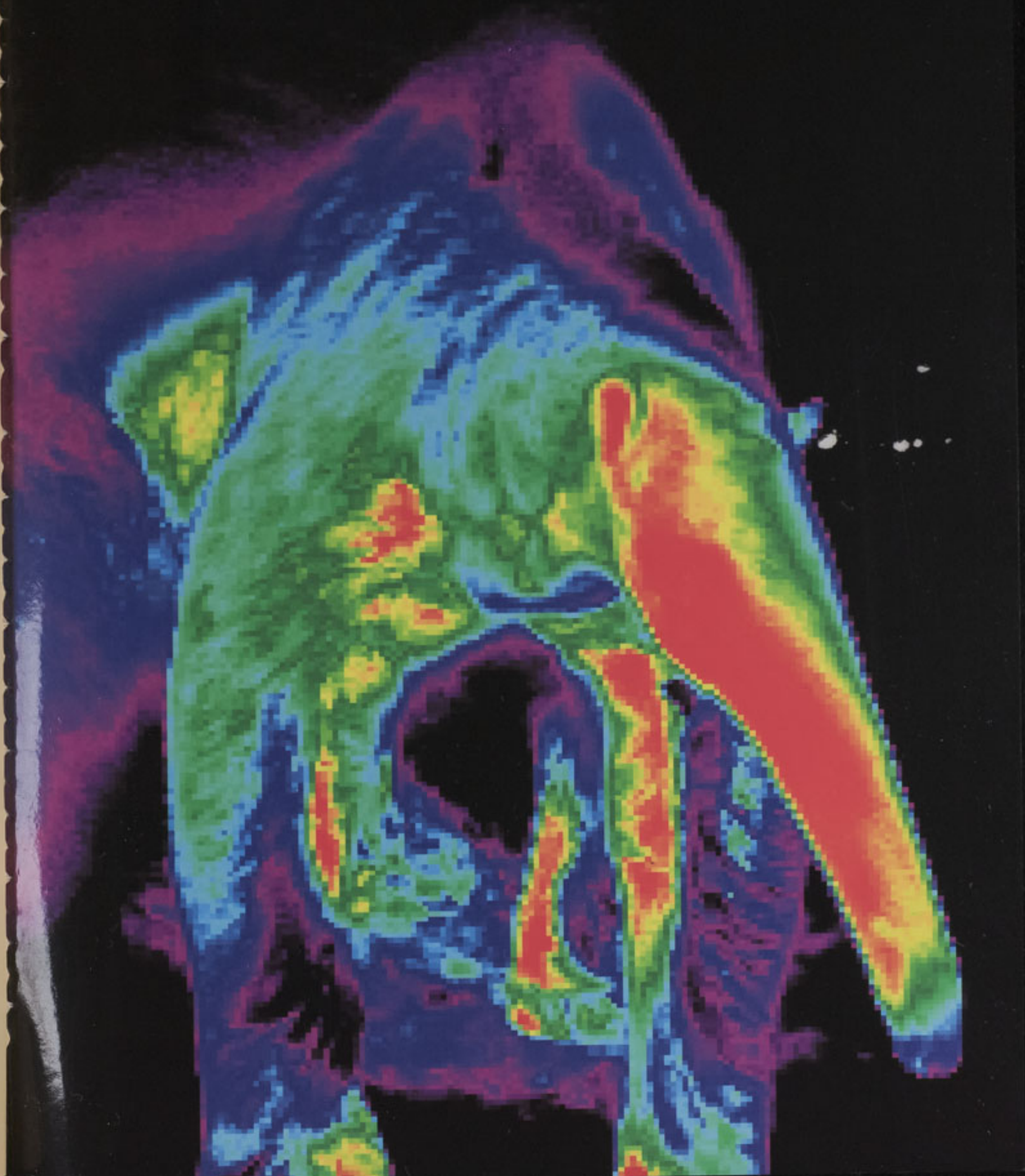


ZSL 2000

The Zoological Society of London Annual Report



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Front cover: Giant anteaters at London Zoo. Thermal imaging was used to assist in pregnancy diagnosis. Comparison was made between the male (front cover) and female in order to try and identify a hot-spot in her abdomen which might indicate a pregnancy.
 Images: Arthur T. Tucker, 2000 ©

Above: ZSL staff worked on a large number of conservation and research projects throughout the world in 2000. Many other collaborations are in development.

*To achieve
and promote
the worldwide
conservation
of animals and
their habitats.*

ZSL pursues this mission by:

- 1** keeping and presenting animals at London Zoo and Whipsnade Wild Animal Park in accordance with best practice;
- 2** giving priority to species that are threatened in the wild;
- 3** increasing public understanding of animals and their welfare and of the issues involved in their conservation;
- 4** maintaining an outstanding education and information programme, particularly for schoolchildren and families;
- 5** undertaking field conservation programmes, both in Britain and abroad;
- 6** developing its role as a leading centre for research and conservation biology and animal welfare;
- 7** fulfilling its role as a learned society and force for zoology and animal conservation through publications, scientific meetings, lectures, the award of prizes for outstanding achievement and the promotion of conservation policy.

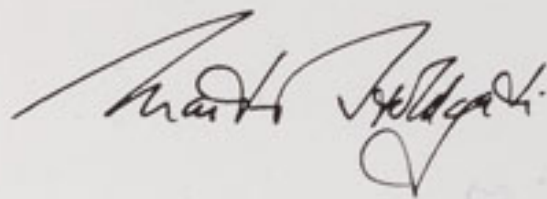
PRESIDENT'S INTRODUCTION

Had I written this Introduction three months ago, and confined it to the year 2000, I would once again have been positive about the achievements and prospects of the Zoological Society of London. We had secured a new 60-year lease for our Regent's Park site. We had a new partnership with the University of Cambridge. Our new Director General, working with our new Secretary and all our Directors, had completed a review of organisation and management and prepared constructive proposals for the future. We had a new Director of Science with a worldwide reputation in animal conservation. We had recorded some notable breeding successes, including the birth of giant anteater twins – the subject of this year's cover pictures. Despite the worry over increasing competition between visitor attractions in London, we ended the year 2000 with a reasonable financial surplus.

Then, in February 2001, foot and mouth disease arrived in the United Kingdom and spread rapidly. People think of it as a disease of domestic livestock but it affects a very wide range of animals including deer, antelopes, bison, warthogs, elephants, giraffes, okapi, hedgehogs and rodents. The Society's collections include a number of susceptible species, among them some that are globally threatened. We regard their care and captive breeding as an important contribution to conservation. Quite clearly, we need to ensure that they are not put at risk by an epidemic like the present one. The Council of the Society believes that there are issues of policy here that must be addressed at international and national level. Meanwhile, we have had to take difficult decisions.

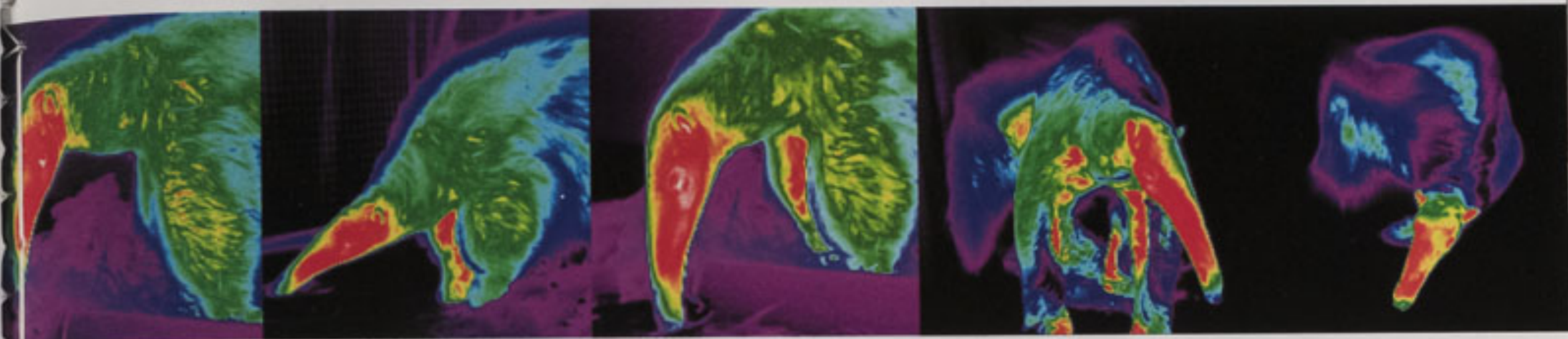
One such decision was to close Whipsnade in February, when there were suspected outbreaks not far away. At Regent's Park we took stringent precautions to protect susceptible species. These decisions, and the dramatic slump in tourism in the spring, have squeezed our finances. Many people and businesses are, of course, in just as much difficulty. The zoo community as a whole is suffering badly. We have watched the changing pattern of the disease anxiously and as I write have decided to re-open Whipsnade in late April. Let us hope that things get better from now on. But the epidemic has once again reminded us of our vulnerability. We have to plan carefully for the future.

As I close this Introduction, after seven years as your President, I would like to express my thanks to all those who have given so much in time and effort to restore and strengthen the Society – Officers, Council and Committee members, Directors, staff, volunteers and all our Fellows, members and supporters. The Society and the cause of animal conservation owes much to them all.



Sir Martin Holdgate
President

The Annual Report was approved by Council on 3 April 2001



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Robert Wingate

† To 13 June 2000

* From 13 June 2000

Above: Thermal images of London Zoo's giant anteaters: three images of the female are on the left, two of the male on the right.

Images: Arthur T. Tucker, 2000 ©

The year 2000 saw continued development of our scientific and conservation work, 1.4 million visitors to the zoos and considerable progress with the strategic planning and organisation of ZSL. This Annual Report outlines the main features of a busy and challenging year.



Above: The giant anteater twins ride on the back of their mother.
Photo: Amanda Ferguson

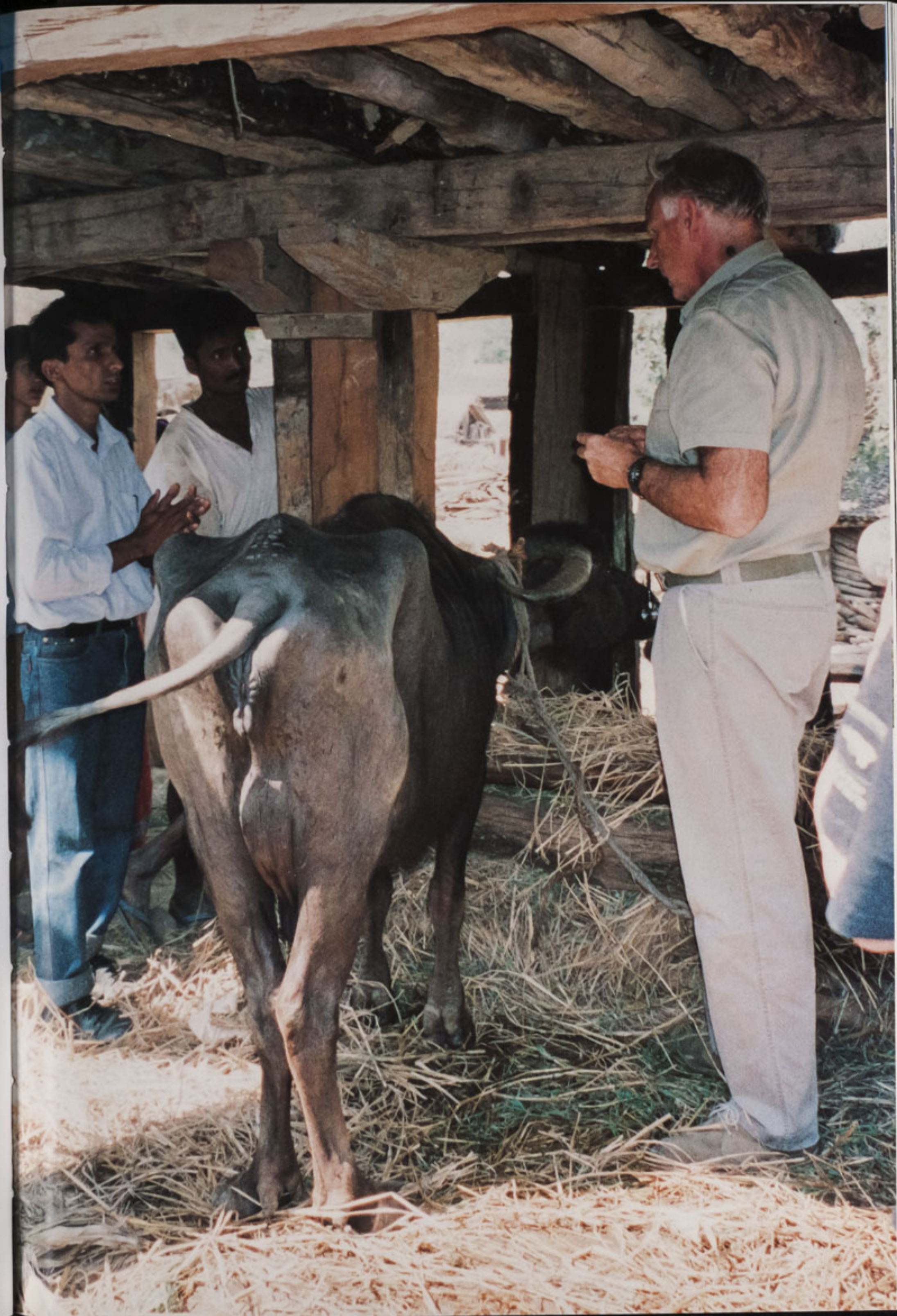
Opposite: Mahdi, Nepal: Dr Jacques Flamand, ZSL Senior Veterinary Adviser for the Wildlife and Domestic Livestock Veterinary Project, and Siba Lal Acharya, Technician, treat a buffalo with a digestive disorder.
Photo: Jo Gipps

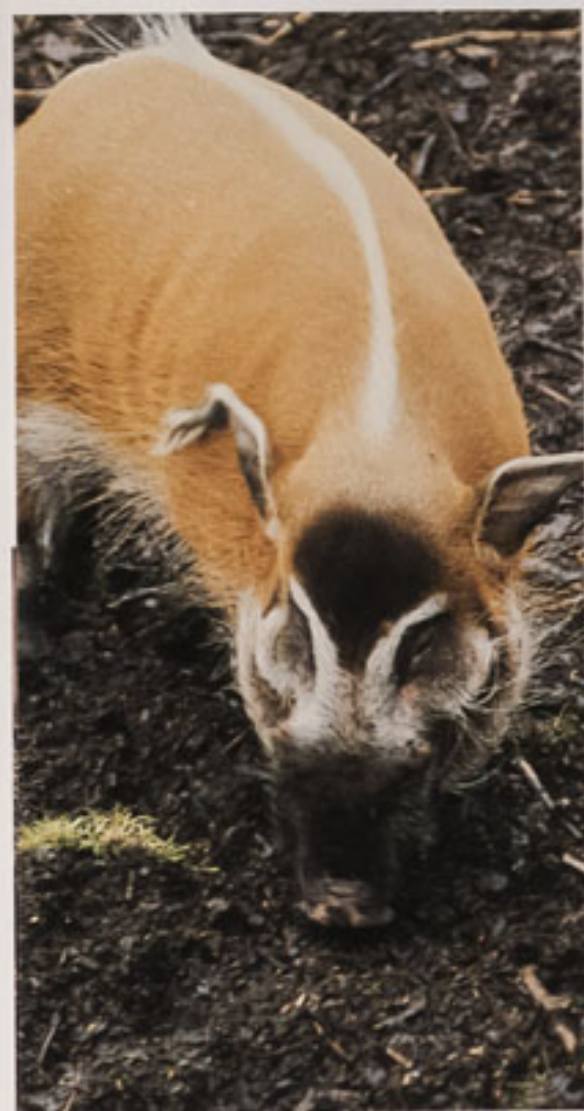
As reported in our previous Annual Report, I took up the office of Secretary on 1st January 2000, followed shortly by our new Director General, Dr Michael Dixon. Several immediate issues required resolution but underlying objectives for the year were to establish the basis for long-range strategic plans for each of ZSL's activities and to reflect the actions required to deliver these plans in the governance and management processes. A result has been the fine-tuning of the way in which ZSL Council operates and changes to the committee structure to reflect the importance of longer-term strategic thinking.

A significant immediate need was to establish a new partnership with a Higher Education Institution through which the Institute of Zoology receives its core grant from the Higher Education Funding Council for England (HEFCE). We wanted the new arrangement to reflect a strategic partnership and involve active collaboration. A number of potential partners were considered and from 1st January 2001 the Institute has been working in partnership with the Department of Zoology of the University of Cambridge.

In September, Dr (now Professor) Georgina Mace was appointed as Director of Science. Under her leadership the Institute has prepared a new strategic plan which, with HEFCE's approval, formed much of the basis for the strategic partnership with Cambridge. She has been working in the Institute since 1982, most recently as a NERC Advanced Research Fellow. She is well known in the international conservation community, not just for her research, but for her contribution to IUCN's Species Survival Commission. Dr Bill Holt deserves our grateful thanks for leading the work of the Institute as Acting Director of Science during 1999 and the first part of 2000.

Visitor numbers at our two sites were down on 1999, with 935,000 paying visitors at London Zoo and 420,000 at Whipsnade Wild Animal Park. The extended poor weather at key periods during the year was a contributory factor and London Zoo suffered, as did most major visitor attractions in the capital, from a number of new Millennium-related visitor attractions that together drew an estimated attendance of over 12 million. The future of the Dome is uncertain but it will clearly not be a significant competitor during 2001.





In keeping with our description of ZSL's zoos as a single collection on two sites, the departure of Simon Tonge (Senior Curator, London Zoo) to the Directorship of Paignton Zoo enabled us to re-consider the organisation of our Animal Management Departments, resulting in the creation of the new role of Senior Curator for ZSL. Nick Lindsay, formerly Curator at Whipsnade, was appointed to this position in September, having also overseen our field projects for a significant part of the year.

We operated without a Director of Field Conservation during the year as we looked at the strategic imperatives for all of our activities. Developing a strong and effective field programme remains core to ZSL's mission and we expect shortly to resolve how best to develop these activities and make appropriate use of the expertise in the Institute and the zoos as part of this. Meanwhile, our field staff continued their invaluable work in a number of countries.

Whereas this Review looks back on our work in 2000 rather than dealing with current issues, it would be inappropriate not to refer to the epidemic of Foot and Mouth Disease which has swept through the country. Whipsnade was closed at the outset because of the proximity of initial suspected cases and the number of free-roaming animals; London Zoo has remained open, because of the urban location and the precautions that we have taken. With no paying visitors at Whipsnade, and greatly reduced numbers at London – possibly for an extended period – it is clear that 2001 will be a difficult year for ZSL, and cost cutting measures have been put in place.

This report again details the work of the Society under the headings of *Conservation & Science* and *Education & Information*; the interdependence of the various constituent parts of ZSL in achieving our mission is very clear. Also vital is the contribution of our central services such as Finance, Information Technology, Membership and Personnel in ensuring that the necessary framework

and systems are in place for running such a complex and diverse organisation. The work of our Public Relations team has ensured that ZSL received overwhelmingly positive media coverage on a wide range of issues during the year, and our fundraising activities continue to raise donations in the form of cash gifts, legacies and gifts-in-kind.

We have this year introduced a new section on the work of the zoos, with details of the major developments in the animal collections. As before, Part 2 of the Annual Report contains a great deal of information about the work and organisation of ZSL.

On behalf of Council, I would like to pay tribute to our dedicated staff, volunteers, trustees and committee members, who contribute in so many ways to the work of the Society and the achievement of our mission.

Professor Paul H Harvey FRS
Secretary

Above from top: White rhino and her calf at Whipsnade.
Photo: Rob Day

Red river hogs were a new addition to London Zoo in 2000.
Photo: Michael Lyster

ZSL recognises outstanding achievements in the field of zoological research and conservation through its annual presentation of awards and prizes. The awards for contributions to zoology for 2000 are:

The ZSL Frink Medal for British Zoologists

(for significant and original contributions by professional zoologists to the development of zoology in its wider implications) to Professor Richard Fortey, FRS, of The Natural History Museum, in recognition of his contribution to palaeontology.

The Scientific Medal

(awarded to zoologists 40 years of age and under, in recognition of scientific merit) to Dr Austin Burt, of the Imperial College London, for his research in evolutionary biology.

The ZSL Marsh Award for Conservation Biology

(for contributions of fundamental science and its application to the conservation of animal species and habitat) to Dr Andrew Balmford, of the University of Cambridge, for his contribution to conservation biology.

The Thomas Henry Huxley Award

*(for original work submitted as a doctoral thesis) to Dr Sarah Hunt, of the University of Bristol, for her thesis *The ecology of vision in a passeriform bird: the blue tit (Parus caeruleus)*.*

The Prince Philip Prize

*(open for competition to pupils, under 19 years of age, of schools or other places of education in the United Kingdom, the Channel Islands or the Isle of Man, on the basis of an account of practical work involving some aspects of animal biology) to Katherine Herborn of Peter Symonds' College, Winchester, for her essay *The greatest navigational tool used by ants to find the position of a food source is a scent trail by ants returning from the food source. Is this hypothesis correct?**

The ZSL Marsh Award for Conservation Biology, the Thomas Henry Huxley Award and the Prince Philip Prize are sponsored by the Marsh Christian Trust.



Above from top: The 1999 prize winners, who received their awards at the AGM in 2000. With them is Sir David Attenborough, who was awarded Honorary Fellowship in 1998.

Photo: Brian Aldrich

The Prince Philip Prize.

The conservation of animals and their habitats is the key role of ZSL. Our scientists in the laboratory and the field, animal management teams at both zoos and our veterinarians contribute wide-ranging skills and experience to both practical conservation and to the scientific research that underpins this work.



We collaborate with over 100 organisations worldwide to ensure the best use of skills and resources. Here we outline progress in a selection of our projects, starting with scientific research at the species level and above, and moving on to more practical conservation projects directed at particular populations or even individual animals.

Interspecific studies

The management and conservation of whole communities might be improved if we could predict what happens when a species extinction occurs or when a new species invades. By studying food webs in various natural communities of animals and plants we may reach some general conclusions about processes that influence the composition and complexity of any natural community. In a detailed study of the structure of a community of aphids and their parasitoids we have been able to measure and describe all species interactions. This provides a model system to analyse and predict the consequences of disruption.

A key question in conservation biology is what predisposes certain species to a high risk of extinction: are some species

innately more vulnerable to extinction than others? New assessments of the conservation status and evolutionary relationships of mammalian carnivores and primates, together with the life history and ecology of each species, have made it possible to study correlates of extinction risk. A high trophic level, low population density, slow life history and, in particular, a small geographical range, are all independently associated with high extinction risk. Together, these traits explain over 50% of the variation in extinction risk between species. Much of the remaining variation is accounted for by external human threats that affect species, whatever their biology.

We have analysed these anthropogenic threats in more detail, investigating how they influence the extinction risk of bird species. Why, for example, are parrots and albatrosses especially vulnerable to extinction whereas woodpeckers and cuckoos are unusually secure? Our results show that different biological traits predispose species to particular threats. Human persecution and introduced predators are among the most common threats and lead to particularly severe extinction risk in species with a large body size and long

Above: One of the aphid species used in a community study of species interaction.
Photo: Christine Müller

generation time. However, habitat loss (the most common threat overall) is most severe for habitat specialists and for species with small body size.

Most attempts to quantify the effects of extinction assume that species go extinct randomly with respect to their evolutionary relatives. This will tend to mean that a closely related species will survive and the overall impact on loss of biodiversity will not be too serious. However, our recent work on mammals and birds shows instead that whole taxonomic groups tend to be threatened. After analysing lists of endangered species, we could show that far more biodiversity would therefore be lost than expected should these species go extinct. Our results suggest that this extra loss would be equivalent to around 850 million years of evolution for the mammals alone.

A key article entitled *Emerging infectious diseases of wildlife – threats to biodiversity and human health* was published by our Veterinary Pathologist in collaboration with researchers at the Centers for Disease Control and Prevention, Atlanta, and Australian Animal Health Laboratory, CSIRO, Australia. The article discusses parallels between the spread of human and wildlife infectious diseases and their causes, interactions between wildlife, domestic animal and human populations, and key factors driving disease emergence.

Research on endangered populations

Collaboration between researchers at the Institute of Zoology and the University of Bristol continued to provide valuable insights into the ecology and genetic

diversity of endangered bats in the UK. Molecular and field studies of the greater horseshoe bat have revealed that genetic mixing among summer maternity colonies is limited and probably occurs mainly during the breeding season, when females from several colonies visit and mate with territorial males in caves. Males were shown to vary widely in their breeding success, which has implications for conservation management. By combining information on male success with observations of territory tenure, it has been possible to identify several important breeding territories that can now be safeguarded from future disturbance.

One possible solution to the problem of loss of genetic variation in small groups of animals is genetic resource banking, whereby semen is frozen and stored for use in controlled breeding programmes. However, there is extensive variation between individuals in the quality of semen after thawing, and one of our PhD students has confirmed a genetic basis for this variation. DNA from boars classified as “good” or “poor” freezers was analysed for molecular markers which will help identify animals whose semen will freeze well, thereby enhancing the use of genome banking as a viable conservation tool.

The lemurs of Madagascar are threatened with extinction, and conservation efforts include habitat preservation and captive-breeding programmes. As part of a field study of the mongoose lemur, reproductive biologists at ZSL have analysed the progesterone and oestrogen content of faecal samples from wild family groups. Most females conceived



Left: New-born greater horseshoe bat.
Photo: Gareth Jones



during the first oestrus of the breeding season and pregnancy was reliably diagnosed at c. 47 days gestation: new findings on the reproductive physiology of strepsirhine primates (lorises, lemurs and galagos) which will facilitate further conservation efforts.

Between April and August 2000, a mass die-off of Caspian seals occurred in the Caspian Sea. ZSL scientists were part of an international team investigating the cause of this mortality. Initial post-mortem examinations of seals from Kazakhstan and Azerbaijan were inconclusive, although many seals were emaciated. Microscopic tissue analysis revealed a consistent pattern of lesions that were highly suggestive of distemper. Further diagnostic tests confirmed that seals with distemper-like lesions were infected with canine distemper virus (CDV). The origin of this infection in Caspian seals and its overall effect on the seal population are still under investigation.

Following suggestions that cheetahs in the Serengeti may suffer from interactions with lions, one of our researchers has documented avoidance behaviour in large carnivores for the first time. Lion and hyaena calls were played through a loudspeaker to cheetahs in the Serengeti to examine the risks perceived by the cheetah. While cheetahs moved just as far away after lion or hyaena calls, they spent more time looking at the loudspeaker and were less likely to make a kill after lion calls, suggesting that they perceive lions to be a greater threat than hyaenas.

In collaboration with researchers at the Moredun Research Institute, Edinburgh, and Queen Mary College, University of London, ZSL scientists published results of a serological (antibody) survey of parapoxvirus in red and grey squirrels in the UK. Parapoxvirus disease produces significant mortality in red squirrels and is considered a factor in the demise of this species. The survey showed that a large proportion of grey squirrels have antibodies, which implicates the grey squirrel as a reservoir host of the virus

and a source for red squirrels. This could explain why outbreaks of the disease continue to occur in small isolated populations of red squirrels.

A long-term study of fertility in wild black rhinoceros females in Save Valley Conservancy, Zimbabwe, resulted in validation of an accurate pregnancy test from faecal steroid analysis. Two important discoveries were the seasonal control of reproduction, and a lag of around 3.5 years between translocation and resumption of breeding activity.

In the Aquarium at London Zoo research continued on the implications of infection by *Mycobacterium* spp. for conservation of wild and captive populations of Lake Victoria cichlids. Two techniques for tagging seahorses that had no effects on survival, growth, feeding or behaviour were developed and will be used to study behaviour and dispersal in the wild. New funding was obtained from Columbus and Chester Zoos and the Rufford Foundation for underwater and trade surveys on Banggai cardinal fish in Central Sulawesi, Indonesia.

A genetic study of hybridization between red deer and introduced Japanese sika deer in Argyll, Scotland, was carried out in collaboration with the University of Edinburgh. 62% of sika deer and 33% of red deer were shown to have some hybrid ancestry. It is unlikely that deer managers will be able to remove sika deer from the British landscape and the 1981 Wildlife and Countryside Act has now been amended to designate several of the Hebridean islands with existing red deer populations as a refuge for the Scottish red deer type.

Practical conservation projects in the zoos and in the wild

Our wildlife veterinary staff in the field worked with the African Wildlife Veterinary Project on the Pan-African Rinderpest Campaign until its completion in June. Field operations in Ethiopia, Tanzania, Uganda and Kenya suggest that the rinderpest virus dies out once it is eliminated from contiguous cattle, and the integration of wildlife monitoring

Above from top: Caspian seal pup. ZSL scientists were part of an international team investigating causes of mortality.
Photo: Paul Jepson

Underwater and trade surveys are being carried out on Banggai Cardinal fish in Indonesia.
Photo: Terry Dennett

Opposite: A Wart-biter cricket bred at London Zoo - an ongoing release programme by ZSL.
Photo: Rod Williams





and serosurveillance is essential, as is our understanding of the role of wildlife in the epidemiology of the disease. This project has made a vital contribution to methods of monitoring and understanding the transmission of the virus towards the ultimate goal to eliminate rinderpest altogether from Africa.

We have seconded a wildlife vet as Technical Assistant, Wildlife Veterinary Expert, in the Pan-African Programme of the Control of Epizootics (PACE). This is a large programme supported by the EU and involves the monitoring of several problem contagious diseases affecting both domestic and wild ungulates in 32 African countries.

Under the umbrella of the Madagascar Fauna Group, we continued to support the reintroduction of black and white ruffed lemurs into Betampona Reserve. One pair of reintroduced animals produced young and both wild and reintroduced animals were monitored throughout the year.

The veterinary monitoring of animals before, during and after reintroduction is of major importance in the success of conservation programmes. ZSL veterinary staff continued to assist with the scimitar-horned oryx reintroduction in three national parks in Tunisia. The majority of the released animals, plus six offspring born since the reintroduction, were sighted during visits to the Bou Hedma and Sidi Toui National Parks. Training workshops on immobilization and health checks were held for Tunisian National Park staff. At a meeting with the Tunisian Direction Générale de Forêts, Park officials and vets from the Ministry of Agriculture and Veterinary Faculty considered the management and monitoring of disease in wildlife.

London Zoo's Head Keeper of Reptiles, in collaboration with the Egyptian Environmental Affairs Agency and others, is working to establish a species recovery programme for Kleinmann's tortoise. At a workshop in Cairo, facilitated by ZSL staff, this project was highlighted to show that serious captive management

programmes have high conservation potential. Important contributions have been made towards veterinary screening and health assessment of the species, following IUCN guidelines on reintroduction and relocation.

In her role as Amur leopard EEP Co-ordinator, London Zoo's Conservation Programme Co-ordinator developed a collaboration between ZSL, the International Zoo Veterinary Group, ZooDent International and the Berlin Institute of Zoo Biology and Wildlife Research to assess the health and reproductive potential of individually important leopards in Prague and Moscow Zoos. With only 40 Amur leopards left in the wild, this zoo programme is a crucial conservation resource.

A grant was awarded from WWF-US to compile a worldwide database on tiger projects and the associated distribution of funding. Conservation NGOs throughout the world are currently spending around \$6 million per year on tiger conservation and this database will help ensure a cost-effective approach in the future.

21st Century Tiger is a partnership between London Zoo and Global Tiger Patrol (of which Esso UK plc is a founder supporter). It has now raised nearly £400,000, all of it used on wild tiger projects. Fundraising events during 2000 included a major tiger art exhibition at the Burrell Collection in Glasgow.

Four projects were funded: *Tiger Protection Units, Kerinci Seblat National Park, Sumatra* – a four-person rapid response unit investigating reports of poaching and other illegal activity; *Investigations into the illegal trade in tiger parts, India* – the construction of a database and the use of informants to carry out "sting" operations against offenders; *Community Leaders, India* – an innovative project using local leaders to involve the whole community in protecting tigers; *GIS Mapping Project, Russian Far East*: using the latest technology to produce detailed maps of tiger habitat and prey distributions.

Above: Sika stag (foreground) and red stag (background): a genetic study of hybridization carried out in collaboration with the University of Edinburgh (see page 10).

Photo: Josephine Pemberton

The Leuser Ecosystem in Gunung Leuser National Park, northern Sumatra, covers some 2.5 million hectares of tropical rainforest and includes some of the largest populations of Sumatran tigers, rhinos, elephants and orang-utans. ZSL staff advised the Leuser Development Programme on the monitoring of large mammals and helped to set up a tiger monitoring programme. Leuser staff were trained in techniques for surveying secondary signs of tigers, such as recording tracks, scats and territorial markings, and results from a preliminary survey were analysed. A survey revealed the rapid decline in the orang-utan population of about 45% from 1993 to 2000; a continuation of this rate of decline would raise strong doubts about the future of the population.

Practical conservation of threatened gazelles is undertaken through collaborative projects based at King Khalid Wildlife Research Centre, Saudi Arabia, managed by ZSL on behalf of the National Commission for Wildlife Conservation and Development. Genetic studies can contribute to captive-breeding and reintroduction programmes by helping to define stocks and assess genetic diversity: results suggest that subspecies of sand gazelle are distinct taxa but probably hybridize. Research on the Arabian leopard and wolf is also now under way.

The condition of the reintroduced oryx, sand and mountain gazelles along with the vegetation in the Uruq Bani Ma'arid Protected area was assessed as part of the routine monitoring, which has become especially important owing to prolonged drought. The gazelles continue to do well and the monitoring results are being used to improve reintroduction techniques for future releases. New work on range condition in relation to the ibex and gazelle populations at the Ibex Reserve has been initiated. Surveys were extended into the far south to monitor areas formerly inhabited by the Afri, as well as to the extreme north, where confirmation of extant Mountain gazelles living on the Saudi side of the Gulf of



Aqaba has clarified our knowledge of historical gazelle distributions along the Great Rift valley.

Part of the project managing the St Katherine's Protectorate in Sinai involves wildlife monitoring, and a camera trapping programme was set up with ZSL's help two years ago. Results of 18,500 hours of live camera time were reviewed and species recorded included wolf (the first photographic record for Egypt), ibex, Dorcas gazelle, striped hyaena, many foxes and a number of bird species. This project demonstrates that camera trap data can be used to show us where, when and how often wildlife needs to use basic resources, such as waterpoints, which are usually also used by domestic stock and people. The revealed patterns of interaction have important implications for management decisions and associated epidemiology.

Above: Amur leopard assessment work in Moscow: ZSL is part of a collaboration with the Berlin Institute of Zoo Biology and Wild Animal Medicine to assess the health and reproductive potential of individually important leopards in Prague and Moscow Zoos.

Photo: Peter Kertesz, ZooDent International



Above: One aspect of ZSL's project in St Katherine's Protectorate, Sinai, is to resolve problems such as rubbish disposal in the area, demonstrated by this illegal rubbish dump behind Sharm el Sheik (see page 13).
Photo: Tim Wachter

Below: Mahdi, Nepal: looking towards the southern boundary of Chitwan National Park.
Photo: Jo Gipps

It was an eventful year for *Project Seahorse*. At London Zoo we successfully bred the endangered Knysna seahorse. The field programme in the Philippines, funded by the National Lottery Charities Board, included fishing ground surveys, socio-economic research in local communities and collaborations with the new alliance of marine protected areas. Development of seahorse aquaculture continued at the Institute of Oceanography, Nha Trang, Vietnam, with successful rearing of seahorses using cheap, locally available brine shrimp enrichments, facilitating aquaculture projects in developing countries.

The project *Conserving Cows, Culture and Wildlife*, focusing on the inter-relationships between local peoples and national parks, was carried out in the Lake Mbuho National Park (LMNP) in Uganda. This was a community study based on the idea that identifying and developing the cultural values of protected areas, of interest to local people, will help build strong support for conservation among these communities. The project focused on the LMNP and the Bahima

pastoralist people; Park managers and the Bahima have conflicting interests in that the managers want the area left undisturbed and the Bahima wish to graze their Ankole cattle. The project recommended that the management objective of the Park be modified to include the conservation of the Ankole cow as an integral part of its work.

The Guassa Biodiversity Project, run by ZSL and funded by the Darwin Initiative for the Survival of Species, included a detailed ecological study of the Critically Endangered Ethiopian wolf and a study on the impact of human use on biodiversity of the area. The results have highlighted the conservation potential of common land, particularly where formalized protected areas are socially and economically undesirable.

The Fregate Island beetle, the world's largest tenibrionid species, is classified by IUCN as Critically Endangered. In partnership with Birdlife Seychelles, a breeding and research programme was established at London Zoo.

Breeding to the third generation has been achieved, allowing individuals to be sent to found new captive colonies at three other institutions in UK and Poland.

Work continued on the development of a web-enabled studbook for managing *Partula* populations internationally. This represents a potential major advance in the way that studbooks are managed: for the first time participating institutions will be able to enter and manipulate their own data, which is uplifted onto a central database at ZSL. At the same time, our staff – together with external consultants – continued the development of a web-enabled conservation projects database for the European Zoo Association's Conservation Committee.

Wart-biter crickets hatched from the ZSL egg-fields were successfully reared and pre-release health examinations confirmed that the animals were fit and parasite free. Forty-five crickets were released into a secret Sussex site managed by English Nature. Three pairs of

wild-caught field crickets were successfully reared and mated in a dedicated facility. More than 3,000 late instar nymphs were released at four sites in West Sussex. A small population was moved to a purpose built enclosure at London Zoo to try to maintain some over-wintering breeding stock.

The Wildlife and Domestic Veterinary Programme in the Royal Chitwan National Park went from strength to strength with all four clinics up and running. This project covers two main areas, providing improved veterinary care of domestic livestock through the setting up and manning of clinics in the buffer zone of the Park and also wildlife management. During the year rhinos were translocated from Chitwan to Bardia National Park, and work continued with monitoring wildlife and in carrying out post-mortems on rhinos and tigers found dead in the area.

Further details of the Institute of Zoology's research appear in ZSL's scientific report, *Science for Conservation 2000*.



Above: Annual survey of gazelles, Farasan Islands, Red Sea. Part of the survey work for the National Commission for Wildlife Conservation and Development, Kingdom of Saudi Arabia (see page 13).
Photo: Tim Wachter



Education plays a key role throughout the work of ZSL, and is central to our mission. Each year, up to 1.5 million visitors enjoy close observation of animals combined with a range of information on wildlife and conservation issues.



Animal presentations, exhibitions and touch tables all enhance the understanding of the natural world. Over 85,000 children participate in our programme for schools, whilst our scientific lectures, talks, courses and publications bring the work of the Society to an international audience.

Organised educational visits to both zoos by schools and colleges continue to rise. For the fourth year running, both London and Whipsnade recorded an increase in school visits, with 29,500 children coming to Whipsnade and 56,200 to London; this latter increase was despite competition from the Dome which offered free entry to a million school children. These figures are extremely encouraging given that overall visitor attendances for the year were lower at both zoos when compared to previous years.

Education Officers at London teach a variety of sessions to children from age 5 to A level students. All sessions are specifically designed to meet the requirements of the national curriculum and vary from hands-on activities and illustrated talks to tours and observation trails. The most popular sessions are practical activities that use a variety of biofacts, many on permanent loan from HM Customs.

As part of our on-going programme to provide support materials to visiting teachers, a number of resource packs were either written or revised throughout the year. At Whipsnade, two new packs were developed to cover specific areas of the national curriculum and the increasing demand for information from students on GNVQ courses. London Zoo provides tailored sessions for students studying GNVQ in *Leisure & Tourism* and in *Business & Finance*; these have proved to be our extremely popular with secondary schools. In order to ensure our material meets the constantly changing requirements of the national curriculum, we have formed a group of local teachers to review new resource material in draft before production.

Following the very successful, now annual, *Gifted Students* programme at Whipsnade involving three local schools, we have been working on developing the prototype "Discovery Box" made by the students as part of their project. As a result, twenty of these boxes, which comprise an interactive trail with activities around the Park, are now available for schools to use during their visit.

Visitor Education

Interpretation of animals, conservation issues and the role of our zoos in co-operative breeding programmes is



at the forefront of the work carried out by the Education Departments. Species labels, large graphic panels, touch tables, talks, guide books and live animal presentations are among the educational tools for increasing interest and commitment to wildlife among our visitors. At Whipsnade, the production of three interpretation panels for the red panda enclosure was made possible by continued sponsorship from Alconbury Elementary School who have supported Whipsnade, and the red pandas in

particular, for the past four years; the panels cover: *What is a red panda?*, *Conservation of the red panda* and *Animals of the Himalayas*. They are of a similar design and layout to those at the lemur enclosure and we have again been able to utilise the frame and canopy structure already in place.

The programme of refurbishment in Whipsnade's Discovery Centre has continued with the refurbishment of two areas. Both the desert and rainforest



Above: Children from Alconbury Elementary School sponsored the new red panda interpretation panels.
Photo: Simon Hodge

Left: Wildlife Garden, London Zoo (see page 18).
Photo: Dave Clarke



areas have been decorated with murals to create a feeling of the habitats both in and around the enclosures. New interpretation panels comprising information on the habitats and their wildlife have also been produced and new species labels have been positioned by each exhibit.

The Wildlife Garden at London – part of the *Web of Life* development – received new interpretation panels encouraging visitors to create habitats and planting schemes in their gardens to support native species. Two new computer animations, one explaining the effect of habitat fragmentation on golden lion tamarins and the other, dealing with natural selection, were installed in *Web of Life*. For the birth of London's first giant anteater twins, we produced information combined with CCTV showing the babies inside the den with their mother.

Labels explaining how the Zoo's gardeners produce food plants for animals were produced for London Zoo's display at the Regent's Park Flower Show. Many species labels were produced or revised for native reptiles and for additions to the collection. Four large panels were produced to interpret conservation and fundraising for primates.

Touch tables are used in London Zoo to increase interest and understanding of animals. We carried out a major review of these activities with a view to introducing new themes and new objects for handling, and subsequently introduced a new touch table in the aquarium. Here, volunteers talk about and display a range of items including sea urchins, corals, shark skin and sponges. We also developed a short talk delivered by the volunteers to introduce the daily fish feeding event. On the days the piranha are featured, the speaker has to be very quick off the mark – arriving a few seconds late can mean missing the entire event!

At both London and Whipsnade, we participated in a nation-wide campaign with other members of the Federation of Zoos to raise awareness of threatened primates, supporting, in particular, two species: the lowland gorilla and the golden lion tamarin. At London, visitors painted hand prints and gave donations in return for an information sheet.

The *Saturday Club* at Whipsnade continues to be successful, with 50 children taking part in the annual *Day with a Keeper* activity. These events are increasingly popular, and we have to limit the number of children who can take part.

ZSL continues to play a prominent role in the wider zoo education community. Both zoos are represented on the Federation of Zoos Education Committee, and the Education Officer at Whipsnade was elected Vice Chairman of the Committee in June. London Zoo hosted the British and Irish Zoo Educators' Conference, attended by

Above: Volunteers present a range of biological material on touch tables at London Zoo.
Photo: Brian Aldrich

Opposite from top: Two annual events at London Zoo: Special Needs Day and Adopt an Animal Week.
Photos: Michael Melia/Brian Aldrich





education officers from as far afield as Dublin and Edinburgh. The three-day event, packed with talks and workshops, focused on interpretation and the evaluation of labelling, on specific parts of the science national curriculum and on the wildlife trade in Britain and abroad. Another important topic discussed was the bushmeat trade, which will be the focus of a major educational campaign at London and Whipsnade, and throughout Europe, in 2001.

Qualifications and training

In the Institute of Zoology, three of our students were successful in obtaining their PhDs during the year: Jim Groombridge for his work on the conservation genetics of the Mauritius kestrel, Steve Rossiter for his studies of genetic structure in the endangered greater horseshoe bat and Lisa Thurston for her research on factors affecting the fertility of boar spermatozoa following cryopreservation.

The Master of Science Course in Wild Animal Health (MScWAH), run jointly with the Royal Veterinary College, continues to be oversubscribed, and the maximum complement of 15 are attending the 2000/2001 course. There are now 70 graduates of the course, from 31 countries and six continents. The Quality Assurance Agency carried out an assessment of the standard of teaching and awarded the course a score of 24/24 (100%). Their report noted the high level of enthusiasm and satisfaction expressed by the veterinarians on the course, and that the pass rates were excellent.

Five trainee keepers at London passed the City & Guilds examination in Zoo Animal Management. Three gained distinctions in the written exam paper and Lyndsey Marsh additionally gained a distinction in the course assessment and practical work. All ZSL's trainee keepers study for this qualification, which comprises written assignments, researching an individual project and undergoing practical assessment in husbandry skills.

Meetings

An essential part of ZSL's work is facilitating the communication of

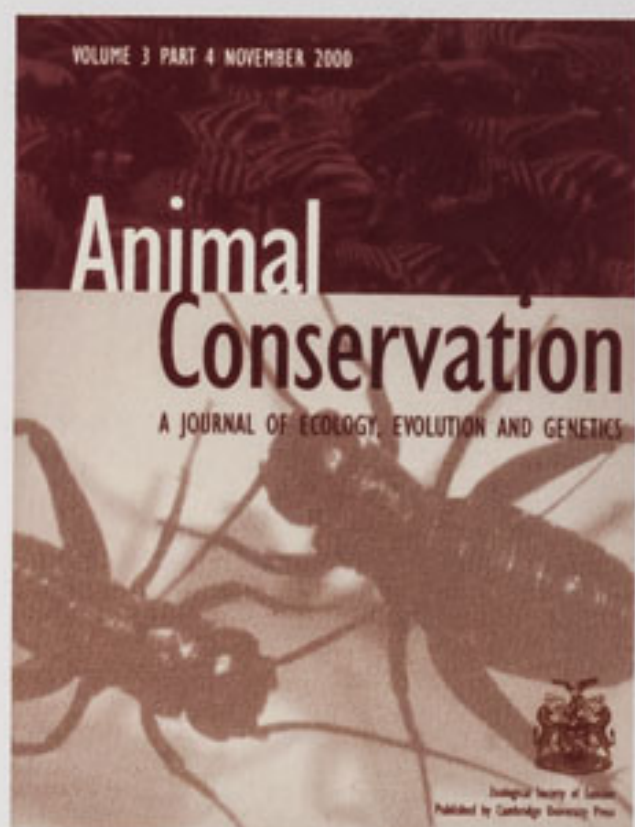
information between professional zoologists, researchers and the general public. We hold four series of meetings, which are open to the public as well as to members of staff.

Tuesday Talks are aimed at a general audience. Nine talks were held during the year, covering a wide range of topics, including *Gorilla tactics*, *Mudflats, misconceptions and the millennium*, and *From concrete to warblers – the story of the Wetland Centre*. *The Living Wild*, a collection of stunning images presented by internationally recognised wildlife photographer Art Wolfe, was particularly popular.

At each *Scientific Meeting* three speakers provide an overview of important research within a particular field. The eight Meetings held during the year covered diverse subjects, such as *Can parks protect Africa's predators?*, *The conservation of animal diversity in river basins* and *Cycles in animal populations*.

The Science and Conservation seminars held by the Institute of Zoology comprised talks by invited speakers on subjects relevant to our research, for example, *Biology after the human genome*, *Snake venom proteins: a new male contraceptive* and *Life history and extinction risk in bats*.

ZSL's international symposium *Reproduction and Integrated Conservation Science*, organised by



Above and right: Amongst ZSL publications in 2000 were the *International Zoo Yearbook* and the quarterly journal *Animal Conservation*.

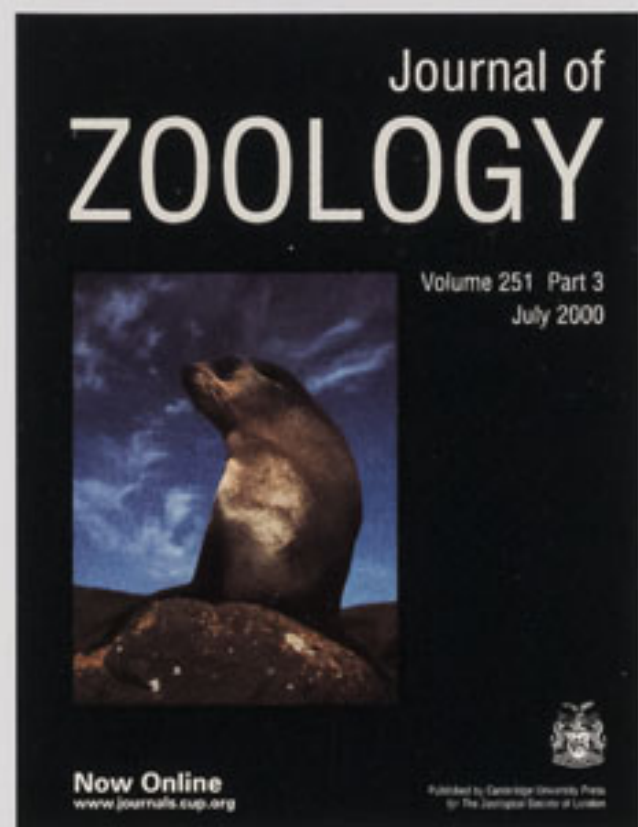
Drs Bill Holt, Amanda Pickard, John Rodger and David Wildt, celebrated the contributions of reproductive biology to the enhanced management and conservation of endangered species. Over 20 speakers addressed how the reproductive sciences contribute to integrative conservation programmes in zoos and in the field and identified the highest priorities for the new millennium.

The 2000 Sir Stamford Raffles lecture, *How the brain generates consciousness*, was given by Professor Susan Greenfield, Director of the Royal Institute of Great Britain. The event was again generously sponsored by the Singapore Tourism Board and Singapore Airlines.

Publications

Journal of Zoology, ZSL's pre-eminent international journal dedicated to academic zoology, continues to attract contributions from top researchers. During the year 160 original peer-reviewed articles were published in 12 monthly parts of Volumes 250-252, providing comprehensive coverage of the latest research and developments in zoology.

Our quarterly journal, *Animal Conservation*, provides an important forum for the rapid publication of rigorous empirical or theoretical studies relating to species and population biology. The journal continues to bring together exciting new research

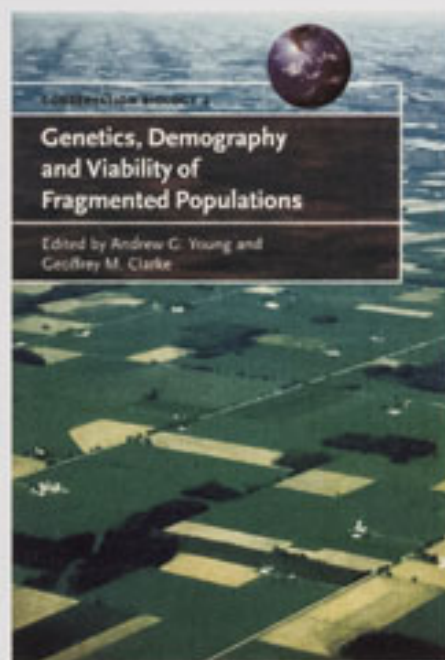
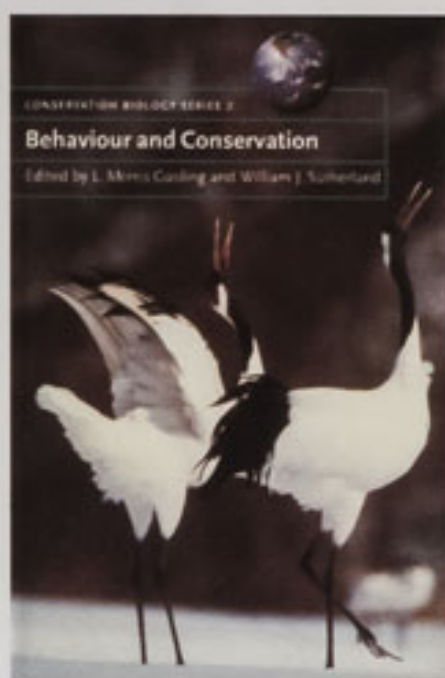


and ideas from evolutionary biology and ecology that contribute to the scientific basis of conservation biology.

Volume 37 of the *International Zoo Yearbook* contains 43 articles, 32 of which are on the conservation of Psittacines. Nigel Collar, BirdLife International, gives an authoritative overview of the 90 species of parrots which are threatened with extinction, while others provide information on breeding, husbandry, conservation, health and captive management of these fascinating and beautiful birds. Section 2 articles range from the husbandry and breeding of the Kerry spotted slug to hand-rearing and reintroduction of a Sumatran orang-utan. The Guest Essay by Sally Walker addresses the continuing establishment of regional or national networks of the Conservation Breeding Specialist Group.

The *Conservation Biology* series, published in association with Cambridge University Press, includes internationally significant advances in the science that underpins conservation biology. Titles are based either on symposia held at ZSL or on other topics which meet these aims. During 2000 three titles were published: *Behaviour and Conservation*, edited by L. Morris Gosling and William Sutherland, *Priorities for the Conservation of Mammalian Diversity*, edited by Abigail Entwistle and Nigel Dunstone, and *Genetics, Demography and Viability of Fragmented Populations*, edited by Andrew Young and Geoffrey Clarke.

The *Zoological Record*, published jointly with BIOSIS, is the oldest continuous information service for the life sciences. As a record of all aspects of zoological research, it is considered the foremost publication in its field. The continued generous support of various institutions, principally the British Library Document Supply Centre at Boston Spa and The Natural History Museum, London, in providing access to material for indexing is gratefully acknowledged.



Above: Three new volumes in the Conservation Biology Series.

Left: Journal of Zoology, published monthly.

ZSL's animal collections attracted 1.4 million visits during 2000, giving us the unique opportunity to inspire and involve a vast number of people in the conservation and education work of the Society. We carried out improvements to exhibits on both sites, and recorded a number of notable breeding successes.



Last year's report started with the development of *Web of Life*, housed in the Millennium Conservation Centre, as the major work of 1999. It is appropriate, therefore, again to start this year's review of the zoos with *Web of Life*, highlighting the impact it has made. There have been teething problems as would be expected with a building of such complexity. However, it has been widely accepted as a very exciting addition to London Zoo and a genuine contribution to ZSL's conservation mission.

The birth of twin anteaters in August is a good example of how this project has worked – these were not only the first anteaters born and raised successfully in the UK but they are also unusual by being only the second twins recorded as having been reared in captivity. The successful breeding of giant wetas and Seychelle scorpions are further examples of how this area has worked for the animals as well as for the visitors. The building itself won the Civic Trust 2000 *Award for Sustainability* and the leaf cutter ants even appeared on a postage stamp.

Whilst there were no major capital developments at either zoo this year, many

small projects have helped the continuous improvement of both sites. A new, but simple, 30 metres long macaw aviary has been constructed in the Bird Garden at Whipsnade. This was made possible through a private donation and has proved to be considerably good value for money, greatly enhancing both the quality of space for the birds and the visitor experience. The same techniques were applied to three new aviaries for the owls at Whipsnade, located in the Woodland Bird Walk, replacing some very aged aviaries. Funds for this were raised through the volunteers.

At London, two of the enclosures of the Michael Sobell Pavilion for Apes and Monkeys have been renovated with the outside enclosure roofs being raised by a couple of metres, considerably improving the quality of the space. With new paintwork, internal structures, planting and turf, this is a good example of what can be achieved simply. The bat cave in the Clore Pavilion for Small Mammals has been upgraded and the kitchen and holding areas at the back of the Bird House have also been improved.

Above: A baby giant weta cricket stands next to a leg of an adult.
Photo: Louise Murray

Opposite: *Minouche*, one of two female lowland gorillas received by London Zoo from Dvur Kralove Zoo in the Czech Republic.
Photo: Keith Lloyd





In the Aquarium, the old piranha exhibit was completely refurbished as a Mississippi cypress swamp with paddlefish, gars, pumpkin-seeds and terrapins; a new exhibit tank for Madagascar fishes was also installed in this hall. The Conservation Breeding Room for rare tropical freshwater fishes was completed and is on show to the public and proving very popular, and the Seahorse Conservation Room has also been finished. Six small tanks by the exit have also been upgraded and converted for new species, including big-bellied seahorses. As well as these improvements for the public area, a number of upgrades behind the scenes have been carried out including new filtration systems.

To match the development work of the Aquarium, a number of new species were obtained, including lookdowns and garden eels, Charco Palma pupfish (extinct in the wild) and four endangered species of fish from Madagascar.

A similar programme has been continuing in the Reptile House, including refurbishment of one of the units viewed from outside the building that had been empty for a number of years. Several of the inside exhibition areas have been stripped and redeveloped, again utilising Reptile House staff expertise in exhibit design to achieve some really interesting effects.

One of the major programmes managed through the Aquarium at London Zoo is that for seahorses, as part of *Project Seahorse*. This year saw excellent breeding in two species in particular, the Knysna and the yellow, with youngsters being exported to eleven zoos both in Europe and the USA.

Web of Life staff bred and released 3,000 field crickets into four sites in southern England and 45 wart-biter cricket nymphs for reintroduction programmes in the UK.

Our animal collection is continually evolving and as more species become subjects of regional management

programmes, and in some cases international programmes, we attempt to develop our commitment to these. The year saw a number of new species arriving at both Whipsnade and London. Wild pigs returned to London Zoo with the arrival of a pair of red river hogs and four bearded pigs; these will play a crucial role in developing our expertise with the management of pigs which is likely to be an important part of our work in the future.

A trio of Goeldi monkeys will join the free-ranging silvery marmosets at Whipsnade, once they have completed their rabies quarantine; the management of free-ranging primates is something we want to develop on both sites.

The paperwork involved with any move can be considerable but the arrival of four taipan from Taronga Zoo at the Reptile House in London was the culmination of some four years preparation. Less logistically-demanding species included eyelash vipers, rare European viper species and Taiwan beauty snakes, amongst others. With amphibia possibly facing severe threats in the wild, it was good to increase numbers of both the golden poison arrow frogs and golden mantella frogs in our collection.

The successful breeding of species for the first time is an important element of our reports. However, the real test of any management programme is its continuing success. This year saw some very satisfying breeding of several species



Above: The new Macaw Aviary in the Bird Garden at Whipsnade.

Right: Bearded pigs arrived at London Zoo during the year.

Photo: Rod Williams

important to our conservation work. The birth of a white rhino is always a major event as so few are bred in captivity, but Whipsnade must take the record with three births in one year. Just to make that even more special, they all proved to be female and one was the first offspring to be born by a female who was herself born at Whipsnade some 20 years ago. The same staff saw a rather unusual double, with births of both common and pygmy hippos and when to these are added the births of Nile lechwe and other of our antelope herds, it has proved to be an excellent year for breeding at Whipsnade.

There are always those satisfying results which are not necessarily record-breakers in any form but are key to much of our work. In this category would be the birth of our first Diana monkey for seven years at London Zoo and the first silvery marmoset twins at Whipsnade (the pair producing singletons up until now). The group of squirrel monkeys at Whipsnade produced young for the first time after exchanging males, which always seems to be a rather difficult process.

The Bird Section at London was particularly pleased with the breeding of the black hornbills who surprised us when two chicks fledged from the nest box, as opposed to the singleton we were expecting. Also rewarding was the breeding of the blue-crowned lory, a particularly challenging species. We believe that both breedings are firsts for the United Kingdom. This was a good year for the egrets and we also recorded our first successful breeding of the Waldrapp ibis.

The Clore Pavilion team followed their success with the first birth of striped possums with the first twin striped possums. The staff were also challenged with the hand-rearing of an emperor tamarin infant, one of triplets. They introduced this youngster to the family group very early and it seems to have been accepted well by the group even though the female did not start feeding it as had been hoped. Another hand-rearing success and reintegration to the group was with a dwarf mongoose at Whipsnade. These prove difficult to rear in any case, but this may well be the first time that one has been successfully re-introduced to its family group.



Left: White rhino calf: one of three born at Whipsnade during the year.



After several months of using ultrasound to determine pregnancy in the sealions at Whipsnade, two births occurred within three days of each other. Unfortunately the inexperienced younger female did not rear her youngster but the other male pup is doing extremely well. Our ability to perform ultrasound from training the sealions to this will provide very useful information for the future.

We were delighted to receive two new female lowland gorillas at London to join the existing trio of one male and two females. Both newcomers are delightful characters and although they were not mixed during the year because of rabies quarantine restrictions, they were run alongside each other and the indications that they will settle in well are good. Another important arrival was that of a female Malayan tapir which again should provide a very encouraging future for this species at the zoo.

Probably the biggest animal movement challenge of the year was the export of the black-tipped sharks to Burgers Zoo in the Netherlands. Due to careful planning and the expertise of the personnel involved this move was successfully completed and the sharks are now enjoying their extra space in a spectacular new facility.

Much easier, but just as significant for different reasons, was the move of two Przewalski horses from Whipsnade to a Site of Special Scientific Interest (SSSI) at Eelmoor Marsh in Hampshire. This is part of the programme to re-establish this species in the wild. Studies of the horses that have been held in the semi-free-ranging situations show that they make ideal candidates for future reintroductions. Reports from Mongolia, where a reintroduction has taken place, are very encouraging.

The Events Department in London obtained new display animals including saker and lanner falcons, caracara, barn owl, seriema, emus, and meerkats. The team at London are working more closely with their counterparts at Whipsnade on developing their respective

shows for our visitors, and the London Zoo team put on special *Animals in Action* shows for the *Summer Open Evening*, the *Annual General Meeting*, the *Special Children's Day*, and during *Adopt an Animal* week. As ever, the Christmas promotion was highly successful, playing host to nearly 10,000 paying visitors, who met the Nativity characters, and visited Santa's grotto.

People and organisation

Senior animal management staff changes included the appointment of Nick Lindsay from Whipsnade to the new post of Senior Curator for ZSL, covering the collection on both sites. As part of this reorganisation, John Ellis joined as Curator of Birds. On the commercial front, Caroline Masters joined the London Zoo team as Marketing Manager.

The commitment of ZSL and its staff to the conservation roles of the animal collection has again been significant. The limits are only really set by the availability of funds and time, but we accomplish a great deal. Many staff have roles within European Breeding Programmes (EEPs) and both UK Zoo Federation and European Zoo Association Taxon Advisory Groups (TAGs).

Amongst these wider activities, Dr Heather Hall is a member of the Zoos Forum and helped develop the Secretary of State's *Standards for Modern Zoo Practice*. Sarah Christie has expanded her role from tigers to include Amur leopards and Asiatic lions and is significant not only in the captive programme work but also in assisting with field conservation. John Baines from Whipsnade joined the international team of helpers in South Africa following the disastrous oil spill; his 30 years of experience with penguins proved invaluable as he headed one of the teams assessing the condition of the birds prior to their release back to the wild. Esther Wenman has continued her work in Egypt on the tortoise conservation and Whipsnade staff visited Ghana to work in the zoos as part of an ongoing programme.

In line with our accreditation as an *Investor in People* at Whipsnade, we continue to focus on combining the training needs of the organisation with that of the individual. Every permanent member of staff works with their manager to produce a Personal Development Plan, which is then combined with a Park-wide master plan, with training requirements addressed through external and internal methods.

Business

This was a difficult trading year for all visitor attractions in London, and the Zoo was no exception. We were competing with several brand-new visitor attractions (The Dome, Tate Modern and The London Eye had a combined total of more than 12 million visits); we received over 940,000 visitors, fewer than the previous year. However, average visitor spends were above last year, and other sources of income such as *Lifewatch* membership, adoptions and hospitality catering all did well.

An excellent year at Whipsnade resulted in an above-budget performance and the eighth successive year of cash surplus. Our functions business has sustained its success, with major conferences and events being held for Whitbread, Master Care, Ernst and Young, Volkswagen, Barclays and many others. The 2001 business plan includes provision for dedicated sales staff with specific responsibility for growing this lucrative business.



The winter operation policy at Whipsnade, under which visitors can participate in the reduced programme as winter members and then have the opportunity to transfer to full membership in the spring, has gone from strength to strength. This has developed from a pilot scheme initiated in 1998, and a very high "conversion rate" together with a substantial reduction in visitor complaints are two of the main benefits.

Buildings and facilities

Some of the more important exhibit developments have already been detailed. Less glamorous, but equally important for a good visitor experience, is the work on infrastructure. At Whipsnade, there was further renovation of our fencelines, road and water systems, and improvements to other operational facilities. At London, one of the Education Department's lecture theatres was completely refurbished (the last work to be undertaken under our Millennium grant for *Web of Life*).

Despite some very poor weather at key weekends and the impact of Millennium attraction competition, 2000 proved to be a positive year for the two zoos, with supportive press coverage, improvements in facilities, increase in school visits and exciting developments in the animal collection.

Above: A male sealion pup was born at Whipsnade.

Left: Whipsnade is participating in a programme to re-establish Przewalski horses in the wild.

ZSL's activities are funded from a number of sources. Fundraising activities continue to bring in much-needed support for our activities, and the Institute of Zoology has been successful in a number of research funding competitions.



Following our major appeal for the *Web of Life* Project in 1998/99, work has continued on identifying potential major donors and setting-up an advisory committee to help ZSL with its future fundraising strategy. An important feature is building links with the business community.

The *Animal Partners* corporate adoption scheme, now in its third year, continues to generate funds, and cash donations were received from Yellow Pages, London Power Networks, British Gas, the Nationwide Building Society, the Post Office, Hasbro UK, Eurolife and Cosgrove Hall Films, amongst others.

The British Land Company plc, which most generously confirmed a grant of £150,000 towards the renovation of the Mappin Café, headed other donations, with work planned to commence in mid-2001. British Land also featured photographs of London Zoo and Whipsnade Wild Animal Park in its 2000 Annual Report to shareholders.

The Mitsubishi Corporation Fund for Europe and Africa gave us the second instalment of its £70,000 three-year sponsorship towards the development of the *Web of Life* website (www.weboflife.co.uk). American Express entered a two year sponsorship deal to

encourage Amex's employees to visit London Zoo, as part of its Culture Club Programme and The Wolfson Foundation agreed a £25,000 grant towards the partial refurbishment of the Wolfson Library.

Gifts in kind increased again in 2000. Booz-Allen and Hamilton, the international management consultancy firm, was exceedingly generous in donating both time and staff resources to put together an e-commerce strategy for ZSL and continues to support us with its implementation.

Volvo replaced its existing loan vehicle with a new four-wheel drive Volvo Cross Country estate model that is heavily used, particularly for veterinary work and transporting animals between sites.

We are also very grateful for the continuation of British Salt's annual donation of salt for the sealion pool at Whipsnade and Twinings' herbal infusions, much loved by our gorillas. Ikea continues to donate furniture on a regular basis for all parts of the Regent's Park site.

The Whipsnade Lion Appeal continued and has raised over £71,000. Highlights included our second Midsummer Ball, which made another substantial profit,

with a strong contribution from the auction, the auctioneer demonstrating how to use corporate rivalries to lift the bids for some of the lots significantly!

Many other organisations, corporations and trusts not specifically mentioned here or elsewhere in the Report have supported ZSL's vital conservation work in so many ways over the past year. To all of them we extend our continuing thanks for their generous help.

MAJOR SCIENTIFIC GRANTS

The Institute's core research work is supported by an annual grant of about £1.7 million from HEFCE. This funding provided a basis for external grant raising, and Institute staff were successful in several competitive research funding competitions. Drs Guy Cowlshaw, Marcus Rowcliffe and Richard Pettifor obtained a grant of £214,904 from NERC for studies on "Social constraints on group-living vertebrates" in collaboration with colleagues in Cambridge.

Dr Cowlshaw also obtained a grant from the DETR Darwin Initiative for research and training activities in the Garamba reserve in the Democratic Republic of Congo. This area contains the last wild population of the northern subspecies of the white rhino. Drs Andrew Bourke, Bill Jordan and Rob Hammond obtained a grant of £72,808 from the Leverhulme Trust for research on differential gene expression in caste determination and evolution in bumblebees.

Drs Bill Holt and Amanda Pickard received two research grants from MAFF for £313,333 and £157,580. These were for studies on automatic ovulation prediction in pigs, and on the enhancement of sperm survival by oviduct epithelial cells. Finally, Dr Peter Bennett and Paul Jepson were successful in re-negotiating the contract they have with DETR for the Marine Mammals Strandings Project. This provides £478,032 over the next three and a half years for further studies and co-ordination of information on Cetacean strandings in the UK.



Above from top: The website for Web of Life is sponsored by Mitsubishi Corporation Fund for Europe and Africa.

Many organisations have contributed to the work of the Society during the year.

Media coverage is a valuable way of bringing the work of ZSL to public notice. Serious scientific stories, animal events, filming for the big and small screens and quirky “silly season” items all contributed to the regular flow of ZSL-related stories during the year.



Media coverage started on day one of the year with the annual stock-take of animals at London Zoo. Curator of Invertebrates Paul Pearce-Kelly was photographed counting up the millennium bugs, with local and national newspaper coverage; BBC TV's *Newsroom South East* recorded a piece about the stock-take and ZSL's conservation work with invertebrate species.

On the 8th February Guylian, the Belgian chocolate-maker, launched their sponsorship of *Project Seahorse* to the UK press. On the morning of the launch, interviews with Dr Heather Hall and Brian Zimmerman were shown on *BBC Breakfast News* and the press conference was well attended by environmental correspondents. Regional radio stations, TV, national and regional newspapers covered the event.

High profile conferences and launches attract press interest, thus bringing our name to the public even when the events have been organised by others. The Department of Transport, Environment and the Regions held a seminar, *Partnership for Action against Wildlife Crime*, which was opened by the Environment Minister, Michael

Meacher. BBC, Sky and ITN all ran pieces featuring London Zoo on their lunchtime news.

ZSL was asked to host the launch of the 2000 Red List by IUCN. A photocall was held with threatened species from the Zoo (freshwater turtles, tortoises and a lemur). Most national papers sent a photographer and BBC News 24, CNN, ITN and Brazilian TV sent crews. ZSL received good coverage and IUCN was extremely happy with the launch.

The British Hospitality Association and London Tourist Board held a debate on hospitality and tourism in London with four of the capital's mayoral candidates. A photocall with the candidates, an eagle owl and a Harris hawk featured on *London Tonight*.

The work of the Institute of Zoology received considerable media attention. Andrew Cunningham's paper on *Emerging Infectious Diseases*, published in *Science*, was picked up extensively in North America and he was interviewed by CBC. The work also caught the attention of *Costing the Earth* (BBC Radio 4) who made a 30 minute programme which included interviews with Andrew Cunningham, Paul Jepson

Above: The leaflet inside the box reads 'Every time you buy a box of Guylian Chocolate Seashells you are supporting Project Seahorse'.

(Caspian seals) and Tony Sainsbury (parapox in red squirrels). Jim Groombridge's paper on the genetics of the Mauritius kestrel was published in *Nature* in February and the story was run by *The Times*. BBC World Service interviewed Drs Bill Holt and Bill Jordan about the "Frozen Zoo."

Animal stories are always popular, and coverage for Whipsnade during 2000 included the births of a silvery marmoset and a giraffe calf. A major story was the white rhino calves' births; this was covered with a scientific angle as the births had been predicted using hormonal indicators in the rhinos' dung, a technique developed by the Institute of Zoology. The photocall was attended by *The Mirror*, *Daily Mail*, PA and AP and BBC (*Look East* and *Newsround*). The story did well regionally and *The Times* ran an article about the predictions of the birth. It will also appear in a new series, *Making babies*, produced for the BBC.

London Zoo's Easter photocall was with two emu chicks, born at Whipsnade, which were being hand-reared at London. These Easter chicks with a difference were a real success with the media: *The Times* ran a large picture on Good Friday and *London Today* (ITV Regional News) did a live interview with Andy Hallsworth. A pre-recorded piece was also run on the evening news and pictures were featured in several papers.

An unusual Whipsnade story which caught the public's attention was the young tigress who become stuck 30 feet up a tree in her enclosure for several days. She eventually came down safely, but in the meantime generated a great deal of positive media coverage, conveniently just in the run-up to the October half-term!

Web of Life continued to be a popular subject. *Practical Photography Magazine* published an 8-page feature on macro-photography using our collection; the *Evening Standard* ran an interview with Amanda Ferguson about her "unusual" job looking after the animals, most notably locusts; and

Royal Mail issued their latest Millennium stamps which featured two of our leaf-cutter ants on the first-class stamp of the 'Life and Earth' issue.

The facility fees from filming form a very useful addition to ZSL's income. Three feature films used London Zoo as a location: *The Biographer* and *Kiss Kiss Bang Bang* were shot in the spring; later in the year, Warner Brothers filmed a sequence for the forthcoming *Harry Potter* film.

ZSL also featured prominently on the small screen. BBC2's *One Foot in the Past* came to London Zoo to make a segment for a programme on the architectural work of Berthold Lubetkin. The programme is part of the History Zone on BBC2; both the Penguin Pool and former Gorilla house were featured in the documentary.

The second Whipsnade TV series was aired during the main season, together with repeats of the first series on both terrestrial and satellite channels at the start of the year. We were delighted to welcome the production company back to film a third series, to be shown in 11 weekly episodes on Anglia TV in the spring of 2001.

The BBC series *Zoo* was well received by staff and visitors in general. We suffered from poor scheduling and lack of promotion, but weekly photocalls relating to the next programmes proved to be successful. The Event's team's "Bionic Bunny" caught the imagination of the papers during the "silly season" and was featured as a full page article in the *Daily Mail* and a double page spread in *Hello!* The story even went abroad with French and German TV providing coverage. More importantly, on the home front, *Newsround* and most of the nationals ran the stories. The average viewing figure for the programmes was 3.1 million.

ZSL's website featured on BBC's *SubZero*, a children's programme all about the internet. Part of the programme, *Net Detectives*, challenges teams of children



Above from top: The stamp of approval: one of Royal Mail's stamps featured two of our leafcutter ants.

TV presenter Philippa Forrester is seen here launching the issue.
Stamp and photo: Royal Mail



to find “biospheres” located on certain websites; we located a biosphere on our *Web of Life* site and it was featured on the live programme and also through BBC online.

PR often plays a strong role in the relationship with corporate sponsors and gives valuable support to our fundraising activities. Yellow Pages held a photocall with three children from their Notting Hill Carnival Float, and our hand-reared meerkat. Claire from *Big Brother* was photographed with a costumed character called Fetch who stars in a new children’s animated series, *Fetch the Vet*. Robotcoup produced a press release about the use of their blenders throughout London Zoo and Pokemon launched a new character with the help of one of the Events Section’s parakeets. Royal Mail held a photocall with emus in connection with the Olympics in Australia.

Volvo continue to provide ZSL with a Volvo Estate Car for use mainly by

the Zoo vets. To support this activity, a feature about ZSL’s new vet, Taina Strike, appeared in the *Evening Standard* and further PR activity is planned. Whipsnade held a photocall to highlight a cheque presentation for the Lion Appeal by Rodwells Limited.

Yoplait continues its support of our annual *Adopt an Animal* week in the February half term. Celebrities and politicians such as Frank Skinner and Ken Livingstone were asked to draw themselves and their perfect animal partner. Some of these pictures appeared in the nationals and will, we hope, be auctioned off as a fundraising opportunity.

There was press coverage when Senator Edward Kennedy visited London Zoo accompanied by Lord and Lady Paul and the Chancellor of the Exchequer and Mrs Brown. As a child, Senator Kennedy had opened London’s first children’s zoo with his brother Robert when their father was the American ambassador to Britain.

Above: Senator Edward Kennedy visits the Children’s Zoo.

Photo: Brian Aldrich

Right: Together with his brother Robert (on the right), he had opened the original Children’s Zoo in 1938; behind them is ZSL Secretary, Dr Julian Huxley.

Photo: Hulton Archive



Our Library continues to maintain its pre-eminence as the largest collection of books and periodicals on the subject of zoology and animal conservation in private ownership in the world, and is one of the most readily accessible. Much of the material is available for Fellows of ZSL to borrow.

A series of exhibitions about the noted painter of animals, Joseph Wolf (1820-1899), has begun this year. A considerable amount of work was done by Wolf for the Zoological Society's publications, and twelve of his pictures, together with his portrait by Lance Calkin, have been loaned to the Hessisches Landesmuseum, Darmstadt. The exhibition will travel to various locations throughout 2001.

Interest in our archives has continued to increase with a variety of researchers visiting the Library, mainly to consult the Daily Occurrence books, the 19th century Council minutes and Minutes of Scientific meetings. There has been a steady stream of historical and genealogical enquiries throughout the year. Items from the archives were featured in a BBC2 television programme, *Kings and Beasts*, made by Lion TV. This was linked to an exhibition on the former Tower of London Menagerie, held at the Tower itself. A notable and generous donation to the archives has been a zoo keeper's uniform worn about 30 years ago.

There has been a particular interest in our historic books. These often provide the first description and/or image of species, the type specimen, and hence are essential for any taxonomic study as well as often being very beautiful in themselves.

The Library continued to lend books to Fellows, provide reference use of the Library to members of the public, conduct introductory tours for new staff, students and Library users and answer enquiries, both zoological and historical.

A major change for Library visitors has been the completion of the computerised version of the periodical holdings catalogue. This can be searched from three computers within the Reading Room, enabling visitors to check the runs of titles and even if a particular issue has been received.

As always, we are extremely grateful to our Library volunteers for all their hard work throughout the year; and to Fellows and members of the public who have donated books and archival items to the Library.



Above from top: The portrait of Joseph Wolf by Lance Calkin.

Wolf's watercolour of a Syrian Bear.

TREASURER'S STATEMENT

1. The attached summarised accounts show the overall results of ZSL for the year to 31 December 2000. As the accounts indicate, the Society recorded a consolidated surplus of £2.9 million for the year (1999 – £1.6 million) and increased its total funds to £22.7 million. However, it is important to note that the surplus for the year included an amount of £2.2 million relating to income, previously deferred, received from the Millennium Commission on ZSL's formal completion of the Web of Life building. Thus the underlying surplus was £0.7 million, a significant decline by comparison to 1999.

2. The summarised accounts generally follow the format adopted in previous years and the main statement, the consolidated statement of financial activities, is taken from the statutory accounts which must follow the requirements of charity financial reporting. However, this year we have dropped the schedule of divisional results as these are becoming increasingly divergent from the statutory accounts due primarily to the requirements of charity reporting.

3. ZSL remains dependent on the two zoos for the bulk of its income. Both London Zoo and Whipsnade showed a decline in visitor numbers, London by 8% to 932,878 and Whipsnade by 4% to 421,312. This decline is due both to poor weather, especially in the months of April, May and July, and to the existence of competing attractions, particularly the Dome. Many London-based attractions have experienced similar declines in visitor numbers during 2000. Where possible, cost savings were implemented in both zoos, but these were insufficient to match the decline in income.

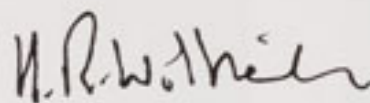
4. Both the Institute of Zoology and Field Conservation reported a decline in revenue for the year following the departure of the two Directors in charge at the end of 1999. This was due to a lower than usual take-up of new grants and contracts which is expected to reverse under the new arrangements subsequently established.

5. During the year the Society concluded an agreement, based on professional advice, with the contractor for the Web of Life building. This resulted in an additional payment of £330,000 for work over and above that specified in the original contract. The only other significant capital expenditure during the year was on the aquarium and the tunnels at London Zoo. The Society increased its investments and cash balances during the year primarily due to receipt of the capital grant from the Millennium Commission.

6. The accounts for the year 2000 have been prepared at a time when ZSL faces once again a significant threat to its future as a result of the Foot and Mouth Disease epidemic. The closure of Whipsnade from the end of February and a major decline in numbers at London Zoo have already ensured that we will be in deficit on operations for the year. If the situation were to continue throughout the summer we would be likely to face serious financial difficulty by the end of the year. Management will take all reasonable measures to achieve cost savings but our obligations to our staff and to the welfare of the animals cannot be compromised.

In view of the potential threat to the financial viability of the Society, the auditors have raised the issue of going concern in their report without formally qualifying their opinion on the accounts.

The continuing support of members and donors is particularly needed at this difficult time.



Harry Wilkinson, FCA
Treasurer

SUMMARISED ACCOUNTS FOR 2000

Consolidated Statement of Financial Activities for the year ended 31 December 2000

	Year to 31.12.00 £000	Year to 31.12.99 £000
Incoming Resources		
Zoo Operating Income:		
Visitor Admissions	8,409	8,762
Catering and Shops (Net)	2,745	2,686
Other Zoo Income	1,033	965
	<u>12,187</u>	<u>12,413</u>
Government and other Grants:		
Capital grants	2,198	-
Other grants	2,177	2,432
Sales and Fees	632	1,162
Subscriptions	141	151
Donations and other Income	1,218	1,087
Interest and Investment Income	482	391
	<u>19,035</u>	<u>17,636</u>
Total Incoming Resources		
Resources Expended		
Direct Charitable Expenditure:		
Zoo Operating Costs	11,733	11,629
Science and Research	2,726	3,157
Conservation and Consultancy	724	885
	<u>15,183</u>	<u>15,671</u>
Fundraising and Publicity	196	228
Management and Administration	659	441
	<u>16,038</u>	<u>16,340</u>
Total Resources Expended		
Operating Surplus for the year	<u>2,997</u>	<u>1,296</u>
(Losses)/Gains on Investments	<u>(126)</u>	<u>268</u>
Surplus for the year	<u>2,871</u>	<u>1,564</u>
Total Funds balance brought forward	<u>19,797</u>	<u>18,233</u>
Total Funds balance carried forward	<u>22,668</u>	<u>19,797</u>

Summarised Cash Flow Statement for the year ended 31 December 2000

	Year to 31.12.00 £000	Year to 31.12.99 £000
Surplus for the year	2,871	1,564
Add Depreciation	<u>1,229</u>	<u>1,270</u>
	4,100	2,834
Less Purchase of Tangible Fixed Assets (Net of Disposals)	(1,307)	(1,940)
Purchase of Fixed Asset Investments (Net of Disposals)	(939)	80
	<u>1,854</u>	<u>974</u>
Changes in other Assets and Liabilities	<u>(725)</u>	<u>(48)</u>
Net Cash Inflow	<u>1,129</u>	<u>926</u>

Consolidated Balance Sheet at 31 December 2000

	31.12.00 £000	31.12.99 £000
Fixed Assets		
Tangible Assets	12,714	12,788
Investments	3,557	2,744
	<u>16,271</u>	<u>15,532</u>
Current Assets		
Stock	417	444
Debtors	1,146	2,986
Cash at Bank and in Hand	7,574	6,445
	<u>9,137</u>	<u>9,875</u>
Creditors: Amounts falling due within one year	<u>(2,219)</u>	<u>(4,915)</u>
Net Current Assets	<u>6,918</u>	<u>4,960</u>
Total Assets Less Current Liabilities	<u>23,189</u>	<u>20,492</u>
Creditors: Amounts falling due after more than one year	<u>(521)</u>	<u>(695)</u>
Net Assets	<u>22,668</u>	<u>19,797</u>
Funds		
Unrestricted – General	16,496	13,608
– Designated	2,448	2,205
Restricted – Endowments	842	758
– Other	2,882	3,226
Total Funds	<u>22,668</u>	<u>19,797</u>

Post Balance Sheet Events (Going Concern)

In February 2001 an outbreak of Foot and Mouth Disease was discovered in the UK, which spread widely in subsequent weeks. The disease poses a significant threat to the welfare of animals in the Society's collections. Due to the perceived greater danger to the collection at Whipsnade Wild Animal Park, the Park was closed to visitors on 23 February 2001. Whilst London Zoo remained open, it has experienced a significant fall in visitor numbers in the period from 24 February 2001 to the date of approval of these accounts. The Society has therefore lost more than one half of its main income stream and if this situation continues for the greater part of this year the Society will encounter severe problems in liquidity. The Society therefore could be forced into a reconsideration of the scope of its future activities. The management are considering various options for cutting costs and raising additional income to address this crisis.

The summarised accounts are based on the Society's full Trustees' report and accounts. These summarised accounts may not contain sufficient information to allow for the full understanding of the financial affairs of the Society. For further information, the full Society's Trustees' report and accounts, and Ernst & Young's audit report on them should be consulted. Although the audit report is unqualified it does draw attention to the significant uncertainty over the impact of the foot and mouth epidemic on the Society's ability to generate income in order to continue its activities. A full set of the Society's Trustees' report and accounts is obtainable on request from the Director of Finance.

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The Zoological Society of London

(registered charity no. 208728)

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Full information on organisation, committee membership, staffing and animals in the collection is contained in Part 2 of this report.

Report editor: Ian Meyrick

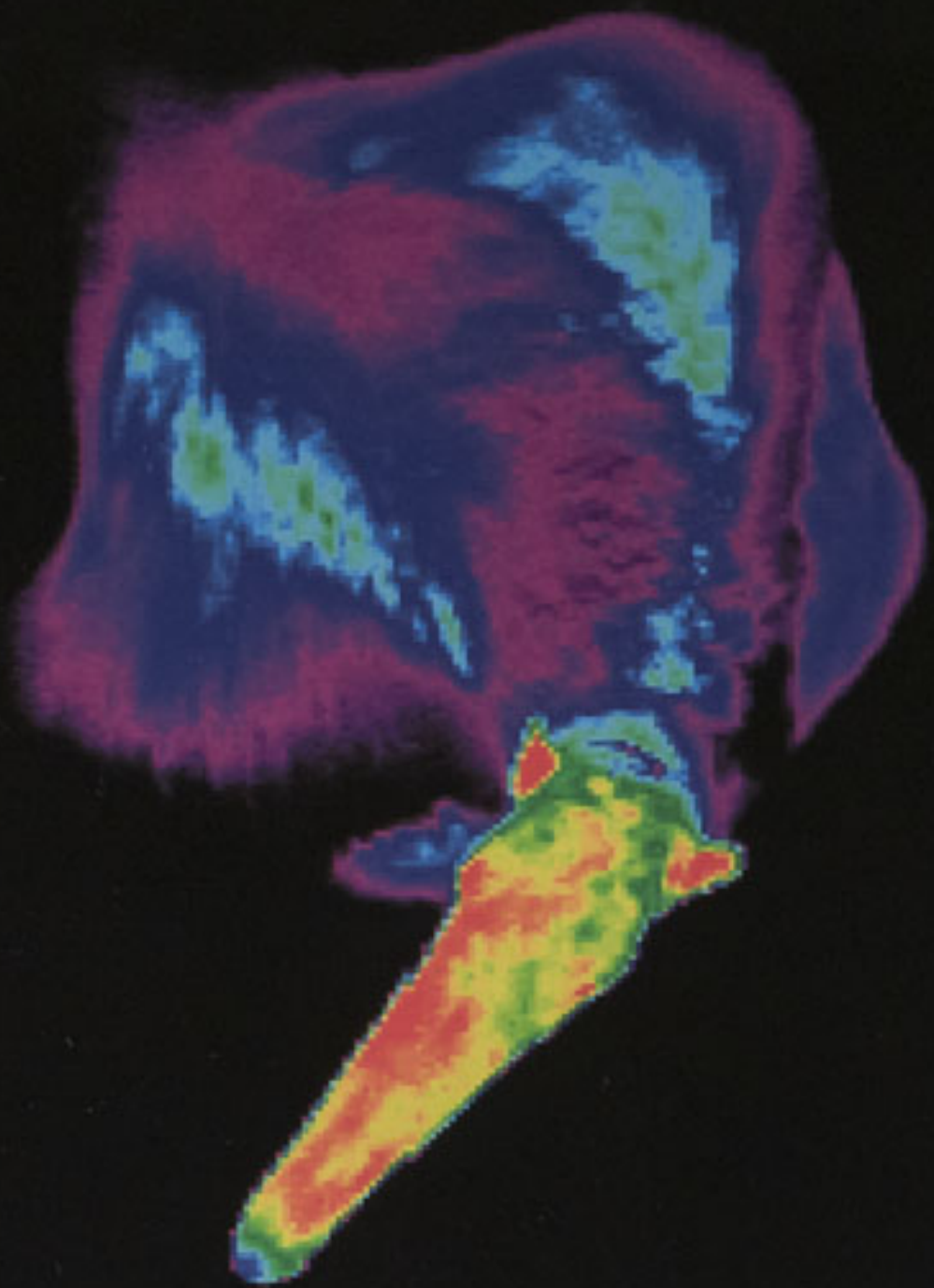
Editorial assistant: Diane Bratby

Designed by FOUR IV Design Consultants Telephone **020 7837 8659**

Printed by Perivan Telephone **020 7392 7800**

Printed on Chromomat Club which is chlorine free, acid-free, bio-degradable and manufactured from sustainable sources.

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ZSL 2000

The Zoological Society of London Annual Report



The Zoological Society of London
Registered Charity 208728

Annual Report 2000
Part 2

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