programme and in since 2008 38 people have participated in EDGE training courses in Nepal, Indonesia and the United Kingdom. Twenty-six Fellows, working in 17 countries, have received training through the EDGE Fellowship programme over the past five years. This Fellowship programme builds capacity for conservation within the countries where EDGE species exist, as many of the EDGE Fellows work for local conservation organisations. Strategic planning is part of the training and also part of the EDGE approach, which aims to produce national species conservation strategies where appropriate; so far plans are complete for the red slender loris, the Bactrian camel and the pygmy hippo.

The EDGE team also led six expeditions over the past five years; to Haiti, Papua, Mongolia, Chile, Kenya, and New Guinea, capturing footage and imagery of several EDGE species for the first time. The Kenyan expedition uncovered a potentially new species of sengi in the Boni Forest, while work in Haiti, Papua and Sri Lanka led to the rediscovery of the Haitian solenodon, Attenborough's echidna and the Horton Plains slender loris. The footage and images obtained on these expeditions have helped the EDGE team to raise awareness of both the programme itself and individual EDGE species, with press coverage in 2007-2009 reaching a potential audience of 243 million people. That's an equivalent advertising value of £1.5 million!

Pygmy three-toed sloth © Bryson Voirin



Chinese pangolin © Jason S.C. Chin, Taipei Zoo

Looking forward

By 2015 the EDGE Fellowship programme will have supported 100 EDGE Fellows, ensuring that individual emerging conservationists are equipped with the skills and tools necessary to effectively protect globally significant EDGE species and ecosystems. The high-profile, pioneering expeditions to search for both undiscovered and rarely seen species, and to determine the status of poorly-known or possibly extinct EDGE species, will also continue with visits to Panama and Mexico in 2012. On the ground, actions will range from implementation of large-scale conservation programmes, using EDGE species as flagships for wider ecosystem protection to secure benefits for both people and wildlife, to smaller, species-focused conservation interventions for at least 10 EDGE species and their habitats.

EDGE will continue to raise awareness of the world's most distinctive and endangered species through its innovative citizen science programmes (e.g. Instant Wild, see page 16 of this report), social media and EDGE TV. In addition, a novel Species Report Card system is being developed which will assess both the impact of the EDGE programme and the effectiveness of conservation interventions on the target species' status. The team will also refine the species ranking process, identify key areas (EDGE Zones), and create EDGE priority lists and conservation programmes for birds, sharks, gymnosperms and ray-finned fishes.



© Wolfgang Krutz



© ZSL



© ZSL



© ZSL



© ZSL



© Johan Karlsson

DEFINING THE STATUS AND TRENDS OF THE PLANET'S BIODIVERSITY

Coupling innovative technological solutions with robust science, ZSL continues to play a leading role in monitoring the status and trends of the world's species. These data inform international conservation strategies on a global scale and, closer to home, also ensure the Society's own work is both comprehensive and effective.

Instant Wild

ZSL continued to lead the field of technological advancements in wildlife monitoring in 2011 with the release of Instant Wild; a revolutionary citizen-science tool which sends images of wild animals captured in small automatic cameras in remote locations directly to users of the Instant Wild website or iPhone application. When a photo is transmitted, users of either portal are able to identify the animal by matching the photo with the relevant image provided in the Field Guide, or flagging the photo if the animal is not currently included in the Field Guide. This process saves conservationists thousands of hours by helping to sort the images transmitted by species group. The information can then be fed into scientific studies assessing population trends of animals, knowledge that is essential for effective conservation.

Instant Wild has proved very popular with over 70,000 people downloading the iPhone app in the first week. An additional 50 cameras are scheduled to come online in early 2012 in Panama, Indonesia, Equatorial Guinea and Cameroon. In addition, the application is presently being converted to Android format and technicians are exploring the possibility of adding a live video and sound component, expanding the potential applications of the tool.

© ZSL



“Cool new app. Let's everybody participate in real biology research and wildlife conservation!”

Actor and Honorary Conservation Fellow Edward Norton's tweet about Instant Wild



IUCN Red List updates

ZSL's long involvement with IUCN has led to the inclusion of many thousands of species in the IUCN Red List of Threatened Species. Efforts over the past couple of years to broaden the coverage of the Red List have resulted in a particular focus on little known invertebrates, which account for approximately 95% of animal diversity.

These cryptic and overlooked species are often essential for maintaining healthy ecosystem functions and it is therefore vitally important that their conservation status and prospects are measured and published.

IUCN Red List assessments are produced in consultation with a wide range of species experts, scientists, and conservation practitioners. Several hundred individuals may contribute to the assessment of a group. The list now includes assessments of over 61,900 species, covering a much broader range of taxa than ever before; recent additions include more than 800 freshwater mollusc species, along with 300 species of butterfly and a comprehensive assessment of all lobsters. The data show that twenty percent of mollusc species fall into one of the threatened categories – on a par with levels of threat experienced by vertebrates. The list is used in a diverse range of scientific, conservation and policy applications, so this increased coverage will ensure that such actions are based on a more representative picture of the status and trends of the planet's biodiversity.



CONSERVATION SCIENCE AT THE ENDS OF THE EARTH

The polar regions are places of compelling beauty and are home to some of the world's most charismatic wildlife. They may be at the ends of the Earth, but what happens there affects us all; the Earth's climate system is highly integrated and no region functions independently. Rapid changes in climate occurring at the poles, along with expanding resource exploitation in these unique polar ecosystems, are already adversely impacting the wildlife populations there. ZSL is working at both poles to improve capacity to protect and manage polar biodiversity, in the face of ongoing changes to global climate and increasing socioeconomic pressures.

Working with the CAFF (Conservation of Arctic Flora and Fauna) Circumpolar Biodiversity Monitoring Program in the Arctic, ZSL has developed new means to understand the temporal and spatial dynamics of Arctic populations. Arctic species are suffering mixed fortunes, with declining trends particularly evident for those species dependent on sea ice. A focus on marine populations uncovered recent declines in the Bering Sea and Aleutian Islands for seven mammal species (beluga whale, Stellar sea lion, harbour seal, sea otter, pacific walrus, northern fur seal and gray whale); threats responsible include overharvesting, increased predation, loss of summer sea ice and depleted prey resources.

At the other end of the Earth in the Antarctic, ZSL is working with the University of Oxford on a project called Penguin Lifelines to develop a network of time-lapse cameras which can track the fate of penguins in a changing climate. In 2010 the Society worked with travel partners Exodus to deploy an array of automatically triggered cameras in new sites, monitoring various species from eight different penguin colonies. This work will provide long-term monitoring data to aid identification of factors driving penguin population dynamics, thus enabling an informed approach to protected area establishment.

NEW DISCOVERIES

ZSL's conservation scientists work in remote and challenging areas of the globe and regularly encounter species that are extremely rare – in some cases entirely new to science. These discoveries cement ZSL's reputation as a world leader in conservation science and help to ensure the continued protection and recognition of the world's rarest and least understood species.

Dama gazelles, addax and Aders' duiker

ZSL and its partners are working to conserve some of the most critically endangered antelope species on the planet; dama gazelle, addax and slender-horned gazelle in the Sahelo-Saharan region of Africa, and Aders' duiker in East Africa.

The Pan Sahara Wildlife Survey is a collaboration between ZSL and the Sahara Conservation Fund, aimed at improving the conservation status of Saharan wildlife. A series of surveys carried out in Niger and Chad in 2010-2011 identified populations of dama gazelle in three different sites where there had been no confirmed sightings for many years. The surveys in Chad also uncovered a small population of addax – only the second population known to persist in the wild in recent times – and identified scimitar-horned oryx horn fragments at five locations. The scimitar-horned oryx is now extinct in the wild but well represented in captivity, and these horn fragments indicate that the area could be an important location for a reintroduction programme to re-establish free-living populations.

In partnership with the Kenya Wildlife Service (KWS), ZSL-led camera trap surveys in the Boni-Dodori-Lungi coastal forest confirmed a new population of the critically endangered Aders' duiker. The Aders' duiker was once widespread in the coastal forests of Kenya and Unguja Island, Zanzibar, but by the mid 1990s it was thought to be restricted to Unguja Island and the Arabuko-Sokoke Forest National Reserve in Kenya. The Boni-Dodori-Lungi forest is now believed to be the stronghold of this species on the mainland, and ZSL are working with KWS to ensure the area is protected.



New population of Aders' duiker discovered in Boni-Dodori-Lungi

© Tim Wachter/ ZSL/ SCF

Darwin's frogs

The southern and northern Darwin's frogs are unique in that they spend their entire larval (tadpole) stage within the male's vocal sac. Both species are endemic to the temperate beech forests of central and southern Chile, and both are threatened.

In early 2011 EDGE Fellow Claudio Soto-Azat carried out four fieldtrips to survey new areas for the presence of these two species. Whilst Claudio unfortunately did not find any further populations of the northern species, he did locate another eight populations of southern Darwin's frog, extending their known range significantly northwards. With the northern Darwin's frog suspected to be extinct, its southern relative may be the only species left in the world that exhibits the unique brooding behaviour.

In addition, whilst surveying the Nahuelbuta Mountain Range as part of a collaborative research group from Andres Bello and Católica y de Concepción Universities and the Nahuelbuta Natural Organization, Claudio and the team spotted a Bullock's false toad – the first sighting since 2005. This extremely rare amphibian is one of the most evolutionarily distinct species in the world and has only been recorded 10 times since its discovery in 1952. The site may well host one of the its last surviving populations, which greatly strengthens the case for the protection of the area.



© ZSL



© ZSL



© Jaime Bosch

Two decades of genetic discoveries at King Khalid Wildlife Research Centre

With many gazelle species threatened by hunting and habitat loss and degradation, conservationists face the task of maintaining remnant populations and re-establishing extirpated populations. In some cases, conservation breeding programs can provide stock for reintroductions; however, a major problem is that phylogeographic relationships among populations, and even among species, have been poorly understood. This hampers the assignment of management units, breeding groups, or stock for reintroductions.

Over the past twenty years, ZSL's work with King Khalid Wildlife Research Centre (KKWRC) in Saudi Arabia has begun to shed some light on the confusing taxonomy of gazelles, beginning with a phylogenetic reanalysis of the Saudi gazelle. The work revealed that the Saudi gazelle is a distinct Evolutionarily Significant Unit and therefore its status as a full species may be justified. However, it has been considered extinct since the late 1950s.

In the case of the mountain gazelles (*Gazella gazella*), past conservation efforts have been plagued by taxonomic confusion. Sustained research by ZSL and KKWRC has produced a phylogenetic framework based on analysis of mitochondrial DNA sequences of samples collected from the wild and from conservation breeding programme stock. The analyses revealed that at least two species exist within the presumed species "*Gazella gazella*"; one from Palestine, Syria and Turkey (*G. Gazella*) and another, very genetically distinct and also high in genetic diversity, from the Arabian Peninsula.

The situation was similar for the goitred gazelle, which ranks among the most endangered mammals on the Arabian Peninsula and in Asia. Analyses showed that the presumed species of goitred gazelle (*Gazella subgutturosa*) in fact represents two distinct species: one from the Arabian Peninsula (*Gazella marica*; the sand gazelle) and one from the rest of its Asian range (*Gazella subgutturosa*; the goitred gazelle).

Until recently it was unclear whether the current group of geographically isolated populations of dorcas gazelles around the centre of the Sahara evolved independently and should be regarded as subspecies, or whether they represent a single large, contiguous population. A study by ZSL and the University of Frankfurt focused on African dorcas gazelles, finding low genetic diversity across the population and hence no grounds for subspecific designations. All of this information is very valuable for the management of conservation breeding programmes to ensure the long-term viability of these species.

Claudio Soto-Azat located another eight populations of Darwin's frogs, a unique frog whose tadpoles are raised in the male's vocal sac

CONSERVATION RESEARCH

Groundbreaking research carried out by ZSL staff at the Institute of Zoology underpins all of the Society's conservation policies and interventions, putting ZSL right at the cutting edge of advances in conservation science and enabling the Society to deliver the best possible outcomes for species and communities worldwide.

Discovery of a primate species in Haiti

The Caribbean region experienced the world's highest level of mammalian species extinctions during the Holocene Epoch, with well over 100 endemic island species known to have disappeared over the past few thousand years due to prehistoric and historical-era human impacts. The worst-affected region in the Caribbean today is undoubtedly Haiti, the poorest country in the western hemisphere, which has lost almost all of its original forest cover. Nearly all of Haiti's remaining forests are now restricted to the Massif de la Hotte in the country's far southwest, a limestone region with rich Quaternary fossil deposits.

New investigation of museum collections from the Massif has led to the discovery of a previously undescribed, recently extinct species of monkey, named *Insulacebus toussaintiana*, which may have been geographically restricted to this part of Haiti. The discovery of *Insulacebus* makes Hispaniola (the island comprising Haiti and the Dominican Republic) the only Caribbean island known to have had more than one species of native monkey during the Holocene, and its morphology strongly suggests that the extinct Caribbean monkeys reached these islands through more than one colonisation event. *Insulacebus* appears to be most closely related to mainland South American owl monkeys, whereas extinct monkeys from other Caribbean islands are more closely related to other mainland groups. *Insulacebus* formed part of a diverse land mammal assemblage formerly found in the mountain forests of Haiti, which also included pygmy sloths, giant rodents and island-shrews; the only survivors today are the highly threatened Hispaniolan solenodon and Hispaniolan hutia. These two survivors, together with other endemic vertebrate diversity restricted to the Massif de la Hotte, are now the focus of a three-year Darwin Initiative conservation project co-ordinated by ZSL, BirdLife and Durrell Wildlife Conservation Trust.

The Randomised Badger Culling Trial research team advised the UK government that badger culling was unlikely to control levels of TB in cattle

Badger culling and levels of tuberculosis in cattle

Debate rages around the best ways to protect Britain's cattle from tuberculosis (TB). This disease, which has serious impacts on the livestock industry in the UK, can also be transmitted to people. One impediment to controlling TB is the fact that wild badgers can become infected and pass the infection to cattle. For this reason, the British government culled badgers in TB-affected areas for over 20 years.

ZSL scientist Dr Rosie Woodroffe was part of the team which designed, oversaw and analysed the Randomised Badger Culling Trial (RBCT), possibly the largest ecological field experiment ever undertaken. The RBCT was commissioned, funded, and implemented by government, but its findings revealed a conundrum for policymakers: if badger culling was conducted according to strict criteria, it could deliver very modest reductions in the incidence of cattle TB; but if those criteria were not met, cattle TB actually increased in culled areas. At the time, the research team advised government ministers that badger culling was unlikely to make a meaningful contribution to the control of cattle TB. In December 2011, the UK government announced a controversial new badger culling policy, with both sides of the debate drawing upon the RBCT to support their cases. Meanwhile, Dr Woodroffe continues to collaborate with Imperial College to explore how badger behaviour and population dynamics affect TB transmission, to project the possible effects of culling targeted only at infected badgers, and to investigate changes in TB incidence in former RBCT areas after culling ended.

Large mammal population declines in Africa's national parks

At the mention of Africa's national parks most people imagine vast herds of animals moving across endless sun-drenched grasslands dotted with distinctive acacia trees. In reality this vision is becoming increasingly rare. Ongoing human development and population growth have increased the threats to Africa's wild places over recent decades, but the impact of these threats on protected areas has, until now, not been well studied.

ZSL researchers have sought to quantify the size of the population changes of large mammals such as wildebeest, giraffe, and zebra in parks across the African continent. Using data from studies and publications going back over 30 years, scientists produced an index that showed an average decline in population size of 59% across Africa between 1970 and 2005. Different parts of Africa showed differing patterns: southern African parks typically maintained their populations while western African parks suffered the most severe declines. The implication is that the parks are not as effective as conservationists would like in protecting mammals from human-induced threats. The decline in mammal numbers also means that in the future it is possible that vital sources of income such as tourism will decrease, as there are fewer animals to see, which would further threaten the viability of Africa's parks. On a positive note, the study found that some parks do provide adequate protection, and in the future it will be important to bring all parks up to the standards seen in these. These findings will be invaluable in informing future management and design of African protected areas.

CONSERVATION SUCCESS STORIES

At the start of the United Nations 'Decade on Biodiversity' the survival of many of the world's rarest species remains in question. ZSL remains committed to the task of ensuring the preservation of these species for the enjoyment of future generations and is thrilled that its unique combination of scientific research and strategic implementation has led to the following successes for conservation.



School children releasing hiihi into Maungatautari reserve
© Kate Richardson

The ZSL tiger monitoring program allowed the team to spot the decline of tigers and work to increase anti-poaching support and tiger protection before it was too late

Lazovsky tiger increase

ZSL staff have long been involved in tiger monitoring in Lazovsky Reserve in the Russian Far East, a key habitat supporting a high density of breeding Amur tigers. In 2009, Amur tiger populations throughout Russia declined due to increased poaching, with the results of ZSL's monitoring indicating that tigers in the Lazovsky Reserve were also at risk after a long period of relative stability. Prior to 2009, there were between 10 and 12 adult resident tigers on the reserve and from one to four litters of cubs each year. But in 2009, researchers were shocked to discover that three resident female tigers had disappeared from the north section of the reserve and no new cubs had been born.

To counter the effects of poaching ZSL worked with the Reserve to launch two initiatives. The first was aimed at improving tiger protection by implementing the anti-poaching monitoring system MIST (with partners WCS and Phoenix Fund). The second was aimed at changing the behavior of poachers by using hidden camera-traps as surveillance cameras throughout the Reserve to capture illegal activity, and then publicizing the photographs as a deterrent. One such poacher was identified as a previous employee, and has been arrested. In winter 2011, a ZSL survey counted 12 tigers (four more than the previous year's count) and, after two years with no reproduction, there were finally three litters of cubs romping in safe areas in the interior of the reserve.

Hiihi reintroductions in New Zealand

After an absence from the North Island of New Zealand lasting over 100 years, hiihi have been reintroduced to a series of restoration sites there. In 2009 the first of three translocations took place, moving birds from offshore islands to a 3,255 hectare predator-proof fenced area of forest on Maungatautari in the Waikato region. This impressive restoration area, with 47 kilometres of high-tech fence, has had all non-native predatory mammals removed. ZSL's Dr John Ewen and PhD student Kate Richardson were involved in planning and undertaking the capture and transport of wild hiihi from the islands of Tiritiri Matangi and Hauturu to Maungatautari in three shipments totaling 155 birds.

One risk of reintroduction to mainland protected areas is that birds could fly out of the reserves and encounter the non-native predators that are the most probable cause of the disappearance of the hiihi from most of their historic range. Therefore, in 2011 38 translocated hiihi were fitted with small radio transmitters so that their movements could be followed. Encouragingly, radio tracking results show only a few hiihi excursions from Maungatautari, while a large number of nesting territories have been established within the reserve and breeding is well underway. The local communities are supportive and enthusiastic about returning native species to their backyard, with many becoming involved in the monitoring and management work.



“ ZSL leads the Marine Reserves Coalition; promoting the establishment of no take reserves in the UK and overseas ”

© Chagos Conservation Trust

Marine Protected Areas that ZSL helped establish are now working to the benefit of fish and people

ZSL has helped support the implementation of 34 community-managed Marine Protected Areas (MPAs) in the Philippines. The 34th was the ‘Selfridges MPA’, established during Project Ocean with full support of the local community and government. These MPAs engage local communities in the stewardship of the resources on which they depend, for example by policing the small no-take areas from purpose-built watchtowers, and enable recovery of the marine species which help to sustain these fish dependent communities.

Another initiative that emerged from Project Ocean was the Marine Reserves Coalition. This new partnership between ZSL, Pew Environment Group, Greenpeace UK, Marine Conservation Society, ClientEarth and Blue Marine Foundation is focused on promoting the establishment of no-take marine reserves, particularly in UK and UK Overseas Territories’ waters. The manifesto launched by the Coalition in 2011 encourages support for international marine protection targets of ten percent, while striving for the thirty percent required to retain ecological function. Globally, less than 1% of oceans are currently protected.

The Chagos marine reserve (British Indian Ocean Territory), established in 2010, remains a priority focus for ZSL. During 2011 the marine team worked with a range of collaborators to develop new, non-destructive approaches for monitoring pelagic species like tuna and sharks that live in the open ocean around Chagos. Trials of an underwater videography system – essentially, video camera traps in the sea – are scheduled for early 2012 with partner group the University of Western Australia.



© Heidi Hutchings



© ZSL



© Heidi Hutchings

SHARING CONSERVATION KNOWLEDGE

SHARING CONSERVATION KNOWLEDGE

Key to achieving ZSL's mission of ensuring the conservation of animals and their habitats is dissemination of conservation knowledge. ZSL runs a range of courses to inspire and inform conservation practitioners abroad and in the UK, ensuring the next generation of conservation leaders are well equipped.

The Society's unique library, established in 1826, underpins the research and education aspects of ZSL's work with an extensive collection of journals, modern and historic books, and archives. In addition, ZSL publishes the outcomes of scientific research in its own range of books, including the International Zoo Yearbook and the Conservation Science and Practice series, and its peer-reviewed publications Journal of Zoology and Animal Conservation. ZSL staff also publish many scientific papers in a wide range of other relevant journals.



EDGE Training Courses

© ZSL

The first regional EDGE Conservation Tools training course was hosted by the National Trust for Nature Conservation (NTNC) in Chitwan National Park, Nepal in 2011. Eight international and seven Nepali early-career conservationists joined ZSL and NTNC experts for four weeks of intensive training in the latest conservation science. Through a combination of lectures and hands-on practical sessions, participants gained the tools to design and implement rigorous conservation research and the skills to integrate their work into long-term conservation planning. Interaction with conservationists from around the globe provided opportunities to discuss conservation challenges affecting a range of species and social contexts, while conducting locally relevant fieldwork – including elephant-back surveys, camera trapping and community interviews – enabled valuable contributions to local conservation efforts.

EDGE Coral Reefs was officially launched in early 2011 and July saw the inaugural EDGE Coral Reefs training course, hosted by Operation Wallacea in Indonesia. The course ran for three weeks with an intensive programme of theory, practice and research assignments designed to develop and enhance the students' conservation capacity. In total, eight early-career marine conservation scientists from the Philippines, Malaysia and Indonesia were trained in technical coral reef skills including coral taxonomy, monitoring, management and action planning as well as project design and implementation. One of the course graduates, Ditto de la Rosa, became ZSL's first ever EDGE Coral Reefs Fellow and is now working on mushroom coral in the Philippines.

The role of zoos in conservation

To many people the primary conservation role of zoos is that of the metaphorical “ark” – breeding endangered species and returning them to the wild. There have been many reintroduction success stories such as golden lion tamarins, which owe their survival and current status in the wild to zoo breeding programmes, but reintroduction is not the solution for every problem and the overall goal of zoo conservation breeding programmes is support the conservation of the species in the wild in as many ways as possible. To this end, ZSL's zoos are a vitally important source of conservation information and inspiration, reaching 1.5 million people from a wide cross-section of society every year and conducting formal and informal education programmes, as well as connecting with thousands more through their websites. Zoos also share knowledge through practical training in areas such as education, small population management and veterinary interventions, skills which are directly transferable to the field. Finally, they are major sources of conservation funding – collectively, the third largest funder of conservation globally.



ZSL supports over 60 PhD students and numerous interns, and leads 3 MSc courses each year

Guiding future conservation leaders

ZSL's MSc courses in Wild Animal Health, Wild Animal Biology and Conservation Science are world renowned for the quality of their teaching. Drawing from both the Royal Veterinary College's reputation for excellence in the field of veterinary science and ZSL's international eminence in wild animal medicine, the two wild animal courses provide participants with an excellent foundation for future employment and are the only courses of their type in the world.

The MSc in Conservation Science is run jointly with Imperial College London, and in partnership with the Durrell Wildlife Conservation Trust and the Royal Botanic Gardens, Kew. This combination produces graduates who have a comprehensive understanding of the biological, social and economic principles underlying conservation, whilst also being able to function effectively within the social and political context of contemporary conservation science.

ZSL provides opportunities for many early-stage conservation professionals to develop their skills and employability through internships both in the field and in the Society's London offices. Working on projects ranging from palm oil reviews to eel surveys, interns at the Society often go on to further studies, or to work for a range of conservation or scientific organisations. ZSL is particularly proud of its interns' achievements and appreciative of the valuable contribution that they make to the work of the Society.

And finally, over 60 PhD students were supported by ZSL in 2011, both through the Institute of Zoology and in the countries in which ZSL operates. PhDs undertaken at ZSL ensure the constant advancement of conservation practice and enable the Society's researchers to mentor and encourage the next generation of conservation scientists and practitioners. For example, former intern and EDGE Coral Reefs Coordinator Catherine Head, is now one of ZSL's PhD students and is studying the use of invertebrates as indicators of coral reef health at field sites in Indonesia, Chagos and the Philippines.

ADVISING INDUSTRY AND GOVERNMENT

Economic development is essential to human wellbeing, but it is also a key driver of habitat loss and hence a key threat to biodiversity. These adverse impacts can be minimised and mitigated if addressed in the planning stages, and to this end ZSL provides scientifically accurate advice to decision makers in the policy realm and the private sector, recommending best practice and supplying tools and monitoring techniques for ensuring that development takes account of biodiversity conservation as far as possible.

By working both in the field and at a strategic level, ZSL is uniquely positioned to advise standard-setting organisations such as the Round Table on Sustainable Palm Oil and the Business and Biodiversity Offsets Programme. The Society also acts as scientific advisor to Globe International and produces high-level reports for the UN and scientific conventions, such as the Global Natural Capital Report. In December 2011 ZSL participated in the first Global Business and Biodiversity Platform meeting of the Convention on Biological Diversity (CBD).

In 2011, the Business and Biodiversity Programme focused on three industry sectors: fisheries, through Project Ocean; palm oil, through the Oil Palm and Biodiversity project; and forestry, through the Wildlife Wood Project. Through ground-breaking projects such as the Dangku Corporate Conservation Complex, ZSL is working to develop landscape models to enable multiple stakeholders – representing different business interests, governance and communities – to effectively and collaboratively ensure the conservation of species and habitats.

Guiding the Palm Oil industry towards more sustainable practices



ZSL's Sophie Persey speaking at the ninth annual RSPO conference
© ZSL

ZSL has been working closely with the palm oil industry in Indonesia to develop scientifically sound yet practical guidance to promote the conservation of biodiversity within oil palm landscapes. Outputs in 2011 included the launch of the 'Biodiversity Information for Oil Palm' website, a toolkit for identifying and monitoring biodiversity and guidance designed to assist practitioners to implement the principles and criteria of the Roundtable on Sustainable Palm Oil (RSPO) more effectively. The RSPO unites over 750 organisations, covering the seven sectors of the palm oil industry.

ZSL also works to strengthen the RSPO certification scheme through the provision of scientific expertise in the RSPO Biodiversity and High Conservation Value (HCV) Working Group, and is working with the Wildlife Conservation Society to identify legal and policy related barriers to the implementation of the standard.

In May 2011 ZSL convened an international symposium entitled 'Sustainable palm oil: challenges, a common vision and the way forward', bringing together leading scientists, industry representatives, policy makers and civil society to review the latest science and practical experience and to identify the actions needed to realise more sustainable production and consumption of palm oil. A publication of the proceedings from this symposium, entitled 'Towards sustainable palm oil: a framework for action', was launched at the ninth RSPO Roundtable conference in November 2011.

The palm oil industry is poised for rapid expansion in west Africa, and ZSL is working to ensure that knowledge gained through HCV monitoring in the pioneering Wildlife Wood and Biodiversity and Oil Palm projects is made available to inform development. Guidance will include patrol-based monitoring protocols and state-of-the-art software incorporating GIS, modelling and database techniques, for utilisation across production landscapes.

ZSL launched 'Towards sustainable palm oil: a framework for action' at the RSPO conference in November

Supporting reforms to the Common Fisheries Policy

On World Oceans Day, June 8, ZSL and its collaborators ClientEarth and the Global Legislators Organisation (GLOBE), convened a forum to discuss reforms to the European Union's Common Fisheries Policy. These reforms revolved around the goal of ending overfishing in EU waters by 2015. Attendees at the forum included Her Royal Highness Queen Noor of Jordan, Members of Parliament from across the European Union, the President of GLOBE International, Lord Deben and the Commissioner for Maritime Affairs and Fisheries of the EU, Maria Damanaki.

The day culminated with every delegate signing The Selfridges Declaration; a paper explicitly recognising that European waters are currently overfished and that the EU has a responsibility to restore and maintain fish stocks at sustainable levels under the agreement signed at the 2002 Johannesburg World Summit on Sustainable Development. The paper also acknowledges the delegates' concern over the current disregard of scientific advice on sustainable fishing levels. Finally, the Declaration notes that the 2012 EU Common Fisheries Policy Reform is a critical juncture for the future sustainability of both Europe's fishing communities and its marine environment, and calls for parliaments and government leaders to immediately provide global leadership on sustainable fisheries management.

GLOBE will be circulating the Selfridges declaration for endorsement amongst the 100+ GLOBE members and other key affiliates throughout the parliaments of Europe, with the aim of securing the support of 50 parliamentarians in each Member State. GLOBE will also establish cross cutting political links on this issue amongst MPs and will seek to organise focused policy discussions at the national-level, bringing different national political interests into a dialogue on supporting a progressive outcome for European fisheries.



Negotiation of The Selfridges Declaration © Selfridges & Co

Corporate Conservation Complex

ZSL is working with a number of stakeholders in the Dangku ecosystem of southern Sumatra, Indonesia, to conserve the critically endangered Sumatran tiger. Currently less than 30% of this 3,400km² area has conservation status, with most of the landscape used for economic activities including oil palm, forestry and mining. ZSL's research has revealed that 'islands' of forest within this landscape act as important 'stepping stones' for movement of the local tiger population between protected areas. However, poorly planned development and low levels of awareness are major threats. ZSL is working to address this through the creation of a collaborative conservation network – the 'Dangku Conservation Forum' – including the private sector, NGOs, communities and local government. Activities to date have included a stakeholder mapping exercise, staff training and engagement, GIS analysis, protection patrols and a camera-trapping programme to identify tiger corridors. Next steps include use of GPS radio-collars to establish exactly what parts of the landscape the tigers are using, and ensuring the commitment of all stakeholders to the safeguarding of tigers and their habitat.

ENGAGING THE PUBLIC

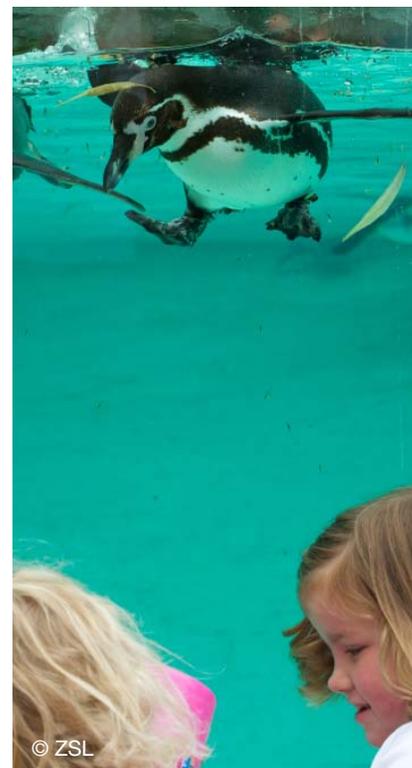
Through its two world-class zoos, scientific events and field programmes around the globe, ZSL is committed to engaging the public in conservation efforts, building the capacity and support needed to ensure the success of conservation interventions.

Penguin Beach

Bringing conservation to life for the average zoo visitor is a key aim of ZSL's Discovery and Learning Department. Over one million people visited ZSL London Zoo in 2011, making the potential audience for these conservation messages substantial.

At Penguin Beach, which opened at London Zoo in May 2011, visitors enter the field site of a Penguinologist. Alongside the penguins in their magnificent new pool they can see field notes and observations, and in Base Camp they get an insight into what life in the field is like. From sample tubes to smelly socks, a generalised research station is recreated for the visitors to explore.

Evaluation carried out demonstrated that this new exhibit had a real impact on zoo audiences. Those visitors who had watched Penguin Beach Live (a daily event at the exhibit) and visited Base Camp were over four times more likely to be able to specify a key message than those who had been to the exhibit but had not engaged in these aspects (76% visitors compared to 17%). There is evidence that Base Camp visitors are able to name specific ways their actions can benefit penguins (for example buying only sustainably sourced fish) and are more likely to do so.



Mangrove rehabilitation in the Philippines

ZSL's community-based mangrove rehabilitation project in the Philippines has gone from strength to strength over the last year, and a major contributing factor has been the team's ability to engage and educate members of the public. With an ambitious target of rehabilitating over 100 hectares of mangrove forest in four years, the support of local communities was always going to be essential. In addition to the involvement of people living alongside the mangroves, the project has been enthusiastically embraced across civil society, including women's groups, rotary clubs, schools, colleges, youth clubs and many more. These volunteers have contributed their time to help establish nurseries, plant seedlings, maintain the young plants (removing excess algae, debris and barnacles), and monitor survival and growth.

It has been particularly encouraging to see the engagement of young people – notably biker groups, high schools and colleges – in mangrove conservation and management, indicating a more positive future for these critically important ecosystems. By establishing agreements with local high schools and providing training to pupils, ZSL has been able to build local stewardship and increase the number of people actively engaged in mangrove rehabilitation. This has proven particularly important as the scale of planting undertaken by this project has required development of new monitoring and management protocols - those developed from smaller experimental studies could not be practicably scaled up. The project team is already 'training the trainers' through an annual workshop that combines theory and practice for government and non-government organisations involved in mangrove management.

**“A fantastic opportunity...
and so much fun!”**



Zoo Academy

Summer 2011 saw the launch of ZSL's Zoo Academy at both London and Whipsnade Zoos. Students from 15 to 17 years old applied for places on an eight-day course on all aspects of animals and their care, including plenty of mucky hands-on experience.

Each day began with theory, studying a different animal group each day whether it be invertebrates or primates, and also focused on a different aspect of animal care, from nutrition to safe handling. Then onto the practical tasks: the Academy was put to work on almost every section in the two zoos, gaining experience and helping out zookeepers with their daily work. From cleaning out snail tanks on day one to the giraffe house on day six, no job was too big or small, and the students' skills quickly improved.

The Zoo Academy exposed students to the wide variety of work undertaken at ZSL. One day was dedicated to a behaviour study on the London squirrel monkeys (comparing their activities before and after enrichment), and Conservation Programmes staff on projects from corncrake reintroductions to freshwater fish gave their time to show students their work. After eight days, the students had built up a large portfolio to help them with job and university applications in the future. Proud families came to the zoos for a graduation ceremony, with certificates presented by senior ZSL staff.

Feedback about these first Zoo Academy courses has been highly positive, from both students and ZSL staff, and more courses are planned for 2012 (see www.zsl.org for details).

Eel Citizen Science Programme

The European eel is listed as a 'critically endangered' species by the IUCN's Red List of Threatened Species. European eels start life in the Sargasso where they begin their migration as larvae across the Atlantic to the rivers of Europe. The juvenile eels, known as elvers, swim upstream to freshwater habitats where they feed and grow for up to 20 years before becoming adults and beginning their mammoth return migration to the Sargasso Sea to spawn and die, completing this fascinating life cycle. Mystery still shrouds this process, as scientists have never caught an adult eel in the Sargasso Sea. Unfortunately research has shown that numbers of elvers have dropped by as much as 95% in European catchments since the 1980s.



A range of factors such as habitat loss and migration barriers affect upstream migration of juvenile eels. Since 2005, to improve understanding of the problems facing the elvers, ZSL has been monitoring their progress upstream in the river Thames each year, using simple traps that do not harm the eels. In 2011, ZSL was able to significantly expand these surveys by involving 52 'citizen scientists' trained in eel monitoring techniques to collect important local data on migrating elvers across the tributaries of the Thames. Such continued involvement of the public will allow ZSL to advise on the management and improvement of rivers that support important populations of the European eel.

CONVENING CONSERVATION LEADERS

ZSL's unique combination of world-class science, global conservation projects, leading zoos and conference facilities in central London perfectly position the Society to play a central role in convening and inspiring not only leading researchers and conservationists, but also private businesses, policy makers and members of the public. A key medium for achieving this is the Society's annual programme of lectures and symposia, which provide a platform for conservation researchers and practitioners to share their findings.

Symposia

ZSL's two-day symposia bring together teams of international experts to discuss important topics in conservation science, providing an opportunity for leaders to exchange ideas on best practise and communicate their research. Significant findings of the symposia are presented in the "*Conservation Science and Practice*" book series, published by Wiley-Blackwell.

In February 2011, the symposium on '*Marine protected areas on the high seas*' assessed progress towards, and barriers obstructing, the establishment of marine protected areas – particularly in regions that lie beyond the reaches of national jurisdiction.

Key scientists, policy makers, NGOs, and private sector representatives attended the symposium on '*Sustainable palm oil challenges, a common vision and the way forward*' in May. This symposium aimed to define a common vision for integrating environmental and socio-economic goals for more sustainable palm oil production, and to identify and catalyse the stakeholder actions necessary to achieve this.

The symposium '*Antelope conservation in the 21st century: from diagnosis to action*', held in November, brought together international experts to discuss trends in global antelope biodiversity in order to understand the drivers of major threat processes and highlight conservation priorities, taking into account both biological and socioeconomic aspects. The focus on antelopes provided a prism through which general insights into the principles governing conservation threats and their mitigation could be achieved.



Science and Conservation Events

ZSL's annual Communicating Science and Wildlife Conservation lecture series remained as popular as ever in 2011. Free and open to the public, these events are held monthly throughout the academic year with each lecture providing an opportunity for professionals and the public alike to discuss the latest developments in conservation and zoological research.

2011's programme included lectures on *Life on the EDGE; Why be nice? Understanding cooperative behaviour in humans and other animals; Climate change in Africa: more than melting icebergs and drowning polar bears; Wildlife forensics: using tools from medicine and crime scene investigation to help save wildlife; Biodiversity Big Brother; Biodiversity in a corporate landscape: what can we afford to destroy?; Cryptozoology: science or pseudoscience?; Selling conservation: lessons from Selfridges; Shallow seas and Conservation in China: unique challenges or global lessons?*

For full information on the programme, and for details of upcoming lectures, please see; www.zsl.org/science/scientific-meetings

Stamford Raffles Lecture

Established in 1995, the Stamford Raffles Lecture is the foremost event in ZSL's annual programme of Science and Conservation events.

In 2011, Armand Marie Leroi, Professor of Evolutionary Developmental Biology at Imperial College London, joined the list of eminent speakers who have these lectures on a wide range of zoological topics. *'Possible Creatures: an evolutionary vision'* explored how evolutionary theory allows us to explain the design that creatures show. Given our lack of knowledge of how creatures actually build themselves, and how they shape their own evolutionary futures, the task of 21st century biology is to 'compute the creature': to find the rules that lie between a genome and a living, breathing, mating, reproducing thing. Professor Leroi described, then, how it might be possible to compute all possible creatures – and perhaps even predict the future of life.



© ZSL
Professor Armand Leroi speaking
at the Stamford Raffles lecture

PEOPLE AND PROJECTS

FUNDERS

ZSL's conservation work is primarily funded through generous grants and donations, with additional income from contracts and core funds from the Society. Grants and donations are received from a variety of sources, including governmental and inter-governmental agencies, non-governmental agencies, trusts and foundations, academic bodies and research councils, other zoos and charities, individuals and corporate partners.

We would like to thank all of our supporters for their generous contributions and ongoing commitment, without which we could not carry out our important conservation work.



10th Duke of Rutland Memorial Conservation Trust
21st Century Tiger
Aalborg Zoo
Z Abdul
American Association of Zookeepers
Arcus Foundation
R J Asher
A C M Baillie
Barbara Meyer Photography
BBC Wildlife Fund
H A Bennett and Sons
Big Lottery Fund
Biodiversity and Agricultural Commodities Programme
Blackpool Zoo
Blue Marine Foundation
C Boericke
R Boughton
M Boycott-Brown
British Ecological Society
British Live-Bearer Association
Bromley High School
Bryces Runners
Building Design Team (BDT) UK
J and C Burges
C Cathrine
Cecil King Memorial Fund
K Chaut
Cleveland Metroparks
Copenhagen Zoo
M Crichton Hughes
MA Crichton
A Dabkowska
Darwin Initiative
Department for Environment, Food and Rural Affairs
W Derbyshire
LJ De Silva
Deutsche Gesellschaft für Internationale Zusammenarbeit
Dischma Charitable Trust
Dorothy Howard Charitable Trust
Dreamworld Wildlife Foundation
EAZA Amphibian Conservation Fund
P Eggleston
W Elfers, Jr
Environment Agency
Ernest Kleinwort Charitable Trust
Esmée Fairbairn Foundation
European Association of Zoos and Aquaria
European Union of Aquarium Curators
Gaia Zoo
Gilchrist Educational Trust
GLOBE International
MA Green
C and C Haswell

F Haswell
JM Higdon
Hippotigris A/S
A Howe
K Humble
Ifremer
Indianapolis Zoo
International Union for the Conservation of Nature IUCN
IPSOS UK
D, KZF and F Irons
WA and RM Irons
JM Kaplan Fund
Kalahari Salz
Kolmardens Djurpark
N Lambert
MM Lawson
V Ledbrook
C Lee-Philpot
J Lewis
Lindeth Charitable Trust
A Lovett
R MacKenzie
G MacLellan
Macquarie Group Foundation
WL Mason
PB Matier
D Michael
Minnesota Zoo Foundation
Mission Fish
Mohammed Bin Zayed Species Conservation
R E Morril
S Morris
Mulhouse Zoo
Musim Mas
National Fish and Wildlife Association
National Geographic Society
National Trust of St Vincent and the Grenadines
Nature+ ASBL
Nature Conservation Trust
New Zealand Department of Conservation
North of England Zoological Society
N Smith Charitable Settlement
Oak Foundation
Ocean Park Conservation Foundation
Paignton Zoo Environmental Park
Panthera STF
RA Parkin
M Peay
Percy Sladen Memorial Fund
PF Charitable Trust
Philippine Tropical Forest Foundation
Project Seahorse
Prince Bernhard Fund for Nature
D L Prynne
AG and B Pullinger
PUTU Iron Ore Mining Inc.
Rewilding Europe
Reserve Bank Malaysia
B Richter
Riverbanks Zoo & Gardens Conservation Support Fund
JG and JL Roberts
NW Robertson

Rockefeller Philanthropy Advisors
Roundtable on Sustainable Palm Oil RSPO
A Rowse
Royal Geographical Society
Royal Society for the Protection of Birds RSPB
Royal Zoological Society of Scotland
Rufford Foundation
RWE nPower
Sahara Conservation Fund
Saint Louis Zoological Park
Saudi Wildlife Authority
Save Our Seas Foundation
Saxmundham School
H Saw
Scott Wilson Ltd
SeaWorld & Busch Gardens Conservation Fund
Selfridges and Co.
Shepreth Wildlife Park
Silver Jungle
SITA Enriching Nature Fund
SNC-Lavalin Environment Inc.
Stichting Netherlands
AD and J Sweidan
Synchronicity Earth
Taronga Foundation
AC Tempier
The Crown Estate
The Foundation of Prince William and Prince Harry
The Friends of the Tallinn Zoo
The Petroleum An
The Prince William and Catherine Middleton Charitable Gift Fund
The Waterloo Foundation
J Thicket
Thoiry-Peaugres Conservation
Tigris Foundation
Tinsley
UK Trust for Nature Conservation in Nepal
United Nations Office at Nairobi
United States Fish and Wildlife Service USFWS
Varein Naturzoo Rheine
Vodafone
Volans Ventures
C Wain
Waterloo Foundation
N Watson
Wildlife Conservation Society
Wilmar International
Wingham Wildlife Park
B Wood
Woodland Park Zoo
World Bank
World Wide Fund for Nature WWF
World Wide Volunteering Enterprises Ltd
Zebra Foundation
Zoo and Aquarium Association
Zoo Basel
Zoo Landau
Zoological Parks Board of New South Wales
Zoologische Gesellschaft für Arten- und Populationsschutz

We would also like to thank all our supporters who could not be named individually and those who wish to remain anonymous.

GOVERNANCE AND FELLOWS

The important conservation work at the Zoological Society of London is a result of the combined effort of countless dedicated individuals. ZSL staff work across the globe, with everyone instrumental to achieving ZSL's vision of a world where animals are valued and their conservation assured. In addition to full time staff, the work would not be possible without the support of the students, interns, volunteers and collaborators whose passion for conservation has enabled ZSL to remain a world-class organisation.

THE ZOOLOGICAL SOCIETY OF LONDON

Patron

Her Majesty The Queen

Council Members

President Professor Sir Patrick Bateson FRS

Secretary Professor Paul H Harvey CBE FRS (to January 2011), Professor Geoff Boxshall FRS (from April 2011)

Treasurer Paul Rutteman CBE BSc (Econ) FCA

Sheila Anderson MBE, FBAASc, BSc(Hons)

Richard Melville Ballerand BSc(Econ) BSc DCouns FRSA FLS FRUSI

Dr Brian Bertram MA, PhD

Michael Bird FCA (From June 2011)

Dr Jonathan Boyce DM MA MSc FRCP FFPH (to June 2011)

Martin Cooke MSc MA VetMB MRCVS CertVPH(MH)

John Edwards MA FLS

Ray Heaton CertEd BEd GIBiol MSc FRGS FLS (to June 2011)

The Hon Sir William McAlpine BT FRSE FILT

Dr Anna Meredith MA VetMB PhD CertLAS DZooMed MRCVS (from June 2011)

Elizabeth Passey MA FRGS

Mark Ridgway BSc PGCE FLS

Martin Rowson (to June 2011)

Sean Rovai (from June 2011)

Ken Sims

Directors

Director General Ralph Armond MA

Conservation Programmes Director Jonathan E M Baillie PhD

Director of the Institute of Zoology Tim Blackburn DPhil

Zoological Director David Field BSc MBA FBS FLS

Human Resources Director Ian Meyrick BA FCIPD

Finance Director Michael Russell FCMA

Marketing and Communications Director Rich Storton MA

Development Director Jackie Tanner BSc (to June 2011), James Wren BA (from September 2011)



ZSL Honorary Conservation Fellow Kate Humble

ZSL Honorary Conservation Fellows

Rosalind Aveling
Dr Glyn Davies
Emmanuel De Merode
Dr Nick Dulvy
Dr Charles Foley
Matthew Hatchwell
Herbert Hofer
Kate Humble
Dr Jonathan Hutton
Dr Anwarul Islam
Dr R D Jakati
Dr David Macdonald
Professor Georgina Mace
Professor Jessica Meeuwig
Dr Maurus Msuha
Edward Norton
Dr Timothy O'Brien
Dr Vibhu Prakash
Dr John Robinson
Professor Alex Rogers
Dr Yvonne Sadovy
Claudio Segré
Professor Charles Sheppard
Dr Simon Stuart
Kerry ten Kate
James Thornton
Dr John Veron
Dr Amanda Vincent
Professor David Warrell
Alannah Weston
Nigel Winser

ZSL Honorary Research Fellows

Professor Andrew Balmford
Professor Malcolm Bennett
Professor Tim Coulson
Dr Peter Daszak
Dr Matthew Fisher
Professor Tim Gittleman
Professor Katherine Homewood
Professor Ian Owens
Professor Andy Purvis
Professor Charles Tyler
Professor Paul Watson

ZSL Field Conservation Advisory Committee

Chair Dr Robin Bidwell CBE
Adeline Diab
Barnaby Briggs
Dr Chris West
Dr Heather Koldewey
James Arbib
James Wren
Jessica Sweidan
Professor Lord Sir John Krebs FRS
Professor Jonathan Baillie
Professor Kathy Willis
Paul Udall
Ralph Armond
Stanley Johnson
Professor Tim Blackburn
Tomas Jelf

EDGE Fellows

Ibrahim Bakarr
Bayarbaatar Buuveibaatar (completed fellowship in 2011)
Werner Conradie (completed fellowship in 2011)
María Copa Alvaro
Nicolas Corona
Ditto de la Rosa
Dionis Espinal
Zhou Feng
Saman Gamage
Abdullahi Hussein Ali
Dušan Jelić
Jonathan Johnny
Tran Quang Phuong
Claudio Soto-Azat (completed fellowship in 2011)
Marcel Talle Koute
Ashish Thomas (completed fellowship in 2011)

ZSL CONSERVATION PROJECTS

ZSL works on 208 projects in over 50 countries

Global

21st Century Tiger
 Anthropogenic drivers of emerging infectious diseases
 Assessing the effectiveness of national parks in maintaining biodiversity
 Bioclimate website
 Developing automatic detection systems for bat echolocation calls
 Developing national level indicators of biodiversity change
 Diagnosing deleterious biodiversity change
 Dynamics of primate extinctions
 Earth Security Initiative
 EDGE Amphibians
 EDGE Birds
 EDGE Corals
 EDGE Fellowship programme
 EDGE Mammals
 EDGE Sharks
 Evolution and diversification of ants
 Evolution of echolocation in bats
 Extinction, island biogeography and community structure in island birds
 Fish Net
 GLOBE International
 Indicator Bats (iBats)
 Implications of emerging infectious disease for the trade and conservation of amphibians
 Improving the impact of amphibian conservation programmes
 International Programme on the State of the Ocean (IPSO)
 Investigating the deep-sea fauna of oceanic islands
 IUCN Cats Projects Database
 IUCN Sampled Red List Index
 Living Planet Index
 Molecular approach to studying the conservation biology of corals
 Predicting vertebrate population trends from space
 Promise of a healthy planet
 Realising the potential of camera traps as an animal census tool
 Regional Red List Network
 Regional Red List Programme
 Spatial global biodiversity modelling in the context of data uncertainty
 The Frozen Ark
 Wildlife immunogenetics in vertebrate populations
 Wildlife Picture Index

Africa

Biodiversity, ecosystem services and social sustainability in African drylands
 Reproductive studies in desert-living gazelles
Algeria:
 North African cheetah ecology and interaction with human communities
Cameroon:
 Wildlife Wood Project
Chad:
 Pan Sahara Wildlife Survey
Democratic Republic of Congo:
 Building capacity for wildlife monitoring and management in Virunga National Park
 Phylogeography and conservation genetics of the okapi
Djibouti:
 Marine Conservation
Equatorial Guinea:
 Working with local communities to evaluate, test and implement potential bushmeat alternatives
Ethiopia:
 Population genetics of the Ethiopian wolf
 Wildlife health capacity building
Gabon:
 Great Ape and Forest Elephant Conservation Project
Ghana:
 Social and ecological dynamics of the bushmeat trade
 Support for the West African Primate Conservation Programme
 Zoonotic viruses in African bats
Guinea-Bissau:
 Marine resources, livelihoods and conservation around a marine protected area
Kenya:
 Aders' duiker conservation in the Northern coastal forests of Kenya
 Black rhino conservation in Kenya
 Metapopulation dynamics of the black and white colobus monkey
 Risk factors for African elephant infertility
 Sagalla caecilian conservation
 Samburu-Laikipia Wild Dog Project
Liberia:
 Pygmy hippo conservation
Namibia:
 Tsaobis Baboon Project
 Environmental change in riparian ecosystems

Niger:

Pan Sahara Wildlife Survey

Sierra Leone:

Pygmy hippo conservation

Tanzania:

Carnivore Conservation Centre

Determinants of the occurrence,

distribution and abundance of African mammals

Developing national conservation action plans for mammals

Long-term demography of the Serengeti cheetah population

Tunisia:

Sahelo-saharan antelope conservation

Americas

Argentina:

Effects of agricultural intensification on bird and mammal biodiversity in Chaco

Brazil:

CATS: feline adaptation in a changing world

Support for the Lion Tamarins of Brazil Fund

Chile:

Saving the last mouth brooding frogs:

chytridiomycosis in Darwin's frogs

Colombia:

Support for the International Programme for the

Conservation of the White-footed Tamarin

Dominica:

Mountain chicken conservation

Regional management plan for amphibian

conservation in the Caribbean

Dominican Republic:

Assessing the impact of habitat destruction

on Hispaniolan native mammals

Mammal extinctions in the West Indies

Ecuador (Galapagos Islands):

Building capacity and determining disease

threats to endemic Galapagos taxa

Parasitism, immunity and sexual dimorphism

in the Galapagos sea lion

Social change, economic growth and drivers

of conservation threats in the Galapagos

Mexico:

Effects of ultraviolet radiation on cetacean health

Zoonotic potential of whale-watching

Panama:

Conserving the pygmy three-toed sloth

Peru:

Support for Proyecto Mono Tocon

United States of America:

DNA damage and cancer in California sea lions

Antarctica

Antarctic Monitoring

Penguin Lifelines

Asia

Support for the EAZA Large Mammals Campaign

Bangladesh:

Bangladesh Tiger Programme

Ganges river dolphin conservation

River dolphins, fish and fisheries:

evaluating trends in mortality

Cambodia:

Large mammal conservation in Cambodia

China:

Chinese giant salamander conservation

Ecological and behavioural constraints

on the recovery of Hainan gibbons

Yangtze River cetacean conservation

India:

Ganges river dolphin conservation

Grassland management in Manas National park

Large herbivore conservation in the Terai Arc

Culture conservation in India and Nepal

Wildlife health and biodiversity modules

with the Wildlife Institute of India

Indonesia:

Berbak Carbon Value Initiative

Dangku Corporate Conservation Complex

Establishing a conservation evidence-base

for long-beaked echidnas in Papua

Habitat use of tigers in altered landscapes

Large mammal surveys

Mitigating the effects of tiger-human conflict

Monitored translocation of Sumatran tigers

Oil palm and biodiversity

Saving Sumatran Swamps: linking

carbon credits and biodiversity

Tiger occurrence and population

viability in fragmented landscapes

Support for Komodo dragon field studies

Malaysia:

Forest fragmentation and parasitism

of Malaysian amphibians

Impact of land-use intensity and gradient on mammalian community structure in Borneo

Mongolia:

Conserving the wild Bactrian camel
Mammal and bird field guides
National Red Lists for amphibians, reptiles and mammals
Steppe Forward Programme

Nepal:

FishWatch: community management of riverine resources
Strengthening security in Bardia National Park
Vulture conservation in India and Nepal

Philippines:

Community-based Mangrove Rehabilitation Project
Project Seahorse

Russia:

ALTA: the Amur Leopard and Tiger Alliance
Amur leopards and wildlife health
Amur tiger conservation in the Russian Far East
Firefighting in Amur leopard habitat

Saudi Arabia:

King Khalid Wildlife Research Centre

Sri Lanka:

Red slender loris conservation

Thailand:

Community-based conservation around Salakpra Wildlife Sanctuary
Managing health and reproduction within elephant populations in Asia
Salakpra Elephant Project
Smart Patrol Protection in Salakpra Wildlife Sanctuary

Vietnam:

Population structure of otters in Southeast Asia

Europe

Current and future conservation status of European bats
Batrachochytrium dendrobatidis emergence in European amphibians

Determining the relationship between European and African of amphibian chytridiomycosis

Rewilding Europe

France:

Quantifying the cost of *Batrachochytrium dendrobatidis* in Pyrenean common midwives

Spain:

Batrachochytrium dendrobatidis in the Mallorcan midwife toad

Italy:

Extinction threats to the Sardinian newt
Understanding the expansion of grey squirrel populations in Italy and Britain

Romania:

Bat biodiversity as an indicator of sustainable development in Eastern Europe

United Kingdom:

Beeworm: the molecular basis of immunity and parasitism in bumblebee-nematode host-parasite interaction
Bovine tuberculosis in cattle and badgers
British field cricket conservation
UK Cetacean Strandings Investigation Programme
Chrytid effects on natterjack toad population dynamics
Conservation genetics of British adders
Corncrake conservation
Determining the distribution of *Batrachochytridium dendrobatidis* across the UK
Disease susceptibility of native amphibian fauna
Epidemiology and dynamics of poxvirus in British birds
Garden Bird Health Initiative
Garden Wildlife Health
Humans as a means of spreading disease between British frog populations
Hedgehog Health
Identifying emerging disease threats to UK newts
Invasive species as vectors of disease and decline in amphibian populations
London Zoo bat surveys
Native species monitoring
Pink sea fan conservation
Project Ocean
Resource limitation in butterflies: implications for macroecology and conservation
Restoration and management of bumble bee habitat in agricultural landscapes
Royal Parks bird survey at ZSL London Zoo
Spoonbill Sandpiper Species Recovery
Swifts at ZSL London Zoo
Thames Marine Mammal Project
Thames Harbour Seal Project
The ecology and evolution of invasive alien species
The White Lion SSSI, ZSL Whipsnade Zoo
Tidal Thames Conservation Project
UK Overseas Territories:
Bermuda land snail conservation
Conservation of the Chagos Archipelago
Mountain chicken conservation in Montserrat
South Georgia and South Sandwich Islands
Marine Protected Area

Oceania

French Polynesia:

Partula snail conservation

New Zealand:

Expression of plumage colour in the hihi

Ecology and evolution of introduced avian malaria

Micro-evolutionary response to climate

change in wild hihi populations

Modelling the dynamics of translocated populations

Sexual selection and the hihi

Solomon Islands:

Ecosystem service provision and adaptive

co-management in the Solomons

Conservation breeding programmes managed by ZSL

European Studbooks:

Abdim's stork

Black hornbill

Chestnut-backed thrush

Toco toucan

European Endangered Species Breeding Programmes:

Amur leopard

Amur tiger

Frégate Island beetle

Golden lion tamarin

Nile lechwe

Sumatran tiger

Global Species Management Programmes:

Partula snail

Sumatran tiger

IUCN Captive Breeding Specialist Group

IUCN Cat Specialist Group

IUCN Cetacean Specialist Group

IUCN Commission on Ecosystem Management

IUCN Commission on Education and Communication

IUCN Deer Specialist Group

IUCN Ecosystems Group

IUCN Freshwater Fish Specialist Group

IUCN Hippo Specialist Group

IUCN Invertebrate Conservation Sub-Committee

IUCN Marine Invertebrate Red List Authority

IUCN Marine Program on High Seas Biodiversity

IUCN Mollusc Specialist Group

IUCN National Red List Working Group

IUCN Orthoptera Specialist Group

IUCN Red List Index Working Group

IUCN Red List Technical Working Group

IUCN Reintroduction Specialist Group

IUCN Species Survival Commission Steering Committee

IUCN Tapir Specialist Group

IUCN Threatened Waterfowl Specialist Group

IUCN Veterinary Specialist Group

UK Bushmeat Working Group

WAZA/CBSG Climate Change Task Force

Group memberships

Alliance for Zero Extinction

BIAZA Aquarium Working Group

BIAZA Bird Working Group

BIAZA Falconiforms Working Group

BIAZA Living Collections Committee

BIAZA Reptile and Amphibian Working Group

BIAZA Terrestrial Invertebrate Working Group

EAZA Fish and Aquatic Invertebrate TAG

EAZA TITAG

EAZA Toucan and Turacao TAG

IUCN African Rhino Specialist Group

IUCN Amphibian Specialist Group

IUCN Antelope Specialist Group

IUCN Bat Specialist Group

IUCN Bison Specialist Group

IUCN Boa Specialist Group

IUCN Canid Specialist Group

COLLABORATORS

ZSL works with a network of 343 partners

21st Century Tiger
 Aranyak (India)
 Acer Conservation (UK)
 Adelphi University (USA)
 African Technology and Policy Studies Network (Kenya)
 Agence Nationale des Parcs Nationaux ANPN (Gabon)
 Aide et Action pour la Paix AAP (DRC)
 American Museum of Natural History
 Amigos de la Naturaleza y del Desarrollo de Guinea Equatorial ANDEGE
 AMUR (UK)
 Applied Biomathematics (USA)
 Arafura Timor Research Facility (Australia)
 Bamfield Marine Sciences Centre (Canada)
 Bat Conservation Trust (UK)
 Bermuda Biological Station for Research/CephBase
 Bigelow Marine Laboratory (USA)
 Biodiversity Synthesis Centre BioSynC (USA)
 BIOSCAPE (UK)
 Bird Conservation Nepal
 Birdlife International
 Blue Marine Foundation
 Bombay Natural History Society (India)
 Brigham Young University (USA)
 British Antarctic Survey (UK)
 British Embassy in Quito (Ecuador)
 British Hedgehog Preservation Society (UK)
 British Herpetological Society (UK)
 British Trust for Ornithology (UK)
 Brunel University (UK)
 Bulgarian National Museum of Natural History
 Bureau of Fisheries and Aquatic Resources, Department of Agriculture for Region 6 (Philippines)
 Butterfly Conservation (UK)
 CABI
 California Academy of Sciences (USA)
 Cambridge Infectious Diseases Consortium CIDC (UK)
 Cardiff University (UK)
 Carnegie Museum of Natural History (USA)
 Cendrawasih University UNCEN (Indonesia)
 Center za Kartografijo Favne (Slovenia)
 Centers for Disease Control and Prevention (USA)
 Central African Regional Program for the Environment (USAID)
 Central Science Laboratory (UK)
 Centre for Ecology and Hydrology (UK)
 Centre for Environment, Fisheries and Aquaculture Science (UK)
 Centre National de la Recherche Scientifique (France)
 Centre Régional d'Enseignement Spécialisé en Agriculture Forêt-Bois CRESA (Cameroon)
 Centro de Protección e Higiene de las Radiaciones (Cuba)
 Centro Internacional de Ecología Tropical CIET (Venezuela)
 Chagos Conservation Trust
 Chagos Environment Network (UK)
 Charles Darwin University (Australia)
 Charles University (Czech Republic)
 Chiang Mai University (Thailand)
 Chinese Academy of Sciences
 Centre for International Forestry Research CIFOR (Indonesia)
 Le Centre National de la Recherche Scientifique et Technologique CENAREST (Gabon)
 Circumpolar Biodiversity Monitoring Program (Iceland)
 Clemson University (USA)
 ClientEarth
 Colombo Open University (Sri Lanka)
 Communications Inc. (UK)
 Comisión Nacional de Vivienda (Mexico)
 CONABIO (Mexico)
 Conservation International CI
 Conservation of Arctic Flora and Fauna (Iceland)
 Conservation, Information and Research on Cetaceans CIRCE (Spain)
 Consortium for Conservation Medicine (USA)
 Convention on Biological Diversity CBD
 Convention on Migratory Species CMS
 CSIRO Australian Animal Health Laboratory
 David Shepherd Wildlife Foundation (UK)
 Deakin University (Australia)
 Département de l'Étude du Milieu Naturel et Agricole (Belgium)
 Department of Environment and Natural Resources Region 6 (Philippines)
 Department of Primary Industries and Fisheries (Australia):
 Desert Research Foundation of Namibia
 Downstream Research Group (USA)
 Durrell Institute of Conservation and Ecology DICE (UK):
 Durrell Wildlife Conservation Trust (UK)
 Nature Conservation Agency BKSDA (Indonesia)
 Programme Régional de Conservation et Valorisation des Ecosystèmes Forestiers d'Afrique Centrale ECOFAC (Gabon)
 Edith Cowan University (Australia)
 Edward Grey Institute, University of Oxford (UK)

Elephant Conservation Network (Thailand)
Environment Agency (UK)
Environmental Volunteer Programme, Murcia (Spain)
Environmental Resources Management (Indonesia)
ESCO-Kivu and the Conservation Company (DRC)
Essex Wildlife Trust (UK)
Estación experimental de Zonas Áridas (Spain)
European Bird Census Council
European Environment Agency
Farmed Environment Company Ltd (UK)
Fauna and Flora International
FishBase
Forestry and Wildlife Division (Dominica)
Forestry Development Authority (Liberia)
Frankfurt Zoological Society (Germany)
Froglife (UK)
Galapagos Conservation Trust (UK)
Game and Fisheries Research (Finland)
Gilman International Conservation (USA)
Global Tiger Patrol (UK)
Gobabeb Training and Research Centre (Namibia)
Government of St Vincent and the Grenadines
Greenpeace (UK)
Griffith University (Australia)
Group on Earth Observations Secretariat (Switzerland)
Heath Protection Agency (UK)
Hellenic Centre for Marine Research - Institute of Inland Waters (Greece)
Helmholtz Center for Environmental Research (Germany)
Helsinki Zoo (Finland)
Herpetological Conservation Trust (UK)
Hokkaido Fisheries Experimental Station (Japan)
Humboldt State University (USA)
Institut français de recherche pour l'exploitation de la mer IFREMER (France)
Illinois Natural History Survey (USA)
Imperial College London (UK)
Indonesian Institute of Sciences LIPI
Insitut congolais pour le conservacion de la nature ICCN (DRC)
Institut National Agronomique Paris-Grignon (France)
Institute of Biology at the Mongolian Academy of Sciences (Mongolia)
Institute of Cancer Research (UK)
Institute of Hydrobiology (China)
Institute of Marine Research (Germany)
Institute of Zoology (China)
Instituto Nacional de Desarrollo Forestal y Gestión del Sistema Áreas Protegidas INDEFOR-AP (Equatorial Guinea)
Interdisciplinary Centre for Marine Sciences CICIMAR (Mexico)
International Association of Astacology (USA)
International Centre for Birds of Prey (UK)
International Foundation for Animal Welfare (Russia)
International Livestock Research Institute (Kenya)
International Union for the Conservation of Nature IUCN
J.M. Kaplan Fund (USA)
Jane Goodall Institute (UK)
Joint Nature Conservation Committee JNCC (UK)
Kadoorie Farm & Botanic Garden (China)
Kasetsart University (Thailand)
Kedrovaya Pad State Nature Reserve (Russia)
Kent Mammal Group (UK)
Kenya Wildlife Service (Kenya)
King Saud University (Saudi Arabia)
La Trobe University (Australia)
Lazovksy State Nature Reserve (Russia)
Liberian Forestry Development Authority (Liberia)
Lighthouse Foundation (UK)
Lincoln University (New Zealand)
London School of Economics LSE (UK)
London School of Hygiene and Tropical Medicine (UK)
Ludwig-Maximilians-Universität (Germany)
Lukuru Foundation (DRC)
Macaulay Institute Aberdeen (UK)
Macquarie University (Australia)
Makerere University (Uganda)
Marine Conservation Society (UK)
Marine Environmental Monitoring (UK)
Marine Mammal Center (USA)
Marine Research Institute (Iceland)
Marine Resources Assessment Group (UK)
Massey University (New Zealand)
Max Planck Institute for Ornithology (Germany)
Ministère des Forêts et de la Faune MINFOF (Cameroon)
Ministry of Agriculture, Fisheries and Food Security (Sierra Leone)
Ministry of Environment and Tourism (Namibia)
Ministry of Forestry PHKA (Indonesia)
Ministry of Lands and Resettlement (Namibia)
Minnesota University (USA)
Minnesota Zoo Foundation (USA)
Missouri Botanical Gardens (USA)
Museo Nacional de Ciencias Naturales (Spain)
Museo Regionale di Scinze Naturali (Madagascar)
Musim Mas (Indonesia)
NASA (USA)
National Agricultural Research Foundation (Greece)

PEOPLE AND PROJECTS

National Commission for Wildlife Conservation and Development NCWCD (Saudi Arabia)
National Institute for Medical Research (UK)
National Museum of Natural History (Spain)
National Museums of Kenya
National Oceanic and Atmospheric Association NOAA (USA)
National Science Foundation (USA)
National Taiwan Ocean University
National Trust for Nature Conservation NTNC (Nepal)
National University of Ireland, Cork
National University of Ireland, Galway
National University of Mongolia
Natural England (UK)
Natural History Museum (UK)
Naturalis (Netherlands)
NatureServe (USA)
Nederlands Centrum voor Biodiversiteit (Netherlands)
Netherlands Institute for Ecology (Netherlands)
New York State Diagnostics Lab (USA)
New Zealand Department of Conservation
Njala University (Sierra Leone)
North Carolina State Museum of Natural Science (USA)
North of England Zoological Society (UK)
Northern Michigan University (USA)
Northwest University (South Africa)
Office Fédéral de l'Environnement (Switzerland)
O'Malley Fisheries (Ireland)
Open University of Sri Lanka
Operation Wallacea (UK)
Oxford Brookes University (UK)
Paignton Zoo and Environmental Park (UK)
Panthera (New York)
Pensthorpe Conservation Trust (UK)
People's Trust for Endangered Species (UK)
Pew Environment Group (UK)
Phoenix Fund (Russia)
Port of London Authority (UK)
Prévention Sida Cameroun PRESICA (Cameroon)
Primorsky State Agricultural Academy (Russia)
Prince of Songkla University (Thailand)
Project Seahorse Foundation
for Marine Conservation (Philippines)
Queen's University Belfast (UK)
RAMAS (UK)
Rebikoff Foundation (Portugal)
Réseau des Aires Protégées d'Afrique Centrale (Gabon)
Rewilding Europe (Netherlands)
Romanian Bat Protection Organisation
Rothamsted Research (UK)
Royal Botanic Gardens Edinburgh (UK)
Royal Botanic Gardens Kew (UK)
Royal Society for the Protection of Birds (UK)
Rutgers University (USA)
RWE nPower (UK)
Saudi Wildlife Authority (Saudi Arabia)
ScarabNet (USA)
Scottish Agricultural College (UK)
Scripps Institute of Oceanography (USA)
Sea Mammal Research Unit (UK)
Shaanxi Normal University (China)
Simon Fraser University (Canada)
Smithsonian Institute (USA)
Sociedad Ornitológica de la Hispaniola (Dominican Republic)
Société Audubon Haiti
Société Forestière et Industrielle
de la Doumé SFID (Cameroon)
Société Pallisco PALLISCO (Cameroon)
South African National Biodiversity Institute
Species 2000 (UK)
Saint Petersburg Scientific Research Centre (Russia)
State University of New York (USA)
Station d'Ecologie Expérimentale du CNRS à Moulis (France)
Station d'Etudes des Gorilles et Chimpanzes (Gabon)
Statistics Netherlands
Stellenbosch University (South Africa)
Steppe Forward Programme (Mongolia)
Stony Brook University (USA)
Swedish Board of Fishers
Swedish Natural History Museum
Swedish Species Information Centre ArtDataBanken
Swiss Federal Institute for Forest, Snow
and Landscape Research
Taita Taveta Wildlife Forum (Kenya)
Taman Safari Indonesia
Tanzania National Parks
Tarangire Elephant Project (Tanzania)
Tanzania Wildlife Research Institute TAWIRI
Technical University of Denmark
Texas A&M University (USA)
Thai Department of Nature Conservation
The Deep (UK)
Tigris Foundation (Netherlands)
Tour du Valat (France)
Tromso University (Norway)
Tsaobis Leopard Park (Namibia)
UC Davis School of Veterinary Medicine (USA)
UNEP World Conservation Monitoring Centre
United States Agency for International Development USAID
United States Department of Agriculture
United States Geological Survey
Universidad Complutense de Madrid (Spain)
Universidad de Castilla-La Mancha (Spain)
Universidad de Chile
Universidad Nacional Autonoma de Mexico
Universidade do Vale do Itajai (Brazil)
Università di Firenze (Italy)



Universität Zurich (Switzerland)
Université de Poitiers (France)
Université de Savoie (France)
Universities Federation for Animal Welfare UFAW (UK)
University College London UCL (UK)
University Koblenz-Landau (Germany)
University of Aberdeen (UK)
University of Agricultural Sciences
and Veterinary Medicine (Romania)
University of Alberta (Canada)
University of Auburn (USA)
University of Auckland (New Zealand)
University of Bangor (UK)
University of Birmingham (UK)
University of Braunschweig (Germany)
University of Bremen (Germany)
University of Bristol (UK)
University of British Columbia (Canada)
University of California (USA)
University of Cambridge (UK)
University of Colombia (USA)
University of Colombo (Sri Lanka)
University of Delhi (India)
University of East Anglia (UK)
University of Edinburgh (UK)
University of Erlangen (Germany)
University of Essex (UK)
University of Florida (USA)
University of Guam (USA)
University of Guayaquil (Ecuador)
University of Hohenheim (Germany)
University of Hong Kong (China)
University of Indonesia
University of Kansas (USA)
University of Kent (UK)
University of Kuopio (Finland)
University of Kwa-Zulu Natal (South Africa)
University of Las Palmas (Spain)
University of Leeds (UK)
University of Liverpool (UK)
University of Ljubljana (Slovenia)
University of London, King's College (UK)
University of London, Queen Mary and Westfield College (UK)
University of London, Royal Holloway College (UK)
University of Marburg (Germany)
University of Missouri (USA)
University of Montpellier (France)
University of Natal (South Africa)
University of Newcastle (UK)
University of Nottingham (UK)
University of Oxford (UK)
University of Peradeniya (Sri Lanka)
University of Presov (Slovakia)
University of Puerto Rico (Puerto Rico)
University of Queensland (Australia)
University of Quintana Roo (Mexico)
University of Rochester (USA)
University of Salzburg (Austria)
University of Sheffield (UK)
University of Saint Andrews (UK)
University of Staffordshire (UK)
University of Tasmania (Australia)
University of Teeside (UK)
University of the Azores
University of the West Indies
University of Warwick (UK)
University of Washington (USA)
University of Western Australia
University of Yaoundé (Cameroon)
University of York (UK)
Utrecht University (Netherlands)
Veterinary Laboratories Agency (UK)
Veterinary Services Division (Dominica)
Veterinary Services Division (Ghana)
West University of Timisoara (Romania)
Whitley Wildlife Conservation Trust (UK)
Wild Camel Protection Foundation (Mongolia)
Wildlife Conservation Society WCS
Wildlife Division (Ghana)
Wildlife Trust of Bangladesh
Wildlife Veterinary Investigation Centre (UK)
Wildlife Vets International (UK)
Wilmar International (Singapore)
Working Dogs for Conservation (USA)
World Dragonfly Association (USA)
WWF World Wide Fund for Nature
Zirchiltaggi Sardinia Wildlife Conservation (Italy)
Zoological Museum of Copenhagen (Denmark)





For further information, please see our website www.zsl.org/conservation or contact us at cp@zsl.org

The Zoological Society of London
Regent's Park
London NW1 4RY
United Kingdom

Front cover image kindly provided by
Andy Rouse © Andy Rouse
www.andyrouse.co.uk

© 2011
The Zoological Society of London
Registered charity no. 208728

Edited by Ellen Butcher, Sarah Christie
and Jonathan Baillie

Design by Ellen Butcher
and Alasdair Davies

All rights are reserved, no part of this publication may be reproduced, sorted in a retrieval system or transmitted, in any form or by any means, electronic, photocopying, recording or otherwise, without prior permission of the publisher.

