

North of England Zoological Society



Chester ZOO

ZOO REVIEW 2003



Mission - Saving Species From Extinction

The role of the Zoo is to support and promote conservation by breeding threatened animals, by excellent animal welfare, high quality public service, recreation, education and science.

Partners in Conservation, Education and Tourism



World Association of Zoos and Aquariums

IUCN

The World Conservation Union



Conservation Breeding Specialist Group



European Association of Zoos and Aquariums



Joint Management of Species Programmes



International Species Information System



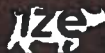
European Union of Aquarium Curators



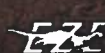
Federation of Zoological Gardens of Great Britain and Ireland



Wildlife Conservation Society



International Zoo Educators



European Zoo Educators



NORTH WEST
TOURIST BOARD



Contents

Zoo Mission and Partners	2
Presidency and Council	4
Council Committees	4
Chairman's Foreword	5
Director's Review of 2003	6
Awards	8
Management Structure	9
Summary of the Year	10

Animal & Plant Reports

Chief Curators' Overview	12
Animal Supplies and Services	13
Animal Health Care	14
Animal Environmental Enrichment	15
Animal Team Reports	16
Horticulture and Botany	20
Conservation and Science	21
Zoo Worldwide Activities	22

Livestock Reports

Conservation Breeding	24
Livestock Summary	25
Threatened Species	26
Plants	27
Mammals	28
Birds	29
Reptiles	31
Amphibians	32
Fishes	32
Invertebrates	33

Divisional & Departmental Reports

Education	34
Junior Members	35
Visitor Services	35
Estates	36
Health and Safety	37
Environmental Management	37
Marketing and Development	38
Personnel	40
Staff and Volunteers	41
Staff on External Committees	42
Taxon Advisory Groups	43
Breeding Programmes	43
Conservation Outreach Projects	44
On-site Research Projects	46
Work Experience Training	48
Publications and Reports	49
Information Technology	51
Finance and Administration	51
Financial Performance	52

2003 Financial Statements

Council Report	53
Auditors' Report	55
Financial Activities	56
Balance Sheets	57
Cash Flow Statement	58
Accounting Policies	59
Notes to the Financial Statements	60

Chairman's Foreword



Your zoo has had another excellent year and it is a great privilege for me as Chairman of the Council to introduce such a full and informative report.

Our visitors – the life blood on which the Zoo depends – have again numbered well over one million and are increasing; our membership list is over 22,000, our planned capital expenditure programme for 2004 is several million pounds and the Zoo is in sound financial strength. The improvements made in 2003 and the projects now under construction are there for all to see.

This position reflects great credit on the Zoo staff. You will, I hope, agree with me on walking around the Zoo that there is a tangible feeling of enthusiasm and interest on the part of those who look after our animals and gardens.

On the wider front, the Zoo has made a substantial contribution to projects overseas in pursuance of our mission of conservation of endangered species.

The Director, as a Council Member of WAZA, (the World Association of Zoos and Aquariums), and Heads of Division and other members of the Zoo staff have travelled far and wide, East and West, to other zoos and conservation conferences and on projects of research.

Our growing international standing is widely acknowledged. I believe that with the continued support of the staff, our members, Council and the public, the future is exciting and bright.

John Makinson
Chairman

FCIB
Executive

tee

Director],
any
grim,
Mark
Dr Roger
ndra
ecretary]

nd Council





The opening of Tsavo - The Black Rhino Experience

Minister the Rt Hon John Prescott kindly opened the major new *Dragons in Danger* exhibit. Other glittering events have starred Martin Mulama from the Kenya Wildlife Service (for *Tsavo - the Black Rhino experience*), actress Stephanie Powers (Honorary Fellowship ceremony) and His Grace the Duke of Westminster (*Andes Garden opening*). For 2004 we eagerly look forward to opening four new exhibits: *Red River Hogs*, *Mythical Macaws*, *Miniature Monkeys* (Marmosets and Tamarins) and *Cloud Bears* (Spectacled Bears of South America's cloud forest).

With generous support from the North West Development Agency we are also engaged in the strategic planning of major zoo developments, now unfolding as a *Super Zoo* concept.

The internal and external planting of new garden areas, including the children's *Fun Ark*, was achieved by the Botany and Horticulture team led by Mark Sparrow. To support the horticultural side, a large new computer-controlled glasshouse has been installed, with public viewing. The Education team, under Stephen McKeown, continue with dynamic programmes at home (e.g. with the Cheshire Wildlife Trust) and abroad (e.g. in Africa and India). Some 10% of visitors are now in education parties, generating a gate revenue of £0.7 million! Guests now have the opportunity to explore our innovative discovery trails ('follow your nose!'), to enjoy customised experiences with our presenters and teachers; and to gain access to one of the two best zoo libraries in the country.

The *Quantum Leap* education scheme has allowed free zoo access to children in Merseyside who might otherwise not have had the opportunity.

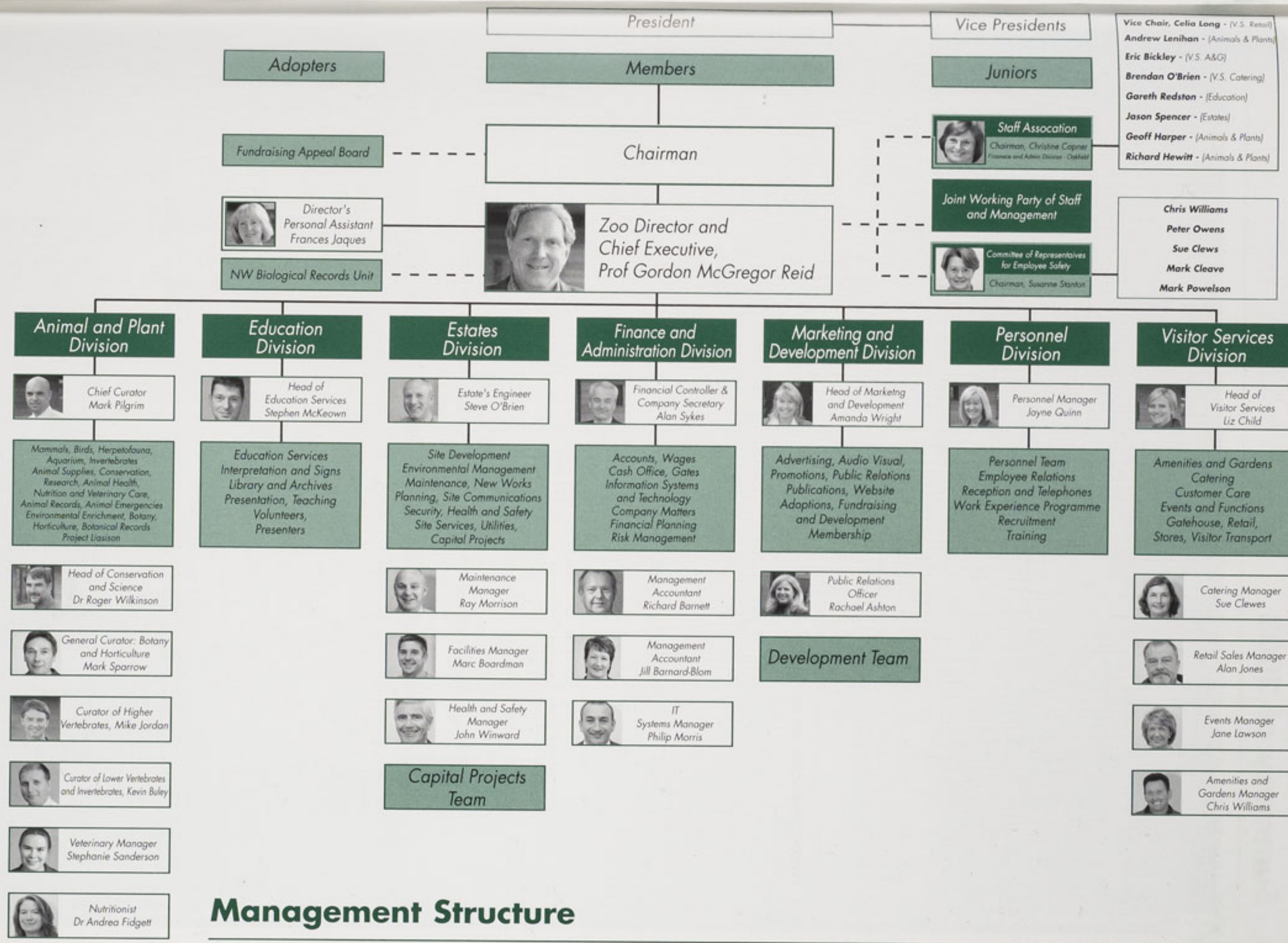
We organised workshops for, and contributed substantially to drafting the new *World Zoo and Aquarium Conservation Strategy*; co-organised an *International Zoo Marketing Conference* in Budapest and edited the published proceedings; and - based on a earlier Chester Zoo conference - produced the major book *New Perspectives in Primate Evolution and Behaviour*. I was proud to give the opening address at a Mesoamerican conservation conference hosted by the University of Morelos, Mexico. A clutch of 11 prestigious awards were gained (page 8) and we remain holders of the *Queens Award for Enterprise* (Sustainable Development). I was invited to a reception at Buckingham Palace hosted by HM the Queen; and also had the great honour of being asked to give a keynote talk on Chester Zoo achievements at the 2003 *Queens Award Ceremony* presided over by HRH the Duke of York. As ever, I am indebted to Council and staff for their strong teamwork and support.

Gordon McGregor Reid

Awards 2003

- Manchester Chamber of Commerce - Shamrock Awards - *Most improved business in the not for profit category*
- Chester in Bloom - *Best Tourist Attraction.*
- Federation of Zoological Gardens of Great Britain and Ireland - Significant Advances in Husbandry and welfare - *Award for the natural planting of 'Chimpanzee Island' and scientific assessment of its benefits.*
- Federation of Zoological Gardens of Great Britain and Ireland, Conservation Award - *Commendation, Asian Elephant Specialist Group Meeting. Support of the World Conservation Union/Species Survival Commission.*
- Federation of Zoological Gardens of Great Britain and Ireland, Marketing Awards - *Commendation for the e-newsletter.*
- European Association of Zoos and Aquaria - *Gold Award for Tiger Conservation fundraising*
- North West Tourist Board's Chairman's Awards - *Silver, for Tourism and Marketing.*
- Mother and Baby magazine - *Top family attractions. Best ever family day out.*
- Cheshire Awards for Tourism Skills (CATS) - *Bronze Award, Best Tourism Team.*
- Acorn Trust Award - *Environmental Management (Phase One B5 8555)*
- Good Britain Guide - *Zoo of the Year 2003.*





Management Structure

Summary of 2003

	Functions	2004 Objectives	2003 Highlights	Pe
Animal & Plant Conservation Division	- Manage, care for and exhibit the Society's animal and plant holdings to an excellent standard for the purposes of conservation, education and benign (non-invasive, non-intrusive) scientific study - Engage in wildlife conservation programmes at home and abroad with like-minded bodies	- Continually improve the management, planning, development and welfare of the Zoo's animal and plant collection - Select the best balance of species to support objectives in conservation, education and science and to match reasonable public expectations - Increase our relevant zoological and botanical knowledge - Play an active role in supporting national and international zoo programmes in conservation and science - Engender a caring attitude towards the natural world	- Significant births: Columbia Black Spider Monkey; Rodrigues Fruit Bat; Red-ruffed Lemur; Turkish Spiny Mice; Red River Hog; Lion-tailed Macaque; Brown-antlered Deer; Bush Dog; Lowland Tapir; Sulawesi Crested Macaque; Humboldt's Penguin; Victoria Crowned Pigeon; White-naped Crane; Red Bird of Paradise; Red-tailed Amazon Parrot; Blue-eyed Cockatoo; Mallorcan Midwife Toad; Sand Lizard; Red-tailed Racer; Spiny Monitor; Freshwater Stingray; Seahorse; Sea Pony; Soft Corals; Banggai Cardinal Fish - Opening of Tsavo - the Black Rhino Experience - Opening of Dragons in Danger exhibit - Continuing success of Harvest Mouse release programme - Consolidation of in-situ conservation programmes - Increased in-situ support for Black Rhino conservation	- Ap - Ap - Ap - Co - ke - Co - Co - Ne - ini - Zo - EA - NI - Hi
Education	- Interpret and directly contribute towards the Zoo's global work in preserving biodiversity - Provide teaching services and materials for schools, colleges, universities and other interest groups	- Increase knowledge of and empathy for animals and their environment - Encourage and empower visitors and other audiences to make a positive contribution to conservation - Maintain and make available the Zoo's information, library and archive services - Support conservation education programmes in the UK and selected habitat countries	- African Zoo and Reserve Educators' Conference sponsored by Chester Zoo takes place in Zambia - Chester Zoo organizes and hosts UK's first zoo interpretation training course 3rd staff art competition - Botanical talks launched - Dragons in Danger interpretation - Interactive Activity Trail, 'Follow Your Nose'	- Dis - reg 19 - Pre 14
Estates	- Maintain the Zoo fabric and infrastructure and upgrade facilities and services - Manage capital expenditure development programme - Manage the wider agricultural estate - Maintain and manage the residential housing stock - Address security requirements - Develop an Environmental Management System	- Expand the preventative planned maintenance programme - Develop an asset management strategy for all plant and equipment - Develop, in electronic format, plans for the total zoo infrastructure - Continue to improve the quality of the projects within the ever growing capital development programme - Continue with the improvement and maintenance programme of all the residential stock - Develop on the foundation awareness of the Health & Safety culture within the Zoo - Complete the process for implementation of ISO 14001, an environmental management system - Develop a non-visitor related facilities management service within the Zoo	- Successful completion of various projects within the capital development programme including children's Fun Ark, Dragons in Danger, new midden, canal toilet block, greenhouse development, Macaw aviary, Lemur housing and Red River Hogs - Waste water management system improved with new elephant treatment plant - Extensive repairs to canal bridges upgraded using aesthetically proved materials including bamboo for the pedestrian handrails. Internal and external refurbishment of Oakfield House using appropriate materials for listed building status - Review of existing security role. Defining the facility management role. - Comprehensive maintenance programme of works carried out on selected zoo residential properties. - Health & Safety - Manual handling training scheme implemented for all zoo employees	- Re - Ow - He - Pro - ack - Ask - Sim
Visitor Services Division	- Ensure high standards of customer care are delivered throughout all areas of the Zoo - Maintain all visitor facilities to a high standard - Provide high quality and numerous facilities that cater for visitors of all ages and abilities - Maximise commercial activity in Catering and Retail - Explore and trial alternative ways to increase revenue through special events	- Understand customer expectations and ensure that these are met - Increase the number of visitor facilities on offer and ensure they meet and exceed the expected standards - Through excellent customer care, encourage repeat visits and bring new visitors to the Zoo - Optimise trading activity by continually reviewing and improving retail and catering operations - Deliver customer care training to all staff	- A new large children's play area, The Fun Ark, opened for Easter holidays - New, modern toilet block built in the centre of the Zoo, with accommodation for parent and baby and disabled facilities - All staff kitted-out with a new, more presentable and more practical staff uniform - Excellent garden displays across the Zoo - Additional pay booths, including a coach party gate, used during the peak season to cut queuing times at the main entrance - Important enhancement works carried out on the Oakfield House - Continued planning of Tsavo Café (Oasis café replacement)	- Rec - Ref - Ca - Eve - Rec - Ch - Pos
Marketing & Development	- Maintain and develop the status of the Zoo as a nationally recognised brand leader among zoos and attractions, through effective marketing and publicity - Maintain and grow visitor base - Explore alternative sustainable income streams and maximise opportunities to grow zoo revenues - Act as a service provider internally to ensure consistency of communication to internal and external stakeholders	- Visitor numbers 1.1 million - Memberships 25,000 - Adoptions 10,000 - Groups growth 15% £1 million funding for elephant appeal reached - Increase legacy pledges by 30% - Conduct a development review	- New website launched - Research conducted with excellent results - New TV advertisement - New zoo guide - Sound crisis management for key PR issues - Benchmarking for 'Super Zoo' project - Development audit completed with recommendations	- Zoo - Zoo - MA - MA - Gro - Dev - Pub
Finance & Administration	- Financial accounting and payroll - Management information and budgeting - Internal control systems - Risk Management - Visitor admissions and cash processing - Information technology (IT) and communications - Company secretarial, administration, insurance and pensions	- Protect the assets of the Society - Reliable financial forecasting - Planning and management of cash flows - Provision of a sound perspective to all zoo developments - Provision of an IT strategy and reliable communications infrastructure	- New Accounts team becoming more proactive - Approval gained to treat zoo admissions income as exempt from VAT - Substantial increase in number of visitor entrance gates to reduce queues - Direct appeal to all adult visitors to make a £1 donation to the Asian Elephant Survival campaign on admission to the Zoo - Computerised processing of Gift Aid documentation and claims	- Net - Gen - New - Bro - Imp - Am - Star
Personnel Division	- Staff recruitment, pay and reward policies - Employee relations, development and training - Legal compliance - Zoo visitor reception and communication services - Work experience programmes	- Operate efficient and legally compliant personnel services - Develop staff training policies and organise delivery - Support skills & education in the community via work experience placements - Operate efficient reception and emergency support services	- Joint Working party undertaken with Staff Association to develop fairness and equality in terms and conditions of employment 33+ vacancies filled during the year 37 recruitment exercises during the year - Staff Representation ballot held - Senior Management Training programme instigated - Effective People Management training session for all managers and supervisors	- Ter - Rec - Wor - Mon

Performance

- Appointment of Curator of Higher Vertebrates
- Appointment of Curator of Lower Vertebrates and Invertebrates
- Appointment of Biodiversity Officer to develop botanical and native species conservation
- Collection development new species Grevy's Zebra, Turkish Spiny Mice, Montserrat Oriole, Rio Fuerte Bearded Lizard, Pancake Tortoise, Radiated Tortoise, Golden Dart Frog, Mexican Goodeid
- Planning of major new zoo developments including Spectacled Bears; Tamarins and Marmosets; Realm of the Red Ape; Elephants of the Asian Forest
- Completion of Mythical Macaws exhibit
- Completion of nursery greenhouses
- Completion of Red River Hog project
- Numerous welfare upgrades
- Initiation of collaborative research on welfare indicators
- Zoo Federation Awards for Welfare and Conservation
- EAZA Gold Award for fundraising for Tiger Conservation Campaign
- NEZS staff increasingly involved in conservation outreach
- Higher degrees pursued by NEZS staff

- Digitisation and cataloguing of all Annual Reports, Zoo magazines, press cuttings and Council reports to date
- 19,042 students directly taught with 94,200 education visits in total
- Presenters contacted 440,000 visitors - 38 per cent of our total
- 141 items of interpretation commissioned and installed

- Record amount of capital development completed
- Over 1,000 responsive and formal maintenance requests completed
- Hedgerow and Tree Award by the Council for the Preservation of Rural England
- Progression towards accreditation to ISO 14001 standard for Environmental Management, achieved Phase I of BS 8555
- Asbestos audit complete in compliance with the Control of Asbestos at Work Regulations 2002
- Strategic residential properties purchased and let

- Record sales performance and profit margins across all trading areas
- Retail sales reached over £2.5 million
- Catering sales totalled over £3.4 million
- Events bookings 30% up year-on-year
- Record Magical Santa Trail ticket sales
- Chester in Bloom, Best Tourist Attraction Award
- Positive customer feedback received through market research

- Record visitor numbers, 1,076 million
- Record Income
- Memberships reached 22,249
- Adoptions reached 6,053 with new adopter database installed
- Reduced discounting at gate helped to increase net profit
- Group bookings up 11%
- Development income increased by 38.7%
- Public launch of elephant appeal - over £300,000 raised so far

- Net recovery of over £700,000 VAT on admissions income in year
- Generation of over £300,000 donations towards the Asian Elephant Survival campaign
- New database to process animal adoptions
- Broadband email and internet access
- Implementation of upgraded IT operating platform (Microsoft XP)
- Amendments to staff pension provision carried through
- Standing procedures (Purple Book) electronically accessible

- Terms and conditions of employment reviewed to ensure consistency, fairness and equality
- Recruitment of key posts including Vet Officer, Team Leader Horticulture and Botany
- Work undertaken to develop staff appraisal scheme
- More formal assessment and feedback processes in place for work experience students

Directions for 2004

- Continue to develop the animal and plant collection
- Continue to improve current facilities and welfare standards
- Continue to produce world class exhibits
- Widen the training of staff including exchanges between collections and provide assistance for overseas zoo personnel
- Increase in scientific output through research collaboration
- Develop capacity to resource external funds for conservation and research
- Expand conservation initiatives for botanical projects and native species
- Consolidate Asian Elephant field conservation programme
- Explore consultancy opportunities

- Increase involvement in educational outreach projects
- Embark on detailed evaluation of interpretation and presenter activities
- Move Education staff and Library to Cedar House site
- Recruit full-time Library Assistant
- Complete Spectacled Bear interpretation
- Host advanced Zoo interpretation course for UK collections

- To complete Phase II of Cedar House administration and library building
- To continue to deliver the capital redevelopment programme to the highest quality
- To audit and prepare action plan for compliance with DDA Act 1995
- Set up Asbestos register and procedure for the management of asbestos within the Zoo
- Pursue COSHH health and safety assessment review
- Implement a Facilities Management System
- Complete the Physical Masterplan mapping
- Develop a strategic infrastructure plan

- Commence the build of Tsavo café
- Provide additional visitor toilet and catering facilities in West Zoo
- Finalise planning of new Visitor Welcome Centre
- Further enhance basic visitor amenities, example, toilets, benches, litter bins
- Further improve disabled visitor facilities, including the purchasing of additional electric scooters
- Increase customer care training across all departments

- Revised zoo guide
- Web site becomes e-commerce site
- Research continued benchmarking and brand positioning
- New development team and strategy in place
- Proactive use of PR in secondary target areas
- Develop new market opportunities
- Review zoo branding
- Consolidate new Marketing and Development team
- Celebrate 70th Anniversary of Society
- Funding bid for Super Zoo project

- Continued pursuit of arrears of VAT on admissions income since 1990
- Enhancement of 'visitor welcoming' aspects of Front of House staffs' role
- Continued enhancement of provision of management information
- Development of the strategic role of IT throughout the organisation
- Pursue case for Gift Aid retention

- Complete new staff appraisal scheme
- Complete Staff Handbook
- Install a Computerised Personnel Information system
- Modernise visitor reception and communication system in conjunction with Estates
- Undertake further management and supervisory skills training

Animal & Plant Division Overview



Mark Pilgrim
Chief Curator

The Animal and Plant Conservation Division is very fortunate not only to have highly skilled and experienced staff, but also to be able to attract them to join us.

Expertise is required at all levels, those who directly look after the animals and plants in the collection as well as the varied support staff: the veterinary and nutrition team, the animal supplies team, the project staff and the equally important and often unsung administrative staff who are an essential part of a modern zoo. This diversely skilled blend of people brought numerous new and exciting projects to fruition in 2003.

Staff

In February we appointed Mike Jordan as Curator of Higher Vertebrates, responsible for birds and mammals. Mike previously worked in the academic sector as a lecturer in wildlife management. Mike is well known in zoo circles for his expertise in reintroductions and for his work, particularly with small mammals.

In May, another element of the curatorial team came into place with Kevin Buley joining us as Curator of Lower Vertebrates and Invertebrates responsible for reptiles, amphibians and fishes.

Kevin developed his husbandry and conservation skills at the Durrell Wildlife Conservation Trust, Jersey. Kevin is bringing lower vertebrates together under one banner and, with Mike Crumpler and Isolde McGeorge, is highlighting this often under appreciated group of animals.

New Animals

During 2003, a number of new animals were brought into the collection. These were all selected so that each plays a part in

our conservation mission. Most new animals will be part of national or international breeding programmes, others may allow us to illustrate an important conservation message. New for 2003 included the threatened Grevy's Zebra, replacing our common zebra. The Grevy's have settled in well and make an excellent mixed exhibit with our Scimitar Horned Oryx. Other new species included the critically endangered Turkish Spiny Mice, Montserrat Orioles, Yellow-headed Day Geckos, Beaded Lizards, Pancake and Radiated Tortoises.

Important Births

We were delighted when our female Red River Hog gave birth to two piglets (pictured below left) during the summer. She surprised us in being an excellent first time mother, even though she herself was hand reared. We believe this is the first time that this species has successfully reared offspring in the UK. Equally pleasing was our Bush Dogs rearing a litter for the first time. 2003 was also an excellent year for bird breeding. The hatching of two and the rearing of a Red Bird of Paradise was a highlight. That the female reared the chicks herself without the need for our intervention made this even more gratifying.

New Exhibits

The completion of the *Dragons in Danger* exhibit provides us with a great facility to carefully manage and, in future, hopefully breed Komodo Dragons. This enclosure has good separation and holding areas behind-the-scenes and a beautifully landscaped indoor and outdoor exhibit in which we hope to inspire our visitors with the wonder of the world's largest lizard. The carefully themed surrounding landscape and excellent interpretation provides an opportunity to get across to the public the threats facing animals in nature.

We continued to make husbandry changes to improve the welfare of our animals. In 2003, these changes included allowing overnight access to the outside enclosures for both the elephants and the chimpanzees. For both groups this led to much excitement and an overall increase in activity. The Ring-tailed Lemurs also had major improvements during the year. A complete rebuild of their indoor facilities and extra holding spaces has greatly enhanced this area behind-the-scenes. 2003 has been a year of strategic planning. Working closely with the Estates Division project staff, we have been planning up two major exhibits for 2005: the *Realm of the Red Ape* for our Orang-utans and an exciting and innovative elephant facility called *Elephants of the Asian Forest*. We have also been planning for 2004 and will be opening four new exhibits early next year, for Red River Hogs, Macaws and other South American parrots, a tamarin and marmoset exhibit and, with great anticipation, Spectacled Bears!



Red River Hogs

Animal Supplies & Services



Anthony Hutchinson
Animal Supplies Manager

The department continued to expand its purchasing, storage and distribution activities. Items handled were an ever-increasing range of foodstuffs, forage and bedding materials, in addition to personal protective and general equipment for the animal division. Fresh grass, maize and haylage were produced on the Society's farmland and large volumes of browse collected from local sources and delivered to the relevant animal sections.

A proportion of this browse, particularly willow, was processed through a mechanical chipper, packed into large airtight drums and allowed to mature into 'browse silage', a palatable winter use alternative to the fresh commodity. To assist in accommodating the escalating browse requirement, a second willow plantation was established on the farm. Nearly 2,000 tonnes of manure and related waste products were transported, stored and disposed of in the year - another task falling within the department's remit. Vans, forklifts and agricultural tractors, complete with trained operators, were provided to cover various Animal Division requirements, including a vehicle modified for transporting animals under quarantine conditions.

To facilitate these tasks recent purchases included two tractors, another van and two large trailers. Staffing levels had to be proportionately increased as did the range of skills for which staff training was provided.

The department's remit has now become that of general service provider and bares little resemblance to its previous role as simply a supplier of basic foodstuffs.

2003 also saw the completion of plans and preliminary costs for a scheme to renovate and upgrade the department's facilities; an essential adjunct to its changing role. Planning permission was obtained from the Local Authority for improved access and the creation of a secure and solid surfaced compound to assist parking, external storage and goods handling.

The scheme also involves changes to the existing building which will include the creation of upgraded staff facilities and the installation of a cold room, walk-in-freezer and controlled thawing facilities.

2003 has been a very successful year for consolidating the department's role change and demonstrating the advantages of concentrating all Animal Division service operations under one roof.



The Animal Supplies Team

Animal Health Care



Stephanie Sanderson
Veterinary Manager

2003 has seen further developments in both the scope and volume of work done by the Animal Health Care (AHC) team.

Clinical Care

Veterinary staff have made over 2,250 visits to 700 individual animals of 250 species. Review of our preventative health care protocols has been a focus this year including collation by our Nutritionist, Dr Andrea Fidgett, of all the diets fed at the Zoo. Supporting clinicians and pathologists - now including a dedicated zoo and wildlife pathologist, at Liverpool University Veterinary School - and colleagues working in human medicine have, as always, provided invaluable help.

Duties also include animal health certification for the numerous animal exports from the Zoo in 2003 and to ensure compliance with national and international animal health and welfare legislation.

The health and welfare of the collection and work of the AHC team is reviewed on a quarterly basis by our Animal Welfare, Conservation and Scientific Committee.

Research and Conservation

In-zoo research programmes include "Disease risk assessment for the Harvest Mouse release programme" and "Artificial reproductive techniques in macropods", each contributing, respectively, to the Masters' Theses of the vets Shan Siah and Steve Unwin. Nutrition-based projects include an evaluation of fruit bat diets and an investigation of calcium requirements of growing storks.

The Veterinary Department has also contributed to collaborative research projects in the fields of anaesthesia, reproductive endocrinology, diagnostics, epidemiology, emerging diseases, conservation genetics and the anatomy, physiology and pathology of wild animals. In addition, all our medical records were submitted to the International Species Information System (ISIS) to form part of a global database on wildlife medicine. Involvement in projects in range countries includes Steve Unwin's consultancy to Limbe Wildlife Sanctuary, Cameroon, (where he worked prior to his appointment as Veterinary Officer at Chester); and also information exchange on the health and management of Asian Elephants with vets from the Department of National Zoological Gardens, Sri Lanka. With financial support from our Conservation Department and Fauna & Flora International, the Animal Health Department was also able to source specialist equipment for overseas conservation projects.

Andrea Fidgett and I serve as veterinary and nutrition advisors respectively to several UK and European conservation breeding programmes.

Education, Training and Advocacy

The department has this year offered on-site training to over 28 vets, vet students and nurses including vets from the Department of Agriculture (Wildlife Division) Ethiopia and students from the new intercalated BSc in Conservation Medicine at Liverpool University. All Chester Zoo animal care staff have completed a Foundation Course in Zoo Animal Nutrition given by Andrea. This course has also been taken up by numerous outside institutions. AHC staff have also given 32 lectures and workshops outside the Zoo, as part of BSc and MSc courses and post graduate training programs. They have also taken part in meetings of the British Veterinary Zoological Society, UK Zoo Vet Group, The Parrot Society, Pan African Sanctuary Alliance, British Veterinary Nursing Association and IUCN Conservation Breeding Specialist Group Disease Risk Analysis workshop. These meetings were invaluable for keeping abreast of developments and for exchanging ideas with other zoo and wildlife vets.

Andrea and I served on many national and international committees. Andrea was editor-in-chief of volume II of *Zoo Animal Nutrition*, a collection of 20 papers from the 2nd European Zoo Nutrition Conference

Table 1. Clinical and pathology case load for 2003

Healthcare Summary Statistics 2003 (including preventative health care)	Individuals Treated		Visits undertaken		Post mortem examinations	
	2002	2003	2002	2003	2002	2003
Mammals	260	341	880	1118	85	88
Birds	307	276	973	688	183	156
Reptiles	104	44	367	325	35	40
Other	50	NA	31	NA	20	40
Total	721	661	2251	2131	326	324

Animal Health Care Staff

Veterinary Manager	Stephanie Sanderson
Veterinary Officer	Steve Unwin
Veterinary Nurse	Karen Homer
Scholar in Conservation Medicine	Shan Siah
Zoo Nutritionist	Andrea Fidgett
Assistant Nutritionist (student placement)	Anna Riach
Admin Assistant	Gillian Bailey



Members of the Animal Health Centre Team

Animal Environmental Enrichment



**Dr Stephanie Wehnelt,
Research Officer**

The Zoo enthusiastically supports environmental enrichment as a major principle in the provision of excellent animal welfare standards. By using our knowledge of their behaviour and ecology, we aim to provide the animals with an environment that satisfies their biological, social and individual needs. With specific enrichment devices and techniques we encourage them to display a wide range of natural behaviour.

Environmental Enrichment - Goals:

- **Enhanced animal welfare**

Natural behavioural time budgets, wide repertoire of behaviours, opportunity to exercise choice, cognitive stimulation.

- **Support of conservation efforts**

Increased breeding success of rare species, preservation of species-typical behaviours.

- **Improved health**

Increased physical fitness, minimal stress.

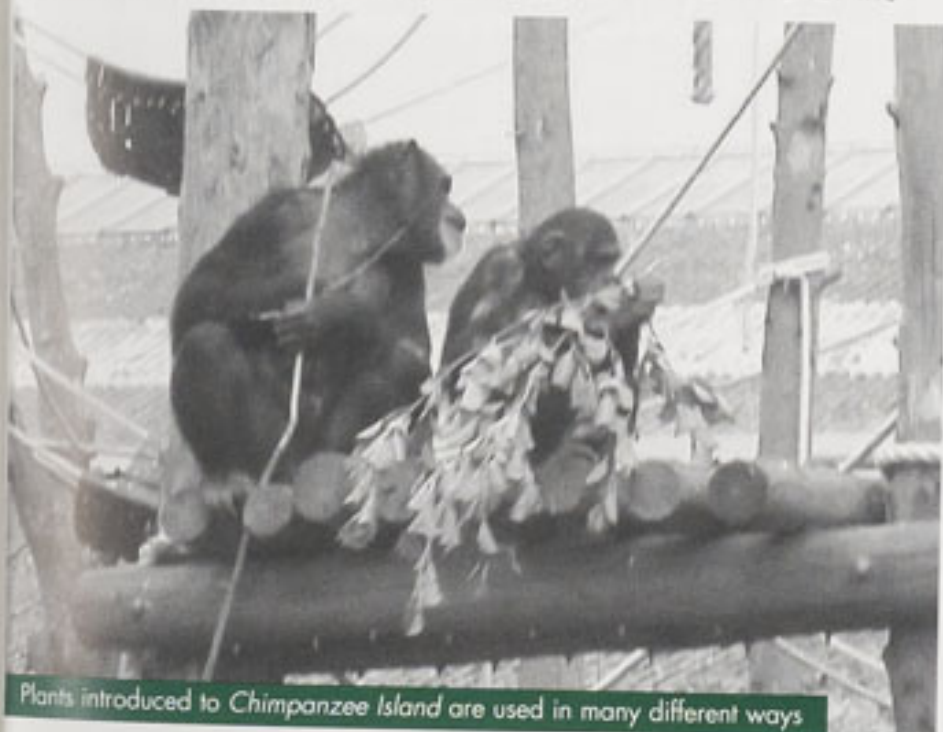
- **Increased re-introduction success**

Preparation for the challenges in the wild.

- **Conservation education and enjoyment for visitors**

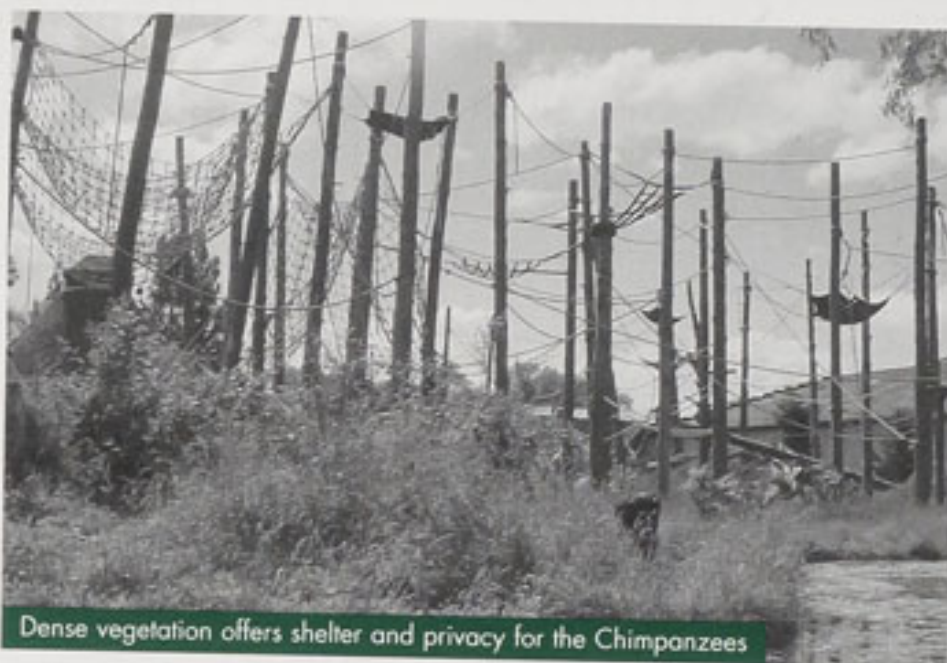
Naturalistic view of species, better and longer lasting entertainment.

For two years consecutively, Chester Zoo received a Meritorious Award in recognition of "Significant Advances in Husbandry and Welfare" from *The Federation of Zoological Gardens of Great Britain and Ireland*. This year, we were awarded for the naturalistically planted *Chimpanzee Forest* exhibit and for the



Plants introduced to Chimpanzee Island are used in many different ways

benefits this offers to the inhabitants. A large variety of ground vegetation, trees and shrubs were introduced to the island. The plants are not specially protected - which is almost unique for chimpanzee exhibits - but are replaced on a regular basis to allow the animals to interact freely with vegetation.



Dense vegetation offers shelter and privacy for the Chimpanzees

The benefits of this complex island are multiple. Plants are used for play, tool use, dominance display and nest building. Larger plants also allow for privacy from group members and from the public; and individuals can find shelter during conflict. Keepers of all Animal Teams continuously carry out established techniques and develop new enrichment ideas for the animals in their care. They meet regularly with the Research Team and staff from other Divisions at the *Welfare and Enrichment Forum*, where they exchange ideas and expand the enrichment programme at the Zoo.



Western Grey Kangaroo reaching for fruit spiked on bushes

Animal Team Reports

Higher Vertebrates



Mike Jordan,
Curator of Higher Vertebrates

I'm delighted to be writing my first review in this 2003 *Annual Report*, having joined the Zoo at the beginning of the year as the Curator of Higher Vertebrates. The eight bird and mammal team leaders (see below) have all given more details about the high points for their teams during 2003 and, overall, it has been an exceptional year for the bird and mammal collections within the Zoo.

It has been extremely busy for movements of animals into and out of the Zoo. Particularly popular was the return of Zebras to the Zoo in the form of male Grevy's Zebra. Among the species new to the collection were critically endangered Turkish Spiny Mice, the first of hopefully a number of small mammal species to join the collection. Also new to the collection were endangered Montserrat Orioles, a species highly threatened by volcanic activity on Montserrat.

It has been an excellent year for births and hatchings at Chester Zoo with far too many to mention all and, indeed, even choosing highlights is difficult! Exceptional among these must surely be the breeding of our Red Birds of Paradise, possibly the only pair to breed successfully in a zoo anywhere in 2003. Also the first breeding of our Red River Hogs was particularly satisfying and, at the time of writing, we have a Great Hornbill chick still in the nest doing well. We all eagerly await 2004 with the prospect of building further on the successes of 2003 and the arrival of new and exciting animals into the zoo.

Birds



Wayne Mcleod
Team Leader, Birds

It has been a great year for the breeding of owls. Two pairs of Spectacled Owls laid in March and hatched and reared a single chick each. Other owl species successfully bred this year include White Faced Scops and Great Grey Owls. Six Great Grey Owls chicks were reared which made a wonderful sight.

Although there is not space to list all the breeding successes this year the highlights include the hand-rearing and parent rearing of Eurasian Spoonbills, Little Egret, European Eiders and Baikal teal. With the help of artificial insemination, our 60-year-old White-naped Crane sired two healthy youngsters. This was a first for Chester. Another first - but this time for the U.K. - was the successful parent-rearing of our Red Birds of Paradise (pictured right). Two chicks hatched in May. Unfortunately one died at six weeks old but the other can be seen with the male in *Islands In Danger*. The female is now rearing a single chick from her second clutch.

Finally, we have an exciting arrival of a pair of critically endangered Montserrat Orioles. These birds are from the West Indies and the population is only 4,000 and declining. The main threat to this species are storms that potentially could wipe out most of the population! This highlights the importance of breeding in zoos.

Carnivores



Alan R Woodward
Team Leader, Carnivores

Once again there was a lot of activity on the Carnivore Section. Simon Marsh returned to the team after spending six months working at Africat in Namibia. Mark Jermy joined the team from Banham Zoo in Norfolk.

The male Asiatic Lion Naseek left the collection and has settled in well at Helsinki Zoo. Our female Lion Chandani was given a new type of contraceptive implant which is more effective than some others. This is to prevent her from breeding with the male Asoka who is her son. It is hoped to bring in an unrelated female at a later date.

The Bush dogs had four pups: three pups have survived and are starting to explore their enclosure. The tigers had a new platform built - this has given them a new vista. The male is often seen up there but, to date, there is no sign of the female going up! Several enhancements have been made to various enclosures. I am grateful to my team for their support.



Red Birds of Paradise

Animal Team Reports continued

Elephants



Mick Jones
Team Leader, Elephants

The major effort at the elephant house was put into consolidating advances made in the elephant care programme. We gave the elephants night access from July to September with positive environmental enrichment effects for the elephants.

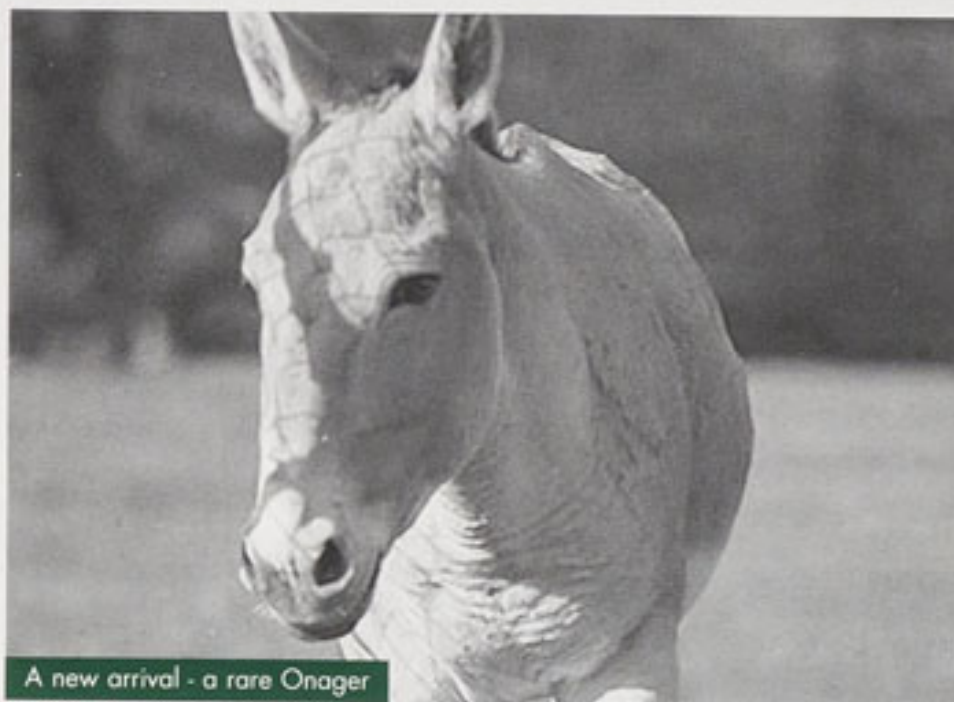
Three pregnancies are progressing with *Thi*, *Sithami* and *Jangoli* filling out by the day. Two are due in April and one in September. We are currently in negotiation over *Chang's* departure to Paris in 2004.

Susanne Bäumler left in July and has taken up a job in Karlsruhe to be closer to home. Stefan Groeneveld joined us on 1 November. Alan Littlehales attended the Elephant Managers' Association conference in Knoxville, USA, and brought back valuable information. Natalie Boyd presented a poster at the first conference on zookeeping at Vogelpark Avifauna, Netherlands.

Sadly, we lost *Jubilee* in August during a routine sedation in Belfast Zoo. A much-loved animal, he will be greatly missed.

in a row being born! Unfortunately, this one was rejected by Penny so was 'pulled' to be hand reared by staff. However, he suffered with ill health and we, sadly, lost him just after Christmas.

The highlight of the year has to be the birth of our twin Red River Hogs, probably a UK first. With the new 'hog house' to be completed by December 2003, the timing could not have been better. The growing family will have a purpose-built new enclosure for the new year.



A new arrival - a rare Onager

Giraffes



Tim Rowlands
Team Leader, Giraffes

2003 has been a year of stock movements on the giraffe section. It started with the arrival of the female Onagers into the old zebra enclosure, to fit in with the Zoo's new zoning plans.

The Onagers were soon joined by the male and they were put together in the summer and will, hopefully, produce foals in 2004.

Our Gazelles started to give birth again in the spring, but we unfortunately lost our breeding male *Nick* in April. This has led to some complications surrounding a new male! At the moment we are waiting confirmation from the studbook keeper as to the direction we go with this species.

Olga, our oldest camel, gave birth to a female and now we are no longer holding a male we have decided to keep her. These Camels are to be mixed with the Onagers in the near future.

The Giraffes managed to keep us on our toes for most of the year! We started with a birth in April. *Sebastian* is in the group and doing well. Then came a need to change our bull. *Cormac* had been with us for over 10 years and the previous year we had brought in *Thorn* - a pure Rothschild bull - to take over from him. *Cormac* was sent to Twycross to meet up with two unrelated females. At the same time it was decided to move out our young bulls - we sent two to Knowsley and one to Colchester - all to bachelor herds. We then brought in our first pure female Rothschild giraffe *Kelly* from Belfast, with hopefully several more to arrive next year.

In October, the giraffe herd grew again with our eighth male giraffe

Primates



Andrew Lenihan
Team Leader, Primates Team

The year started well on the Primate Team with the completion of two projects, the first being the new accommodation for the Ring-tailed Lemurs on their island. This has provided them with far more spacious and luxurious housing.

The second project to be finished this year was the alterations to the *Chimpanzee Forest* exhibit. This has allowed us, for the very first time, to give our Chimpanzees access 24 hours a day to their island. This noticeably reduced negative behaviours and had an altogether calming influence on most members of the group. There were again many breeding successes. These included Lion-tailed and Sulawesi Macaques, Mandrills, Spider Monkeys, Red Ruffed and Black and White Ruffed Lemurs, Ring-tailed Lemurs and last, but by no means least, a baby chimp. As in previous years, some animals left the collection to either start other breeding groups or join existing ones, both in this country and abroad.

Looking forward to 2004, a new Tamarin and Marmoset enclosure is due to be built this winter near the existing Monkey exhibit. We also hope to increase our primate conservation programme by obtaining more rare lemurs.

Finally the main project to be started next year - hopefully by the end of summer 2004 - will be the new Orang-utan facility. This will allow us to provide our Orang-utans with urgently needed, greatly improved, much more spacious housing.

Animal Team Reports continued

Rhinos



Charles Mackenzie
Team Leader, Rhinos

It has been another good year for the Rhino section.

Our Onager group moved to the giraffe section and we then brought in four male Grevy's Zebra.

Two female Przewalski Horses were moved to Clocaenog Forest near Ruthin. Fourteen wallabies were moved to Hamerton Zoo. There were births for the Blackbuck, Brow-antlered Deer, Wallabies, Gemsbok and Sitatunga. We recruited Rosemarie Scott from Whipsnade Zoo. One of our Rhino team, Helen Boczek, was married and John Willis retired after 35 distinguished years.

Jaguars & Bats



Paul Howse
Team Leader, Twilight Zone

At *Spirit of the Jaguar* our young female, *Sofia*, has grown noticeably during the year. The black jaguar, *Ebony*, is often to be seen on top of her waterfall. In an oblique light the broken edged rosettes and spots that characterise a jaguar's coat can be seen even on a 'black' jaguar.

A new addition to the *Twilight Zone* is Turkish Spiny Mice, *Acomys cilicrus*. They are critically endangered, with the wild population estimated to be in the region of 250 individuals.

Twin Rodrigues Fruit Bats were born in the *Twilight Zone* this year. They were both successfully mother-reared which is a first for the species. There have been three other reports of Rodrigues bat twins in the world zoo community but, unfortunately, in each case one or both didn't make it. There has also been one report of twins from Rodrigues Island in a wild bat. I should point out our own 'mum' coped very well and is doing fine!

As always, a big thank you for all the information you've sent in about British bats on our survey forms. Please keep it coming in!

Parrots and Penguins



Andrew Bagnall
Team Leader, Parrots and Penguins

After last year's settling-in period, our hopes were high for the occupants of the new large aviary at the back of the *Tropical Realm*. We were not disappointed: all three species living there

hatched chicks. The Blue-throated Conures and the Illigiers Macaws each raised a chick to adulthood, but the Hyacinth Macaw's chick unfortunately died almost immediately after hatching. This is not unusual for first time parents and gives us encouragement for next year. Other parrots which raised chicks include Red-tailed Amazons, Derbyan Parakeets and Blue-eyed Cockatoos, the latter is particularly satisfying, as this species is very infrequently reared in zoos. Each of our pairs of Yellow-backed Chattering Lories also raised a chick. This is notable as the European studbook is maintained by staff on the section. We continued with our policy of only parent-rearing penguins, which allowed four chicks to be reared within the colony.

At the end of the year a new complex of fine aviaries was completed near to *Spirit of the Jaguar*. Each of these will contain a mixed community of endangered South American Parrots and will contribute to the gradual upgrade and removal of the many older, more dated aviaries on the section.

Lower Vertebrates & Invertebrates



Kevin R Buley
Curator of Lower Vertebrates & Invertebrates

In May, after more than eight years at the late Gerald Durrell's Jersey Zoo in the Channel Islands, I was extremely privileged to take up the new position of Curator of Lower Vertebrates & Invertebrates here at Chester.

During the past year I have also taken on the role of co-chairman of both the UK and European zoo's Herpetological Taxon Advisory Groups - and this will enable us to remain a steering force in the world of zoo herpetology.

Within the Zoo, our exciting new world-class development, the *Dragons in Danger* exhibit for Komodo Dragons, represents just the start of our increasing commitment to taxa that many other zoos simply overlook in favour of mammals and birds. Over the next few years, we will continue to develop Chester Zoo as one of the leading zoos in Europe in the conservation and care of fishes, amphibians, reptiles and invertebrates.

Unfortunately, there is no shortage of animal candidates that need our help. For example, of the world's 260 turtle and tortoise species over half now face the threat of extinction within the next 20 years! Turtles and tortoises have been residents of planet earth since before the time of the dinosaurs. In many cases, zoos and breeding programmes now represent their only immediate hope. In our conservation efforts at home and abroad, Chester Zoo will be at the forefront of the fight for their survival.

Animal Team Reports continued

Aquarium



Mike Crumpler
Aquarium Team Leader

Replacement display tanks and the installation of specialist metal halide lighting meant our display hall had a new lease of life for the summer season. This new lighting has encouraged more natural plant growth in our tanks and has brought out colours in some of our fish species that we never knew they had!

Chester Zoo aquarium has again been the focus of some important and enlightening research work carried out by visiting students. Notable projects this year included an investigation on the effectiveness and accuracy of the various commercially available water quality test kits and a behavioural study on our enigmatic native Seahorse species *Hippocampus guttulatus*.

In May we hosted the UK Fish & Aquatic Invertebrate Taxon Advisory Group meeting. Aquarists from aquariums across the UK met for two days at the Zoo to discuss our co-operative breeding programmes for Seahorses, Marine Corals, African Cichlids and Mexican Goodeids.

The annual meeting of the European Union of Aquarium Curators was this year hosted by the oldest zoo in the world - Tiergarten Schönbrunn in Vienna, Austria. In addition to meeting aquarists from across Europe, we also had the opportunity to visit other aquariums in Vienna and Budapest in nearby Hungary.

One of the increasingly important roles we fulfil in the aquarium is as 'exporters of expertise' - transferring the skills we have acquired in our own successful work with difficult and sensitive species to other aquariums. In November, Aquarist Mervyn Ranasinghe visited Colombo Zoo in Sri Lanka, where he helped the staff set up their first marine coral tank. The two million Sri Lankans that visit the National Zoo each year will now have the opportunity to see these fascinating and increasingly rare invertebrates close-up for the very first time.



Rare and dangerous Golden Poison Dart Frogs

Herpetology



Isolde McGeorge
Team Leader, Herpetofauna

There was an energetic feel to the start of the year as the *Dragons in Danger* facility was nearing completion. Thanks to the Horticulture and Botanical and Estates departments we were able to remain on schedule and move the young female dragons to their new enclosure in time for the UK Herp TAG Meeting, which Chester Zoo hosted in May. This event attracted over 20 UK Zoos and also many herpetologically interested parties such as vets, scientists and field workers. The role of the UK TAG Group is to join in and support co-operative programmes for species' management and to maintain healthy, self-sustaining populations for the future. It is also a link into the European zoo community and the rest of the world.

To tie in with one of my department's managed breeding programmes for the Philippine Sail-fin Lizard - an opportunity arose for Clare Morris, the Senior Reptile Keeper, to travel to the Philippines and work alongside staff at the Negros Forests and Ecological Foundation and at the Mari-it Conservation Park. Here, she was able to advise on best husbandry practice and also to learn more about the characteristics of these lizards from different islands. In March, we moved our three Gila Monsters to a large display enclosure. The Gila Monster is one of only two venomous lizard species in the world. With the anticipated arrival of a further specimen from a UK zoo, we will be optimising our chances for breeding this rare species in the future. We successfully hatched out 29 Sand Lizards this year and these, along with late hatchlings from 2002, are important additions to this long-running species recovery programme.

Recommendations from the coordinator of the UK breeding programme for the Solomon Island Prehensile-tailed Skink meant that our lone male was finally able to be paired with a female from Bristol Zoo. As the pair mated within minutes of being introduced to each other, we are optimistic of future success with this species! Good breeding results were also achieved with Mallorcan Midwife Toads, Red-eyed Tree Frogs, Red-footed Tortoises, Desert Chameleons (these eggs hatched five months after having been removed post-mortem from a female), Spiny Monitors (now bred only on request), Rhinoceros Iguanas and Red-tailed Racers (also bred on request).

Further new arrivals to the collection included Golden Poison-arrow Frogs (the most toxic frog in the world, pictured left), Pancake Tortoises, Radiated Tortoises, Mexican Beaded Lizards (the world's other species of venomous lizard) and Madagascan Tree Boas. A new invertebrate species, the Giant Indian Praying Mantis, was reared to maturity and then successfully mated producing 12 nymphs. Towards the end of 2003, the *Tropical Realm* re-roofing project got underway. Many of the opaque wall panels were replaced by transparent polycarbonate windows. This has resulted in a massive increase in the amount of natural light entering the building. The benefits of this will really start to be seen in the Spring when both plants and animals take full advantage of their new, brighter home.

With continuing plans to evolve the Herpetology Department further, it is with a great sense of excited anticipation that we enter 2004.

Horticulture and Botany



Mark Sparrow
Curator of Horticulture and Botany

Probably the largest and most ambitious horticultural project undertaken by the team took place early in the year. The *Dragons in Danger* garden was created to compliment the new Komodo Dragon enclosure. A sub-tropical island theme was chosen and a large number of exotic looking plants were used. A stream running into a pool also gave the opportunity to use a range of aquatic and marginal plant species. A new botanical feature, the V.I.P. (*Very Important Plant*) Border, was planted in the spring! The plants in this border are used in a variety of ways including dyes, drinks, oils, medicines, flavouring and edible fruits. His Grace the Duke of Westminster officially opened the *Andes Garden* on Friday 6 June.

A new computer-controlled range of glasshouses, with public viewing, were constructed in the nursery. Over 400 square metres of growing space have replaced the old wooden glasshouses. The new houses give much better environmental conditions in which to grow our plants.



The Plant Talks were a great success

Planting and landscaping of a number of animal enclosures has taken place including the Red River Hogs, Kea Aviary, Blue-Throated Macaw aviary and the *Spirit of the Jaguar* exhibit. A selection of edible plants were also grown for the parrots. The second annual *Orchid Festival* was held in February and, again, proved to be a great success. It included floral displays, interactive sessions for children, plant sales, and cultivation demonstrations.

In May, a group of 15 army cadets and their commanding officer, from the 4th Royal Welsh Fusiliers, came to the Zoo for a weekend to help with the clearing up of the overgrown *Sunken Garden*. Working alongside our staff, they kindly removed a huge amount of weedy vegetation! Three new staff were taken on during the year. Paul Shippes joined us in September as Team Leader in charge of the nursery and interior plant displays. Paul has replaced Sarah Bird who transferred to the Conservation team as the new Biodiversity Officer. John Fletcher and David Burrows started as Horticulturists in April.



The Horticulture & Botany and Amenities & Gardens teams with the Chester in Bloom award

Sarah Bird continued with the co-ordination of the Cheshire Black Poplar re-introduction project. Propagation material for two locally rare sand dune plants, (the Isle of Man Cabbage and MacKay's Horsetail), was collected for growing in the Sand Lizard enclosure.

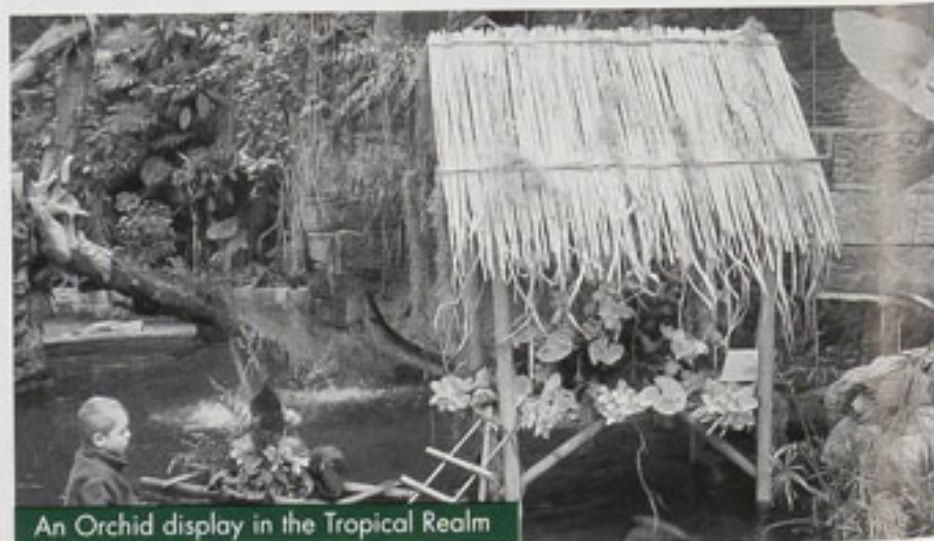
A full tree survey was undertaken to monitor the condition of all the mature trees in the Zoo. This has allowed a long-term maintenance and replacement programme to be drawn up.

Three members of staff attended Reaseheath College for the academic year 2003/2004. Mark Hargreaves is studying for the NVQ 3 Landscape Horticulture course, David Burrows is taking NVQs in Arboriculture and Landscape Horticulture, while Matthew Jenkins is studying NVQ 2 Landscape Horticulture.

Staff participated in a number of conferences during the year. I attended the *Gardens as Visitor Attractions* conference held at Bangor University. Mark Hargreaves went to the 3rd meeting of the *European Zoo Plant Group* at Jersey Zoo in May. I took part in the *PlantNet Autumn* conference held at Sheffield Botanical Gardens, giving a lecture on combining animals and plants underglass. In September, John Fletcher, David Burrows and I went to the *Seventh Annual Zoo Plant Group* conference held at Paignton Zoo. I gave a lecture for the botanical presenter talks *Talking Plants*, conducted during the summer.

During the year I gave five evening talks to horticultural societies in the region. Three garden tours of the Zoo were also undertaken in July and August.

The Zoo was awarded the trophy in the category for *Best Tourist Attraction* in the Chester in Bloom competition. Credit for this goes to the staff of both the Horticulture & Botany and Amenity & Gardens teams.



An Orchid display in the Tropical Realm

Conservation and Science



Dr Roger Wilkinson
Head of Conservation & Science

Chester Zoo's increasingly pro-active role in conservation and science has been reflected in greater activity regarding both in-zoo research (to help maintain highest husbandry and welfare standards) and field conservation and research (to assist threatened species in the wild). In 2004, continuing support was given to our seven major conservation programmes and to over 50 smaller conservation and research projects.

In the Philippines (working together with *Fauna and Flora International*) we supported breeding centres for threatened wildlife including Philippine Spotted Deer, Visayan Warty Pigs and endangered hornbills on Panay and Negros, field wardens on Polillo Island and Cebu, research on the threatened Cebu Cinnamon Tree, field research on Lake Taal 'Sea' Snakes and surveys for endangered turtles. In addition, we supported a major conservation programme on Philippine Red-vented Cockatoos.

In China (in cooperation with Sichuan Forestry Department and Liverpool John Moores University) we supported field surveys for threatened endemic birds and Red Pandas and helped fund the construction of a field station at Laojunshan. We also continued our support for the protection of, and surveys for, the Yellow-throated Laughing Thrush.

In Nigeria, we continued to assist the University College London Primate Project at Gashaka Gumti National Park with support both for Chimpanzee and other primate studies, botanical research and the training and supervision of Nigerian research students. This is the only remaining forest where the Nigerian subspecies of Chimpanzee has a realistic chance of long term survival.

The Black Rhino Programme in partnership with *Save The Rhino International* supported anti-poaching units in Tsavo East and the Chyulu Hills, capacity building for Kenya Wildlife Service staff and jointly funded an education bus at Laikipia Kenya. Chester also supported the building of a rhino wallow and observation post at Mkomazi Game Reserve in Tanzania. With Manchester Metropolitan University, we funded continuing work on the effects of large herbivores in enclosed reserves and also supported a study researching individual identification through genetic analysis of dung samples of Black Rhinos. Chester Zoo conservation, curatorial and keeping staff visited and assisted these projects during 2003.

The Jaguar Programme in partnership with the *Wildlife Conservation Society*, New York (WCS) continued apace with further field work in Brazil by Chester Zoo Conservation Co-ordinator Alexandra Zimmermann. The ranchers, with whom the project works, have implemented some of the cattle husbandry advice provided through the programme and we are beginning to observe a slight reduction in jaguar attacks on livestock. We also continue to support the WCS Jaguar Programme in Belize and Paul Howse, team leader for our Jaguar section, joined the

researchers and assisted in camera-trapping during the year.

Sarah Bird was appointed Biodiversity Officer in September. Experience in her previous position as Assistant Curator of Botany and Horticulture, combined with active involvement in local and national biodiversity action-planning processes and work with the Harvest Mouse team, uniquely suited Sarah to take on the task of advancing our work with botanical and native species conservation. This has resulted in new initiatives on several rare native plants, including two from sand dunes and a range of other species including endangered Freshwater Pearl Mussels.



Staff attended the Asian Elephant meeting in Sri Lanka

Alexandra Zimmermann and Scott Wilson visited Assam and also (with Stephanie Sanderson) attended the IUCN Asian Elephant Meeting in Sri Lanka, in order to further develop our Asian Elephant Conservation Programme. This programme will now largely focus on

mitigation of elephant/human conflicts in Assam and will also seek to assist elephant husbandry and welfare in Sri Lanka. Support was granted to assist an education project in Assam.

Chester has facilitated conservation work by the *Mauritius Wildlife Foundation* over a number of years. Working visits were made by Paul Morris and Claire Daniel to assist the recovery programme for the Mauritius Echo Parakeet and by Stephanie Wehnelt in support of ongoing research on the Rodrigues Fruit Bat. Funding was given in support of both these initiatives and also granted to *Shoals Rodrigues* to assist their marine conservation and research initiatives on Rodrigues. Carl Jones hosted a site visit by myself in late 2003, which allowed closer exploration of a number of additional conservation initiatives including some for botanical support in 2004. Scott Wilson coordinated Chester Zoo's role in the *EAZA Tiger Campaign* for which we were presented a gold award for raising over £5000. We also gained a *Zoo Federation Award* for supporting Asian Elephant conservation and assisted the team running our own *Asian Elephant Appeal*.

Animal Welfare and in-house husbandry studies by Stephanie Wehnelt, Eleanor Condon and Kirsty Burrell included collaborations with University College Chester and Leahurst Vet Hospital to monitor behaviour and hormone levels in Orang-utans and Jaguars. Studies were also made on night-time behaviour of our Elephants and Babirusa. A second *Zoo Federation Award* was won for maximising enrichment for our chimpanzees. A large number of on-site research projects were coordinated in 2003, research published in scientific journals and a Research Policy developed for the zoo.

Dave Brunger has achieved superb results in our *Animal Records Keeping*, including adding historical records for over 2,500 mammals and validating our records data. Dave has also been instrumental in assisting with studbook work. I am proud of the excellent team that I work with!

Zoo Worldwide Activities

North & South America

Belize

- Veterinary student project: rehabilitation of wild cats
- Staff support for Jaguar surveys at the Cockscomb Basin Wildlife Sanctuary

Brazil

- NEZS Conservation Coordinator facilitated Wildlife Conservation Society (WCS) Jaguar/Rancher programme
- Support for Buffy Headed Capuchin field surveys
- Funding of Red-billed Curassow Action Plan production

Chile

- Supporting Darwin's Frogs field studies

Costa Rica

- Director's and staff participation at the WAZA annual conference

Mexico

- Support for threatened Mexican fish conservation project
- Director's participation at National Zoological Society Conservation Conference

Puerto Rico

- Supporting Puerto Rican Crested Toad field conservation and education projects

Panama

- Support for the International Tapir Conference and post conference tapir conservation activities

USA

- Staff participation at Zoo Registrars Conference, Chicago
- Staff working visit to elephant collections
- Staff working to advise on the Anacapa Deer Mouse translocation project
- Executive team zoo benchmarking exercise, Florida

Venezuela

- NEZS Conservation Coordinator facilitated Wildlife Conservation Society (WCS) Jaguar/Rancher programme

Europe

Austria

- Staff participation at Bald Waldraup Ibis reintroduction workshop

Belgium

- Transfer of Sulawesi Crested Macaque to Antwerp Zoo
- Transfer of Grevy's Zebra from Planckendael Zoo

Czechoslovakia

- Director's organisation of World Zoo & Aquarium Conservation Strategy workshop

Denmark

- Transfer of birds to Copenhagen and Aalborg Zoo

Eire

- Staff participation at British Veterinary Zoological Society Spring meeting

France

- Staff participation at European Animal Data Information Steering Committee meeting
- Keeper working visit to Mulhouse Zoo
- Staff participation at 2nd International meeting of *Acting together for the future of the blue planet*
- Staff participation at EAZA Small Mammal TAG, Paris.

Germany

- EAZA Conference in Leipzig attended by Director and Animal Division staff
- Staff participation at European Zoo Educators' Conference at Leipzig Zoo

Greece

- Transfer of Ring-Tailed Lemur to Attica Zoo

Hungary

- Director's and staff organisation of the 4th International Zoo Marketing Conference, Budapest
- Staff participation at IUCN International Hamster Conservation meeting

Our work in 2003 spans



Netherlands

- Support of, and staff participation at, 1st International Congress of Zoo Keeping conference
- Transfer of birds and reptiles to/from Amersfoort, Arnhem, Emmen and Rhenen Zoo
- Staff participation at EAZA Nutrition Group meeting
- Staff coordination of the European Hamster Reintroduction Programme
- Executive team zoo benchmarking exercise

Spain

- Transfer of birds to Madrid and Fuengirola Zoo

Switzerland

- Director's organisation of World Zoo & Aquarium Conservation Strategy workshop
- Director's participation at WAZA Council meeting

UK

- Staff coordination of Cheshire Black Poplar Biodiversity Action Plan
- NEZS coordinated Harvest Mouse conservation and reintroduction programme
- Support for riparian mammal training workshop
- Support for Cheshire Otter conservation project
- Support for Water Vole conservation project
- Support and staff participation in Cheshire Bat Group bat detection workshop
- Support for local schools biodiversity conference
- Staff participation at mammal training workshop
- Staff participation at the 3rd European Zoo Plant Group meeting in Jersey
- Keepers working visits to Jersey Zoo
- Staff participation at the 5th Annual Symposium on Zoo Research at Marwell Zoo
- Chester Zoo hosted UK Elephant TAG and UK Herp. TAG meeting
- Director Chair EAZA Research Committee Meeting at Chester Zoo

Africa

Cameroon

- Veterinary equipment supplies for the Limbe Wildlife Centre
- Veterinary student project: parasites of Lowland Gorillas
- Staff participation at Pan African Sanctuary Alliance (PASA) Animal Healthcare Workshop

Ethiopia

- Ministry of Agriculture Vets visit for clinical training
- Support for emergency rabies vaccinations for Bale Ethiopian Wolf population

46 countries in 5 continents



- Kenya**
- Substantial funding in partnership with Save the Rhino International for Kenya Wildlife Service's Black Rhino surveillance and protection in Tsavo East National Park
 - Keepers working visits to Sweetwaters Reserve
 - Support, in partnership with Save the Rhino International, for an educational bus in Laikipia
 - Supporting Kenya Wildlife Service Rhino staff training in the UK
 - Support, in partnership with Manchester Metropolitan University, for research of rhino and large herbivores and rhino genetics in enclosed reserves

- Mauritius**
- Support for Echo Parakeet Conservation Programme
 - NEZS Research Associate coordinated Rodrigues Island Fruit Bat research
 - Staff working visit to Rodrigues Island
 - Staff working visit to assist Echo Parakeet conservation projects
 - Support for marine reserves and sustainable fisheries project
 - Staff support for Pink Pigeon disease screening and disease control project

- Namibia**
- Keeper working visit to assist *Africat*
 - Research student project: Red Hartebeest ecology

- Nigeria**
- Primate research, studentships and botanical support, Gashaka Gumti National Park
 - Support for West Africa Crowned Crane conservation project
 - Emergency support for Drill Ranch and African Primate Centre
 - Research student project: bushmeat study

- South Africa**
- Staff working visit to Johannesburg Zoo providing nutrition advice
 - Staff participation at 6th International Conference on Environmental Enrichment, Johannesburg
 - Staff participation at Southern Bald Ibis action planning meeting and working group
 - Staff advisory visit to the South African Crane Working Group

- Tanzania**
- Support for Black Rhino reintroduction and protection project in Mkomazi Game Reserve

- Uganda**
- Veterinary equipment supplies and clinical training for the Ngamba Island Chimp Sanctuary

- Zambia**
- Staff participation at African Zoo and Reserve Educators Network (AZOREN) meeting
 - Munda Wanga keeper visit to Chester Zoo

- Zimbabwe**
- Support for Spotted Hyena conservation and research

Asia

- Cambodia**
- Funding for educational project and signage at the Phnom Tamao Wildlife Rescue Centre

- China**
- Supporting conservation of endemic birds and forest reserves in Sichuan, China
 - Continuing support of Yellow-throated Laughing Thrush surveys in China

- India**
- Support for Zoo Outreach Organisation conservation work including Chiroptera Network and training workshop and S and E Asia Reintroduction Specialist Group
 - Conservation staff visit to initiate Asian Elephant outreach project in Assam
 - Support for Asian Elephant awareness project in Assam
 - Supporting large mammal monitoring in the Nilgiri Mountains
 - Support of South Asia Zoo Association meeting
 - Keeper working visit to attend bat conservation workshop

- Indonesia**
- Supporting Komodo Dragon conservation project

- Kazakhstan**
- Keeper working visit to conduct bird survey

- Nepal**
- Visit from Ministry of Agriculture Veterinary Officer

- The Philippines**
- Support for Fauna and Flora International Philippines: West Visayas, Cebu and Polillo Island projects - including Philippine Hornbills, Lake Taal Sea Snake and Philippine Pond Turtle support
 - Support for the Philippines Cockatoo Conservation Programme
 - Keeper working visit to assist threatened species conservation projects

- Singapore**
- Visit from Singapore Zoo Veterinary Manager

- Sri Lanka**
- Richard Hughes scholarship award student
 - Staff participation at the Symposium on Human Elephant Relationships and Conflict, Colombo
 - Support for wildlife educational brochures for schools
 - Staff working visits to assist Colombo Zoo

- Thailand**
- Support for hornbill community based conservation and research programmes
 - Hornbill nest adoptions

Middle East

- Jordan**
- Supporting studies into threatened freshwater fish

- United Arab Emirates**
- Director's participation at IUCN/CBSG CAMP workshop on threatened Arabian species

Australasia

- Papa New Guinea**
- Student research expedition to Crater Mountain

Livestock: Conservation Breeding



Roger Wilkinson
Head of Conservation & Science

We aim to maximise our contribution to conservation breeding and increase our commitment to threatened species. In doing this within managed breeding programmes we may be requested not to breed from certain animals or from some species.

Every species has to 'justify' its inclusion in our collection. 'Ambassador' species are not simply for exhibition. If not of threatened status, then justification may be through education value or relevance to field, husbandry and welfare programmes. Changes in threat status may occur as a result of direct conservation action or through better knowledge of a species wild status. As such, species in the collection previously considered threatened may lose that status and, conversely, other species may be listed as threatened.

We must respond to these changes and be sufficiently flexible to support those species under greatest threat, while continuing to enthuse our visitors about the diversity of life and help them understand the threats now facing wildlife world-wide.

In 2003, Chester Zoo participated in 167 conservation breeding programmes. These include International Studbooks (ISBs), European Endangered Species Programmes (EEPs), European Studbooks (ESBs), UK Joint Management of Species Programmes (JMSPs), Aquatic Sustainability Programmes (ASPs) and English Nature Programmes.

Managed breeding programmes cover a range of species from EEPs for Black Rhinos, Asian Elephants and Orang-utans to ASPs for many threatened fish and for corals.

For many species, including the critically endangered Waldrapp Ibis and Bali Starlings, our zoo populations act as essential 'lifeboats' – with many more individuals held safely in zoos than remain, often perilously, in the wild.

Some conservation breeding programmes are for species now extinct in the wild. At Chester this category includes Scimitar-horned Oryx, Socorro Doves, several fish including a Lake Victoria Cichlid, two Mexican Goodeids, and Partula snails, now extinct on Hawaii.

Species extinct in the wild may be held safely in zoos until conditions are suitable for their reintroduction. This has already happened with Pere David's Deer returned to their native China (this included animals from Chester Zoo) and is planned for other species including Socorro Doves (pictured right).

Chester has played a significant role through the Harvest Mouse project (pictured right) in developing techniques for the re-establishment of wild animal populations and has also provided advice for numerous reintroduction programmes, including in 2003 for Waldrapp Ibis and European hamsters.

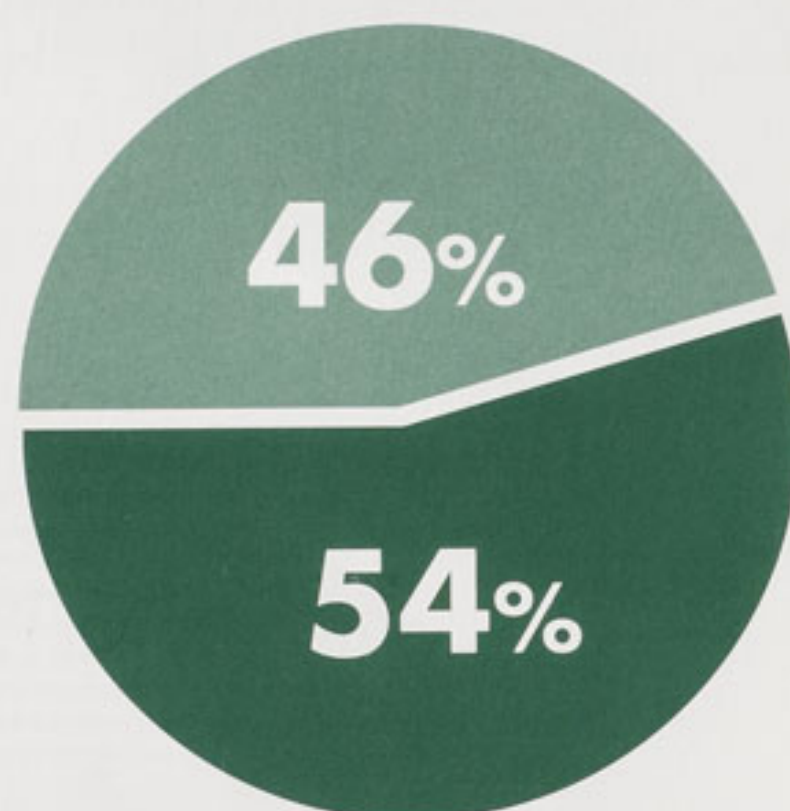
Threatened and Ambassador Species

*'Ambassador' Species	196	46.14%
**Threatened Species	231	53.86%
Total number of species held during the year:	427	

*'Ambassador' Species
**Threatened Species

* 'Ambassador' Species figure is the total number of non-threatened species held during the year.

** Threatened Species is total of IUCN Red List species and/or those in Managed Programmes held during the year.



Socorro Dove



Harvest Mouse

Livestock: Summary

TABLE 1 Livestock General Holdings*

	Number of Species		Number of Specimens		Species Bred & Reared		Specimens Bred & Reared	
	End '03	End '02	End '03	End '02	End '03	End '02	End '03	End '02
Mammals	59	57	976	924	23	23	450	240
Birds	171	189	950	995	49	51	196	245
Reptiles	48	51	264	280	6	9	65	114
Amphibians	16	15	177	170	3	2	34	47
Fishes	96	108	2494	2791	36	37	NOT INCLUDED	NOT INCLUDED
Invertebrates	37	41	957+	1009+	20	18	NOT INCLUDED	NOT INCLUDED
Totals	427	461	5818	6169	137	140	745	646

TABLE 2 Threatened Species 2003 (IUCN and Managed Programmes)

	2003	2002		2003	2002
Threatened species	231	232	Threatened species held and bred to date	166	160
% of all livestock	54%	50%	% of threatened species bred	70%	69%

TABLE 3 Threatened Species by World Conservation Union (IUCN) Category

	IUCN Red List	Managed Programmes	Total IUCN &/or Managed Programmes
Mammals	49	43	53
Birds	83	72	101
Reptiles	18	17	21
Amphibians	3	2	4
Fishes	32	17	35
Invertebrates	3	16	17
Totals	188	167	231

TABLE 4 Numbers of Species per IUCN Red List Category

EW	7	VU	69
CR	27	NT	44
EN	35	DD	6
		Total	188

TABLE 5 Transfers to Other Collections 2003

Mammals - 12 species were sent to 12 Collections • Birds - 30 species were sent to 22 collections • Reptiles - 11 species were sent to 6 collections • Amphibians - 1 species was sent to 1 collection • Aquarium - 19 species were sent to 16 collections

For threatened plants see page 25

References:

- Walter, O. & Bemment, N. (Eds) (2002). *Joint Management of Species Programmes Annual Report 2002*. The Federation of Zoological Gardens of Great Britain and Ireland, London.
- IUCN (1998). *World List of Threatened Trees*. Oldfield, S., Lusty, C. & MacKiven, A. (compilers). World Conservation Press, Cambridge, UK.
- IUCN 2003. 2003 *IUCN Red List of Threatened Species*. World Conservation Union: Gland, Switzerland <www.redlist.org>
- EAZA 2003. Species list. European Association of Zoos and Aquaria, Amsterdam, Netherlands <www.eaza.net>

*Totals as at 31st December 2003 (These figures do not include the Education/Domestic species which are listed separately)

TABLE 6 CITES Holdings

CITES	Category I	Category II	Total
Mammals	24	12	36
Birds	31	59	90
Reptiles	9	32	41
Amphibians	0	6	6
Fishes	2	1	3
Invertebrates	0	10	10
Totals	66	120	186

TABLE 7 Codes Used

* Not currently in a breeding situation or group.	EPP = European Endangered Species Programme	NT = Near threatened
+ recent arrivals or not yet of breeding age.	EN = Endangered	N/A = Not applicable
	ENP = English Nature Programme	ISB = International Studbook
ASP = Aquatic Sustainability Programme	ESB = European Studbook	VU = Vulnerable
CR = Critically endangered	EW = Extinct in the wild	X = bred in indicated period
DD = Data deficient	JMSP = Joint Management of Species Programmes	New species programmes in parenthesis are 'proposed'

Livestock: Threatened Species

MAMMALS

			BRED '03	BRED <'03	IUCN RED LIST	MANAGED PROGRAMME
1	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	X	X	ESB	
2	Rodrigues Fruit Bat	<i>Pteropus rodricensis</i>	X	X	CR	EEP/YSB
3	Ring-tailed Lemur	<i>Lemur catta</i>	X	X	VU	ESB
4	Black and White Ruffed Lemur	<i>Varecia variegata variegata</i>	X	X	EN	EEP/YSB
5	Red Ruffed Lemur	<i>Varecia variegata rubra</i>	X	X	CR	EEP/YSB
6	Cotton-top Tamarin	<i>Sapajus oedipus</i>	X	X	EN	EEP/YSB
7	Buffy-headed Capuchin	<i>Cebus xanthosternus</i>		X	CR	EEP
8	Colombian Black Spider Monkey	<i>Ateles fusciceps robustus</i> (A. geoffroyi rufiventris)	X	X	VU	EEP
9	Lion-tailed Macaque	<i>Macaca silenus</i>	X	X	EN	EEP/YSB
10	Sulawesi Crested Macaque	<i>Macaca nigra</i>	X	X	EN	EEP
11	Mandrill	<i>Mandrillus sphinx</i>	X	X	VU	ESB/JMSP
12	Chimpanzee	<i>Pan troglodytes</i>	X	X	EN	JMSP
13	Bornean Orang utan	<i>Pongo pygmaeus</i>		X	EN	EEP/YSB
14	Sumatran Orang utan	<i>Pongo abelii</i>		X	CR	EEP/YSB
15	Prairie Marmot	<i>Cynomys ludovicianus</i>		X	NT	
16	African Crested Porcupine	<i>Hystrix cristata</i>		X	NT	
17	Capibara	<i>Hydrochaeris hydrochaeris</i>		X	JMSP	
18	Mara	<i>Dolichotis patagonum</i>		X	NT	
19	Harvest Mouse	<i>Micromys minutus</i>	X	X	NT	
20	Turkish Spiny Mouse	<i>Acomys cilicicus</i>	X	N/A	CR	
21	Maned Wolf	<i>Chrysocyon brachyurus</i>		X	NT	EEP/YSB
22	Bush Dog	<i>Speothos venaticus</i>	X	X	VU	EEP/YSB
23*	Red Panda	<i>Ailuropus fulgens fulgens</i>		X	EN	EEP/JMSP/YSB
24	Oriental Small-clawed Otter	<i>Amblonyx cinereus</i>		X	NT	JMSP/YSB
25	Amur Tiger	<i>Panthera tigris altaica</i>		X	CR	EEP/YSB
26	Asiatic Lion	<i>Panthera leo persica</i>		X	CR	EEP/YSB
27*	Jaguar	<i>Panthera onca</i>		X	NT	ESB
28	California Sealion	<i>Zalophus californianus</i>		X	ESB/JMSP	
29	Asiatic Elephant	<i>Elephas maximus</i>		X	EN	EEP
30	Persian Onager	<i>Equus hemionus onager</i>		X	CR	EEP/YSB
31*	Grevy's Zebra	<i>Equus grevyi</i>	N/A	N/A	EN	
32*	Przewalski Horse	<i>Equus przewalskii</i>		X	EW	EEP/YSB
33	South American Tapir	<i>Tapirus terrestris</i>	X	X	VU	ESB
34	Eastern Black Rhinoceros	<i>Diceros bicornis michaeli</i>			CR	EEP/YSB
35	Babirusa	<i>Babirusa babirusa</i>			VU	EEP/YSB
36	Red River Hog	<i>Potamochoerus porcus pictus</i>	X	N/A	ESB	
37	Boetian Camel	<i>Camelus bactrianus</i>	X	X	CR	
38	Chilean Pudu	<i>Pudu pudu</i>		X	VU	EEP/YSB
39	Burmese Brown Antelope	<i>Cervus eldi thamin</i>		X	NT	YSB
40	Philippine Spotted Deer	<i>Cervus alfredi</i>		X	EN	
41*	Père David's Deer	<i>Elaphurus davidianus</i>		X	CR	
42	Giraffe	<i>Giraffa camelopardalis</i>	X	X	NT	EEP
43	Lowland Anoa	<i>Bubalus depressicornis</i>			EN	EEP/YSB
44*	Borasingha	<i>Cervus duvauceli duvauceli</i>			VU	YSB
45	Congo Buffalo	<i>Syncerus caffer nanus</i>	X	X	NT	ESB
46	Eastern Bongo	<i>Tragelaphus eurycerus isaaci</i>		X	EN	EEP/YSB
47	West African Sitatunga	<i>Tragelaphus spekii gratus</i>		X	NT	ESB
48*	Sable Antelope	<i>Hippotragus niger</i>			NT	ESB/JMSP
49*	Katse Flats Red Lechwe	<i>Kobus lechwe katusensis</i>		X	VU	JMSP/YSB
50	Scimitar-horned Oryx	<i>Oryx dammah</i>		X	EW	EEP/YSB
51	Gemsbok	<i>Oryx gazelle gazelle</i>		X	NT	JMSP
52	Blackbuck	<i>Antelope cervicapra</i>		X	VU	
53	Arabian Mountain Gazelle	<i>Gazelle gazelle cora</i>		X	VU	JMSP

BIRDS

1	Common Rheo	<i>Rhea americana</i>		X	NT	
2*	Southern Cassowary	<i>Casuarus casuarus</i>	N/A	N/A	VU	JMSP
3	Humboldt's Penguin	<i>Spheniscus humboldti</i>	X	X	VU	EEP
4	Dalmatian Pelican	<i>Pelecanus crispus</i>			NT	EEP
5*	Black Stork	<i>Ciconia nigra</i>			ESB	
6	Waldapp Ibis	<i>Geraniscus eremita</i>	X	X	CR	EEP/YSB
7	Chilean Flamingo	<i>Phoenicopterus chilensis</i>	X	X	NT	
8	Black-billed Whistling Duck	<i>Dendrocygna arborea</i>	X	X	VU	
9	Lesser White-fronted Goose	<i>Anser erythropus</i>		X	VU	
10	Red-breasted Goose	<i>Branta ruficollis</i>	X	X	VU	
11	Hawaiian Goose	<i>Branta sandvicensis</i>		X	VU	
12	Baikal Teal	<i>Anas formosa</i>	X	X	VU	
13	Laysan Teal	<i>Anas laysanensis</i>		X	VU	
14	Boer's Pochard	<i>Aythya boeri</i>	X	X	VU	
15	Ferruginous Duck	<i>Aythya nyroca</i>		X	NT	
16	Marbled Teal	<i>Marmarometta angustirostris</i>		X	VU	
17	White-headed Duck	<i>Oxyura leucorhynchos</i>	X	X	EN	
18	Andean Condor	<i>Vultur gryphus</i>		X	NT	EEP
19	European Black Vulture	<i>Aegypius monachus</i>			NT	EEP
20*	Griffon Vulture	<i>Gyps fulvus</i>			ESB	
21	Mauritius Kestrel	<i>Falco punctatus</i>		X	VU	
22	Red-billed Cuckoo	<i>Coccyzus blumenbachii</i>		N/A	EN	EEP/YSB
23	Roulet's Partridge	<i>Rallulus rouletii</i>	X	X	NT	
24*	Blyth's Tragopan	<i>Tragopan blythii</i>		X	VU	JMSP/YSB/ESB
25	Satyre Tragopan	<i>Tragopan satyra</i>		X	NT	
26	Palawan Peacock Pheasant	<i>Polyplectron emphanum</i>		X	VU	EEP
27	Mountain Peacock Pheasant	<i>Polyplectron inopinatum</i>		X	VU	ESB/YSB
28	Malayan Peacock Pheasant	<i>Polyplectron malacense</i>		N/A	VU	ESB/YSB
29*	Great Argus Pheasant	<i>Argusianus argus</i>		N/A	NT	ESB
30	Edwards' Pheasant	<i>Lophura edwardsi</i>		X	EN	EEP/YSB

31	Malayan Crestless Fireback	<i>Lophura e. erythropteralis</i>		X	VU	ESB
32	Vietnamese Pheasant	<i>Lophura hatinhensis</i>		X	EN	YSB
33	Green Peafowl	<i>Pavo muticus</i>	X	X	VU	
34	Congo Peafowl	<i>Afrapavo rangensis</i>		X	VU	EEP/YSB
35	Red-crowned Crane	<i>Grus japonensis</i>		X	EN	EEP/YSB
36	White-capped Crane	<i>Grus vipio</i>	X		VU	EEP/YSB
37	Wattled Crane	<i>Bucconas carunculatus</i>			VU	JMSP/YSB
38	Blue Crane	<i>Anthopodius paradisea</i>	X	X	VU	ESB
39	West African Crowned Crane	<i>Boleavia pavonina pavonina</i>	X	X	NT	ESB/JMSP
40	Gough Island Moorhen	<i>Gallinula gomeri</i>		X	VU	
41*	Sunbittern	<i>Eurypyga helias</i>		X		ESB
42	Pink Pigeon	<i>Columba mayeri</i>		X	EN	EEP/YSB
43	Blue Crowned Pigeon	<i>Goura cristata</i>		X	VU	ESB/YSB
44	Victoria Crowned Pigeon	<i>Goura victoria</i>	X	X	VU	ESB/YSB
45	Nicobar Pigeon	<i>Caloenas nicobarica</i>		X	NT	
46	Mountain Wither Dove	<i>Geopelia striata</i>		X	NT	
47	Mindanao Bleeding-heart	<i>Gallinula melanoleuca</i>			EN	ESB
48	Luzon Bleeding-heart	<i>Gallinula luzonica</i>		X	NT	ESB
49	Jambu Fruit Dove	<i>Ptilinopus jambu</i>	X	X	NT	
50	White-capped Pheasant Pigeon	<i>Otidiphas nobilis arvensis</i>		N/A	EW	EEP
51*	Socorro Dove	<i>Zenaidura macroura graysoni</i>		X	NT	ESB
52	Mount Apo Lorikeet	<i>Trichoglossus johnstoniae</i>			EN	ESB
53	Red and Blue Lory	<i>Eos histrio</i>			VU	ESB
54	Black-winged Lory	<i>Eos cyanogenia</i>			NT	JMSP
55	Blue-streaked Lory	<i>Eos reticulata</i>			NT	JMSP
56	Yellow-backed Chattering Lory	<i>Lorius garraulus flavopallidus</i>	X	X	EN	ESB/JMSP
57	Palm Cuckoo	<i>Procerops aterrimus</i>				EEP
58	Caraboby's Black Cuckoo	<i>Calyptorhynchus latirostris</i>			EN	ESB
59	Blue-eyed Cuckoo	<i>Coccyzus ophthalmitis</i>	X	X		ESB
60	Red-vented Cuckoo	<i>Coccyzus haematourus pygmaeus</i>			CR	EEP
61	Koa	<i>Nestor notabilis</i>		X	VU	ESB
62	Black-cheeked Lovebird	<i>Agapornis nigrigensis</i>			VU	JMSP
63	Hyacinthine Macaw	<i>Anodorhynchus hyacinthinus</i>	X		EN	EEP
64	Blue-throated Macaw	<i>Ara glaucogularis</i>			CR	EEP/YSB
65	Scarlet Macaw	<i>Ara macao</i>				JMSP
66	Blue-winged Macaw	<i>Prayrrhura maracana</i>	X	X	VU	(ESB)
67	Red-masked Canary	<i>Araucaria erythrogena</i>		X	NT	
68	Golden-capped Canary	<i>Araucaria auricapilla</i>		X	VU	
69	Golden Canary	<i>Guaruba guarouba</i>		X	EN	ESB/YSB
70	Thick-billed Parrot	<i>Rhyechapitta pachyryncha</i>		X	EN	ESB/JMSP
71	Princess Parrot	<i>Polytelis alexandriae</i>			NT	
72	Blue-throated Canary	<i>Pyrrhura cruentata</i>	X	X	VU	JMSP
73*	Yellow-faced Parrotlet	<i>Forpus xanthops</i>		X	VU	
74	Ecuadorian Amazon	<i>Amazona autumnalis blacina</i>	X	X		EEP
75*	Cuban Amazon	<i>Amazona leucorhynchos</i>		X	NT	JMSP
76	Green-cheeked Amazon	<i>Amazona viridigenalis</i>		X	EN	EEP
77	Red-tailed Amazon	<i>Amazona brasiliensis</i>	X	X	EN	EEP
78	St Lucia Amazon	<i>Amazona versicolor</i>			VU	ESB
79	Red-crested Tanager	<i>Touraco erythrophthalmus</i>		X		ESB
80	Fischer's Tanager	<i>Touraco fischeri</i>		X	NT	ESB
81	Violet Plantain Eater	<i>Muscophaga violacea</i>	X	X		ESB
82	White-faced Scops Owl	<i>Otus leucotis</i>	X	X		JMSP
83	Milky Eagle Owl	<i>Bubo lacteus</i>				JMSP
84	Great Grey Owl	<i>Strix nebulosa</i>	X	X		JMSP
85	Spectacled Owl	<i>Pulsatrix perspicillata</i>	X	X		JMSP
86	Great Hornbill	<i>Buceros bicornis</i>	X	X	NT	EEP/YSB
87	Rhinoceros Hornbill	<i>Buceros rhinoceros</i>			NT	ESB
88	Wrinkled Hornbill	<i>Aceros corrugatus</i>		X	NT	EEP
89	Mindanao White-billed Hornbill	<i>Aceros leucorhynchos</i>			NT	EEP
90	Torricelli Hornbill	<i>Pseudospheniscus</i> sp.		X	EN	ESB
91	Gouldian Finch	<i>Erythrura gouldiae</i>		X		
92	Montserrat Oriole	<i>Icterus oberi</i>			CR	
93*	Diamond Sparrow	<i>Stagonopleura guttata</i>			NT	
94*	Java Sparrow	<i>Padda oryzivora</i>	X	X	VU	
95	Yellow-throated Laughing Thrush	<i>Garrulax galbanus</i>		X		ESB/JMSP
96	Red-tailed Laughing Thrush	<i>Garrulax milnei</i>	X	X		ESB/JMSP
97	Omei Shan Uucichla	<i>Uucichla omeiensis</i>		X	VU	JMSP
98	Bali Starling	<i>Leucopsar rothschildi</i>		X	CR	EEP/JMSP
99	Emerald Starling	<i>Lamprolaima iris</i>	X	X	DO	
100*	Red-billed Chough	<i>Pyrrhocorax pyrrhocorax</i>		X		JMSP
101	Red Bird of Paradise	<i>Paradisaea rubra</i>	X		NT	YSB

REPTILES

1	Asian Box Turtle	<i>Cuora amboinensis</i>		X	VU	ESB
2+	Yellow-footed Tortoise	<i>Geochelone denticulata</i>			VU	
3	Greek Tortoise	<i>Testudo graeca</i>		X	VU	
4	Hermann's Tortoise	<i>Testudo hermanni</i>		X	NT	
5	Egyptian Tortoise	<i>Testudo kleinmanni</i>			EN	EEP
6	Black Marsh Turtle	<i>Siebenrockiella crassivalis</i>			VU	ESB
7	Spiny Turtle	<i>Neosemys spinosa</i>			EN	ESB
8	West African Dwarf Crocodile	<i>Osteolepis tetraspis</i>			VU	ESB
9	Sand Lizard	<i>Lacerta agilis</i>	X	X		ENP
10	Standing's Day Gecko	<i>Phelsuma standingi</i>			VU	JMSP
11	Rhinoceros Iguana	<i>Cyclura cornuta</i>	X	X	VU	ESB
12	Egyptian Spiny-tailed Lizard	<i>Uromastyx aegyptius</i>				ESB

Livestock: Threatened Species

			BRED '03	BRED <'03	IUCN RED LIST	MANAGED PROGRAMME
13	Philippine Sailfin Lizard	<i>Hydrosaurus pustulatus</i>		X	DD	JMSP
14	Prehensile-tailed Skink	<i>Corucia zebrata</i>		X		JMSP
15+	Komodo Dragon	<i>Varanus komodoensis</i>			VU	EEP
16	Cuban Boa	<i>Epicrates angulifer</i>		X	NT	EEP
17	Jamaican Boa	<i>Epicrates subflavus</i>		X	VU	EEP
18	Madagascan Tree Boa	<i>Sanzinia madagascariensis</i>		X	VU	ESB
19	Aruba Island Rattlesnake	<i>Crotalus unicolor</i>		X	CR	
20	Gila Monster	<i>Heloderma suspectum</i>		N/A	VU	EEP
21	Banded Lizard	<i>Heloderma horridum</i>			VU	EEP

AMPHIBIANS

1	Axolotl	<i>Ambystoma mexicanum</i>		X	X	VU
2+	Blue Poison Arrow Frog	<i>Dendrobates azureus</i>				ESB
3	Mallorcan Midwife Toad	<i>Alytes muletensis</i>		X	X	CR
4+	Puerto Rican Crested Toad	<i>Pellodytes lemur</i>				VU

FISHES

1	Fresh-water Stingray	<i>Potamotrygon motoro</i>		X	X	DD
2	Black Ruby Barb	<i>Puntius nigrofasciatus</i>		X	X	NT
3	Cherry Barb	<i>Puntius titteya</i>			X	NT
4	Ornate Blind Cave Fish	<i>Garra barreimiae</i>			X	VU
5	Pla Eel	<i>Probarbus jullieni</i>				EN
6	Red Rainbow Fish	<i>Glossogobius aureus</i>		X	X	VU
7	Duck-billed Fish	<i>Xenopoecilus sarasinorum</i>		X	X	EN
8	Burman's Rainbow Fish	<i>Melanotaenia boesemani</i>		X	X	EN
9	Lake Toba Rainbow Fish	<i>Melanotaenia herbertaxelrodi</i>		X	X	DD
10	Lake Kutuba Rainbow Fish	<i>Melanotaenia lacustris</i>		X	X	VU
11	Dwarf Loach	<i>Betta siamensis</i>				CR
12	Lake Victoria Cichlid	<i>Yochromis argenteus</i>		X	X	EW
13	Lake Victoria Cichlid	<i>Yochromis pyrrhocapillus</i>			X	VU
14	Lake Victoria Cichlid	<i>Haplochromis riponensis</i>			X	ASP
15	Spotted Dumbo	<i>Pareuchanna maculatus</i>				CR
16	Pin-striped Dumbo	<i>Pareuchanna melanostoma</i>				ASP
17	'Kanyo' Barambi Mbo Cichlid	<i>Kribia eisenbrauni</i>		X	X	CR
18	'Yungu' Barambi Mbo Cichlid	<i>Pungu maculatus</i>		X		CR
19	'Unga' Barambi Mbo Cichlid	<i>Sarotherodon linnelli</i>		X		CR
20	'Laka' Kappa Barambi Mbo Cichlid	<i>Sarotherodon lohbergeri</i>		X		CR
21	'Wana' Barambi Mbo Cichlid	<i>Stomatopoma mariae</i>		X	X	CR
22	'Pinda' Barambi Mbo Cichlid	<i>Stomatopoma pinda</i>		X	X	CR
23	Asian Arowana	<i>Scleropages formosus</i>				EN
24	Dwarf Rainbow Fish	<i>Melanotaenia praecox</i>		X		DD
25	Madagascan Rainbow Fish	<i>Bedotia madagascariensis</i>				DD
26	Kribia	<i>Pachypanchax sakaramyi</i>		X	X	VU
27	Butterfly Goodieid	<i>Ameia splendens</i>		X	X	EW
28	Bold Characodon	<i>Characodon audax</i>		X	X	VU
29	Golden Saw-finned Goodieid	<i>Skiffia francesae</i>		X	X	EW
30	Crescent Zee	<i>Zoogoneticus nebulosus</i>		X	X	ASP
31	Mexican Blind Cave Fish	<i>Actinopterygion jordanii</i>				VU
32	Seahorse	<i>Hippocampus kuda</i>		X	X	VU
33	Sea Pony	<i>Hippocampus fuscus</i>		X		VU
34	European Seahorse	<i>Hippocampus guttulatus</i>				VU
35	Kribia Seahorse	<i>Hippocampus capensis</i>		X	X	EN

INVERTEBRATES

1	Portula Snail	<i>Portula mirabilis</i>		X	X	EW
2	Portula Snail	<i>Portula varia</i>		X	X	CR
3	Mexican Red-knee Tarantula	<i>Brachypelma smithi</i>			X	NT
4	Daisy Coral	<i>Goniopora stokesi</i>				ASP
5	Brooker Coral	<i>Acanthophyllia deshayesiensis</i>				ASP
6	Bubble Coral	<i>Plerogyna sinuosa</i>				ASP
7	Branch Coral	<i>Acropora humilis</i>				ASP
8	Brain Coral	<i>Trachyphyllia geophylla</i>				ASP
9	Bouquet Coral	<i>Euphyllia glabrescens</i>				ASP
10	Bowl Coral	<i>Turbinaria mesenterina</i>				ASP
11	Bowl Coral	<i>Turbinaria pelota</i>				ASP
12	Star Coral	<i>Favia sp.</i>		X		ASP
13	Soft Coral	<i>Xenia sp.</i>				ASP
14	Soft Coral	<i>Simulium sp.</i>		X	X	ASP
15	Soft Coral	<i>Cladiella sp.</i>			X	ASP
16	Zoanthid Colony	<i>Zoanthid sp.</i>		X		ASP
17	Moose Ear Coral	<i>Lobophytum crassum</i>		X		ASP

PLANTS

GYMNOSPERMS

Common name	Scientific name	Red list	Family
Maidenhair tree	<i>Ginkgo biloba</i>	EN	Ginkgoaceae
Monkey puzzle	<i>Araucaria araucana</i>	VU	Araucariaceae
Woolly Island Pine	<i>Araucaria heterophylla</i>	VU	Araucariaceae
	<i>Cupressus guadalupensis</i> var. <i>forbesii</i>	VU	Cupressaceae
	<i>Podocarpus nubigenus</i>	VU	Podocarpaceae
Willowleaf Podocarp	<i>Podocarpus salignus</i>	VU	Podocarpaceae

Common name	Scientific name	Red list	Family
Down Redwood	<i>Metasequoia glyptostroboides</i>	CR	Taxodiaceae
Giant Redwood	<i>Sequoiadendron giganteum</i>	VU	Taxodiaceae
	<i>Dioon spinulosum</i>	LR	Cycadaceae
	<i>Zamia fischeri</i>	VU	Zamiaceae
Cardboard Palm	<i>Zamia furfuracea</i>	VU	Zamiaceae

TOTAL 11

FLOWERING PLANTS - DICOTYLEDONS

	<i>Michelia chapaensis</i>	LR	Magnoliaceae
	<i>Azadirachta indica</i>	DD	Celastraceae
	<i>Echinocactus grusonii</i>	CR	Cactaceae
	<i>Mammillaria bombycina</i>	LR	Cactaceae
	<i>Caridaphnum japonicum</i>	LR/nt	Ceridiphyllaceae
	<i>Betula chichibuensis</i>	LR	Betulaceae
	<i>Berberidopsis corallina</i>	EN	Floerbachaceae
	<i>Crinodendron hookerianum</i>	LR/nt	Elaeocarpaceae
	<i>Drosera rotundifolia</i>	VU	Droseraceae
	<i>Trichostema aeneum</i>	CR	Stemmatidaceae
	<i>Euphorbia melifera</i>	LR	Euphorbiaceae
	<i>Ilex perado</i> var. <i>platyphylla</i>	EN	Aquifoliaceae
	<i>Eucryphia glutinosa</i>	LR	Eucryphiaceae
	<i>Pittosporum abrotanum</i>	LR/nt	Pittosporaceae
	<i>Carakia macrocarpa</i>	LR/nt	Grossulariaceae
	<i>Lythrum salicaria</i> var. <i>asplenifolius</i>	VU	Rosaceae
	<i>Carmichaelia curta</i>	LR	Leguminosae
	<i>Carmichaelia kirkii</i>	EN	Leguminosae
	<i>Chardospartium muritai</i>	CR	Leguminosae
	<i>Chardospartium stevensonii</i>	VU	Leguminosae
	<i>Glory Pea</i>	EN	Leguminosae
	<i>Notospartum glabrescens</i>	LR/nt	Leguminosae
	<i>Notospartum torulosum</i>	LR/nt	Leguminosae
	<i>Strangylodon macrobotrys</i>	VU	Leguminosae
	<i>Protea repens</i> var. <i>hamiltonii</i>	EN	Proteaceae
	<i>Gunnera hamiltonii</i>	EN	Gunneraceae
	<i>Davidia involuta</i> var. <i>involuta</i>	LR	Cornaceae
	<i>Calystegia macrostegia</i>	VU	Convolvulaceae
	<i>Echium pininana</i>	VU	Boraginaceae
	<i>Myosotis colensoi</i>	VU	Boraginaceae
	<i>Abelophyllum distichum</i>	EN	Oleaceae
	<i>Hebe armstrongii</i>	VU	Scrophulariaceae
	<i>Hebe cupressoides</i>	VU	Scrophulariaceae
	<i>Sarcocolla speciosa</i>	EN	Bignoniaceae
	<i>Brachyglottis repens</i>	LR	Asteraceae
	<i>Olearia hectoris</i>	EN	Asteraceae
	<i>Olearia traversii</i>	LR/nt	Asteraceae

TOTAL 37

FLOWERING PLANTS - MONOCOTYLEDONS

Common name	Scientific name	Red list	Family
	<i>Beccariophoenix madagascariensis</i>	CR	Palmae
	<i>Chambeyronia macrocarpa</i>	LR	Palmae
	<i>Chamaedorea adscens</i>	VU	Palmae
	<i>Chamaedorea stolonifera</i>	VU	Palmae
	<i>Dypsis decaryi</i>	VU	Palmae
	<i>Howea balmoreana</i>	VU	Palmae
	<i>Howea forsteriana</i>	VU	Palmae
	<i>Johannesteijmannia magnifica</i>	EN	Palmae
	<i>Latania lontaroides</i>	EN	Palmae
	<i>Phycosperma gracile</i>	EN	Palmae
	<i>Ravenea rivularis</i>	VU	Palmae
	<i>Syagrus flexuosa</i>	LR	Palmae
	<i>Washingtonia filifera</i>	LR/nt	Palmae
	<i>Puya coquimbensis</i>	VU	Bromeliaceae
	<i>Drosera draca</i>	VU	Droseraceae
	<i>Astelia chathamica</i>	EN	Liliaceae
	<i>Coelogyne cristata</i>	LR	Orchidaceae
	<i>Oryzella hirtzii</i>	VU	Orchidaceae
	<i>Encyclia mariae</i>	VU	Orchidaceae
	<i>Laelia gouldiana</i>	EN	Orchidaceae
	<i>Masdevallia dynastes</i>	VU	Orchidaceae
	<i>Masdevallia menziesii</i>	EX	Orchidaceae
	<i>Masdevallia evo-avis</i>	VU	Orchidaceae
	<i>Masdevallia pinguicula</i>	EN	Orchidaceae
	<i>Masdevallia rufescens</i>	VU	Orchidaceae
	<i>Masdevallia sanctae-inese</i>	LR	Orchidaceae
	<i>Masdevallia tovarensis</i>	DD	Orchidaceae
	<i>Papilionidium rufischildianum</i>	EN	Orchidaceae
	<i>Pleurothallis cardiophylla</i>	DD	Orchidaceae
	<i>Pleurothallis phyllacardia</i>	EN	Orchidaceae
	<i>Pleurothallis scoparium</i>	VU	Orchidaceae
	<i>Pleurothallis volcanica</i>	VU	Orchidaceae
	<i>Paraglossum amethystinum</i>	VU	Orchidaceae
	<i>Paraglossum dalstroemii</i>	LR	Orchidaceae
	<i>Restrepis pandurata</i>	LR	Orchidaceae
	<i>Scaphosapum belizense</i>	LR	Orchidaceae
	<i>Scaphosapum microdactylum</i>	LR	Orchidaceae
	<i>Stelis hirtzii</i>	VU	Orchidaceae

TOTAL 38

Livestock: Threatened Species

MAMMALS

			BRED '03	BRED <'03	IUCN RED LIST	MANAGED PROGRAMME
1	Western Grey Kangaroo	<i>Macropus fuliginosus</i>	X	X	ESB	
2	Rodrigues Fruit Bat	<i>Pteropus rodriguesensis</i>	X	X	CR	EFP/YSB
3	Ring-tailed Lemur	<i>Lemur catta</i>	X	X	VU	ESB
4	Black and White Ruffed Lemur	<i>Varoeia variegata variegata</i>	X	X	EN	EFP/YSB
5	Red Ruffed Lemur	<i>Varoeia variegata rubra</i>	X	X	CR	EFP/YSB
6	Cotton-top Tamarin	<i>Sapinus oedipus</i>	X	X	EN	EFP/YSB
7	Buffy-headed Capuchin	<i>Cebus xanthosternus</i>			CR	EFP
8	Colombian Black Spider Monkey	<i>Ateles fusciceps robustus</i> (A. geoffroyi n. ventris)	X	X	VU	EFP
9	Lion-tailed Macaque	<i>Macaca silenus</i>	X	X	EN	EFP/YSB
10	Sulawesi Crested Macaque	<i>Macaca nigra</i>	X	X	EN	EFP
11	Mandrill	<i>Mandrillus sphinx</i>	X	X	VU	ESB/JMSP
12	Chimpanzee	<i>Pan troglodytes</i>	X	X	EN	JMSP
13	Bornean Orang utan	<i>Pongo pygmaeus</i>			EN	EFP/YSB
14	Sumatran Orang utan	<i>Pongo abelii</i>			CR	EFP/YSB
15	Prairie Marmot	<i>Cynomys ludovicianus</i>			NT	
16	African Crested Porcupine	<i>Hystrix cristata</i>			NT	
17	Capibara	<i>Hydrochaeris hydrochaeris</i>				JMSP
18	Mara	<i>Dolichotis patagonum</i>			NT	
19	Harvest Mouse	<i>Micromys minutus</i>	X	X	NT	
20	Turkish Spiny Mouse	<i>Acomys ciliatus</i>	X	N/A	CR	
21	Marmoset	<i>Chrysomys brachyurus</i>			NT	EFP/YSB
22	Bush Dog	<i>Speothos venaticus</i>	X	X	VU	EFP/YSB
23	Red Panda	<i>Ailuropus fulgens fulgens</i>			EN	EFP/JMSP/YSB
24	Oriental Small-clawed Otter	<i>Amblonyx cinereus</i>			NT	JMSP/YSB
25	Amur Tiger	<i>Panthera tigris altaica</i>			CR	EFP/YSB
26	Asiatic Lion	<i>Panthera leo persica</i>			CR	EFP/YSB
27	Jaguar	<i>Panthera onca</i>			NT	ESB
28	California Sealion	<i>Zalophus californianus</i>				ESB/JMSP
29	Asiatic Elephant	<i>Elephas maximus</i>			EN	EFP
30	Persian Onager	<i>Equus hemionus onager</i>			CR	EFP/YSB
31	Grevy's Zebra	<i>Equus grevyi</i>	N/A	N/A	EN	
32	Przewalski Horse	<i>Equus przewalskii</i>			EW	EFP/YSB
33	South American Tapir	<i>Lepus terrestris</i>	X	X	VU	ESB
34	Eastern Black Rhinoceros	<i>Diceros bicornis michaeli</i>			CR	EFP/YSB
35	Babirusa	<i>Babirusa babirusa</i>			VU	EFP/YSB
36	Red River Hog	<i>Porcula porcula</i>	X	N/A	ESB	
37	Bactrian Camel	<i>Camelus bactrianus</i>	X	X	CR	
38	Chilean Pudu	<i>Pudu pudu</i>			VU	EFP/YSB
39	Burmese Brown Antelope	<i>Cervus eldi thomasi</i>	X	X	NT	ESB
40	Philippine Spotted Deer	<i>Cervus alfredi</i>			EN	
41	Pere David's Deer	<i>Elaphurus davidianus</i>			CR	
42	Giraffe	<i>Giraffa camelopardalis</i>	X	X	NT	EFP
43	Lowland Anoa	<i>Bubalus depressicornis</i>			EN	EFP/YSB
44	Barasingha	<i>Cervus duvauceli duvauceli</i>			VU	ESB
45	Congo Buffalo	<i>Synceus caffer nanus</i>	X	X	NT	ESB
46	Eastern Bongo	<i>Tragelaphus eurycerus isaaci</i>			EN	EFP/YSB
47	West African Statunga	<i>Tragelaphus spekei gratus</i>	X	X	NT	ESB
48	Sable Antelope	<i>Hippotragus niger</i>			NT	ESB/JMSP
49	Katue Flat Red Leche	<i>Kobus leche katusensis</i>			VU	JMSP/YSB
50	Scimitar-horned Oryx	<i>Oryx dammah</i>			EW	EFP/YSB
51	Gemsbok	<i>Oryx gazelle gazelle</i>	X	X	NT	JMSP
52	Blackbuck	<i>Antelope cervicapra</i>	X	X	VU	
53	Arabian Mountain Gazelle	<i>Gazelle gazelle cors</i>	X	X	VU	JMSP

BIRDS

1	Common Khea	<i>Rissa americana</i>			X	NT
2	Southern Cassowary	<i>Casuarus casuarus</i>	N/A	N/A	VU	JMSP
3	Humboldt's Penguin	<i>Spheniscus humboldti</i>	X	X	VU	EFP
4	Dalmatian Pelican	<i>Pelecanus crispus</i>			NT	EFP
5	Black Stork	<i>Ciconia nigra</i>			ESB	
6	Waldrop's Ibis	<i>Geronticus eremita</i>	X	X	CR	EFP/YSB
7	Chilean Flamingo	<i>Phoenicopterus chilensis</i>	X	X	NT	
8	Black-billed Whistling Duck	<i>Dendrocygna arborea</i>	X	X	VU	
9	Lesser White-fronted Goose	<i>Anser erythropus</i>			VU	
10	Red-breasted Goose	<i>Branta ruficollis</i>	X	X	VU	
11	Hawaiian Goose	<i>Branta sandvicensis</i>			VU	
12	Baikal Teal	<i>Anas formosa</i>	X	X	VU	
13	Laysan Teal	<i>Anas laysanensis</i>			VU	
14	Boer's Pochard	<i>Aythya boeri</i>	X	X	VU	
15	Ferruginous Duck	<i>Aythya nyroca</i>			NT	
16	Marbled Teal	<i>Maremarionetta angustirostris</i>			VU	
17	White-headed Duck	<i>Oryzopsis leucorhynchos</i>	X	X	EN	
18	Andean Condor	<i>Vultur gryphus</i>			NT	EFP
19	European Black Vulture	<i>Aegypius monachus</i>			NT	EFP
20	Griffon Vulture	<i>Gyps fulvus</i>			ESB	
21	Mauritius Kestrel	<i>Falco punctatus</i>			X	VU
22	Red-billed Curassow	<i>Oxycaptes blumenbachii</i>			N/A	EN
23	Rufous Partridge	<i>Rallulus rufus</i>	X	X	NT	
24	Blyth's Tragopan	<i>Tragopan blythii</i>			X	VU
25	Satyr Tragopan	<i>Tragopan satyra</i>			NT	JMSP/YSB/ESB
26	Palawan Peacock Pheasant	<i>Polyplectron emphanum</i>			X	VU
27	Mountain Peacock Pheasant	<i>Polyplectron inopinatum</i>			X	VU
28	Malayan Peacock Pheasant	<i>Polyplectron malacense</i>			N/A	VU
29	Great Argus Pheasant	<i>Argusianus argus</i>			N/A	NT
30	Edwards' Pheasant	<i>Lophura edwardsi</i>			X	EN

31	Malayan Crestless Fireback	<i>Lophura e. erythroptera</i>			X	VU
32	Vietnamese Pheasant	<i>Lophura hatinhensis</i>			X	EN
33	Green Peafowl	<i>Pavo muticus</i>	X	X	VU	
34	Congo Peafowl	<i>Afrapavo congensis</i>			X	VU
35	Red-crowned Crane	<i>Grus japonensis</i>			X	EN
36	White-naped Crane	<i>Grus vipio</i>			X	VU
37	Wattled Crane	<i>Bucconas carunculatus</i>			VU	JMSP/YSB
38	Blue Crane	<i>Anthropoides paradisea</i>			X	VU
39	West African Crowned Crane	<i>Bucconas pavonina pavonina</i>	X	X	NT	ESB/JMSP
40	Gough Island Moorhen	<i>Gallinula comeri</i>			X	VU
41	Sunbittern	<i>Eurypyga helias</i>			X	ESB
42	Pink Pigeon	<i>Columba mayeri</i>			X	EN
43	Blue Crowned Pigeon	<i>Goura cristata</i>			VU	ESB/YSB
44	Victoria Crowned Pigeon	<i>Goura victoria</i>	X	X	VU	ESB/YSB
45	Nicobar Pigeon	<i>Columba nicobarica</i>			X	NT
46	Mountain Wither Dove	<i>Geopelia versicolor</i>			X	NT
47	Mindanao Bleeding-heart	<i>Gallicolumba crinita</i>			EN	ESB
48	Luzon Bleeding-heart	<i>Gallicolumba luzonica</i>			X	NT
49	Jambu Fruit Dove	<i>Ptilinopus jambu</i>	X	X	NT	
50	White-naped Pheasant Pigeon	<i>Otidiphas nobilis arvensis</i>			N/A	ESB
51	Socorro Dove	<i>Zenaidura macroura graysoni</i>			N/A	EW
52	Mount Apo Lorikeet	<i>Trichoglossus johnstoniae</i>			X	NT
53	Red and Blue Lory	<i>Eos histrio</i>			EN	ESB
54	Black-winged Lory	<i>Eos cyanogenia</i>			VU	ESB
55	Blue-streaked Lory	<i>Eos reticulata</i>			NT	JMSP
56	Yellow-backed Chattering Lory	<i>Lorius gamulus flavopollatus</i>	X	X	EN	ESB/JMSP
57	Palm Cuckoo	<i>Probasia albertina</i>				EFP
58	Cornbird's Black Cuckoo	<i>Calyptorhynchus latirostris</i>			EN	ESB
59	Blue-eyed Cuckoo	<i>Coccyzoides ophthalmica</i>	X	X	CR	EFP
60	Red-vented Cuckoo	<i>Coccyzoides haematopygia</i>			CR	EFP
61	Koa	<i>Nestor notabilis</i>			X	VU
62	Black-cheeked Lovebird	<i>Agapornis nigrigenis</i>			VU	JMSP
63	Hyacinthine Macaw	<i>Anodorhynchus hyacinthinus</i>	X	X	EN	EFP
64	Blue-throated Macaw	<i>Ara glaucogularis</i>			CR	EFP/YSB
65	Scarlet Macaw	<i>Ara macao</i>				JMSP
66	Blue-winged Macaw	<i>Propyrrhus maracano</i>	X	X	VU	(ESB)
67	Red-masked Canary	<i>Araucaria erythrogena</i>			X	NT
68	Golden-capped Canary	<i>Araucaria auricapilla</i>			X	VU
69	Golden Canary	<i>Guaruba guarouba</i>			X	EN
70	Thick-billed Parrot	<i>Rhytiphaga pachyrhynchos</i>			X	EN
71	Princess Parrot	<i>Polytelus alexandri</i>			NT	
72	Blue-throated Canary	<i>Pyrrhura orientalis</i>	X	X	VU	JMSP
73	Yellow-faced Parrotlet	<i>Forpus xanthops</i>			X	VU
74	Ecuadorian Amazon	<i>Amazona autumnalis lilacina</i>	X	X	VU	EFP
75	Cuban Amazon	<i>Amazona leucocapilla</i>			X	NT
76	Green-cheeked Amazon	<i>Amazona viridigenalis</i>			X	EN
77	Red-tailed Amazon	<i>Amazona brasiliensis</i>	X	X	EN	EFP
78	St Lucia Amazon	<i>Amazona versicolor</i>			VU	ESB
79	Red-crested Tanager	<i>Touraco erythrorhynchos</i>			X	ESB
80	Fischer's Tanager	<i>Touraco fischeri</i>			X	NT
81	Violet Plantain Eater	<i>Muscophaga violacea</i>	X	X		ESB
82	White-faced Scops Owl	<i>Otus leucotis</i>			X	X
83	Milky Eagle Owl	<i>Bubo lacteus</i>				JMSP
84	Great Grey Owl	<i>Strix nebulosa</i>	X	X		JMSP
85	Spectacled Owl	<i>Pulsatrix perspicillata</i>	X	X		JMSP
86	Great Hornbill	<i>Buceros bicornis</i>	X	X	NT	EFP/YSB
87	Rhinoceros Hornbill	<i>Buceros rhinoceros</i>			NT	ESB
88	Wrinkled Hornbill	<i>Aceros corrugatus</i>			X	NT
89	Mindanao White-billed Hornbill	<i>Aceros leucorhynchus</i>			NT	EFP
90	Torricelli Hornbill	<i>Penelopides sp.</i>				ESB
91	Gouldian Finch	<i>Erythrura gouldiae</i>			X	EN
92	Montserrat Oriole	<i>Icterus oberi</i>			CR	
93	Diamond Sparrow	<i>Stagonopleura guttata</i>			NT	
94	Java Sparrow	<i>Padda oryzirostra</i>	X	X	VU	
95	Yellow-throated Laughing Thrush	<i>Garrulax galbanus</i>			X	ESB/JMSP
96	Red-tailed Laughing Thrush	<i>Garrulax milnei</i>	X	X		ESB/JMSP
97	Omei Shan Liochila	<i>Liochila omeiensis</i>			X	VU
98	Bali Starling	<i>Leucopsar rothschildi</i>			X	CR
99	Emerald Starling	<i>Lamprolaima iris</i>	X	X	DO	
100	Red-billed Chough	<i>Pyrrhocorax pyrrhocorax</i>			X	JMSP
101	Red Bird of Paradise	<i>Paradisaea rubra</i>	X		NT	ESB

REPTILES

1	Asian Box Turtle	<i>Cuora amboinensis</i>			X	VU
2	Yellow-footed Tortoise	<i>Geochelone denticulata</i>				VU
3	Greek Tortoise	<i>Testudo graeca</i>			X	VU
4	Hermann's Tortoise	<i>Testudo hermanni</i>			X	NT
5	Egyptian Tortoise	<i>Testudo kleinmanni</i>				EN
6	Black Marsh Turtle	<i>Siebenrockiella crassicauda</i>				VU
7	Spiny Turtle	<i>Heosemys spinosa</i>				EN
8	West African Dwarf Crocodile	<i>Osteolepis tetrapleura</i>				ESB
9	Sand Lizard	<i>Locusta agilis</i>	X	X		ENP
10	Standing's Day Gecko	<i>Phelsuma standingi</i>				VU
11	Rhinoceros Iguana	<i>Cyclura cornuta</i>	X	X	VU	ESB
12	Egyptian Spiny-tailed Lizard	<i>Uromastyx aegyptius</i>				ESB

Livestock: Threatened Species

			BRED '03	BRED <'03	IUCN RED LIST	MANAGED PROGRAMME
13	Philippine Sailfin Lizard	<i>Hydrosaurus pustulatus</i>		X	DD	JMSP
14	Prehensile-tailed Skink	<i>Cercia zebra</i>		X		JMSP
15+	Komodo Dragon	<i>Varanus komodoensis</i>			VU	EEP
16	Cuban Boa	<i>Epicrates angulifer</i>		X	NT	EEP
17	Jamaican Boa	<i>Epicrates subflavus</i>		X	VU	EEP
18	Madagascan Tree Boa	<i>Sanzinia madagascariensis</i>		X	VU	ESB
19	Aruba Island Rattlesnake	<i>Crotalus unicolor</i>		X	CR	
20	Gila Monster	<i>Holodermis suspectum</i>		N/A	VU	EEP
21	Basilisk Lizard	<i>Holodermis horridum</i>			VU	EEP

AMPHIBIANS

1	Axolotl	<i>Ambystoma mexicanum</i>		X	X	VU
2+	Blue Poison Arrow Frog	<i>Dendrobates azureus</i>				ESB
3	Mallorcan Midwife Toad	<i>Alytes muletensis</i>		X	X	CR
4+	Puerto Rican Crested Toad	<i>Pellodytes lemur</i>				VU

FISHES

1	Fresh-water Stingray	<i>Potamotrygon motoro</i>		X	X	DD
2	Black Ruby Barb	<i>Puntius nigrofasciatus</i>		X	X	NT
3	Cherry Barb	<i>Puntius titteya</i>			X	NT
4	Ornate Blind Cave Fish	<i>Garra barreimiae</i>			X	VU
5	Pleurocentrus	<i>Probarbus jullieni</i>				EN
6	Red Rainbow Fish	<i>Glossogobius aureus</i>		X	X	VU
7	Dark-bellied Fish	<i>Xenopoeus sarzinorum</i>		X	X	EN
8	Boesman's Rainbow Fish	<i>Melanotaenia boesemani</i>		X	X	EN
9	Lake Toba Rainbow Fish	<i>Melanotaenia herbertaxelrodi</i>		X	X	DD
10	Lake Kutuba Rainbow Fish	<i>Melanotaenia lacustris</i>		X	X	VU
11	Dwarf Loach	<i>Betta sithimunki</i>				CR
12	Lake Victoria Cichlid	<i>Tsichromis argus</i>		X	X	EW
13	Lake Victoria Cichlid	<i>Tsichromis pyrrhocapulus</i>			X	VU
14	Lake Victoria Cichlid	<i>Haplochromis riparianus</i>			X	ASP
15	Spotted Dumbo	<i>Pareuchanna maculatus</i>				CR
16	Pin Striped Dumbo	<i>Pareuchanna manamamba</i>				ASP
17	'Konye' Barombi Mbo Cichlid	<i>Konia eisenbrauni</i>		X	X	CR
18	'Pungu' Barombi Mbo Cichlid	<i>Pungo madereni</i>		X		CR
19	'Unga' Barombi Mbo Cichlid	<i>Sarotherodon innelli</i>		X		CR
20	'Luka' Barombi Mbo Cichlid	<i>Sarotherodon lohbergeri</i>		X		CR
21	'Husa' Barombi Mbo Cichlid	<i>Stomatepia mariae</i>		X	X	CR
22	'Pinda' Barombi Mbo Cichlid	<i>Stomatepia pinda</i>		X	X	CR
23	Asian Arowana	<i>Scleropages formosus</i>				EN
24	Dwarf Rainbow Fish	<i>Melanotaenia praecox</i>		X		DD
25	Madagascan Rainbow Fish	<i>Bedotia madagascariensis</i>				DD
26	Killifish	<i>Pachypanchax sakaramyi</i>		X	X	VU
27	Butterfly Goodeid	<i>Ameiops splendens</i>		X	X	EW
28	Bold Characodon	<i>Characodon audax</i>		X	X	VU
29	Golden Saw-finned Goodeid	<i>Skiffia francesae</i>		X	X	EW
30	Crescent Zee	<i>Zoogoneticus tequila</i>		X	X	ASP
31	Mexican Blind Cave Fish	<i>Astyanax mexicanus jordanii</i>				VU
32	Seahorse	<i>Hippocampus kuda</i> sp.		X	X	VU
33	Sea Pony	<i>Hippocampus fuscus</i>		X		VU
34	European Seahorse	<i>Hippocampus guttulatus</i>				VU
35	Kinrya Seahorse	<i>Hippocampus capensis</i>		X	X	EN

INVERTEBRATES

1	Parula Snail	<i>Parula mirabilis</i>		X	X	EW
2	Parula Snail	<i>Parula varia</i>		X	X	CR
3	Mexican Red-knee Tarantula	<i>Brachypelma smithi</i>			X	NT
4	Daisy Coral	<i>Goniopora stokesi</i>				ASP
5	Breaker Coral	<i>Acanthophyllia deshayesiana</i>				ASP
6	Bubble Coral	<i>Plerogorgia sinuosa</i>				ASP
7	Branch Coral	<i>Acropora humilis</i>				ASP
8	Brain Coral	<i>Trachyphyllia geoffroyi</i>				ASP
9	Boquet Coral	<i>Euphyllia glabrescens</i>				ASP
10	Bowl Coral	<i>Turbinaria mesenterina</i>				ASP
11	Bowl Coral	<i>Turbinaria pelata</i>				ASP
12	Star Coral	<i>Favia</i> sp.		X		ASP
13	Salt Coral	<i>Xenia</i> sp.				ASP
14	Salt Coral	<i>Simulium</i> sp.		X	X	ASP
15	Salt Coral	<i>Cladella</i> sp.			X	ASP
16	Zoanthid Colony	<i>Zoanthid</i> sp.		X		ASP
17	Moave Ear Coral	<i>Lobophytum crassum</i>		X		ASP

PLANTS

GYMNOSPERMS

Common name	Scientific name	Red list	Family
Woolly tree	<i>Ginkgo biloba</i>	EN	Ginkgoaceae
Monkey puzzle	<i>Araucaria araucana</i>	VU	Araucariaceae
Woolly tree	<i>Araucaria heterophylla</i>	VU	Araucariaceae
	<i>Cupressus guadalupensis</i> var. <i>forbesii</i>	VU	Cupressaceae
	<i>Podocarpus nubigenus</i>	VU	Podocarpaceae
	<i>Podocarpus salignus</i>	VU	Podocarpaceae

Common name	Scientific name	Red list	Family
Down Redwood	<i>Metasequoia glyptostroboides</i>	CR	Taxodiaceae
Giant Redwood	<i>Sequoiadendron giganteum</i>	VU	Taxodiaceae
	<i>Dioon spinulosum</i>	LR	Cycadaceae
	<i>Zamia fischeri</i>	VU	Zamiaceae
Cardboard Palm	<i>Zamia furfuracea</i>	VU	Zamiaceae

TOTAL 11

FLOWERING PLANTS - DICOTYLEDONS

	<i>Michelia chapaensis</i>	LR	Magnoliaceae
	<i>Astraphyllum ornatum</i>	DD	Cactaceae
	<i>Echinocactus grusonii</i>	CR	Cactaceae
	<i>Mammillaria bombycina</i>	LR	Cactaceae
Golden Barrel	<i>Cerodaphyllum japonicum</i>	LR/nt	Cerodaphyllaceae
Katsura Tree	<i>Betula chichibuensis</i>	LR	Betulaceae
	<i>Berberidopsis corallina</i>	EN	Floerbachaceae
Chile Lantern Tree	<i>Cinodendron hookerianum</i>	LR/nt	Elaeocarpaceae
Venus's Fly Trap	<i>Drosera muscipula</i>	VU	Droseraceae
	<i>Trichetopis ebenus</i>	CR	Sterculiaceae
	<i>Euphorbia mellifera</i>	LR	Euphorbiaceae
	<i>Ilex persea</i> ssp. <i>platyphylla</i>	EN	Aquifoliaceae
	<i>Eucryphia glutinosa</i>	LR	Eucryphiaceae
	<i>Pittosporum abcordatum</i>	LR/nt	Pittosporaceae
	<i>Corakia macrocarpa</i>	LR/nt	Grossulariaceae
Santa Cruz Island Ironwood	<i>Lyonothamnus floribundus</i> ssp. <i>asplenifolius</i>	VU	Rosaceae
	<i>Carmichaelia curta</i>	LR	Leguminosae
	<i>Carmichaelia kirkii</i>	EN	Leguminosae
Weeping Tree Broom	<i>Chordospartium muritai</i>	CR	Leguminosae
Weeping Tree Broom	<i>Chordospartium stiversoni</i>	VU	Leguminosae
Glory Tree	<i>Giantus puniceus</i>	EN	Leguminosae
Southern Broom	<i>Notospartium glabrescens</i>	LR/nt	Leguminosae
Southern Broom	<i>Notospartium taraloum</i>	LR/nt	Leguminosae
Jade Vine	<i>Strongylodon macrobotrys</i>	VU	Leguminosae
	<i>Protea roupelliae</i> var. <i>hamiltonii</i>	EN	Proteaceae
	<i>Gunnera hamiltonii</i>	EN	Gunneraceae
Handkerchief Tree	<i>Davidia involucreata</i> var. <i>involucreata</i>	LR	Cannaceae
Island Bindweed	<i>Calystegia macrostegia</i>	VU	Convolvulaceae
	<i>Echium pininana</i>	VU	Boraginaceae
Castle Hill Forget-me-not	<i>Myosotis calenai</i>	VU	Boraginaceae
White Forsythia	<i>Abeliophyllum distichum</i>	EN	Oleaceae
	<i>Hebe armstrongii</i>	VU	Scrophulariaceae
	<i>Hebe cupressoides</i>	VU	Scrophulariaceae
	<i>Leucanthea speciosa</i>	EN	Bignoniaceae
	<i>Brachyglottis compacta</i>	LR	Asteraceae
Daisy Bush	<i>Olearia hectoris</i>	EN	Asteraceae
Daisy Bush	<i>Olearia traversii</i>	LR/nt	Asteraceae

TOTAL 37

FLOWERING PLANTS - MONOCOTYLEDONS

Common name	Scientific name	Red list	Family
	<i>Becariophoenix madagascariensis</i>	CR	Palmae
	<i>Chambeyronia macrocarpa</i>	LR	Palmae
	<i>Chamaedorea adscens</i>	VU	Palmae
	<i>Chamaedorea stolonifera</i>	VU	Palmae
	<i>Dypsis decaryi</i>	VU	Palmae
	<i>Hawea balmoreana</i>	VU	Palmae
Sentry Palm	<i>Hawea forsteriana</i>	VU	Palmae
Kentia Palm	<i>Johannesteijmannia magnifica</i>	EN	Palmae
	<i>Lantania lentarioides</i>	EN	Palmae
	<i>Ptychosperma gracile</i>	EN	Palmae
	<i>Revenea rivalaris</i>	VU	Palmae
	<i>Syagrus flexuosa</i>	LR	Palmae
Cotton palm, Desert Fan palm	<i>Washingtonia filifera</i>	LR/nt	Palmae
	<i>Puya caquimbensis</i>	VU	Bromeliaceae
Canary Island Dragon Tree	<i>Dracaena draco</i>	VU	Dracaenaceae
	<i>Astelia chathamica</i>	EN	Liliaceae
	<i>Coelogyne cristata</i>	LR	Orchidaceae
	<i>Dryadella hirtzii</i>	VU	Orchidaceae
	<i>Encyclia mariae</i>	VU	Orchidaceae
	<i>Laelia gouldiana</i>	EN	Orchidaceae
	<i>Masdevallia dynastes</i>	VU	Orchidaceae
	<i>Masdevallia menziesii</i>	EX	Orchidaceae
	<i>Masdevallia ova-avis</i>	VU	Orchidaceae
	<i>Masdevallia pinguiculis</i>	EN	Orchidaceae
	<i>Masdevallia rolfeana</i>	VU	Orchidaceae
	<i>Masdevallia sanctae-inesae</i>	LR	Orchidaceae
	<i>Masdevallia tovarensis</i>	DD	Orchidaceae
	<i>Paphiopedilum rotchfordianum</i>	EN	Orchidaceae
	<i>Pleurothallis cardiophylla</i>	DD	Orchidaceae
	<i>Pleurothallis phyllorhiza</i>	EN	Orchidaceae
	<i>Pleurothallis scoparium</i>	VU	Orchidaceae
	<i>Pleurothallis volcanica</i>	VU	Orchidaceae
	<i>Paraglossum amethystinum</i>	VU	Orchidaceae
	<i>Paraglossum dalstroemii</i>	LR	Orchidaceae
	<i>Restrepia pandurata</i>	LR	Orchidaceae
	<i>Scaphosepalum bellusum</i>	LR	Orchidaceae
	<i>Scaphosepalum microdactylum</i>	LR	Orchidaceae
	<i>Sedum hirtzii</i>	VU	Orchidaceae

TOTAL 38

Livestock: General Holdings

Common Name & Scientific Name	STOCK			RECEIVED			BORN/H'CH			D.N.S.			DEATHS			DISPOSALS			STOCK			CITES			
	31/12/02									30 DAYS OTHERS									31/12/03						
	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?				
MAMMAL STOCKLIST AS AT 31 DECEMBER 2003																									
MARSUPIALIA																									
Red-necked Wallaby	Macropus rufogriseus	11	17	0						1	2	5			1	1	1		11	7	4	0	11	0	
Western Grey Kangaroo	Macropus fuliginosus	2	5	0						0	0	1			0	0	1					2	5	0	
CHIROPTERA																									
Rodrigues Fruit Bat	Pteropus rodricensis	27	17	0						5	7	6	0	0	1	1	2	0				31	22	5	
Seba's Short-tailed Bat	Carollia perspicillata	0	0	149						0	0	43			0	0	14					0	0	178	
PRIMATES																									
Ring-tailed Lemur	Lemur catta	10	11	0						3	2	2	1	0	2	1	1	0		1	2	0	10	10	0
Black and White Ruffed Lemur	Varecia variegata variegata	3	2	0						1	1	0	1	0	0								3	3	0
Red Ruffed Lemur	Varecia variegata rubra	2	2	0						0	2	1	0	0	1								2	4	0
Cotton-top Tamarin	Saguinus oedipus	1	1	0						1	0	2	1	0	2								1	1	0
Buffy-headed Capuchin	Cebus xanthosternus	5	1	0															1	0	0		4	1	0
Colombian Black Spider Monkey	Ateles fusciceps robustus (A. geoffroyi rufiventris)	3	5	0						0	1	0							2	0	0		1	6	0
Lion-tailed Macaque	Macaca silenus	2	5	0						0	2	1	0	0	1								2	7	0
Sulawesi Crested Macaque	Macaca nigra	6	12	0	1	1	0			3	2	0	2	1	0	2	0	0		0	1	0	6	13	0
Campbell's Monkey	Cercopithecus campbelli	0	2	0																			0	2	0
Mandrill	Mandrillus sphinx	3	2	0						0	1	1	0	0	1								3	3	0
Chimpanzee	Pan troglodytes	6	20	0						2	0	1	1	0	1								7	20	0
Bornean Orangutan	Pongo pygmaeus	1	4	0																			1	4	0
Sumatran Orangutan	Pongo abelii	2	3	0																			2	3	0
RODENTIA																									
Prairie Marmot	Cynomys ludovicianus	6	4	0												5	3	0					1	1	0
African Crested Porcupine	Hystrix cristata	0	2	0												0	2	0					0	0	0
Turkish Spiny Mouse	Acomys cilicicus	0	0	0	4	4	0			0	0	19				1	0	1					3	4	18
Capybara	Hydrochaeris hydrochaeris	2	3	0																			2	3	0
Harvest Mouse	Micromys minutus	163	179	0	124	101	0			163	142	32	0	0	19	16	26	0		275	255	0	159	141	13
European Water Vole	Arvicola terrestris	0	0	0	18	17	0									1	0	0					17	17	0
CARNIVORA																									
Maned Wolf	Chrysocyon brachyurus	1	1	0																			1	1	0
Bush Dog	Speothos venaticus	1	1	0						0	0	5	0	0	1	0	0	1					1	1	3
Red Panda	Ailurus fulgens fulgens	0	2	0																			0	2	0
Coati	Nasua nasua	1	13	0												0	2	0					1	11	0
Oriental Small-clawed Otter	Amblyonyx cinereus	4	3	0																			4	3	0
Slender-tailed Meerkat	Suricata suricatta	5	4	0															1	0	0		4	4	0
Serval	Leptailurus serval	1	1	0																			1	1	0
Asiatic Lion	Panthera leo persica	2	1	0															1	0	0		1	1	0
Amur Tiger	Panthera tigris altaica	1	1	0																			1	1	0
Jaguar	Panthera onca	2	2	0																			2	2	0
PINIPEDIA																									
California Sealion	Zalophus californianus	1	4	0																			1	4	0
PROBOSCEA																									
Asiatic Elephant	Elephas maximus	4	5	0																			4	5	0
PERISSODACTYLA																									
Przewalski's Horse	Equus przewalskii	0	6	0												0	1	0		0	2	0	0	3	0
Grevy's Zebra	Equus grevyi	0	0	0	4	0	0																4	0	0
Persian Onager	Equus hemionus onager	1	6	0												0	1	0					1	5	0
South American Tapir	Tapirus terrestris	2	1	0						0	1	0	0	1	0				1	0	0		1	1	0
Eastern Black Rhinoceros	Diceros bicornis michaeli	3	4	0	0	1	0																3	5	0
ARTIODACTYLA																									
Babirusa	Babirusa babirusa	1	1	0	1	0	0									1	0	0					1	1	0
Red River Hog	Polanchoerus porcus pictus	1	1	0						2	0	0											3	1	0
Guanaco	Lama guanicoe	4	11	0												0	1	0					4	10	0
Bactrian Camel	Camelus bactrianus	1	2	0						0	1	1	0	0	1	1	0	0					0	3	0
Chilean Fudu	Fudu fudu	0	1	0	2	0	0												1	0	0		1	1	0
Philippine Spotted Deer	Cervus alfredi	3	1	0						1	0	0	1	0	0								3	1	0
Barasingha	Cervus duvauceli duvauceli	0	3	0																			0	3	0
Burmese Brown-antlered Deer	Cervus eldi thamin	2	7	0						3	3	0	2	1	0								3	9	0
Père David's Deer	Elaphurus davidianus	1	7	0																			1	7	0
Giraffe	Giraffa camelopardalis	5	2	0	0	1	0			2	0	0				1	0	0		4	0	0	2	3	0
Lowland Anoa	Bubalus depressicornis	2	1	0															1	0	0		1	1	0
Congo Buffalo	Syncerus caffer nanus	1	3	0						1	0	0	1	0	0								1	3	0
Eastern Bongo	Tragelaphus eurycerus isaaci	1	3	0												0	1	0					1	2	0
West African Sitatunga	Tragelaphus spekei gratus	2	5	0						2	2	1	1	1	1								3	6	0
Sable Antelope	Hippotragus niger	1	1	0																			1	1	0
Kalbari Red Lechwe	Kobus lechwe kalbariensis	0	15	0												0	5	0					0	10	0
Scimitar-horned Oryx	Oryx dammah	0	12	0															0	2	0		0	10	0
Gemsbok	Oryx gazella gazella	2	3	0						0	3	0											2	6	0
Blackbuck	Antelope cervicapra	8	17	0						5	9	0	4	0	0	1	2	0		7	3	0	1	21	0
Arabian (Mountain) Gazelle	Gazella gazella (cora)	5	10	0						1	3	0	0	1	0	1	4	0					5	8	0
Totals		324	458	149	154	125	0			196	184	121	15	5	31	33	52	18		306	272	4	320	438	217
			931			279					501			51			103				582			975	
Number of specimens at year end - 976 Number of species at year end - 59 Number of species held during year - 60																									
EDUCATION/DOMESTIC																									
Not included in species/specimens totals																									
Domestic Goat	Capra hircus (domestic)	10	9	0												2	0	0					8	9	0
Gloucester Old Spot Pig	Sus scrofa (Gloucester old spot)	0	1	0																			0	1	0
Kune Kune Pig	Sus scrofa (Kune)	0	2	0												0	1	0					0	1	0
Domestic Rat	Rattus norvegicus (domestic)	0	9	0	0	6	0									0	8	0					0	7	0
Domestic Rabbit	Oryctolagus cuniculus (domestic)	0	2	0																			0	2	0
Guinea Pig	Cavia porcellus	0	9	0												0	3	0							

29

Livestock: General Holdings

Common Name & Scientific Name		STOCK			RECEIVED			BORN/H'CH			D.N.S.			DEATHS			DISPOSALS			STOCK			CITES
		31/12/02									30 DAYS OTHERS									31/12/03			
		M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	
COLUMBIFORMES																							
Speckled Pigeon	<i>Columba guinea</i>	1	0	25				0	0	3				0	0	3				1	0	25	
Rock Dove	<i>Columba livia</i>	3	3	6																3	3	6	
Pink Pigeon	<i>Columba mayeri</i>	1	1	0										0	1	0				1	0	0	
Laughing Dove	<i>Streptopelia senegalensis</i>	0	0	4																0	0	4	
Red Turtle Dove	<i>Streptopelia tranquebarica</i>	0	0	4																0	0	4	
Emerald Dove	<i>Chalcophaps indica</i>	1	1	0																1	1	0	
Crested Bronzewing Pigeon	<i>Ocyphaps lophotes</i>	1	0	11				0	0	5				0	0	4				1	0	12	
Common Bronzewing Pigeon	<i>Phaps chalcoptera</i>	1	0	0																1	0	0	
Diamond Dove	<i>Geopelia cuneata</i>	1	2	0																1	2	0	
Mountain Witch Dove	<i>Geotrygon versicolor</i>	4	1	0										1	0	0				3	1	0	
Mindanao Bleeding-heart	<i>Gallicolumba criniger</i>	1	1	0	2	1	0							0	1	0	1	0	0	2	1	0	
Luzon Bleeding-heart	<i>Gallicolumba luzonica</i>	2	1	0																2	1	0	
Golden Heart Pigeon	<i>Gallicolumba rufigula</i>	4	1	1				0	0	1										4	1	2	
Jambu Fruit Dove	<i>Phapopus jambu</i>	1	2	0				0	0	6	0	0	4	0	0	2				1	2	0	
Orange-fronted Fruit Dove	<i>Phapopus aurantifrons</i>	0	0	1																0	0	1	
Socorro Dove	<i>Zenaidura macroura graysoni</i>	1	1	0	0	3	0													1	4	0	
Pied Imperial Pigeon	<i>Ducula bicolor</i>	0	0	3										0	0	1				0	0	2	
Victoria Crowned Pigeon	<i>Goura victoria</i>	2	1	0				0	0	1							1	0	0	1	1	1	
Blue Crowned Pigeon	<i>Goura cristata</i>	1	0	0																1	0	0	
Nicaraguan Pigeon	<i>Caloenas nicobarica</i>	3	2	0	0	1	0							0	2	0				3	1	0	
Green-naped Pheasant Pigeon	<i>Otidiphaps nobilis</i>	1	1	0																1	1	0	
White-naped Pheasant Pigeon	<i>Otidiphaps nobilis arvensis</i>	1	1	0																1	1	0	
PSITTACIFORMES																							
Red and Blue Lory	<i>Eos histrio</i>	1	0	0																1	0	0	
Blue-striped Lory	<i>Eos reticulata</i>	1	0	0																1	0	0	
Duyvenbode's Lory	<i>Chalcopsitta duivenbodei</i>	2	1	0																2	1	0	
Yellow-backed Chattering Lory	<i>Lorius gamulus flavopallidus</i>	4	4	0				0	0	4	0	0	1	1	0	1				3	4	2	
Stella's Lorikeet	<i>Charmosyna papou</i>	1	1	0				0	0	2				0	0	2				1	1	0	
Mount Apo Lorikeet	<i>Trichoglossus johnstoniae</i>	3	2	0										1	1	0				2	1	0	
Palm Cockatoo	<i>Probosciger aterrimus</i>	2	1	0										1	1	0				1	0	0	
Canaby's Black Cockatoo	<i>Calyptorhynchus latirostris</i>	1	1	0																1	1	0	
Blue-eyed Cockatoo	<i>Cacatua ophthalmica</i>	5	2	0				0	0	1										5	2	1	
Red-vented Cockatoo	<i>Cacatua haematurus pygia</i>	4	2	0	0	2	0													4	4	0	
Kea	<i>Nestor notabilis</i>	1	1	0																1	1	0	
Greater Vasa Parrot	<i>Coracopsis vasa</i>	2	1	0																2	1	0	
Princess Parrot	<i>Polytelis alexandrinae</i>	2	1	0																2	1	0	
Derbyan Parakeet	<i>Pittacula derbiana</i>	5	2	0				0	0	2										5	2	2	
Black-cheeked Lovebird	<i>Agapornis nigrigensis</i>	0	2	0										0	1	0				0	1	0	
Hyacinthine Macaw	<i>Anodorhynchus hyacinthinus</i>	2	2	0				0	0	1	0	0	1							2	2	0	
Blue and Yellow Macaw	<i>Ara ararauna</i>	1	1	0																1	1	0	
Blue-throated Macaw	<i>Ara glaucogularis</i>	1	1	0																1	1	0	
Yellow-naped Macaw	<i>Ara auricollis</i>	0	1	0													0	1	0	0	0	0	
Blue-winged Macaw	<i>Procyornis maracana</i>	1	2	0				0	0	2	0	0	1							1	2	1	
Red-masked Conure	<i>Aratinga erythrogenys</i>	2	1	0													2	1	0	0	0	0	
Golden-capped Conure	<i>Aratinga auricapilla</i>	2	1	0																2	1	0	
Golden Conure	<i>Guaruba guarouba</i>	3	1	0																3	1	0	
Thick-billed Parrot	<i>Rhynchopsitta pachyrhyncha</i>	1	2	0													0	2	0	1	0	0	
Blue-throated Conure	<i>Pyrrhura frontata</i>	4	3	0	1	0	0	0	0	3				1	2	3				4	1	0	
Slender-billed Parakeet	<i>Enicognathus leptorhynchus</i>	1	2	0													1	2	0	0	0	0	
Endangered Amazon Parrot	<i>Amazona autumnalis lilacina</i>	3	3	0				0	0	1	0	0	1							3	3	0	
Green-cheeked Amazon	<i>Amazona viridigenalis</i>	2	1	0													1	0	0	1	1	0	
Red-tailed Amazon	<i>Amazona brasiliensis</i>	3	4	0				0	0	3										3	4	3	
St Lucia Amazon	<i>Amazona versicolor</i>	1	1	0										0	1	0				1	0	0	
CUCULIFORMES																							
Red-crested Turaco	<i>Touraco erythrolophus</i>	2	1	0										0	1	0	1	0	0	1	0	0	
Fischer's Turaco	<i>Touraco fischeri</i>	2	4	0										0	1	0				2	3	0	
Scholar's Turaco	<i>Touraco schalowi</i>	2	3	0				0	0	4	0	0	2							2	3	2	
White-cheeked Turaco	<i>Touraco leucotis</i>	1	1	0																1	1	0	
Violet Plantain Eater	<i>Muscophaga violacea</i>	2	2	0				0	0	2				0	1	0	1	0	0	1	1	2	
STRIGIFORMES																							
Barn Owl	<i>Tyto alba</i>	1	1	0																1	1	0	
White-faced Scops Owl	<i>Otus leucotis</i>	1	1	0				2	1	0										3	2	0	
Milky Eagle Owl	<i>Bubo lacteus</i>	2	0	0																2	0	0	
Snowy Owl	<i>Nyctea scandiaca</i>	1	1	0																1	1	0	
Vermiculated Fishing Owl	<i>Scotopelia bouvieri</i>	0	1	0																0	1	0	
Ferruginous Pygmy Owl	<i>Glaucidium brasilianum</i>	0	1	0																0	1	0	
Great Grey Owl	<i>Strix nebulosa lapponica</i>	1	1	0				3	3	0							1	0	0	3	4	0	
Spectacled Owl	<i>Pulsatrix perspicillata</i>	3	2	0				0	2	0										3	4	0	
CAPRIMULGIFORMES																							
Tawny Frogmouth	<i>Podargus shirgoides</i>	2	2	0				0	0	2				0	1	0				2	1	2	
CORACIFORMES																							
Blue-winged Kookaburra	<i>Dacelo leachii</i>	2	1	0				0	0	3										2	1	3	
Kookaburra	<i>Dacelo novaeguineae</i>	1	1	0																1	1	0	
White-collared Kingfisher	<i>Halcyon chloris</i>	0	3	0	2	1	0										0	1	0	2	3	0	
Lilac-breasted Roller	<i>Coracias caudata</i>	1	1	0				0	0	3	0	0	3							1	1	0	
Great Hornbill	<i>Buceros bicornis</i>	2	3	0				0	0	2	0	0	1							2	3	1	
Rhinoceros Hornbill	<i>Buceros rhinoceros</i>	1	1	0																			

Livestock: General Holdings

Common Name & Scientific Name		STOCK			RECEIVED			BORN/H'CH			D.N.S.			DEATHS			DISPOSALS			STOCK			CITES	
		31/12/02									30 DAYS OTHERS									31/12/03				
		M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?		
Red-tailed Laughing Thrush	Gomulax milnei	2	1	0				0	0	6	0	0	5							2	1	1		
Red-winged Laughing Thrush	Gomulax formosus	1	1	0																0	1	0		
Orneli Shan Lioochla	Lioochla ornelis	3	1	0										1	0	0				0	1	0		
Red-bellied Lioochla	Lioochla lutea	3	2	15	1	1	0	0	0	11	0	0	5	1	1	0				2	0	0	II	
Hope Cardinal	Paroaria dominicana	2	1	3				0	0	3				0	0	1	0	0	4	4	3	16	II	
Red-legged Honeycreeper	Cyanerpes cyaneus	1	1	0										0	1	3				2	0	3		
Monterot Oriole	Icterus oberi	0	0	0	1	1	0							0	1	0				1	0	0		
Mexican House Finch	Carpodacus mexicanus	2	2	0										0	2	0				1	1	0		
Red-cheeked Cordonbleu	Uraeginthus bengalus	3	1	0										1	0	0				2	0	0		
Gouldian Finch	Chloebia gouldiae	1	0	0																2	1	0		
Blue-headed Parrot Finch	Erythrura trichroa	0	0	2																1	0	0		
Diamond Sparrow	Stagonopleura guttata	1	0	0																0	0	2		
Ivory Sparrow	Padda oryzivora	0	0	18				0	0	26				0	0	3		0	0	10	0	0	31	II
Red-bellied Buffalo Weaver	Bubalania niger	1	1	0										1	1	0		0	0	0	0	0	0	
White-headed Buffalo Weaver	Dinemella dinemelli	0	0	1																0	0	0		
Tovata Golden Weaver	Ploceus castaneiceps	2	0	0																0	0	1		
Fire-fronted Bishop	Euplectes diadematus	1	0	0										1	0	0				2	0	0		
Scar-billed Starling	Scissirostrum dubium	0	1	0																0	0	0		
Asian Glossy Starling	Aplonis panayensis	1	1	13				0	0	3										0	1	0		
Amethyst Starling	Cinnyricinclus leucogaster	4	3	0																1	1	16		
African Pied Starling	Spreo bicolor	1	4	1				0	0	8	0	0	6	0	0	2				4	3	0		
Emerald Starling	Lamprolaima iris	3	4	6				0	0	3				1	0	2				1	4	1		
Superb Starling	Lamprolaima superbus	0	1	0																2	4	7		
Royal Starling	Lamprolaima regius	1	2	0	2	0	0							1	0	0				0	1	0		
Ball Starling	Leucophaea rothschildi	5	2	0																2	2	0		
White-eared Catbird	Ailuroedus buccoides	0	2	0																5	2	0	I	
Red Bird of Paradise	Paradisaea rubra	1	1	0	1	0	0	0	0	3	0	0	1	0	0	1				0	2	0		
Red-bellied Blue Magpie	Urocissa erythrorhynchos	1	1	0										0	0	1				2	1	1	II	
Kareivirgated Magpie	Cyanopica cyana	6	3	0				0	0	10	0	0	10							1	1	0		
Red-bellied Chough	Pyrrhocorax pyrrhocorax	1	1	0													4	1	0	2	2	0		
Totals		384	344	264	15	23	0	15	16	287	0	0	122	31	35	50	40	41	79	343	307	300		
		992			38			318			122			116			160			950				

Number of specimens held at year end - 950 Number of species held at year end - 171 Number of species held during year - 181

EDUCATION/DOMESTIC

Not included in species/specimens totals

Domestic Duck	Gallus gallus	3	46	0									2	9	0	0	2	0	1	35	0	
Domestic Duck	Anas domestica	0	0	5									0	0	1				0	0	4	
Java Dove	Streptopelia risoria	5	5	6			0	0	4	0	0	1				0	0	4	5	5	5	
Bob White Quail	Colinus virginianus	0	1	0															0	1	0	
Totals		8	52	11	0	0	0	0	4	0	0	1	2	9	1	0	2	4	6	41	9	
		71			0				4			1	12			6			56			

REPTILE STOCKLIST AS AT 31 DECEMBER 2003

CHELONIA																						
Asian Box Turtle	Cuora amboinensis	2	3	10									0	1	10				2	2	0	
Spiny Turtle	Heosemys spinosa	2	4	0															2	4	0	
Black Marsh Turtle	Siebenrockiella crassicauda	1	3	0															1	3	0	
Hermann's Tortoise	Testudo hermanni	1	1	0									0	1	0				1	0	0	
Greek Tortoise	Testudo graeca	4	3	0															4	3	0	
Egyptian Tortoise	Testudo kleinmanni	0	0	7															0	0	7	
Horsfield's Tortoise	Testudo horsfieldi	0	1	0									0	1	0				0	1	0	
Red-legged Tortoise	Geochelone carbonaria	1	3	21			0	0	12				0	1	1	1	2	22	0	0	10	
Red-footed Tortoise	Geochelone radiata	0	0	0	2	0	0												2	0	0	
Yellow-footed Tortoise	Geochelone denticulata	1	1	0															1	1	0	
Parakee Tortoise	Malacochersus tornieri	0	0	0	1	1	0												1	1	0	
Matamoras Turtle	Chelus fimbriatus	1	1	0									1	0	0				0	1	0	
CROCODYLIA																						
Mississippi Alligator	Alligator mississippiensis	1	1	0									1	0	0	0	1	0	0	0	0	
West African Dwarf Crocodile	Osteolepis tetraspis	2	2	0															2	2	0	
RHYNCHOCEPHALIA																						
Tutara	Sphenodon punctatus	3	5	0															3	5	0	
SAURIA																						
Sand Lizard	Lacerta agilis	3	6	19			0	0	28										3	6	47	
Standing's Day Gecko	Phelsuma standingi	1	1	1									0	0	1				1	1	0	
Madagascar Giant Day Gecko	Phelsuma madagascariensis grandis	1	0	0									1	0	0				0	0	0	
Yellow-headed Day Gecko	Phelsuma klemmeri	0	0	0	1	1	0												1	1	0	
Tokay Gecko	Gekko gekko	0	0	10			0	0	1				0	0	1				0	0	10	
Common Iguana	Iguana iguana	2	1	0									0	1	0				2	0	0	
Rhinoceros Iguana	Cyclura cornuta	5	3	3			0	0	1	0	0	1	0	1	0				5	2	3	
Purple Basilisk	Basiliscus plumifrons	1	1	0									0	1	0				1	1	0	
Egyptian Spiny-tailed Lizard	Uromastyx aegyptius	1	3	0									0	1	0				1	2	0	
Eastern Water Dragon	Physignathus lesuerii	0	2	0									0	2	0				0	0	0	
Thailand Water Dragon	Physignathus cocincinus	1	0	0															1	0	0	
Philippine Sailfin Lizard	Hydrosaurus pustulatus	3	4	0									0	1	0				3	3	0	
Shingleback Skink	Tiliqua rugosa	1	1	0															1	1	0	
Prehensile-tailed Skink	Corucia zebrata	1	0	0	0	1	0												1	1	0	
Black and White Tegu	Tupia nimbis teguexin	1	2	0															1	2	0	
Mangrove Monitor	Varanus indicus	0	0	3															0	0	3	
Desert Monitor	Varanus griseus koniczny	1	0	0															1	0	0	
Spiny-tailed Monitor	Varanus acaudatus	3	5	19			0	0	2	0	0	1	0	0	1	1	0	0	0	0	0	
Lace Monitor	Varanus varius	1	1	0									0	0	1	0	0	12	3	5	7	
Timor Monitor	Varanus timorensis	1	1	0															1	1	0	
Salvador Monitor	Varanus salvator	1	1	0															1	1	0	
Komodo Dragon	Varanus komodoensis	1	2	0															0	0	0	
Red Chameleon	Chamaeleo calyptratus	1	2	0			5	2	17	0	0	9	1	2	3	0	0	5	5	2	0	
Beaded Lizard	Heloderma horridum	0	0	0	1	2	0									0	1	0	1	1	0	
Gila Monster	Heloderma suspectum	0	0	3	1	0	0												1	0	3	

Livestock: General Holdings

Common Name & Scientific Name	STOCK			RECEIVED			BORN/H'CH			D.N.S.			DEATHS			DISPOSALS			STOCK			CITES	
	31/12/02									30 DAYS OTHERS									31/12/03				
	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?		
SERPENTES																							
Sunbeam Snake	Xenopeltis unicolor	1	1	16															1	1	16		
Green Tree Python	Morelia viridis	3	1	1															3	1	1	II	
Cuban Boa	Epicrates angulifer	0	2	0															0	2	0	II	
Brazilian Rainbow Boa	Epicrates cenchria cenchria	0	2	8													0	0	6	0	2	2	II
Jamaican Boa	Epicrates subflavus	1	8	0									0	1	0		0	3	0	1	4	0	II
Haitian Boa	Epicrates striatus striatus	1	0	0															1	0	0	II	
Rubber Boa	Charina bottae	1	0	0													1	0	0	0	0	0	II
Madagascan Tree Boa	Sanzinia madagascariensis	2	1	0	3	1	0												5	2	0	I	
Boa Constrictor	Constrictor constrictor	3	1	0															3	1	0	II	
Green Anaconda	Eunectes murinus	1	1	0															1	1	0		
California Kingsnake	Lampropeltis getulus californiae	0	1	0													0	1	0	0	0	0	
Red-tailed Racer	Gonyosoma oxycephala	1	4	3			0	1	9	0	0	2	0	0	1		0	2	2	1	3	7	
Indian Cobra	Naja naja	1	0	0															1	0	0	II	
East African Green Mamba	Dendroaspis angusticeps	1	1	0															1	1	0		
Gaboon Viper	Bitis gabonica rhinoceros	2	2	0															2	2	0		
Aruba Island Rattlesnake	Crotalus unicolor		0	2	0								0	1	0				0	1	0		
Totals		66	90	124	10	7	0	5	3	70	0	0	13	4	14	18	4	11	47	73	75	116	
		280			17			78			13			36			62			264			

Number of specimens at year end - 264 Number of species at year end - 48 Number of species held during year - 56

EDUCATION

Not included in species/specimen totals

Common Name	Scientific Name	31/12/02	31/12/03	CITES
Cornsnake	<i>Elaphe guttata</i>	1	1	1
Greek Tortoise	<i>Testudo graeca graeca</i>	1	0	0
Totals		2	1	1

AMPHIBIAN STOCKLIST AS AT 31 DECEMBER 2003

Smoky Jungle Frog	<i>Leptodactylus pentadactylus</i>	0	0	14									0	0	2				0	0	12	
Axolotl (Black Form)	<i>Ambystoma mexicanum</i> AQ	0	0	6				0	0	14						0	0	14	0	0	6	
Axolotl (White Form) AQ		0	0	6															0	0	6	
Japanese Fire-bellied Newt	<i>Cynops pyrrhogaster</i> AQ	0	0	6									0	0	2				0	0	4	
Red Eyed Tree Frog	<i>Agalychnis callidryas</i>	0	0	15				0	0	20			0	0	4			0	20	0	0	11
White's Tree Frog	<i>Pelodytes coerulea</i>	0	0	12									0	0	2					0	0	10
Blue Poison Arrow Frog	<i>Dendrobates azureus</i>	0	0	4									0	0	1					0	0	3
Black and Green Poison Arrow Frog	<i>Dendrobates auratus</i>	0	0	7												0	0	1	0	0	6	
Yellow Striped Poison Arrow Frog	<i>Dendrobates leucomelas</i>	0	0	22									0	0	6					0	0	16
Golden Poison Dart Frog	<i>Phylllobates terribilis</i>							0	0	11										0	0	11
South African Clawed Frog (Albino)	<i>Xenopus laevis</i> AQ	0	0	4																0	0	2
Nigerian Clawed Frog	<i>Silurana tropicalis</i> AQ	0	0	2																0	0	2
Puerto Rican Crested Toad	<i>Pelophryne lemur</i>	11	16	1									1	1	0					10	15	1
Mallorcan Midwife Toad	<i>Alytes muletensis</i>	0	0	56									0	0	1					0	0	55
Smooth Sided Toad	<i>Bufo guttatus</i>	0	0	3																0	0	3
Surinam Toad	<i>Pipa pipa</i> AQ	1	2	0									1	0	0					0	2	0
Totals		12	18	158	0	0	11	0	0	34	0	0	2	1	18	0	0	35	10	17	150	
		188			11			34			0		21			35			177			

Number of specimens at year end - 177 Number of species at year end - 16 Number of species held during the year - 16

AQ indicates species kept by the Aquarium

EDUCATION

Not included in species/specimen totals

Chacoan Horned Frog	<i>Ceratophrys cranwelli</i>	0	0	1																0	0	1
Totals		1			0			0			0		0			0			1			

FISH STOCKLIST AS AT 31 DECEMBER 2003

COMMON NAME	SCIENTIFIC NAME	31/12/03	CITES
POTAMOTRYGONIDAE			
Fresh-water Stingray	<i>Potamotrygon motoro</i>	16	
OSTEOGLOSSIDAE			
South American Arowana	<i>Osteoglossum bicirrhosum</i>	2	
Black Arowana	<i>Osteoglossum ferreirai</i>	1	
Asiatic Arowana	<i>Scleropages formosus</i>	4	1
MORMYRIDAE			
Blunt Jaw Elephant Trunkfish	<i>Gnathomus elephas</i>	3	
Long-nosed Elephant Trunkfish	<i>Gnathomus petersi</i>	10	
Down Poker	<i>Campylomormyrus rynchophorus</i>	2	
Short-nosed Elephant Trunkfish	<i>Mormyrus angoleis</i>	4	
CHARACIDAE			
Mexican Blind Cave Fish	<i>Asynx mexicanus jordanii</i>	40	
Red-eyed Characin	<i>Arnoldichthys spilopterus</i>	1	
Long-finned Characin	<i>Brycinus longipinnis</i>	80	
Cardinal Tetra	<i>Paracheirodon axelrodi</i>	16	
Congo Tetra	<i>Phenacogrammus interruptus</i>	8	
Rummy-nosed Tetra	<i>Hyminogrammus bleheri</i>	2	

COMMON NAME	SCIENTIFIC NAME	31/12/03	CITES
CYPRINIDAE			
Goldfish	<i>Carassius auratus</i>	100	
Koi Carp	<i>Cyprinus carpio</i>	50	
Omani Blind Cave Fish	<i>Garra barreimiae</i>	72	
Seven-striped Barb	<i>Probarbus jullieni</i>	6	1
Black Ruby Barb	<i>Puntius nigrofasciatus</i>	29	
Golden Rudd	<i>Scardinus erythrophthalmus</i>	15	
CYPRINODONTIDAE			
Noisy Be Killie Fish	<i>Pachypanchax homalonotus</i>	10	
Killifish	<i>Pachypanchax</i>	14	
Butterfly Goodeid	<i>Ameca splendens</i>	500	
Bold Characodon	<i>Characodon audax</i>	80	
Characodon	<i>Characodon sp. 'Abraham Gonzales'</i>	17	
Golden Saw-finned Goodeid	<i>Skiffia francesae</i>	150	
Crescent Zee	<i>Zoogoneticus tequila</i>	60	
ADRIANICHTHYIDAE			
Duck-billed Fish	<i>Xenopoeilus sarasinorum</i>	45	
HEMIRAMPHIDAE			
Halfbeak	<i>Nemirampus ebrardii</i>	30	

Livestock: General Holdings

COMMON NAME	SCIENTIFIC NAME	31/12/03	CITES
CITRUS			
Green Loach	<i>Botia macracantha</i>	8	
Dwarf Loach	<i>Botia sidhimunki</i>	9	
CICHLIDAE			
Dwarf	<i>Symphysodon aequifasciata</i>	14	
Lake Victoria Cichlid	<i>Yssichromis argens</i>	50	
Lake Victoria Cichlid	<i>Yssichromis pyrrhocapulus</i>	24	
Lake Victoria Cichlid	<i>Haplochromis riponensis</i>	28	
Lake Malawi Cichlid	<i>Melanochromis auratus</i>	30	
Lake Malawi Cichlid	<i>Pseudotropheus socotri</i>	50	
Lake Malawi Cichlid	<i>Pseudotropheus lombardoi</i>	10	
Lake Malawi Cichlid	<i>Labiadromis caeruleus</i>	20	
Lake Malawi Cichlid	<i>Labeotropheus fuelleborni</i>	30	
Lake Malawi Cichlid	<i>Nimbochromis livingstonii</i>	3	
Lake Malawi Cichlid	<i>Nimbochromis polystigma</i>	4	
Spotted Dumbo	<i>Paretroplus maculatus</i>	12	
Pink Striped Dumbo	<i>Paretroplus menarambo</i>	11	
Pungu Barambi Mbo Cichlid	<i>Pungu maculatus</i>	51	
Konyi Barambi Mbo Cichlid	<i>Konia eisentrauti</i>	23	
Unga Barambi Mbo Cichlid	<i>Sarotherodon linnelli</i>	30	
Lake Kappa Barambi Mbo Cichlid	<i>Sarotherodon labbergi</i>	50	
Wass Barambi Mbo Cichlid	<i>Stomatopoma mariae</i>	72	
Pinda Barambi Mbo Cichlid	<i>Stomatopoma pinda</i>	50	
ANABANTIDAE			
Pearl Gourami	<i>Trichogaster leeri</i>	2	
ATHERINIDAE			
Madagascan Rainbow Fish	<i>Bedotia madagascariensis</i>	8	
Red Rainbow Fish	<i>Glossogobius aureus</i>	15	
Boesemani's Rainbow Fish	<i>Melanotaenia boesemani</i>	10	
Lake Kutubu Rainbow Fish	<i>Melanotaenia lacustris</i>	45	
Dwarf Rainbow Fish	<i>Melanotaenia praecox</i>	12	
BAGRIDAE			
Graffiti Catfish	<i>Auchenoglanis occidentalis</i>	1	
IMBECILLIDAE			
Red-tailed Catfish	<i>Phractocephalus hemiopterus</i>	4	
Catfish	<i>Leiorus marmoratus</i>	1	
ICTALURIDAE			
Channel Catfish	<i>Ictalurus punctatus</i>	2	
MOCHOKIDAE			
Polka-dot Upside-down Catfish	<i>Synodontis angelicus</i>	3	
Upside-down Catfish	<i>Synodontis nigriventris</i>	1	
Lake Malawi Upside-down Catfish	<i>Synodontis nigriventris</i>	4	
CALICHTHYIDAE			
Burgess's Catfish	<i>Corydoras burgessi</i>	6	
Panda Catfish	<i>Corydoras panda</i>	30	
Peppered Catfish	<i>Corydoras paleatus</i>	20	
LEICACIDAE			
Bristlenose Plecostomus	<i>Ancistrus dolichopterus</i>	100	
Twig Catfish	<i>Fantawella acus</i>	1	
Plecostomus Catfish	<i>Hypostomus plecostomus</i>	3	
Emperor Plecostomus	<i>Hypostomus zebra</i>	2	
TOSTIDAE			
Archer Fish	<i>Toxotes jaculator</i>	4	
PROTOPTERIDAE			
African Lung Fish	<i>Protopterus annectens</i>	1	
CERATOPOGONIDAE			
Australian Lungfish	<i>Neoceratodus forsteri</i>	6	II
CENTRISCIDAE			
Shrimphish	<i>Aeoliscus strigatus</i>	7	
SPINGATHIDAE			
Seahorse	<i>Hippocampus kuda</i> sp.	60	
Keyhole Seahorse	<i>Hippocampus capensis</i>	14	
Sea Pony	<i>Hippocampus fuscus</i>	70	
Native Seahorse	<i>Hippocampus guttulatus</i>	4	
MONODACTYLIDAE			
Finger fish	<i>Monodactylus sebae</i>	4	
SCORPAENIDAE			
White Fin Lionfish	<i>Pterois radiata</i>	2	
SCATOPHAGIDAE			
Red Tiger Scat	<i>Scatophagus argus</i>	3	
POMACENTRIDAE			
Skunk Clown Fish	<i>Amphiprion sandaracinos</i>	3	
Pink Clown Fish	<i>Amphiprion ephippium</i>	12	

Tomato Clown Fish	<i>Amphiprion frenatus</i>	1	
Common Clownfish	<i>Amphiprion ocellaris</i>	3	
Blue Damselfish	<i>Pomacentrus alleni</i>	3	
Yellow-tailed Blue Damselfish	<i>Chrysiptera hemicyanea</i>	5	
CHAETODONTIDAE			
Yellow Long-nosed Butterflyfish	<i>Forcipiger flavissimus</i>	1	
Copperband Butterflyfish	<i>Chelmon rostratus</i>	1	
POMACANTHIDAE			
Bicolor Angelfish	<i>Centropyge bicolor</i>	1	
Koran Angelfish	<i>Pomacanthus semicirculatus</i>	1	
ACANTHURIDAE			
Regal Tang	<i>Paracanthurus hepatus</i>	4	
Yellow Tang	<i>Zebrafish flavescens</i>	1	
APOGONIDAE			
Emperor/Banggai Cardinal Fish	<i>Pterapogon kauderni</i>	65	
LABRIDAE			
Cleaner Wrasse	<i>Labroides dimidiatus</i>	1	
PSEUDOCHEILIDAE			
Orchid Dottyback	<i>Pseudochromis fridmani</i>	1	

Number of specimens 2494, Number of species 96, * denotes species bred in 2003

INVERTEBRATE STOCKLIST AS AT 31 DECEMBER 2003

COMMON NAME	SCIENTIFIC NAME	31/12/03	CITES
ARACHNIDS			
Chilean Rose Tarantula	<i>Phrixotrichus cola</i>	1	
Mexican Red-knee Tarantula	<i>Euratosia smithi</i>	4	II
Goliath Bird-eating Spider	<i>Theraphosa blondi</i>	1	
INSECTS			
Macleay's Spectre	<i>Extatosoma tiaratum</i>	7	
Spiny Stick Insect	<i>Eurycantha calcarata</i>	4	
Fruit Beetle	<i>Pachnoda</i> sp.	20	
Assassin Bug	<i>Platymeris biguttata</i>	20	
Madagascan Hissing Cockroach	<i>Gromphadorhina portentosa</i>	200	
Leaf Cutter Ants	<i>Acromyrmex octospinosus</i>	2 colonies	
Giant Indian Praying Mantis	<i>Hierodula membranacea</i>	4	
MOLLUSCS			
African Land Snail	<i>Achatina fulica</i>	20	
Portula Snail	<i>Portula varia</i>	151	
Portula Snail	<i>Portula mirabilis</i>	132	
Conch	<i>Fusinus polygonoides</i>	1	
COELENTERATES			
Becker Coral	<i>Acanthophyllia deshayesiensis</i>	4	II
Star Coral	<i>Favia</i> sp.	1	II
Bubble Coral	<i>Plerogyra sinuosa</i>	3	II
Brain Coral	<i>Trachyphyllia geoffroyi</i>	1	II
Bouquet Coral	<i>Euphyllia glabrescens</i>	1	II
Sea Anemone	<i>Heteractis</i> sp.	12	
Leather Coral	<i>Sarcophyton trachelophorum</i>	4	
Zoanthid Colony	<i>Zoanthid</i> sp.	4	
Soft Coral	<i>Sinularia</i> sp.	90	
Mushroom Polyps	<i>Actinodiscus</i> sp.	100	II
Mouse Ear Coral	<i>Labophytum crassum</i>	1	II
Encrusting Anemone	<i>Polythoa</i> sp.	3	
Yellow Encrusting Anemone	<i>Parazoanthus</i> sp.	4	
Bowl Coral	<i>Turbinaria pelata</i>	1	II
Bowl Coral	<i>Turbinaria mesenterina</i>	1	II
Purple Gorgonian	<i>Euplexaura</i> sp.	1	
CRUSTACEANS			
White-clawed Crayfish	<i>Austropotamobius pallipes</i>	100	
Tadpole Shrimp	<i>Triops cancriformis</i>	REO	
Peppermint Shrimp	<i>Lysmata wurdemanni</i>	30	
ECHINODERMS			
Long Spined Urchin	<i>Diadema antillarum</i>	9	
Red Pencil Urchin	<i>Heterocentrotus mammillatus</i>	1	
Slate Pencil Urchin	<i>Eucidaris tribuloides</i>	1	
Green Brittle Starfish	<i>Ophiarachne inornata</i>	20	

TOTAL 957

Number of specimens at year end - 957+

Number of species at year end - 37

* indicates species bred in the Society's collection in 2003

AQ indicates species kept by the Aquarium

REO indicates resting eggs only

Zoo Review 2003

Education



Stephen McKeown
Head of Education

2003 was characterised by expansion and innovation in many areas of Education activity. We decided to make the visitor trails piloted in 2002 even more interactive by building one around smells, (similar to those in the *Spirit of the Jaguar* exhibit), including 'sweaty feet', 'honeysuckle' and 'skunk' (all with educational messages!). The Presenters continued to enjoy big audiences at their revamped talks; with smaller, though very appreciative, crowds coming along to the new *Talking Plants* presentations (pictured right). These performances highlighted the important role of plants in a variety of niches in an entertaining, informative way. They are set to continue in 2004 in an even more exciting format.

An important part of our education policy is to get the conservation message over to as big and diverse an audience as possible, yet we were aware that many schools were genuinely unable to come to the Zoo on educational visits owing to lack of funds. This led to discussions with the Ellesmere Port Education Action Zone and the launch of a new initiative called *Quantum Leap*. This enabled children from 16 primary and three secondary schools to visit the Zoo free of charge during 2003 to take part in a wide variety of projects such as the production of 'Big Books' (pictured below) as literacy aids. The government also provided match funding to the value of each child admission - so *Quantum Leap* has been a real success.

Marine Conservation was a big theme for us during the year, largely due to our involvement in a European consortium of aquariums, science centres and natural history museums working on a project called OCEANICS. Intended to raise public awareness of the state of the oceans and promote positive actions, OCEANICS has attracted European Union funding and proved to be an excellent means of spreading messages about marine conservation. Our activities included organising a beach clean-up on the Wirral for members and staff and hosting an exhibition of life-size marine creatures at the *Wildlife Discovery Centre*. This latter display included opportunities for children to take part in 'dolphin rescues'



The launch of the Big Book



The Plant Talks in the Roman Garden

and learn more about the threats facing a variety of marine life in our oceans. Education staff gave presentations on OCEANICS at zoo education conferences in Edinburgh and Leipzig.

2003 saw our education outreach work diversify more, with Chester Zoo being the main sponsor for the *3rd International African Zoo and Reserve Educators' Network Conference* in Lusaka, Zambia. Opened by the Deputy Minister for the Environment, the conference attracted 40 delegates from eight African countries and educators from the USA and UK. Myself and Gill Wells were active in the organisation of the conference and led a workshop on fundraising for educators which was well-received.

Our support for conservation education in the Philippines continued with our funding of the publication of a range of educational literature promoting Philippines biodiversity. This was aimed at alerting local people to the unique importance of their fauna and flora. We were active in India too, where we helped the *Zoo Outreach Organisation* produce education starter packs for Bat Clubs across the country.

Our interpretation signage came under scrutiny as we started to formulate an evaluation process. One of the first revelations was that people were keen to find out more about conservation so we increased the conservation content of all new interpretation and were delighted to see an increase in the public's awareness of our conservation role via separate research conducted by the Marketing Division. We also organised and hosted the UK's first *Zoo Interpretation Workshop* with American interpretation writer, John Veverka. Representatives from 17 collections attended and the feedback proved it to be a long overdue and extremely successful initiative.

The Library, due to be re-housed in phase two of Cedar House during 2004, had a productive year digitising more archive materials for posterity. Following an article by Librarian Jane Woodward in *Zoo Life*, a former employee of the Zoo came forward with some 78rpm recordings of George Mottershead talking on BBC Radio. These have been transferred to a more modern medium and housed in the Library where, in time, they will become accessible to visitors, along with a range of other interesting material. We also acquired a cutting-edge software package which will enable us to more efficiently catalogue and manage our ever-growing collections.

Junior Members



Penny Rudd
Junior Members Coordinator

Junior Members enjoyed a fulfilling year with well-supported activities. The *Discovery Session* in January enabled youngsters to have close contact with some of the friendlier zoo residents, but also tested artistic skills with fantastic entries to the Zoo enclosure design competition. Our visit to *Farm World*, Wrexham, in February involved unexpected animal handling – re-capturing some escaped lambs. Great fun! Once again the *Tracks and Signs* in March was muddy and popular, with everyone going home clasping a plaster cast footprint of a lion, tiger or antelope. We were lucky with both the weather and the ‘finds’ when *Fossil Hunting* on the Long Mynd in Shropshire during April, and had to literally drag the Juniors out of the quarry when it came to going-home time!

Our visit to the *Greenwood Centre* in Snowdonia during May had an amazing turn-out, all enjoying the den-building, archery, tow-boats and grass water-slide.

Perhaps it was June though that was the highlight of the Junior’s year, with our visit from Dame Jane Goodall. She spent a lovely day with the Juniors, explaining identification and recognition methods for individuals on our *Chimp Island* and also discussing animal behaviour, as well as making enrichment parcels for the Chimps.

July saw the ‘*Day with a Keeper*’ – the most competitive event in the year and always treasured. *The Summer Barbeque* was great fun, with night-time tours around the zoo and animal model making. Our *Cholmondeley Castle* visit in September proved a real treat, with an extraordinary ‘environmental walk’ around the lake arranged specially for us.

Juniors visited *Colwyn Bay Zoo* in October, with a fun part of the day involving having to abandon the double-decker for the last part of the hill.

We spent a fantastic day at the *Wildfowl and Wetland Trust* at *Martin Mere* in November, watching thousands of migrating birds. A fun end to the year saw us partying, when *Arara Lodge* hosted the disco.

A very committed group of youngsters ensures that the Junior Club goes from strength to strength!

Visitor Services



Liz Child
Head of Visitor Services

2003 has been a year of continuing success and change for the Visitor Services division. Sales across all trading areas have increased, staff have further developed their customer care skills and standards across the Zoo have continued to improve. These achievements have been recognised through a wide range of positive customer feedback and a continued steady growth in visitor numbers.

The opening of the new children’s play area, the *Fun Ark*, was timed nicely with the commencement of the Easter holiday period, and proved an instant hit with children and parents alike.

Retail Shops

Yet again this has been a record year for Retail Sales. Led by Alan Jones, the Retail Department team has performed superbly. In particular the *Fountain Shop* has done exceptionally well, proving the later opening hours and winter weekend opening very worthwhile indeed. Profit margins for Retail have risen by over 8% year-on-year, and spend-per-visitor has increased by 14p. This is a strong performance that we can only strive to beat in 2004.

Catering

This has been another highly successful year for the Catering Department team, led by Sue Clews. Final year sales were comfortably over £3 million and, therefore, another record for the Zoo.

The introduction of *Fair Trade* tea, coffee and chocolate in all the cafes has been extremely well received by our visitors. This is now something we hope to do more of in the future. Plans to replace the *Oasis* with a new, themed *Tsavo Café*, have been ongoing throughout the year. We aim to finalise these in early 2004, and to commence building works towards the end of the year.

Events

Led by Jane Lawson, the Events Team has been working extremely hard this year to keep on top of the ever-increasing wedding bookings. With almost one wedding a week, and with bookings for as far ahead as 2006, the interest in the Zoo as a wedding venue is certainly very real!

Other special event bookings have also reached record levels. Naming ceremonies, Barmitzvah, and the Summer Safari barbecues, have been more popular than ever.

The *Magical Santa Trail* was yet again a sell out. Over half the available tickets were sold by the end of September, and well over 10,000 guests enjoyed these special evening events.

Amenities and Gardens

This year we received many letters of praise about the high standards of our visitor facilities, and the presentation of our grounds and gardens. The Amenities and Gardens (A&G) team, led by Chris Williams, worked hard once again to ensure that standards are maintained and exceeded.

Moving forward, in 2004 all Visitor Services Staff will have to work extremely hard to reach the same high standards they have achieved already. However, I am confident that the individual strengths and excellent working practices within the Visitor Services team will enable us to build upon our already impressive results.

Thank you to everyone who has helped make 2003 such a success!

Zoo Review 2003

Estates



Steve O'Brien
Head of Estates

The improvement and redevelopment programme of capital projects within the Zoo has continued with vigour in 2003, with successful completion of over 20 projects. A balanced programme of works ensured that the investment in the animals, visitors and staff welfare needs were identified and addressed within the growing capital budget.

The major animal development was the *Dragons in Danger* exhibit for the two young Komodo Dragons. The scheme involved a 243 square metres extension to the existing *Islands in Danger*. This allowed integration and full access into both internal enclosures. The roof was constructed using self-supporting curved translucent interlocking panels that allow maximum natural light together with excellent insulation qualities. The exhibit includes an external enclosure with tunnel access to both internal yards. The estates and botanical departments undertook all the hard and soft landscaping and, combined with the educational interpretation, meets all the expectations of a world-class exhibit.

Other notable animal developments included replacing the worn out lemur facilities on *Lemur Island* with new heated indoor housing and extensive external quarters.

Following the transfer of the Capuchins to the opposite end of the *Tropical House*, the vacated area is being transformed into a new landscaped *Red River Hog* exhibit ready to receive our new baby hogs. As part of the decanting of the existing parrot house a new, extensive double *Macaw Aviary* has been built as part of our emerging 'forest zone'. This gives excellent undercover viewing for our visitors.

The *Tropical Realm* had to be closed for a much-needed refurbishment of the roof. Works included replacement of the Georgian wired apex glazing with polycarbonate insulated translucent panels; and replacement of the gable end and north elevation cladding with a similar material. This change will allow a lot more light into the building and also improve the thermal insulation. While the works were going on, a new climate-control system was implemented to overcome the heating problems in summer. We also took the opportunity to carry out some essential maintenance, in which all gutters were relined and the chronic problem with leaking roofs addressed.

Other projects related to the visitor included a large, new *Fun Ark* (located by the *Ark Restaurant*) - which has proved a huge success with both kids and adults alike. As part of our programme to improve visitor car parking, extensive drainage and surfacing works have been undertaken.

The problematic old system-built toilets by the canal have been replaced with a new, themed facility, which is now in keeping with the surrounding area.

Behind-the-scenes, a new computerised glasshouse facility and



The Oakfield

heating system has been constructed, replacing the tired and worn-out wooden greenhouses. This will allow the Botany and Horticulture department the necessary facilities to continue with their exceptional horticultural and botanical displays.

Projects that are underway and opening in 2004 include Phase II of the *Cedar House* administration block. This will centralise all administration staff and functions and will greatly improve the efficiency and communications across all divisions.

An exciting new *Spectacled Bear* exhibit and *Miniature Monkey* enclosure for Tamarins, (located by the *Twilight Zone* and *Monkey Islands*) are ready to start, and will be open early 2004.

We would like to welcome Lorna Thornton and Alex Robertson to the Zoo Estates' Project Office. They have already provided valuable contributions to our redevelopment programme.

Facilities and Security

Improvements made to our alarm systems in 2002 to reduce the number of false activations have proved successful. Hitherto, the Police would attend such incidents 30-40 times per year, due to the large number of complex alarms we have installed. In the last 12 months this has been cut down to only two visits!

The five-year project to suite all our locking systems has finally been completed. This has involved over 900 locks, doors and associated furniture. Although problems are bound to occur with so many locks to oversee, the main target of improving access without compromising security has been achieved.

The CCTV system installed on the public car park at the start of the year has proved a viable deterrent, with only four incidents being reported. This is a 75% decrease on the previous 12 months!

Completed projects include a new fence around the recently purchased Judges' field, a new coach party entrance and levelling the Birds of Prey field for future overflow car parking.

We are committed to maintaining zoo properties to the highest standard possible and 2003 has seen a large investment in our holdings. With the continual change in tenants and short-term leasers, there have been over 20 separate leases within our properties. As part of our strategy to purchase zoo boundary residential properties, the Zoo has acquired another bungalow.

Estates continued

The telephony infrastructure continues to show its age with numerous internal extensions requiring attention. We will continue in 2004 with a programme of improvement and replacement. The existing radio network has continued to grow. There are now 120 units in operation around the Zoo, enabling us to maintain excellent communications.

Maintenance

Statutory inspections, servicing and responsive works have taken a significant proportion of departmental resources this year. A contribution is also afforded to the capital project team. Close liaison is essential to ensure future planned maintenance is accounted for.

A number of substantial refurbishment and improvement projects have been completed.

- The canal bridge has undergone a comprehensive structural upgrade. While this element is unseen below, topside, the replacement of steel barriers with bamboo poles has had a positive visual impact. As the barrier is an essential health and safety feature the bamboo is actually fabricated over a steel sub-frame.
- Oakfield House – a complete replacement of the rainwater goods has been completed using 'period' materials. An external redecoration project has also been completed.
- Lecture Theatre – refurbishment of the external joinery and external redecoration has been completed. Internally, the hospitality area has had a new floor and has been refitted.
- Elephant exhibit – a packaged effluent treatment plant has been integrated into the site drainage scheme to assist us in meeting our discharge consent requirements from the Environment Agency.
- A 500kVa diesel electric generator for stand-by emergency power has been installed and is now fully integrated into our mains supply.
- Numerous minor enhancement projects have been delivered for our Animal Division colleagues. One such, was a rapidly fitted out quarantine area within the *Monkey Islands* exhibit to accommodate imminent arrivals.

To further develop our planned maintenance programme an additional painter, Neville Lowndes, has joined the team.

Various construction safety training exercises have been delivered. These include on-site training and staff attendance at a C.I.T.B. training centre. The *C.I.T.B. Site Supervisors Certificate* and *Site Management Certificate* are being studied for by particular staff.

Health and Safety



John Winward
Safety and Environment Manager

Work has continued throughout the year to consolidate the foundation we laid down last year. Staff are now much more aware of issues and Health & Safety has become part of the everyday life of the Zoo.

The Risk and COSHH Assessment processes are ongoing as the Zoo is always evolving. In line with our five year action plan, (drawn up last year, for full Health and Safety compliance), we have held Manual Handling courses for all permanent staff and addressed Disability Discrimination issues and the Young Persons at Work Regulations.

Although we have enjoyed larger visitor numbers this year it is pleasing that last year's lower level of Accident and First Aid incidents has been maintained. Our thanks go once again, to St John Ambulance for their assistance at busy periods.

Year	Total First Aid Requests	From Visitors	From Staff	Referred to Hospital	RIDDOR* Reports
2003	860	739	121	31	9
2002	806	699	107	26	11

*Reports to Health & Safety Executive under the Reports of Injuries, Disease and Dangerous Occurrences Regulations

Environmental Management

We joined the Acorn Project early in the year in order to facilitate our efforts to achieve the ISO14001 Standard for Environmental Management. This project was run by the Acorn Trust who structured the whole process by breaking down the components into five levels or phases, with Certification at the completion of each phase. In April the *Acorn Project* was superseded by a new British Standard (BS8555) and we were invited to attend the launch ceremony of the new standard in London where we were presented with our certificate for the completion of Phase One.

We are now working to complete the next phases – and to this end we have been fortunate in acquiring the help of an Environmental Specialist from Groundwork Environmental Services. This should enable us to gain ISO14001 status in the shortest possible timescale. The attainment of ISO14001 will be a mark of Chester Zoo's ongoing commitment to conservation, public education and the environment.

Marketing & Development



Amanda Wright
Head of Marketing & Development

This has been an exciting year with yet more innovation and change to build on that which started during 2002. The marketing team has continued to establish and prove itself as an internal service provider, while at the same time ensuring that key messages are consistently promoted to the public.

Research

The research projects initiated in 2002 have continued throughout 2003 with some excellent results. The *Quaestor* research team completed on-site surveys, combined with telephone interviews of non-zoo visitors. These gave us a sample of the views of the general public. This was run alongside in-depth focus group work to give us a more accurate insight into how the Zoo is performing in customer terms and how we should continue to improve for the future. Some of the findings are presented below:

- On average 83% of customers interviewed on site are aged between 25 and 54 years old with an average of 71% having children under 18 at home.
- 'Seeing the animals' (82%) and a 'fun day out' (80%) remain the most popular reasons for visiting the zoo.
- Customer satisfaction with services across the zoo has remained consistently between 8.8 and 9.1 out of 10 across the year!
- Finally, and very rewardingly, the research has shown that the customers' perceptions of Chester Zoo as an animal welfare and conservation charity have increased over 10% during the year!

Web site

2003 saw the launch of our exciting new web site, following huge demand from both internal and external customers. Kristine Beaumont and the team worked closely to a brief outlined by all departments across the zoo. The site being developed is clear, simple, less cluttered and easy to navigate, with the facility to take on-line payments and ticketing in the future.

Our key messages on charitable status, conservation, animal welfare, high standards of customer service and the fact that the Zoo is a 'great day out' are all re-inforced on the site.

The new site went live in April to coincide with the launch of the *Asian Elephant Appeal* (we offered an on-line donation facility). Since then the population of the site has continued and the whole site is now nearing completion. The new site has attracted many visitors and up until the end of December 2003 we had 314,688 visits.

In the future we plan to continue adding new services and information to the site including on-line payments for membership



New web site

and adoptions, on-line group and educational bookings and, eventually, on-line ticketing, new games for the Kid's page – the list is endless! Research shows the proportion of people with internet access at home has increased significantly from 9% to 38% across the year. 84% of people interviewed on-site during the recent research were very positive about the new site and the information it offers.

Media

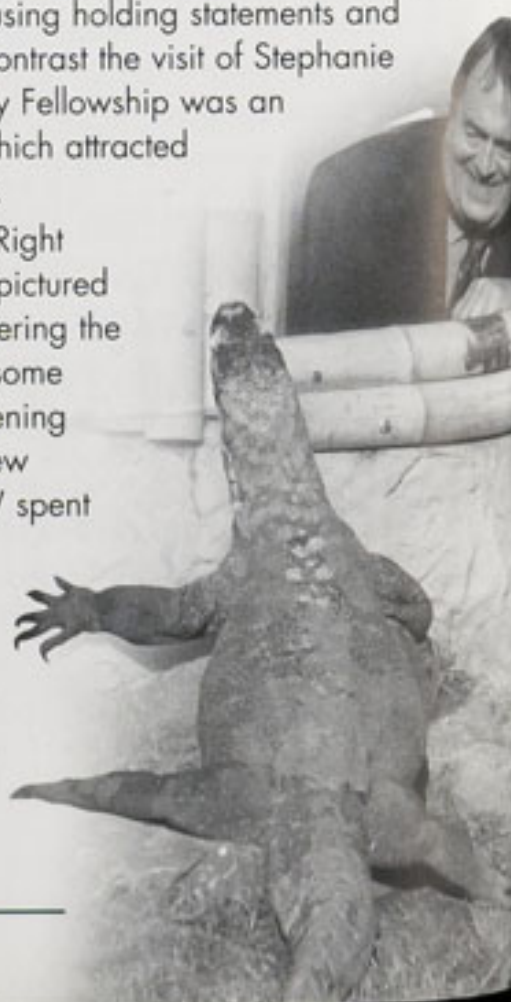
We continued to use a mixture of local and regional press and TV coverage on Granada and HTV Wales to drive interest in the Zoo throughout the peak holiday periods. Radio was tested in Liverpool during the February half term with great success and this will be used again during 2004. Our new TV advertisement received a very favourable response with its lively format and new messages. Research was also used to test our advertising this year with excellent results. Advertising recall increased over the year from 38% to 46% in the primary catchment area, with 41% recalling the TV advertisement and 44% recalling newspaper advertising.

Public Relations

2003 has been an extremely busy one for our PR Officer, Rachael Ashton. The Zoo has had its fair share of ups, as well as a few 'downs' along the way. Early on in the year highlights included the media coverage on the opening of the new *Fun Ark*. April saw the launch of our *Asian Elephant Appeal* and a half hour Granada TV programme hosted by Chris Bisson of *Coronation Street*. May and June were extremely busy months with filming on site for the BBC *Barnaby Bear* TV programme and with John Craven for *Countryfile*. The escape of our Orang-utan *Puluh* generated much press coverage. Using holding statements and key messages we warded off any negative publicity, with journalists seeing the incident as a 'gentle' summer story.

July and August saw the team tested to the full with the news of Chester Council's intention to prosecute the Zoo on health and safety grounds, following the sad death of Richard Hughes two years previously. There was a deluge of media enquiries initially which were dampened down using holding statements and FAQs to minimise impact. By contrast the visit of Stephanie Powers to receive her Honorary Fellowship was an enjoyable and happy event, which attracted good positive media coverage.

The Deputy Prime Minister the Right Honourable John Prescott MP (pictured right) visited in September - offering the media the opportunity to take some rather unusual shots of him opening *Dragons in Danger* with our new Komodo dragons. Granada TV spent the day filming for *Granada Reports*, looking at how the Zoo has changed over the years. Heads of Division Liz Child and Amanda Wright generated excellent press and



Marketing & Development continued

radio coverage following their fundraising shark dive at Blue Planet for the *Elephant Appeal*.

We also had good media interest in the new babies we had this year-including our baby giraffe, *Sebastian* in April, great coverage of the new Red River Hogs, *Barbirusa*, Baby Penguins and *Becky*, the new camel.

Tourism

Over the past year, Tourism Coordinator Ruth O'Hare has worked hard on the successful development of the tourist market for the Zoo. We have cultivated strong links with Chester City Council and have partnered with them in attendance at several Travel Trade Shows including British Travel Trade Fair, Group Travel & Leisure Show and World Travel Market in London. We have also been part of the familiarisation trips organised by the City, aimed at specific readers of the travel trade publications, coach companies and group travel organisers. With the introduction of pre-booking in May, we started building a database and tracking the numbers of various groups that come into the Zoo each year.

A new group entrance was introduced this summer to allow groups to have their own personal pay booth and entrance. The concept was introduced for the busy months of the season and will be put in place for school and bank holidays. The new entrance has been extremely successful in speeding up the process of paying and entering the Zoo for groups - and at the same time relieving the queuing times at the main gate during peak times.

Memberships and Adoptions

Yet again, this department has continued to out-perform itself and to reach record all time highs - both in numbers and also net profits achieved. Maureen Allsopp and the team continued to improve levels of customer service, building on the newly established database.

The Members' Talks have been very well received; and we welcomed a number of celebrity guest speakers to our Saturday afternoon talks during 2003, including film-makers, cameramen and authors. Many of our speakers have worked in television, filming on different series such as *Sea Monsters*, by Ted Oakes and Annie Bates, *Snarl for the Camera* by James Gray and the *Survival* series by Nick Gordon.

The most popular speaker this year was Dr Jane Goodall who came to the Zoo in June not only to give a talk to our senior members but also to spend time with our junior members. We had a total of 13 celebrity speakers and six staff member speakers this year.

Our two 'Adopter Days' were very well attended with a total of 1,739 visitors. Work is continuing around the Zoo to update and replace adoption boards in an ongoing process. We also installed a new adoptions database to improve the efficiency of the department and reviewed our literature to enable us to give better customer service.

Official Openings

We were honoured to secure high profile guests for three official openings during 2003. The first of these events was for *Tsavo - the Black Rhino Experience* which was opened on 29 May by Martin

Mulama, Rhino Programme Coordinator for the Kenya Wildlife Service. The Society's President, His Grace the Duke of Westminster, did the honours for the *Andes Garden*. This exhibit was in memory of his late Aunt, Sally, Duchess of Westminster. She was formerly a member of the Zoo Council and also donated seeds to the Society following a trip to the Andes in 1968.

Fellowships

Three of the Society's long serving supporters have been awarded Honorary Fellowships for their services to the Society and to conservation generally. Actress Stefanie Powers, Pochin's plc Chairman Nick Pochin and Peter Foden, CBE, all received the honour in the presence of Chairman of Council John Makinson.

Legacies

The Legacy Pledge Club has continued its steady growth during 2003 with an increase in membership of 20%. The Zoo has received over £17,000 in bequests during the year.

Gift Aid

A cross-divisional Joint Working Party (JWP) was established to look at how we can streamline the mechanism of this lucrative revenue stream. The JWP has successfully managed to improve the process so that the Gift Aid forms are stored electronically.

Asian Elephant Appeal

We are very grateful for the generous support. The fundraising emphasis for our *Asian Elephant* campaign changed this year and switched from corporate and private donors to the general public. This is undoubtedly the biggest public fundraising project ever undertaken here at the Zoo.

The Asian Elephant faces likely extinction in the wild within the next 50 years as a direct result of habitat loss and human conflict in its native habitat. We, at Chester Zoo, are fully committed to securing the future of this magnificent animal. The Zoo's appeal team - Peter Upton, appeal manager, Val Hurren, appeal advisor and Sue Lochrie, appeal co-ordinator - have worked hard organising many fund raising events, which will culminate with an 'Elephantasia Ball' in May 2004. In addition to the main team, consultant Lindsay Sharples has been working to submit grant and trust applications including a Darwin Initiative funding bid in November this year.

We would also like to thank our band of volunteers, who have beavered away at whatever we threw at them! This included counting the coins so generously donated by McArthurGlen at Cheshire Oaks, amounting to more than £2000.

Street collections and Christmas Carol singing in Chester's Town Centre, and book readings at the *Magical Santa Trails* in December. Last, a big big 'thank you' to all our zoo visitors who kindly donated £1 towards this appeal at the main entrance - your effort has been fantastic!



ASIAN ELEPHANT SURVIVAL
SECURE THE FUTURE

Marketing & Development continued

ELEPHANT APPEAL DONATIONS, GRANTS, SPONSORSHIPS AND BEQUESTS

RUTH RENDELL	£5,000
RONALD & KATHLEEN PRYOR	£5,000
SUNDRIES	£25,000
ELECTIVE POUND	£239,000
MERCHANDISE	£16,000
RAFFLE	£2,000
COLLECTION BOXES	£5,000
PLEDGES	£1,000
TOTAL	£298,000

Public Appeal Board

The start of 2003 saw the evolution of the Development Board into a full-blown Public Appeal Board. Neville Chamberlain CBE has continued to give his support and guidance as Chairman, ably assisted by Robert Mee and Brian Child. Andrew Fletcher and Robert McLoughlin are enthusiastic new recruits who kindly give their help to the appeal. The Society would like to express its

appreciation and thanks for the enormous contribution that all the board members have made and looks forward to their continuing support and friendship.

This year also saw the departure of Development Consultant John Regan. On behalf of the Public Appeal Board the Zoo would like to express its warm thanks for all the work that John put into the *Asian Elephant Survival Appeal* during his time with the Zoo.

The private phase of the *Asian Elephant Survival Appeal* has raised £434,508 and £298,000 from the public phase (to the end of December 2003).

Fundraising Advisory Board

The Society would like to thank our very distinguished Fundraising Advisory board for their help in sounding out some of our more strategic concerns throughout the year. Membership of the board currently comprises: Mr David Wertheim, Mr John Lee, Professor Philip Love, Chris Clifford, Peter Foden, Neil Kemsley, Geoffrey Piper, and Alan Watson.

We look forward to their support in the forthcoming year.

Zoo Personnel



Jayne Quinn,
Head of Personnel

The department handled a record amount of recruitment again, with over 37 posts being filled in the year. Streamlining processes, where applicable, was a necessity due to the heavy workload involved. However, the majority of interviews are now conducted by line managers, with support from the Personnel Manager to handle senior appointments. Refresher training was undertaken with all staff involved in recruitment, to reinforce the Society's need to follow good and legally compliant practices in these areas. The Society continues to attract considerable interest and high calibre candidates for its posts.

Staff turnover for the year was 10% which is higher than in previous years. This is mainly due to the fact that the type of employment available in the Society is changing – for example, we now have permanent posts for part-time hours, or for seasonally variable hours, especially in our commercial operations. Staff leave to either continue in education, or to take up full-time employment elsewhere, and this creates a higher turnover.

Staff Representation was an issue for many staff, culminating in a staff ballot being held in April offering the choice of representation by an independent trade union, or the Society's existing Staff Association. A significant majority of staff voted to be represented by the existing Staff Association, who have availed themselves of independent legal advisors and training to improve their service to staff. These skills have been used effectively in handling a variety of staff matters in the year, such as disciplinary procedures, employment contract issues, and pay. Management and supervisory skills training continued; and individual staff training

and development was encouraged and supported in many areas – including catering, horticulture, maintenance, accountancy, animal keeping and conservation.

A review of staff terms and conditions of employment was undertaken in a Joint Working Party with the Staff Association and led by ACAS. The objective is to achieve fairness, equality and transparency for staff in all areas of their working terms and conditions. This work will be completed, with both management and staff undertaking negotiations in 2004. Work on the 'terms and conditions' review delayed the development of the staff appraisal scheme, which will also continue into 2004.

Work experience placements continued to be immensely popular, and 110 were provided during the year. Development of the 'job and careers' section of the new website was a priority to help people access this type of information.

Student placements were handled by Carol Karim (Personnel Assistant) and Alan Woodward (Carnivore Team Leader and Student Coordinator). Organisations as well as private individuals were helped including the Prince's Trust for Volunteers. Personnel staff again attended careers fairs at local schools and assisted with interview skills for local students.

Personnel department staff also handle all general incoming telephone enquiries and provide a reception service for the Society. The Cedar House development will give the department's staff the opportunity to be located together for the first time – we are currently split between Oakfield and Cedar house sites – and to develop better work-sharing and team work.

Plans for the department in 2004 include more training and development being provided for all staff, and the recruitment of a training and personnel officer to assist the department to deliver this.

Staff & Volunteers

Directors Department

Director of Chester Zoo and Chief Executive
Professor Gordon McGregor Reid, BSc, PhD, CBIol, FIBiol, PLS
Directors Assistant
Frances Jaques, BA, Assoc CIPD
Directorate Assistant
Melanie Griffiths+

Personnel Division

Personnel Manager and Head of Division
Jayne Quinn, BA, MA, Dip RSA, MCIPD
Personnel Assistant
Carol Karim+
Telephonists
Melanie Griffiths+
Carol Karim+
Eunice Manning
Sharon Whitby

Finance & Administration Division

Financial Controller and Company Secretary
Alan Sykes, FCA, Dip BA
Management Accountants
Jill Barnard-Blom
Richard Barnett, MAAT
IT Manager
Philip Morris, HNC, Dip AMITA, MCP
Network Administrator
Richard de Riso, BTEC, Nat Dip IT, CLAIT 3
System Support Technician
Martin King, BTEC, Nat Dip IT, CLAIT 3, ECDL adv
Accounts Coordinators
Chris Capner
Janet Carruthers
Angela Powell
Payroll Supervisor
Barbara Stewart*
Payroll Coordinator
Sylvia Morris*
Cash Office Supervisor
Carmel Pearson
Gates Supervisor
Julie Bird
Cash Office and Gate Cashiers
Jenny Chadwick*
Kate Davis*
Sylvia Delves*
Stephanie Henaghan*
Dorcas Hodgeman*
Sarah Loppin*
Joyce Lucas*
John MacKenzie*
Nicola Magee*
Sarah Morris*
Lorraine Richardson
Christopher Shenton*
Moira Walker
Marilyn Ward-Jones*

Education Division

Head of Education Services and Head of Division
Stephen McKeown, BSc, PGCE
Divisional Secretary
Kate Brankin
Librarian
Jane Woodward, BA, MCLIP
Education Officers
Anya Moon, BSc, M Phil
Andrew Moss, MSc, BSc
Sara Ruka, BSc, PGCE
Gill Wells, Cert Ed
Education Administrator
Mark Powleson, BA
Interpretation Officer
Rachel Farr, BSc
Lead Presenter
Sarah Bazley BSc
Presenters
Chloe Aldridge, BA, BHSc
David Fitzsimmons, BSc*
Elizabeth Marrs, BA, PGCE
Carrie Moorcroft, BSc
Gareth Redston, BSc
Interpretation Consultant
Ian Hughes*

Animal & Plant Conservation Division

Chief Curator and Head of Division
Mark Pilgrim, BSc
Divisional Secretary
Karen King-Sharp
Administrative Assistant
Caroline Hunt
Head of Conservation and Science
Dr Roger Wilkinson, BSc, PhD
Curator of Higher Vertebrates
Mike Jordan, BSc, CBIol, MIBiol, EurBiol, FZS
Curator of Lower Vertebrates and Invertebrates
Kevin Buley, BSc
Registrar
Penny Rudd, BA, Dip RSA
Specialist Keeper Projects
Nick Davis, MSc
Conservation Co-ordinator
Alexandra Zimmerman, BSc, MSc, CBIol, MIBiol
Conservation Officer
Sarah Bird, BSc, PG Dip Ecology
Conservation Assistant
Scott Wilson, BSc, MSc
Research Officer
Dr Stephanie Wehnelt, PhD, Dipl Biol
Research Assistant
Kirsty Burrell, BSc, MSc
Veterinary Manager
Stephanie Sanderson, MA, Vet MB, MRCVS
Veterinary Officer
Steve Unwin, BSc, BVSc, MRCVS
Veterinary Resident
Shan Siah, BSc, BVMS, Cert ZooMed, MRCVS
Veterinary Nurse
Karen Homer, VN, Dip CABT
Zoo Nutritionist
Andrea Fiddett, BSc, MSc, PhD
Student Co-ordinator
Alan Woodward, Dip Anim Mgt+
Records Administrator
Dave Brunger, Dip Anim Mgt
Team Leaders
Andrew Bagnall, BSc, PGCE
Paul Howse, BA, Dip Anim Mgt
Mick Jones
Andrew Lenihan
Chas MacKenzie, Dip Anim Mgt
Wayne McLeod, Dip Anim Mgt
Tim Rowlands
Alan Woodward, Dip Anim Mgt+
Keeping Staff
James Andrewes
Jonas Barthe, BTA
Shane Blake
Helen Boczek, BSc
Natalie Boyd, Dip Anim Mgt
Joyce Dodd
John Frost, Dip Anim Mgt
Sarah Goodchild, Dip Anim Mgt
Stefan Groeneveld, KF
Dave Hall
Geoff Harper, Dip Anim Mgt
Mark Jerry, BSc (Hons)
Laura Kelly, Dip Anim Mgt
Darren Langford, Dip Anim Mgt
Carl Laven
Chris Lavender
Claire Lightfoot, Dip Anim Mgt
Alan Littlehales, Dip Anim Mgt
Simon Marsh, Dip Anim Mgt
Phil Molyneux, Dip Anim Mgt
Anne Morris, Dip Anim Mgt
Paul Morris, Dip Anim Mgt
Niall Ormerod
Don Plant
Belinda Porter, Dip Anim Mgt
Allan Reid, Dip Anim Mgt, SVQ3
Rosemarie Scott, BSc
Lara Thick, BSc, MSc
Steve Williams, Dip Anim Mgt
Andrew Woolham, Dip Anim Mgt
Helen Wright, Dip Anim Mgt
Chris Yarwood, Dip Anim Mgt
Herpetologist
Isolde McGeorge
Aquarist
Mike Crumpler

Lower Vertebrates and Invertebrates

Keeping Staff
Karen Entwistle, BSc
Clare Morris, VN
Ray Packwood, Dip Anim Mgt
Mervyn Ranasinghe
Animal Supplies Manager
Anthony Hutchinson
Animal Supplies Coordinator
Kevin Whitehead
Animal Supplies Staff
Paul Bebbington, Dip Anim Mgt
Stephen Burdall
Graeme Edwards
Ken Newey
Pest Controller
Colin Humphries*
General Curator: Botany and Horticulture
Mark Sparrow, Kew Dip Hort, CGU Hort
Team Leaders, Botanical Horticulture
Mark Hargreaves, NVQ2
Paul Shippes, Kew Dip Hort
Botany and Horticulture Staff
David Burrows
Keith Done
Wesley Evans, RHS General Cert
John Fletcher
Richard Hewitt, CGU, NCH, NVQ4
Mathew Jenkins
Stephen Kelleher
Paul Leach, NVQ2
Kevin McGinty
Ray Newey

Estates Division

Estate Engineer and Head of Division
Steve O'Brien, BSc, Dip SURV, HNC
Divisional Secretary
Tracey Bryan
Project Managers
Anthony Izzard, HND, OND, CGU
Alex Robertson, BA HONS, Dip ARCH, ARIBA #
Project Assistant
Lorna Thornton, BSc (Hons)
Maintenance Manager
Ray Morrison, AIMBM, CGU, NVQ3
Foreman, Building and Civil
Paul Lindop, HNC
Foreman, Mechanical and Electrical
Brian Goss, CGU
Maintenance
Ian Blythe
Paul Curtis, HNC, NVQ3
Graham Humphreys
Denis Kinsella, CGU
Anthony Lennon
Neville Lowndes
Bernard McCone, CGU
Kevin McDonagh
Craig Murray (Apprentice)
Richard Read, COSIRA
Mark Roberts, CGU
Jason Spencer, NVQ3
Site Supervisor
Peter Owens
Safety and Environment Manager
John Winward, AIOSH
Facilities and Security Manager
Marc Boardman
Security Officers
Mervyn Garside
Michael Lowe

Marketing & Development Division

Head of Marketing
Amanda Wright A.C.I.M.
Public Relations Officer
Rachael Ashton*
Media Co-ordinator
Kristine Beaumont
Tourism Co-ordinator
Ruth O'Hare, BA
Development Officer
Lynsey Jones, BA, LCGI
Development Assistant
Susannah Evans, BSc
Development Associate
Sarah Molyneux
Membership and Adoptions Officer
Maureen Allsopp
Membership and Adoptions Assistant
Susan Watson
Adoptions and Secretarial Support
Pauline McKee

Visitor Services Divisions

Visitor Services Manager and Head of Division
Liz Child, BA
Divisional Secretary
Chris Connor, CQSW, Dip Soc Wk, Adv Dip Counselling
Events Manager
Jane Lawson
Events Assistant
Sharon Mottram*
Taj Pinder*
General Catering Manager
Sue Clews*
Supervisors
Johanna Glossop*
Richard Jobson, BA*
Debbie McLeod*
Jackie McLinden*
Ian Patten (& Chef)*
Chefs
Liam Adamson, CGU*
Mark Conlan, NVQ II*
Elaine Hughes, NVQ II*
Senior Catering
Dee Jones*
Brian Nicholas*
General Catering
Penny Armstrong*
Jean Antrobus*
Helen Baines
Paul Bateson*
Paul Clayton*
Claire Davies*
Rebecca Duncan**
Ian Jenkins*
Laura Kerr*
Kelly Livesley, NVQ II*
Mary Luxton*
Andrew Mapp*
Pat McRobbie*
Sarah Murdoch**
Paul Patten*
Richard Pearson*
Tracey Pleavin*
Sandra Port*
Robert Salisbury*
Chas Shakespeare*
Pauline Wainwright*
Ricky Wellings*
Diane Williams*
Catering Stores Supervisors
Mark Fallon, NVQ3
Brendan O'Brien
Catering Store
Will Riding
Amenity and Gardens Manager
Chris Williams, CGU Hort
Amenity and Gardens Team Leaders
Mark Hughes
Peter Hughes
Darren Peach
Peter Thompson
Amenity and Gardens Staff
Eric Bickley
Eamon Canning
Christine Coleman
Janet Cullen*
Hazel Dean*
Tony Fisher
Stephen Gilyeat
John Green
Paul Harrison, NVQ2
Ray Head
Gwyn Hewitt, NVQ2
Richard Hoddinott, NVQ3
Cyril Jones
Mark Jones
Malcolm Lloyd
Julie Lomath*
Al Millington, NVQ2
Michael Nesbitt
George O'Connor
Peter Powell
Peter Quayle
John Stanton
Derek Toms
Retail Sales Manager
Alan Jones
Assistant Retail Sales Manager
Susanne Jones
Buyer and Retail Supervisor
Celia Long
Stores Supervisor
Ian Bodsworth

Retail Sales Assistants

Janet Aldis
Rachel Bestwick
Helena Broster
Elaine Bunn
Jason Dagnall*
Daniel Evans*
Michelle Harrickie*
Alison Hughes*
Andrew Hughes*
Julian Longcake
Katie Nelson*
Bill Robson
Natalie Stokes
Nick Taylor
Stuart Whitehouse

Job Relatives Committee

Chris Capner
Andrew Lenihan
Celia Long
Bernard McCone
Chas MacKenzie
Darren Peach
Mark Pilgrim
Jayne Quinn
Chris Williams

Committee of Representatives for Employee Services (CRES)

Committee Chairman
Susanne Jones
Members
Mark Cleave
Sue Clews
Peter Owens
Mark Powleson
Chris Williams

2003 Staff Association

Chairman (and Finance/Admin/Marketing)
Christine Capner
Vice Chairman (and Retail)
Celia Long
(Keepers)
Andrew Lenihan
Geoff Harper
(Maintenance)
Jason Spencer
(Amenities and Gardens)
Eric Bickley
(Catering)
Brendan O'Brien
(Education)
Gareth Redston
(Botanics)
Richard Hewitt

Leavers

Dean Abisgold
Suzanne Baumer
Jo-Anne Birmingham
Gary Blackwell
Phillip Blythen
Keith Bragan
Zena Caddock
Carol Campion
Eleanor Condon
Jo Dudley
Glyn Hayes
Rebecca Humphreys
Jenny Huxley
Kelly Johnston
Dorothy Jones
Matt Lewis
Brian Lloyd
Nick Manning
Yvonne McDonald
Mark Ormerod
Philip Postles
John Regan
Lynsey Smith
Timothy York

Retired

Barbara Smith
John Willis

* part-time
* dual responsibility
contract staff
* occupational qualification

Staff on External Committees

Professor Gordon McGregor Reid, Director

- Member of Council, World Association of Zoos & Aquariums (WAZA); Chairman WAZA Marketing & Public Relations Committee; Chairman WAZA Aquarium Committee
- Member, World Conservation Union (IUCN), Member, IUCN/SSC Asian Elephant Specialist Group
- Member of Council, European Association of Zoos and Aquariums (EAZA); and Co-Chair, Research Committee; Member, Ethics & Membership Committee
- Member, Executive Board, European Union of Aquarium Curators*
- Academic Advisor and Member, Organising Committee, The Ocean Project, (IOC/UNESCO)
- Member, Editorial Board, *International Zoo Yearbook*
- Assistant Editor, *Journal of Fish Biology**
- President, Linnean Society of London
- Government Zoo Inspector, Secretary of States List
- Member of Council, Association of Leading Visitor Attractions, UK
- Trustee, National Museums & Galleries on Merseyside; Member Establishment Committee; Member, Education Committee and Member, Human Remains Working Group
- Board Member, Cultural Consortium englandnorthwest, and Chair Cheshire Gardens Strategy.
- Visiting Professor, Department of Veterinary Clinical Science and Animal Husbandry, University of Liverpool

*Stood down in 2003

Rachael Ashton

- Member, Federation of Zoological Gardens of Great Britain & Ireland Marketing & PR Committee

Andrew Bagnall, Team Leader

- Member of Council and Executive Committee, Association of British Wild Animal Keepers (ABWAK).

*Stood down in September 2003

Richard Barnett, Management Accountant

- Member of Council and Treasurer, Association of British Wild Animal Keepers (ABWAK)

Sarah Bird, Biodiversity Officer

- Member, Sustainable Cheshire Forum
- Committee Member, Cheshire Mammal Group
- Steering group member, Cheshire regional Biodiversity Partnership (CrBP)

- Coordinator, Black Poplar Biodiversity Action Plan for Cheshire
- Member, Gardens and Allotments Biodiversity Action Plan for Cheshire
- Member various North East Wales Biodiversity groups

Kate Brankin, Education Secretary

- Regional Co-ordinator for Advanced National Certificate in the Management of Zoo Animals

Kevin Buley, Curator of Lower Vertebrates

- Executive Board IUCN SSC Turtle Survival Alliance
- Executive Board Turtle Conservation Fund
- Vice-chair IUCN SSC Turtle Survival Alliance - Europe
- Member, IUCN SSC Tortoise & Freshwater Turtle Specialist Group
- Member, European Union of Aquarium Curators
- Co-Chair EAZA Amphibian & Reptile Taxon Advisory Group
- Co-Chair UK Herpetological Taxon Advisory Group
- Federation of Zoological Gardens of Great Britain & Ireland

Dr Andrea Fidgett, Nutritionist

- Co-Chair, European Association of Zoos & Aquariums (EAZA) Nutrition Group
- Member, Steering Committee, American Zoo & Aquarium Association (AZA) Nutrition Advisory Group
- Member, European Animal Data Information Steering Committee
- Reporting Member, Research Group, Federation of Zoos of Great Britain and Ireland
- Visiting Lecturer, MSc Wild Animal Health, Royal Veterinary College, University of London
- Visiting Lecturer, BSc Conservation Medicine, Liverpool University

Paul Howse, Team Leader

- Member of Council, Association of British Wild Animal Keepers (ABWAK)
- Member, Cheshire Environmental Forum Agenda 21
- Member, Wildlife Topic Group, Sustainable Cheshire Forum
- Member, Cheshire Region Biodiversity Partnership
- Member, Cheshire Mammal Group

Lynsey Jones, Development Officer

- Member of Council, Association of British Wild Animal Keepers (ABWAK)

Mike Jordan, Curator of Higher Vertebrates

- Chair (Europe & North Asia), World Conservation Union (IUCN) Species Survival Commission (SSC) Reintroduction Specialist Group
- Technical advisor, IUCN SSC Conservation Breeding Specialist Group (CBSG) Rodent, Insectivore, Lagomorph & Scandent
- Conservation & Information network for South Asia (RILSCINSA).
- IUCN / Reintroduction representative, International Advisory Group for the Northern Bald Ibis (IAGNBI).
- Member, IUCN SSC Rodent Specialist Group(A).
- Member, IUCN SSC Insectivore Specialist Group.
- Member, IUCN SSC Lagomorph Specialist Group.
- Member, Southern Bald Ibis Working Group (SBIWG) of BirdLife South Africa.
- Co-Chair, European Association of Zoos and Aquariums (EAZA) Small Mammal TAG
- Chair, Lagomorph TAG, Federation of Zoological Gardens of Great Britain & Ireland
- Member, Zoo Federation Joint Management of Species Committee.
- Member, English Nature Dormouse Captive Breeding Group
- Member, Environment Agency/Joint Nature Conservation Committee Water Vole technical group.

Simon Marsh

- Trustee of the Predator Conservation Trust

Stephen McKeown, Head of Education Services

- Senior Editor and Member, Executive Committee, International Association of Zoo Educators
- Member, Education and Exhibit Design Committee, European Association of Zoos and Aquariums (EAZA)
- Member, Education Committee, Federation of Zoological Gardens of Great Britain and Ireland*

*Stood down in September 2003

Mark Pilgrim, Chief Curator

- Member, World Conservation Union (IUCN); Member, UK Committee; and Conservation Council, IUCN Conservation Breeding Specialist Group, Species Survival Commission
- Member of Council, Federation of Zoological Gardens of Great Britain and Ireland
- Member, British Association for the Advancement of Science

Jayne Quinn, Personnel Manager

- Member, Chester Personnel Advisory Group (chaired by ACAS)

Penny Rudd, Registrar

- Secretary/Co-ordinator, Flora and Fauna International (North West Group)
- Member, Reaseheath College of Agriculture's Board of Governors, and Animal Care Course Industrial Liaison Group
- Member, Cheshire Wildlife Trust's Council and Personnel Committee
- Harvest Mice Co-ordinator for Cheshire Wildlife Trust Biodiversity Plan
- Member, 'RECORD' biodiversity recording, The Local Record Centre for Cheshire and the Wirral
- Member, Cheshire Mammal Group

Sara Ruks, Education Officer

- Regional Co-ordinator for the North West, Federation of Zoological Gardens of Great Britain & Ireland Education Committee
- Regional Co-ordinator for Advanced National Certificate in the Management of Zoo Animals

Stephanie Sanderson

- Member of Council, British Veterinary Zoological Society
- Member, Veterinary Advisory Group, Federation of Zoological Gardens of Great Britain & Ireland.
- Member, Board of Studies, BSc Conservation Medicine, Liverpool University
- External Examiner, B Vet Med Final Part 3, Royal Veterinary College, University of London
- Honorary Lecturer, Dept Vet Pathology, University of Liverpool
- Trustee, Zebra Foundation, Veterinary Zoological Education
- Member, International Committee of American Association of Zoo Veterinarians
- Member, Zoos' Forum Welfare Group

Mark Sparrow, Curator Botanical Horticulture

- Member, Board of Directors, PlantNet
- Member, European Zoo Plant Group
- Member, Conference Programme Committee, Association Zoological Horticulturists
- Member, Cheshire Gardens Forum

Alan Sykes, Financial Controller

- Treasurer, The Jane Goodall Institute (UK)

Dr Stephanie Wehnelt, Research Officer

- Member, Research Committee, European Association of Zoos and Aquariums (EAZA)
- Co-Chair, Research Group, Federation of Zoological Gardens of Great Britain and Ireland
- Examiner, Examining Board, 3rd Year Students of Zoology at Liverpool University
- Visiting Lecturer, Department of Biological Sciences, Chester College
- Committee Member, Shape of Enrichment

Dr Roger Wilkinson, Head of Conservation & Science

- Honorary Research Fellow, Keele University
- Scientific Advisor, World Parrot Trust
- Member, Committees of World Pheasant Association and the Congo Peafowl Trust
- Member, International Management Committee for the Mountain Peacock Pheasant
- Member, Pheasant Specialist Group (IUCN/Birdlife/WPA)
- Vice-President & Member of Council, Avicultural Society
- Secretary, West African Ornithological Society
- Member, British Ornithologist's Union Records Committee
- Member, Cheshire Wildlife Trust Barn Owl Group

Alan Woodward, Team Leader

- Member, Flora and Fauna International
- Member, Survival International
- Member, Jane Goodall Institute
- Trustee & Treasurer of Predator Conservation Trust

Alexandra Zimmerman,

- Member, Zoo Measures Group

In addition to those listed above, several staff are Chairs or members of Taxon Advisory Groups (TAGs) and co-ordinators of European Endangered Species Programmes (EEPs), Joint Management of Species Programmes (JMSPs) or other conservation groups [See page 43]

Taxon Advisory Group/Specialist Group Chairs

Chester Zoo provides Chair people at a high level of conservation management and co-ordination. At international level, staff lead four key European Association of Zoos and Aquaria (EAZA) Taxon Advisory Groups (TAGs) and two World Conservation Union Species Survival Commission (IUCN SSG) Specialist Groups. Staff also lead three Joint Management of Species Group (JMSG) TAGs for the Zoo Federation of Great Britain and Ireland. Aquatic Sustainability Programmes (ASPs) are organised by the European Union of Aquarium Curators (EUAC) for fish and aquatic invertebrates.

Taxon

Elephants (JMSG)
Parrots (EAZA)
Hornbills (EAZA)
Parrots (JMSG)
Fish and Aquatic Invertebrates (EAZA/EUAC/JMSG)
Small mammals (EAZA)
Rodent/Insectivore/Lagomorph Specialist Group (IUCN SSC)
Europe and North Asia Reintroduction Specialist Group (IUCN SSC)
Rodent & Lagomorph TAG (JMSG) Mike Jordan (Chair)
Reptile and Amphibian TAG (Federation of Zoological Gardens of Great Britain and Ireland)
Reptile and Amphibian TAG (EAZA)

* stood down in 2003

Chair

Mark Pilgrim (Vice Chair)
Dr Roger Wilkinson (Chair)
Dr Roger Wilkinson (Co-chair)
Andrew Bagnall (Chair)
Prof Gordon McGregor Reid (Co-chair)*
Mike Jordan (Co-chair)
Mike Jordan (Chair)
Mike Jordan (Chair)

Kevin Buley (Co-chair)

Kevin Buley (Co-chair)

Breeding Programme Studbook Keepers/Co-ordinators

Chester Zoo is an active participant in 16 national Zoo Federation Joint Management of Species Programmes (JMSPs) and international European Endangered Species Programmes (EEPs), Studbooks (ESBs) and Registers for the co-ordination of breeding programmes within the Taxon Advisory Groups (TAGs).

Species

Palm Cockatoo (EEP)
Mindanao Writhe-billed Hornbill (EEP)
Palm Cockatoo (EEP)
Yellow-backed Chattering Lory (ESB)
Jaguar (ESB)
Congo Buffalo (ESB)
Black-winged Lory (ESB)
Blue-eyed Cockatoo (ESB)
Madagascan Tree Boa (ESB)
Northern Talapoin Monkey (ESB)
Gemsbok (JMSP)
West African Crowned Crane (JMSP)
Philippine Sail Finned Lizard (JMSP)
Native Crayfish Conservation group (EUAC/FAITAG)
Tadpole Shrimp Conservation Group (EUAC/FAITAG)
Ecuadorian Amazon Parrot (EEP)

Dr Roger Wilkinson
Dr Roger Wilkinson
Dr Roger Wilkinson
Andrew Bagnall
Mark Pilgrim
David Brunger
Andrew Bagnall
Dr Roger Wilkinson
Kevin Buley
David Brunger
Charles MacKenzie
Dr Roger Wilkinson
Isolde McGeorge
Ian Hughes
Ian Hughes
Mark Pilgrim

Zoo Meetings 2003

24 Feb – North West Development Agency held their executive management team meeting (SM)
21 July – Honorary Fellowship presentation to Miss Stefanie Powers (SM)
11 August – Honorary Fellowship presentation to Mr Peter Foden CBE and Mr Nick Pochin (SM)
20 August – Hosted North West Business Leadership Forum (SM)
3 to 7 October – The first International Congress of Zookeepers, held at Vogelpark Avifauna, Netherlands and attended by Andrew Bagnall, Richard Barnett, Natalie Boyd, Andrea Fidgett, Paul Howse, Lynsey Jones, Lara Thick (SM)
25 January – Professor Gordon McGregor from Assam to Arabia (MM)
1 February – William Fiennes *Reflections of the Snow Geese* (MM)
8 February – Robert Twigger *The Extinction Club* (MM)
8 March – Roger Wilkinson *Zoo Outreach Programmes* (MM)
15 March – Phil Richardson *Bats, Masters of the Twilight Zone* (MM)
5 April – Dan Tapster *The Life of Mammals* (MM)

12 April – Steve Hogarth *Tackling Wildlife Crime* (MM)
9 May – Shan Siah *Dancing with Rhinos* (MM)
13 June – Pro Stephan Buczacki *Fauna Britannica* (MM)
20 June – Dr Jane Goodall DBE *A reason for hope* (MM/FFI)
6 September – Eleanor Condon *Enrichment for Animals* (MM)
13 September – James Gray *Snarl for the Camera* (MM)
4 October – Nick Gordon *Jaguar: Eater of Souls* (MM)
25 October – Ted Oakes and Annie Bates: *Monsters We Met* (MM)
8 November – Chris O'Toole *Why we need insects and their diversity* (MM)
14 November – Mark Sparrow *Flora and Fauna of the Cape of South Africa* (MM)
13 December – Andrew Bagnall *Polly in the 21st Century* (MM)

SM: Special Meetings, MM: Members' Meetings, FFI: Fauna and Flora International

Zoo Review 2003

Conservation Outreach

Sixty Eight Projects supported by Chester Zoo in 2003

Subject	Primary Partner/Researchers	Details
Philippines: Conservation Programme	William Oliver, Fauna and Flora International (FFI)	Polillo Island, Cebu and West Visayas projects including Philippine Hornbill, Lake Taal Sea Snake and Philippines Pond Turtle project support.
Nigeria: Conservation Programme	Prof Volker Sommer, University College London	Support of studentships and major primate and botanical research programmes in Gashaka Gumti National Park
Brazil and Venezuela: Jaguar Conservation Programme	Wildlife Conservation Society, NY, Alexandra Zimmermann, NEZS	Coordination of Rancher Outreach Programme including Jaguar-rancher conflict mitigation projects and research in Brazil (Pantanal) and Venezuela (Llanos).
India: Asian Elephant	Bibhab Kumar Talukdar, Aaranyak	Support for education project in Assam
Conservation Programme China: Conservation Programme Yellow-throated Laughing Thrush	Roland Wirth, ZGAPS, He-Fen-qi, Beijing	Continuing support of Yellow-throated Laughing Thrush surveys in China
China: Conservation Programme, Sichuan biodiversity/ endemic bird conservation	Dr Simon Dowell/Liverpool John Moores University Dai Bo, Sichuan Forestry Dept	Supporting conservation of endemic birds and Forest Reserve biodiversity in the Sichuan Province
Kenya: Black Rhino Conservation Programme	Save the Rhino International, Kenya Wildlife Service	Game guard support for security and surveillance of Black Rhino, including vehicle fuel and camera trap funding, in Tsavo East National Park, Kenya
Tanzania: Black Rhino Conservation Programme	George Adamson Wildlife Preservation Trust Save the Rhino International	Support of reintroduction and protection project for Black Rhino in Mkomazi Game Reserve, Tanzania, and the construction of a new observation post, water pan, wallow and patrol camp
Kenya: Black Rhino Conservation Programme	Manchester Metropolitan University, Kenya Wildlife Service	Supporting research into protected area management for Black Rhino and other large herbivores in Sweetwaters Game Reserve, Kenya
Kenya: Black Rhino Conservation Programme	Bradley Cain, Manchester Metropolitan University	Supporting genetic research for Black Rhino in enclosed reserves
Kenya: Black Rhino Conservation Programme	Save the Rhino International, Laikipia Wildlife Forum	Support for the purchase, fitting and running costs of an environmental education bus
Kenya: Black Rhino Conservation Programme	Save the Rhino International, Kenya Wildlife Service	Support for KWS capacity building through staff training in the UK
UK, Chester: Harvest Mice	Penny Rudd, NEZS, Cheshire Wildlife Trust	Support for conservation breeding, release and monitoring programme
UK, Cheshire: Bats	Mike Freeman, Cheshire Bat Group	Support for bat detection workshop
UK, Cheshire: Training workshop	Dr Elizabeth Barratt, Cheshire Wildlife Trust	Support for riparian mammal training workshop
UK, Cheshire: Water Voles	Dr Elizabeth Barratt, Cheshire Wildlife Trust	Support for Water Vole research and conservation project
UK, Cheshire: Otters	Fiona Mahon, Cheshire Wildlife Trust	Support for Otter Local Biodiversity Action Plan conservation project
UK, Cheshire: Black Poplar	Sarah Bird, NEZS	Coordination of Cheshire Black Poplar Biodiversity Action Plan
India: Zoo Outreach Organisation and Wildlife Information Liaison Development Society	Sally Walker, Zoo Outreach Organisation	Support of core administration and various conservation activities including chiroptera network and training and the South and East Asia Reintroduction Specialist Group
Rodrigues Islands: Rodrigues Fruit Bat	Victoria Powell, NEZS	Support of PhD research on the ecology and conservation of the Rodrigues Fruit Bat
Brazil: Buffy Headed Capuchin	Jean-Marc Larnoud, EEP coordinator	Support for Buffy Headed Capuchin surveys
India: Mammal monitoring	Arumugam Rathinasamy, Nilgiri Wildlife & Environmental Assoc	Support for mammal monitoring in the Nilgiri Mountains
Panama: Tapirs	Bengt Holst, EAZA	Support for international tapir conference in Panama City and post conference tapir conservation activities
Zimbabwe: Spotted Hyena	Julia Salnicki, University of Zimbabwe	Support for Spotted Hyena research and conservation project
Ethiopia: Ethiopian Wolf	Claudio Sillero, Oxford University	Support for emergency rabies vaccination programme for Bale population
West Africa: Black Crowned Cranes	Seydina Issa Sylla, Wetlands International	Support for Black Crown Crane conservation in coastal rice growing zones and for survey and community work in Nigeria
Mauritius: Echo Parakeet	Mauritius Wildlife Foundation	Continued support of the Echo Parakeet Conservation Programme
Mauritius: Pink Pigeon	Mauritius Wildlife Foundation	Support for disease screening and disease control
Mauritius: Echo Parakeet	Paul Morris, NEZS, Claire Daniel, NEZS	Working visit of Chester Zoo animal staff to assist endemic bird conservation projects
Thailand: Hornbill conservation and research	Dr Pilai Poonswad, Hornbill Research Foundation	Support for hornbill community based conservation, education centre and research programmes
Brazil: Red-billed Curassow	Philip McGowan, World Pheasant Assoc, Nigel Collar, Birdlife Int	Supporting the production of a species Action Plan
Philippines: Philippine Cockatoo	Peter Widmann, PCCP Loro Parque Fundacion	Support for the Philippines Cockatoo Conservation Programme
UK: Cockatoos	Andrew Bagnall, NEZS	Support of PhD research on Cockatoos
UK: Biodiversity conference	Simon Dee, Helsby High School/Cheshire Wildlife Trust	Support for Cheshire schools biodiversity conference
Sri Lanka: Conservation education	Charles Santiapillai, University of Peradeniya	Funding for the production of school educational brochures highlighting threatened local wildlife
Cambodia: Education	Matt Hunt, WildAid Cambodia	Support for educational research project and conservation awareness signage at the Phnom Tamao Wildlife Rescue Centre

Conservation Outreach continued

Subject	Primary Partner/Researchers	Details
Uganda: Veterinary equipment	Debby Cox, Ngamba Island Sanctuary	Funding of veterinary equipment for the Ngamba Island Chimpanzee sanctuary
Cameroon: Veterinary equipment	Steve Unwin, NEZS/Limbe Wildlife Centre	Funding of veterinary equipment for the Limbe Wildlife Centre
Nigeria: Drills	Liza Gadsby, Drill Ranch and African Primate Conservation Centre	Emergency support to secure Drill Ranch and African Primate Conservation Centre base of operations
Mexico: Fish Ark	Jen Nightingale, Bristol Zoo Aquarium	Support for threatened Mexican fish conservation project
Jordan: Fresh water fish	Nashat Hamidan, The Royal Society for the Conservation of Nature	Support for PhD research into the conservation of Jordan's threatened fresh water fish species
USA: Livebearer fish	Harry Grier, Smithsonian Institute	Support for the publication of livebearer fish conservation symposia
Mascarenes, Rodrigues: Marine ecosystems	Tom Hooper, Shoals Rodrigues	Support for marine reserves and sustainable fisheries project
Indonesia: Komodo Dragons	Claudio Ciofi, Yale University	Support for Komodo Dragon conservation biology and population management project
Puerto Rico: Crested Toads	Bob Johnson, Toronto Zoo	Support for Puerto Rican Crested Toad field conservation and education
Chile: Darwin's Frogs	Heiko Werning, ZGAPS	Support for research into the situation and protection of Darwin's frogs of Chile
Austria: Northern Bald Ibis	Mike Jordan/Roger Wilkinson, NEZS International Advisory Group for Northern Bald Ibis	Support for the Northern Bald Ibis conservation and reintroduction workshop
Worldwide: IUCN/Conservation Breeding Specialist Group	Ulysses Seal/Robert C. Lacy, CBSG	Support of IUCN and CBSG activities worldwide
Asia: EAZA Tiger campaign	Zoological Society of London/21st Century Tiger	Raising funds and awareness for the EAZA Tiger Campaign
Europe: Bushmeat campaign	John Bryan Carol, EAZA	Support for the EAZA bushmeat campaign
Netherlands: Zookeeper conference	Association of British Wild Animal Keepers (ABWAK)	Support of 1st International Congress of Zoo Keeping Conference and for the attendance of two NEZS staff and two African zoo keepers
India: Zoo conference	Sally Walker, Zoo Outreach Organisation	Support for the attendance of keepers to the South Asia Zoo Association Conference
PNG: Crater Mountain	Bryony Kate Morgan, University of Newcastle	NEZS Zoological Studentship supporting research expedition to Crater Mountain
Belize: Wild cats	Andrew Morris, Bristol University	NEZS Veterinary Studentship supporting wild cat rehabilitation study
Nigeria/Cameroon: Bushmeat study	Nicola Hughes, University College of London	NEZS Zoological Studentship supporting an investigation into the impact of the bushmeat trade on primates
UK: Lion-Tailed Macaques	Gilly Irwing-Lewis, University of Edinburgh	NEZS Zoological Studentship supporting a behavioural analysis study of Lion Tailed Macaques in zoos
Namibia: Red Hartebeest	Thomas Nicholson, University of Newcastle upon Tyne	NEZS Zoological Studentship supporting Red Hartebeest ecology research
UK: Père David's Deer	Hazel Nicols, University of Sheffield	NEZS Zoological Studentship supporting a conservation genetics study of Père David's Deer
Cameroon: Lowland Gorillas	Kristy Marie Syers, University of Bristol	NEZS Veterinary Studentship supporting a study into the parasite burdens of Lowland Gorillas
Sri Lanka: Asian Elephants	Sharon Brookes, Sri Lanka Wildlife Conservation Society	Richard Hughes Scholarship Award supporting a field scout training programme
Kenya: Black Rhino and large mammals	Chris Lavender, NEZS, Helen Boczek, NEZS	Working visit of two Chester Zoo animal staff to Sweetwaters Reserve
Sri Lanka: Aquarium display	Mervyn Ranasinghe, NEZS	Working visit of Chester Zoo staff, plus equipment support, to help set up aquatic displays at Colombo Zoo
Philippines: Threatened species	Lara Thick, NEZS, Claire Morris, NEZS	Working visit of Chester Zoo animal staff to participate in Philippines threatened species conservation work
Kazakhstan: Bird survey	Steve Williams, NEZS	Working visit of Chester Zoo animal staff to conduct bird surveys in Kazakhstan
UK: Munda Wanga	Raphael Mutolwa, Munda Wanga	Keeper for a day supported visit of Zambian Munda Wanga keeper to work at Chester
Namibia: Africat	Simon Marsh, NEZS	Working visit of Chester Zoo animal staff to help with Africat's wild cat rehabilitation work
India: Bat workshop	James Andrewes, NEZS	Working visit of Chester Zoo animal staff to attend and present at bat workshop in India
Mascarenes: Rodrigues Fruit Bats	Stephanie Wehnelt, NEZS	Working visit of Chester Zoo staff to monitor Rodrigues Fruit bat project

On-Site Research

We were pleased to host 112 research projects in conservation, biology, zoology, psychology, animal behaviour, anthropology and veterinary medicine.

First Name	Last Name	Qualification and Subject	University or College	Zoo Area of Study
Camilla	Aas	BSc Psychology & Biology	Liverpool John Moores U	Primates, macaques, dominance
Andrew	Bagnall	PhD Conservation Biology	Manchester Metropolitan U	Birds, cockatoos, conservation
Nathan	Bailey	BSc Evolutionary Biology	St Andrews U	Fish, genetics
Leon	Barnes	MSc Habitat Creation & Management	Staffordshire U	Rodents, Harvest Mice, conservation, release
Louise	Battery	BSc Biology	Manchester Metropolitan U	Ungulates, Przewalski's Horses, Onagers, social behaviour
Emily	Bethell	MSc Psychology	Portsmouth U	Primates, Chimpanzees, gaze patterns
Michelle	Bradley	BSc Animal Sciences	Hartpury C	Carnivores, Oriental Small-clawed Otters, enrichment
Nicola	Brown	BSc Zoology	Durham U	Primates, Chimpanzees, grooming
Kirsty	Burrell	MSc Applied Animal Behaviour and Welfare	Edinburgh U	Ungulates, Black Rhinos, olfactory enrichment, visitor effects
Kirsty	Burrell	n/a Research Assistant	n/a	Elephants, 24-hour activity budgets
Tracy	Butler	BSc Biology	Bolton Institute	Primates, Ring-tailed Lemurs, grooming
Bradley	Cain	PhD Conservation Genetics	Manchester Metropolitan U	Ungulates, Black Rhinos, genetics
Gillian	Cannon	MSc Zoology	Liverpool U	Primates, Ring-tailed Lemurs, grooming
Julian	Cheshire	BSc Zoology	Liverpool U	Primates, gibbons, Chimpanzees, macaques, social behaviour
Caroline	Chylinski	BSc Zoology	Aberdeen U	Ungulates, Guanacos, enrichment
Lisa	Clifforde	BSc Animal Behaviour and Welfare	Chester C	Primates, Mandrills, visitor effects
Jenny	Clift	BSc Biological Sciences	Manchester Metropolitan U	Primates, macaques, Colombian Black Spider Monkeys, Mandrills, tool use
Helen	Clubb	BSc n/a	Liverpool U	Primates, macaques, Mandrills, Colombian Black Spider Monkeys, social monitoring
Eleanor	Condon	n/a Research Assistant	n/a	Primates, Orang-utans, enrichment
Michael	Cook	BSc Genetics	Nottingham U	Birds, flamingos, DNA, taxonomy
Uinos	Davies	BSc Zoology	Liverpool U	Ungulates, Babirusa, Red River Hogs, enclosure use
Nick	Davis	PhD Psychology	Chester C	Primates, Colombian Black Spider Monkeys, endocrinology, behaviour, welfare
Caroline	Dawes	BvetMed Veterinary Science	Royal Veterinary C, London	Birds, Keas, behaviour, enrichment
Tamsin	Day	BvetMed Veterinary Science	Royal Veterinary C, London	Birds, Humboldt's penguins, enrichment
Sarah	Dinning	WBL n/a	Chester C	Elephants, behaviour, night-time outdoor access
Adele	Doran	MSc Conservation Biology	Manchester Metropolitan U	Primates, Sulawesi Crested Macaques, enrichment
Anna	Dunning	BSc Psychology	Chester C	Ungulates, Red River Hogs, behaviour
Jane	East	BSc Animal Behaviour	Chester C	Elephants, behaviour, mother-offspring
Victoria	Edmonds	PhD Zoology	Cambridge U	Bats, Rodrigues Fruit Bats, flight aerodynamics
Charlotte	Edwards	BSc Biological Sciences	Manchester Metropolitan U	Primates, macaques, foraging behaviour
Gareth	Evans	BSc Applied Zoology	Liverpool John Moores U	Birds, chickens, dominance
Stephen	Fawdon	BSc Psychology	Chester C	Reptiles, Komodo Dragons, behaviour
Vanessa	Federle	BSc Biology	Manchester U	Ungulates, Bongo, behaviour
Vicky	Fishlock	n/a n/a	n/a	Primates, Orang-utans, endocrinology, welfare
Nicola	Forshaw	n/a Training for field research	Chester C	Primates, Colombian Black Spider Monkeys, behaviour
Nicola	Forshaw	Mphil Psychology & Biology	Chester C	Primates, callitrichids, behaviour, endocrinology
Craig	Francis	BSc Zoology	Aberdeen U	Ungulates, Oryx, dominance behaviour
Sarah	Friday	BSc Zoology	U of Wales, Bangor	Education, visitor questionnaires, education evaluation
Stephen	Fryer	BSc Applied Biology	Chester C	Primates, Chimpanzees, genetics
Joanna	Gould	BSc Psychology	Chester C	Primates, Colombian Black Spider Monkeys, behaviour
Shona	Goulding	MSc Reproductive Biology	Leahurst Veterinary School, Liverpool	Carnivores, Jaguars, reproduction, behaviour
Elizabeth	Griffin	BSc Psychology	Chester C	Primates, Colombian Black Spider Monkeys, behaviour
Elizabeth	Griffin	BSc Psychology	Chester C	Primates, Colombian Black Spider Monkeys, visitor effects
Kerry	Hall	BSc Zoology	Liverpool U	Primates, Buffy-headed capuchins, social behaviour, visitor effects
Sara	Hamer	BSc Animal Behaviour	Chester C	Ungulates, Giraffes, welfare
Joanna	Hatten	HND Animal Care	Pershore C	Elephants, social interactions
Jillian	Hargreaves	BSc Biological Studies	St Martin's C	Primates, Chimpanzees, social interactions
Kat	Harrington	n/a n/a	Cambridge U	Conservation, visitor questionnaire
Airlie	Henderson	BSc Animal Behaviour	Anglia Polytechnic U	Bats, Rodrigues Fruit Bats, visitor impact, enclosure use
Rebecca	Hogg	BSc Zoology	Liverpool U	Primates, Chimpanzees, grooming
Ruth	Holmes	MSc Wild Animal Health	Royal Veterinary C, London	Carnivores, large felids, enrichment
Ann	Holmes	n/a Volunteer	n/a	Carnivores, large felids, enrichment
Lydia	Hopper	BSc Psychology	Liverpool U	Primates, Orang-utans, mother-infant interactions
Stephen	Hübner	PhD Conservation Genetics	JW Goethe U, Germany	Birds, hornbills, genetics
Emma	Hunt	BSc Animal Behaviour	Chester C	Primates, Chimpanzees, behaviour

On-Site Research continued

First Name	Last Name	Qualification and Subject	University or College	Zoo Area of Study
Karen	Hunter	BSc Animal Behaviour	Anglia Polytechnic U	Carnivores, Slender-tailed Meerkats, visitor effects, enclosure utilisation
Gilly	Irving-Lewis	MSc Veterinary Science	Edinburgh U	Primates, Lion-tailed Macaques, social structure, behaviour, reproduction
Arati	Iyengar	n/a n/a	Southampton U	Ungulates, Scimitar-horned Oryx, genetics
Gail	James	BSc Biology	Keele U	Fish, seahorses, social behaviour
Aidan	Keane	n/a n/a	Liverpool U	Primates, Chimpanzees, behaviour
Rachael	Kidd	WBL n/a	Chester C	Elephants, behaviour, night-time access
Clair	Kinrade	BSc Psychology	Chester C	Primates, Colombian Black Spider Monkeys, behaviour
Kathy	Knight	BSc Zoology	Liverpool John Moores U	Carnivores, Jaguars, olfactory enrichment
Tom	Larkham	BSc Zoology	U of Wales, Aberystwyth	Carnivores, Jaguars, visitor effects
Joanne	Lawson	BSc Zoology	Liverpool John Moores U	Carnivores, Californian Seals, enrichment
Victoria	Lidbury	BSc Animal Behaviour	Chester C	Primates, Ring-tailed Lemurs, feeding behaviour
Scott	Lomax	BA Archaeology and Prehistory	Sheffield U	Primates, Chimpanzees, feeding behaviour
Katy	Longshaw	BSc Psychology	Chester C	Primates, Colombian Black Spider Monkeys, behaviour
Richard	Madej	BSc Animal Behaviour	Chester C	Carnivores, large felids, feeding behaviour
Bonaventura	Majolo	PhD Primatology	Liverpool John Moores U	Primates, apes, conflict management, biochemistry
Amelie	Malgras	MSc Conservation Biology	Manchester Metropolitan U	Birds, Waldrapp Ibis, inter-species relationships
Richard	Marvan	PhD Anthropology	Charles U, Czech Republic	Primates, Chimpanzees, Bonobos, social structure
Lynne	McAlley	n/a Volunteer	Chester C	Primates, Orang-utans, enrichment
Cara	McCusker	PhD Primatology	Chester C	Primates, lemurs, endocrinology, dominance
Niall	McGilchrist	BSc Zoology	Liverpool U	Californian Seals, enclosure use, social behaviour
Matthew	McLennan	MSc Primate Conservation	Oxford Brookes U	Primates, Chimpanzees, social behaviour
Jen	Messenger	BSc Zoology	Leeds U	Primates, Orang-utans, rehabilitation
Eva	Nesbitt	BSc Animal Behaviour	Anglia Polytechnic U	Primates, Chimpanzees, female sexuality
Kerri	Nicholls	BSc Animal Behaviour	Chester C	Carnivores, Oriental Small-clawed Otters, behaviour
Hazel	Nichols	BSc Biology	Sheffield U	Ungulates, Pere David's Deer, genetics
Katy	Norbury	BSc Animal Behaviour	Anglia Polytechnic U	Marsupials, Western Grey Kangaroos, enrichment
Cecilia	Orme	BSc Zoology	Leeds U	Primates, Sulawesi Crested Macaques, grooming
Edward	O'Shaughnessy	BSc Psychology & Biology	Liverpool John Moores U	Primates, Chimpanzees, feeding
Ceris	Owen	BSc Applied Animal Behaviour	Bishop Burton C	Carnivores, Oriental Small-clawed Otters, behaviour, visitor effects
Rebekah	Oxley	BSc Animal Behaviour	Anglia Polytechnic U	Primates, Buffy-headed Capuchins, enrichment
Kelly	Parker	BA Psychology	Chester C	Ungulates, Red River Hog, behaviour
Kelly	Parker	BA Psychology	Chester C	Carnivores, Oriental Small-clawed Otters, play
Tamzin	Patton	BSc Psychology	Chester C	Reptiles, Komodo Dragons, behaviour
Emma	Pollard	BSc Psychology	Chester C	Reptiles, Komodo Dragons, behaviour
Vicky	Powell	PhD Conservation Biology	Manchester Metropolitan U	Bats, Rodrigues Fruit Bats, conservation
Helen	Proctor	BSc Animal Behaviour	Chester C	Primates, Chimpanzees, tool use
Prof. John	Quinn	n/a Primate Genetics	Liverpool U	Primates, genetics
David	Read	BSc Wildlife Conservation	East London U	Primates, Buffy-headed Capuchins, visitor effects
David	Redding	MSc Applied Ecology and Conservation	East Anglia U	Carnivores, Jaguars, habitat disturbance
Hana	Rejkova	Mgr Anthropology	Karlova U, Czech Republic	Primates, Chimpanzees, locomotion
Lynne	Riley	BSc Psychology	Bolton Institute	Primates, Chimpanzees, handedness
Caroline	Robson	BSc Applied Animal Behaviour	Bishop Burton C	Elephants, behaviour
Hannah	Rowland	n/a Volunteer	n/a	Primates, Orang-utans, translocation
Elaine	Roy	BSc Psychology	Liverpool U	Primates, Orang-utans, enrichment
Yvan Ilya	Russell	PhD Primatology	Liverpool U	Primates, Chimpanzees, reciprocal behaviour
Rachel	Sekules	BSc Conservation Medicine	Leahurst Veterinary School, Liverpool	Elephants, behaviour, night-time outdoor access
Shan	Siah	MPhil Conservation Medicine	Leahurst Veterinary School, Liverpool	Disease transmission, Harvest Mice, wild animals
Lyndsy	Skyner	PhD Biological Sciences	Chester C	Primates, Lion-tailed Macaques, social dynamics
Kathryn	Smith	BSc Zoology	Liverpool U	Ungulates, Onagers, visitor effects
Ursula	Tröndle	MSc Wild Animal Health	Royal Veterinary C, London	Elephants, welfare
Samantha	Tynan	BSc Applied Animal Behaviour	Bishop Burton C	Carnivores, Asiatic Lions, behaviour
Steve	Unwin	MVSc Veterinary Science	Queensland U	Marsupials, reproduction, conservation
Bridget	Waller	MPhil Psychology	Portsmouth U	Primates, Chimpanzees, FACS
Simon	Wheeler	BSc Conservation Medicine	Leahurst Veterinary School, Liverpool	Primates, Chimpanzees, function of sexual swellings
David	Williams	BSc Zoology	Liverpool U	Primates, Orang-utans, behaviour time budgets
Alexandra	Wilson	BSc Zoology	Liverpool U	Ungulates, Guanacos, social behaviour
Louise	Worth	BSc Zoology	Liverpool U	Enrichment, zoo animals

Zoo Review 2003

Work Experience 2003

We were pleased to offer work experience training to 110 students from 58 separate institutions in 8 countries and thank them for their contribution to the Zoo.

Name	Course and College/University/School	Home Address
Samantha Adams	Upton High School (Retail)	Upton
Shaun Allingham	Work Based Training Programme, Nottingham Reptile Centre	Derby
Alyssa Armstrong	Post A Levels, Pre Vet Science	Stoke on Trent
Michael Ashbrook	Post A Levels, Pre Zoology	Cheshire
Sophie Atkinson	HND Countryside Conservation, Aberystwyth University	Crewe
Harriet Auty	Veterinary Science, Liverpool University	Surrey
Maria Barrett	Post A Levels, Pre Vet Science	Merseyside
Arun Battick	Zoology, Aberystwyth University (1 Year Placement)	Sussex
Sara Bentley	Zoology, Aberystwyth University	Stoke on Trent
Ami Bills	Ridgeway High School (IT)	Wirral
Sally Boneham	Zoology, Sheffield University	Sheffield
Caroline Bunn	Post A Levels, Pre Vet Science	Cheshire
Sara Burke	Post A Levels, Pre Vet Science	Lincoln
Hayley Burkey	Nat Dip Animal Care, Welsh College of Horticulture	Wirral
Nicholas Caddock	Helsby County High School (IT)	Elton
Danielle Campbell	Sutton High School	Wirral
Laura Cartwright	Animal Management, Huddersfield Technical College	Huddersfield
Leanne Clarke	Brynhyfryd School (Retail)	Ruthin
Sarah Clegg	MSc Marine Biology, University of Hull	Lancashire
Nathan Coles	Animal Management, Loxham College	Wiltshire
David Collins	HND Animal Behaviour and Welfare, Reaseheath College	Buckley
David Connolly	Kingsway High School (Retail)	Chester
Camilla Cooper	Post A Levels, Pre Vet Science	Ashton-Under-Lyne
Jenny Cooper	Post A Levels, Pre Vet Science	Frodsham
Shaun Coughlan	HND Animal Care, Welsh College of Horticulture	Wrexham
Fiona Cutler	Nat Dip Animal Care, Llysfasi College	Powys
Laura Davis	Behavioural & Environmental Biology, St Andrews University	Dunblane
Carl Diaper	Nat Dip Animal Care, Llysfasi College	Langollen
Lindsey Dods	Nat Dip Animal Care, The Berkshire College of Agriculture	High Wycombe
Ian Dutton	Bishop's Blue Coat Church of England High School (Retail - Work Shadowing)	Chester
Nicola Eaton	NVQ Animal Care, Knowsley Community College	Liverpool
Deydd Evans	Post A Levels, Pre Vet Science	Denbigh
Charlotte Exley	Christleton High School (Retail/A&G)	Chester
Carole Falgot	Post BTA (A Level Equivalent) Lycée Robert Schumann, France	France
Jennifer Geraghty	Nat Dip Animal Management, Huddersfield Technical College	Halifax
Jennifer Gibson	Post A Levels, Pre Vet Science	Rochdale
Ben Gilbert	Veterinary Science, Liverpool University (Work Shadowing)	Neston
Amy Gillespie	Post A Levels, Pre Vet Science	Essex
Duncan Gillespie	BSc Biological Sciences, Edinburgh University (Work Shadowing)	Wellingborough
Anna Goodall	Post A Levels, Pre Vet Science	Stockport
Thomas Greenham	Post A Levels, Pre Vet Science	Lancashire
Eliza Grout	Postgraduate in Equine Science, Pre Vet Medicine	Canwy
Michael Grundy	Sutton High School (IT)	Wirral
Andy Harrison	BTEC, First Dip Animal Care, Myerscough College	Preston
Grainne Hartigan	Zoology, Liverpool University	Liverpool
Emma Holmes	Post A Levels, Pre Vet Science	St Helens
Catherine Hubbard	Post A Levels, Pre Vet Science	Congleton
Daryl Hughes	Return to employment scheme	Flintshire
Holly Johnson	Nat Dip Animal Care, Derby College	Derbyshire
Ben Johnston	Upton High School (Catering/A&G)	Upton
Nicola Jones	Sutton High School (Admin)	Wirral
Alison Kingham	Veterinary Medicine, Edinburgh University	Wim
Carolyn Koehler	BSc Zoology, Anglia Polytechnic University (One Year Placement)	Cambridge

Jessica Larsson	Animal Care, Valstad School, Sweden	Sweden
Maja Lauritsen	Animal Care, Kolding Tekniske Skole, Denmark	Denmark
Hannah Leach	Queens Park High School (Horticulture & Botany/Retail)	Chester
Iona Limond	Post A Levels, Pre Vet Science	Wiltshire
Hannah Lomas	A Levels, Abbey Gate College, Pre Vet Science	Chester
Katie Lowe	A Levels, Aquinas College, Pre Vet Science	Stockport
Thomas Lowry	BSc Animal Behaviour, Chester College (One Year Placement)	Cardiff
Lesha Lytwyniw	Conservation Biology/Marine Science, Murdoch University, Perth	Australia
Esme Manuhutu	Animal Care, University of Agriculture, Hertenbosch	Netherlands
Evelien Martens	Animal Care, Agricultural Institute, Breda, Netherlands	Netherlands
Adele Martin	A Levels, The Grange School, Pre Vet Science	Lymm
Lynne McAlly	HND Animal Behaviour, Reaseheath College	Northwich
Claire McLean	Animal Nutrition and Physiology, Leeds University	Mold
Sean McQuillan	Kingsway High School (Horticulture & Botany)	Chester
Claire Mellor	Veterinary Science, Liverpool University	Caernarfon
Nicola Michael	Animal Care, Reaseheath College	Congleton
Gill Morgan	HND Animal Management, Hopwood Hall College	Manchester
Anna Murray	BSc Animal Behaviour and Welfare, Reaseheath College	Ellesmere Port
Charlene Nash	Bryn Alun High School (Retail/Horticulture & Botany)	Wrexham
Karen Neech	BSc Animal Behaviour, Chester College (One Year Placement)	York
Katie Nelson	HND Animal Behaviour, Welsh College of Horticulture	Wirral
Ashley O'Brien	Upton High School (IT)	Upton
Thomas O'Hare	St Richard Gwyn School (ASD)	Howarden
Chris Ottaway	Nat Dip Animal Care, Abingdon and Witney College	Oxford
Kristina Pennington	Nat Dip Animal Management, Walford Agricultural College	Shropshire
Ruth Phoenix	Sutton High School (Catering)	Wirral
Simon Pratley	Animal Care, Wiltshire College	Chippenham
Gemma Pudge	Animal Care, Reaseheath College	Chester
Puja Puttagunta	Veterinary Medicine, St Georges University (starting January 2004)	Barnsley
Anna Riach	Zoology, Glasgow University (Ten Month Placement)	Bathgate
Anna Rountree	Veterinary Science, Edinburgh University	Grimby
Andrew Rutherford	Post A Levels, Pre Vet Science	Cumbria
Lucy Sanderson	Nat Dip Animal Management, Welsh College of Horticulture	Neston
Rachel Saunders	BSc Ecology, University of Wales	Bangor
Rachel Sekules	Veterinary Science, Liverpool University	Co. Down
Chas Shakespeare	Stanley County High School (Catering)	Ellesmere Port
Adam Singleton	Animal Care, Reaseheath College	Congleton
Christine Skeldon	Animal Management, Welsh College of Horticulture	Wirral
Elliott Smith	A Levels, Greenhead College, Pre Vet Science	Dewsbury
Anton Snel	Animal Care, Agricultural Institute, Breda, Netherlands	Netherlands
Ashley Sollars	St Davids High School (Retail/Catering)	Chester
Katie Sturgess	BSc Animal Care, Chester College (One Year Placement)	Portsmouth
David Sunley	Nat Dip Animal Management, Askham Bryan College	York
Venessa Theobald	HND Animal Behaviour and Welfare, Chester College	Chester
Kathrin Theuring	Secondary Education in Germany	Germany
Katie Thomson	Zoology, Liverpool John Moores University (One Year Placement)	Essex
Hannah Tkaczuk	BSc Animal Behaviour, University of East London (One Year Placement)	London
Christine Wayman	Brynhyfryd School (Retail)	Ruthin
Nicola Webb	Queens School (Catering)	Ruthin
Steve Weddell	Veterinary Science, Liverpool University	West Sussex
Lauren Wild	Bishops High School (Retail)	Chester
Carinne Williams	Zoology, Bangor University	Wrexham
Luke Williams	Amenity Horticulture, Reaseheath College (Horticulture & Botany)	Hyde
Charlotte Woods	Nat Dip Animal Management, Huddersfield Technical College	Halifax
Christopher Worral	Ellesmere Port Catholic High School (Catering)	Great Sutton
Sarah Wynne	Nat Dip Animal Care, Reaseheath College	Ellesmere Port
Jennifer York	A Levels, St Richard Gwyn High School, Pre Zoology	Flintshire

Publications and Reports 2003

A selection from more than 85 scientific publications, articles and reports produced by zoo staff and associates.

- Adams, WA, Robinson, KJ, Jones, RS and Sanderson, S (2003) Isoflurane to prolong medetomidine/ketamine anaesthesia in six adult female chimpanzees (*Pan troglodytes*). *Vet Record* **152** (1): 18-20.
- Bird, S (ed) (2002) *Zoo Plant Group Newsletter* (December 2002). North of England Zoological Society, UK.
- Bird, S (ed) (2003) *Zoo Plant Group Newsletter* (July 2003). North of England Zoological Society, UK.
- Boczek, H and Lavender, C (2003) Sweetwaters Trip Report. *Zoo Life* **14** (Summer 2003): 18-19.
- Boehm, C, Bowden, CGR, and Jordan, MJR (eds) (2003) *Northern Bald Ibis conservation and reintroduction workshop*. Royal Society for the Protection of Birds, Sandy, England.
- Brunger, D (2003) *Dwarf Forest Buffalo* (*Syncerus caffer nanus*) ESB Regional Studbook, Edition 1 - Data current to 01/08/2003. North of England Zoological Society, UK.
- Brunger, D (2003) *Northern Talapoin* (*Miopithecus talapoin*) ESB Regional Studbook (monitor), Edition 5 - Data current to 01/08/2003. North of England Zoological Society, UK.
- Brunger, D and MacKenzie, C (2003) *Gemsbok* (*Oryx gazella*) JMSB Studbook, Edition 2 - Data current to 01/08/2003. North of England Zoological Society, UK.
- Buley, KR (2003) *Leptodactylus fallax* - Ophiophagy. *Herpetological Review* **34**: 358-359.
- Cahill, AJ and Walker, JS (2003) Hornbill ecology and conservation on the Indonesian Island of Sulawesi: Preliminary findings. *Proceedings of the Parrot, Hornbill, Toucan and Touraco Symposium*, 17-18 June 1999, Chester Zoo. ABWAK, Bristol: 57-62.
- Caws, C and Woodward, J (2003) From the beginning. *Zoo Life* **15** (Autumn 2003): 28.
- Clubb, RE (2001) *The roles of foraging niche, rearing conditions and current husbandry on the development of stereotypies in carnivores*. PhD thesis, University of Oxford.
- Condon, E (2003) A labour of love - one year dedicated to Orang utans. *Zoo Life* **13** (Spring 2003): 12-13.
- Condon, E, Wehnelt, S and Turner, Z (2003) The effect of visitors on the behaviour of Humboldt's penguins at Chester Zoo. *Zoo Federation Research Newsletter* **4** (2): 3.
- Dollinger, P, Reid G McG and Jacques, F (eds) (2003) *Proceedings of the 4th International Zoo Marketing Conference*. WAZA/EAZA. Budapest, May 2003: 1-109. World Association of Zoos and Aquariums, Bern, Switzerland.*
- Feistner, A and Wehnelt, S (2003) *The Federation Research Group - Working for Animal Welfare*. Poster at the 1st International UFAW Symposium "Science in the Service of Animal Welfare", Edinburgh 1-4 April 2003.
- Fidgett, A (2003) Nutrition for endangered species: what do we know? *Proceedings of the Annual Symposium on Zoo Research: Bristol 2002*, Bristol Zoo Gardens, 8-9 July 2002. Publishers as below. The Federation of Zoological Gardens of Great Britain and Ireland, London: 1.
- Fidgett, A (2003) Vitamins in Herbivore Nutrition: the emphasis on E. *Proceedings of the BVZS Spring 2002 Meeting*, 11-12 May 2002, Dublin. British Veterinary Zoological Society: 53-54.
- Fidgett, A, Clauss, M, Gansloßer U, Hatt, JM and Nijboer, J (eds) (2003) *Zoo Animal Nutrition*, Vol. II. Filander Verlag, Fürth, Germany.
- Harcourt, CS and Sherwood, BR (eds) (2003) *New perspectives in primate evolution and behaviour*. Westbury Academic & Scientific Publishing.**
- Hayhow, R (2003) *Newcastle University Lulanda 2002: Tanzanian Eastern Arc Forest Corridors*, Field Report. University of Newcastle.
- Howse, P (2003) Caught on Camera. *Zoo Life* **14** (Summer 2003): 28-29.
- Hudson, C and Wehnelt, S (2003) Environmental Enrichment for large felids at Chester Zoo. *Proceedings of the Annual Symposium on Zoo Research: Bristol 2002*, Bristol Zoo Gardens, 8-9 July 2002. The Federation of Zoological Gardens of Great Britain and Ireland, London: 38-43.
- Jordan, MJR (2002) Reintroduction and restocking protocols for the Common Hamster (*Cricetus cricetus*). In RC van Apeldoorn and M Stubbe (eds) *Protection of the Common Hamster* (*Cricetus cricetus* L., 1758). Publicaties van het Natuurhistorisch Genootschap in Limburg, **Reeks XXIII**, aflevering 1. Stichting Natuurpublicaties Limburg, Maastricht: 24-28.
- Jordan, MJR (2003) Re-introduction protocols and considerations for small mammals. *Re-introduction News*, Newsletter of the IUCN/SSC Re-introduction Specialist Group, Abu Dhabi, UAE **22**: 39-43.
- Jordan, MJR (2003) Rodent and Lagomorph TAG. In O Walter and N Bemment (eds) *Joint Management of Species Programmes Annual Report 2002*. Federation of Zoological Gardens of Great Britain and Ireland: 46-48.
- Jordan, MJR (2003) The role of the IUCN Re-introduction Specialist Group reviewed. *Federation News* **81**: 4.
- Jordan, MJR (2003) Collection Planning for Rodents - The role of diversity in zoological collections. In Hiddinga, B (ed) *Proceedings of the EAZA Conference 2000*, Prague. EAZA Executive Office, Amsterdam: 99-103.
- Jordan, MJR (2003) The pros and cons of captive breeding, translocation, reintroduction and restocking as applied to the Common Hamster (*Cricetus cricetus*). In Mercelis, S, Kayser, A and Verbeylen, G (eds) *The Hamster - ecology, policy and management of the hamster and its biotope*. Natuurpunt, Gent, Belgium: 47-51.
- Jordan, MJR (2003) World Conservation Union (IUCN) fundamental considerations for release projects applied to the Northern Bald Ibis. In Boehm, C, Bowden, CGR and Jordan, MJR (eds) *Northern Bald Ibis conservation and reintroduction workshop*. Royal Society for the Protection of Birds, Sandy, England: 53-58.
- Jordan, MJR (2003) Enrichment meets Reintroduction - too much too soon? Abstracts of the 6th International Conference on Environmental Enrichment 2-7 November 2003. Johannesburg Zoo.
- Jordan, MJR and Rudloff, K (2003) *The European Association of Zoos & Aquaria regional collection plan for the Lagomorpha, Xenarthra, Hyracoidea, Pholidota, Dermoptera, and Tubulidentata 2000-2005*. EAZA executive office, The Netherlands.
- Jordan, MJR and Rudloff, K (2003) *The European Association of Zoos & Aquaria regional collection plan for the Chiroptera 2000-2005*. North of England Zoological Society, UK.
- Jordan, MJR and Rudloff, K (2003) *EAZA Small Mammal TAG - A TAG strategy for implementing the 'IUCN technical guidelines on the management of ex situ populations for conservation'*. North of England Zoological Society, UK.
- Jordan, MJR, Boehm, C, and Bowden, CGR (2003) Group workshop on guidelines for Northern bald Ibis release. In Boehm, C, Bowden, CGR and Jordan, MJR (eds) *Northern Bald Ibis conservation and reintroduction workshop*. Royal Society for the Protection of Birds, Sandy, England: 12-19.
- MacCormick, A and MacLeod, R (eds) (2003) *Yungas 2001 Project Report: Biological inventory and conservation assessment of the yungas forests of Cordillera Cocapata and Mosetenes, Bolivia*. Oxford University, Oxford.
- Marrs L (2003) Innovative Plant Interpretation at Chester: Talking Plants. *Zoo Plant Group Newsletter* (Summer 2003): 6-7.
- Marrs L (2003) Talking Plants. *Zoo Life* **15** (Autumn 2003): 24.
- Marsden, SJ and Pilgrim, JD (2003) Factors influencing the abundance of parrots and hornbills in pristine and disturbed forests on New Britain, PNG. *Ibis* **145**: 45-53.
- McKeown, S (2003) Education. *Zoo Life* **13** (Spring 2003): 6-7.

Footnotes

* This major publication, involving 27 contributing authors, resulted from a conference co-organised by the North of England Zoological Society. There were 90 delegates from 24 countries, including South Africa, Russia, Argentina and Columbia.

** This major publication involving 21 contributing authors and 14 papers, resulted from an earlier symposium on primate biology organised and hosted by the North of England Zoological Society.

Publications and Reports 2003 continued

- Philippin, H-D, Buley, KR and Zwartepoorte, H (2003) Die Asiatische Schildkrötenkrise – der Aufbau eines neuen Typs von Arche Noah. *Draco* **13**: 90-95.
- Pilgrim M (2003) Ecuadorian amazon *Amazona autumnalis lilacina* EEP. In L Versteeg, K Garn, B Hiddinga and K Brouwer (eds) *EAZA Yearbook 2000*, Amsterdam: 135-136.
- Pilgrim, M, Woodward, A, Hall, D, Marsh, S, Wright, H and Kelly, L (2003) The sea lion beach at Chester Zoo. *EAZA News* **43**: 22.
- Powell, VJ and Wehnelt, SC (2003) A new estimate of the population size of the Critically Endangered Rodrigues fruit bat (*Pteropus rodricensis*). *Oryx* **37** (3): 353-357.
- Reid, G McG (2002) *Global Scales – Conservation Performance in Aquariums*. WAZA Magazine **2**: 1-4.
- Reid, G McG (2003) Preface. In C S Harcourt and BR Sherwood (eds) *New Perspectives in Primate Evolution and Behaviour*. Westbury Academic & Scientific Publishing.
- Reid, G McG (2003) The 4th International Zoo Marketing Conference – A Great Success. WAZA Magazine **3**: 11.
- Rudd, P (2003) Dr Jane Goodall, DBE. *Zoo Life* **15** (Autumn 2003): 16-17.
- Rudd, P (2003) The 2003 Harvest Mouse release. *Zoo Life* **15** (Autumn 2003): 18-19.
- Rudloff, K and Jordan, MJR (2003) EAZA Small mammal TAG Annual Report 2000. In L Versteeg, K Garn, B Hiddinga and K Brouwer (eds) *EAZA Yearbook 2000*, Amsterdam: 288-295.
- Ruks, S (2003) Book review: *Comparative Psychology by Animal: Number 1 Lions*. *Feedback* **27**: 9.
- Ruks, S (2003) The Scent of the Jungle. *The Journal of the Association for Heritage Interpretation* **8** (2): 17-18.
- Siah, S (2003) Rainbow country. *Zoo Life* **13** (Spring 2003): 20-21.
- Sparrow, M (2003) Growing Concerns. *Zoo Life* **14** (Summer 2003): 12-13.
- Sparrow, M and Bird, S (2003) Growing concerns. *Zoo Life* **15** (Autumn 2003): 22.
- Swift, A (2003) *The disturbance effects of logging canals on the habitat of the Orang-utan in the Sungai Sebangau tropical peat swamp forest, Central Kalimantan, Indonesia: Regeneration capabilities and implications for conservation*. BSc Thesis. College of Biological Sciences, University of Aberdeen.
- Thick, L (2003) Does cross-fostering with chickens have a role in zoos? Abstracts of the 1st International Congress of Zookeeping. Vogelpark Avifauna, The Netherlands: 26.
- Wehnelt, S (2003) Chester Zoo's support for reintroductions, relocations and restocking programmes. North of England Zoological Society, UK.
- Wehnelt, S and Condon, E (2002/2003) Coastland conservation meets rhino welfare. *Coastlines*, [Winter Issue]: 4.
- Wehnelt, S and Rath, A (2003) Christmas comes once a month - Feeding fully-feathered turkey carcasses to felids at Chester Zoo. Abstracts of the 1st International UFAW Symposium on Science in the Service of Animal Welfare, Edinburgh, 1-4 April 2003.
- Wehnelt, S, Hosie, C, Plowman, A and Feistner, A (2003) *Zoo Research Guidelines: Project Planning and Behavioural Observations*. The Federation of Zoological Gardens of Great Britain and Ireland, London.
- Weinhold, U and Jordan, MJR (2003) International Hamster Workgroup: Reintroduction, restocking and conservation breeding of the Common Hamster. In Mercelis, S, Kayser, A and Verbeylen, G (eds) *The Hamster – ecology, policy and management of the hamster and its biotope*. Natuurpunt, Gent, Belgium: 17-22.
- Wilkinson, R (2003) Bird Review. *Zoo Life* **14** (Summer 2003): 10-11.
- Wilkinson, R (2003) Births and Hatchings: Chester - United Kingdom (Red Birds of Paradise). *EAZA News* **43**: 17-18.
- Wilkinson, R (2003) Blue-eyed Cockatoo (*Cacatua ophthalmica*) European Studbook, 5th Edition 2001. North of England Zoological Society, UK.
- Wilkinson, R (2003) Blue-eyed Cockatoo (*Cacatua ophthalmica*) European Studbook. Sixth ESB edition. North of England Zoological Society, UK.
- Wilkinson, R (2003) Blue-eyed Cockatoo ESB Annual Report 2000. In L Versteeg, K Garn, B Hiddinga and K Brouwer (eds) *EAZA Yearbook 2000*, Amsterdam: 128.
- Wilkinson, R (2003) Chester Zoo Bird Review 2002. *Avicultural Magazine* **109** (2): 69-77.
- Wilkinson, R (2003) EAZA Parrot TAG Annual Report 2000. In L Versteeg, K Garn, B Hiddinga and K Brouwer (eds) *EAZA Yearbook 2000*, Amsterdam: 121-122.
- Wilkinson, R (2003) European zoo breeding programme for parrots. *Proceedings of the Parrot, Hornbill, Toucan and Touraco Symposium*, 17-18 June 1999, Chester Zoo. ABWAK, Bristol: 21-28.
- Wilkinson, R (2003) Palm Cockatoo (*Probosciger aterrimus*) EEP, 10th Edition 2001. North of England Zoological Society, UK.
- Wilkinson, R (2003) Palm Cockatoo EEP Annual Report 2000. In L Versteeg, K Garn, B Hiddinga and K Brouwer (eds) *EAZA Yearbook 2000*, Amsterdam: 129-130.
- Wilkinson, R (2003) The China programme – supporting Chinese biodiversity conservation. *Zoo Life* **13** (Spring 2003): 24-25.
- Wilkinson, R and Bagnall, A (2003) Parrot TAG. In O Walter and N Bemment (eds) *Joint Management of Species Programmes Annual Report 2002*. Federation of Zoological Gardens of Great Britain and Ireland: 35-36.
- Wilkinson, R and McLeod, W (2003) Hornbills at Chester Zoo: History, husbandry and breeding. *Proceedings of the Parrot, Hornbill, Toucan and Touraco Symposium*, 17-18 June 1999, Chester Zoo. ABWAK, Bristol: 63-72.
- Wilkinson, R and Pilgrim, M (2003) Chester Zoo's Black Rhino Conservation Programme. *Zoo Life* **14** (Summer 2003): 16-17.
- Williams, S (2003) Bird studies in Oman. *Zoo Life* **13** (Spring 2003): 18-19.
- Williams, S (2003) The Lear's Macaw. *Zoo Life* **14** (Summer 2003): 22-23.
- Williams, S and Wehnelt, S (2003) Effects of mirror image stimulation on the behaviour of Mandrills (*Mandrillus sphinx*). *Zoo Federation Research Newsletter* **4** (4): 3-4.
- Wilson S (2003) ISO 14001, BS8555, EMS? - What are they and why are they important to zoos? *Ratel* **30** (5): 125-126.
- Wilson, S (2003) Tigers. *Zoo Life* **13** (Spring 2003): 14-15.
- Wilson, S and Zimmermann, A (2003) Asian elephant survival. *Zoo Life* **15** (Autumn 2003): 6-7.
- Wood, EM and Dakin, N (2003) *The responsible marine aquarist*. Marine Conservation Society, Ross-on-Wye, UK.
- Woodward, A (2003) Munda Wanga to Chester Zoo. *Zoo Life* **15** (Autumn 2003): 14.
- Woodward, A (2003) The Southern Cassowary. *Zoo Life* **15** (Autumn 2003): 15.



Information Technology



Philip Morris,
Information Technology Manager

Anti Virus

Virus proliferations are ever-increasing and our anti-virus software McAfee proved to be a resilient shield with no viral out breaks. The shield is updated automatically every 2 hours but relies on the good practice of users as well as good service of our provider.

Members and Adoptions Database.

The members' database has been running for about a year and has made massive improvements. Direct debits, single mailings to addresses with multiple members, saving postage, complicated delayed mailings for Christmas presents and gifted memberships are new features to this version. The adoptions' database is in the final stages of deployment and will link the two systems for the first time. It will also be the first time that adoptions can be networked, so the workload can be spread.

Cisco LRE (Long Reach Ethernet)

This was the best buy of the year! We can now install a rapid broadband connection to our internal telephone network at anything up to 10mb depending on wire quality to any site in the Zoo with a phone line for a nominal cost. This means a faster, more effective service.

Internet

A major bugbear with internet speed and email restrictions was resolved. New technology providers EasyNet have overcome the 3.5 km restriction imposed by BT which previously prevented us installing broadband.

Email

We upgraded the email server to Exchange 2003 - this provides us with many improvements including Outlook web access, better offline working and larger mailbox capacity.

Staff

On going professional IT training was taken up by all staff members, which was motivational and productive.

In-the-Pipeline

We plan to implement a new network design and to split the network into smaller sub networks to aid fault diagnosis, network management and improve overall speed. The major part of this will be implemented on completion of phase II. To summarise, we have extended the computer network, added more users and increased the speed of the network, both internally and to the outside world. Databases are continuing to grow and will play a more significant role in our systems development.

Finance and Administration



Alan Sykes
Financial Controller & Company Secretary

The audited accounts of the Society are presented on pages 56 to 63 of this Annual Report. The accounts are explained on page 52, with a more formal commentary in the Council Report on pages 53 to 55.

The continuing success and expansion of the Zoo generally has meant another busy year for the Division. Early in the year, the Accounts team welcomed Jill Barnard-Blom as a second Management Accountant. This enables the department to analyse the figures more comprehensively and provide information and reports to assist other managers around the Zoo in generating more income or to control their costs more efficiently. Janet Carruthers, Angela Powell and Emma Holding have also joined us as Accounts

Coordinators to help ensure the £16,000,000 income generated by the Zoo is safely banked; and to check and pay the many thousands of purchases, expenses and wages.

The Front of House team welcomed over 1,160,000 visitors to the Zoo during the year. The department grew substantially in 2002, with the introduction of Gift Aid, which is contributing over £1 million annually to the Society's work. It grew again in 2003 with the introduction of the elective pound, where all adult visitors were asked to donate £1 to the *Asian Elephants in Crisis Appeal*. This takes time, and the number of entrance gates (and the people to staff them) has been increased by nearly 50% to cope. A welcome effect of this has been a substantial reduction in the length of queues on busy days. The role of the Front of House team is continuing to be developed, with an increasing emphasis on customer service - and so we welcomed Moira Walker and John Mackenzie, Deputy Supervisors, to help coordinate the growing team.

Zoo Review 2003

Financial Performance

Incoming Resources

The total income of the Society and its trading subsidiary company in 2003 was £16,600,000, 17.7% higher than 2002. Nearly 94% of this derived from the visiting public.

Visitor Numbers

In 2003 1,076,000 visitors came to the zoo, the highest level since 1969. If we include the under 3's then the total zoo visitation figure was 1,160,000.



Spend per visitor

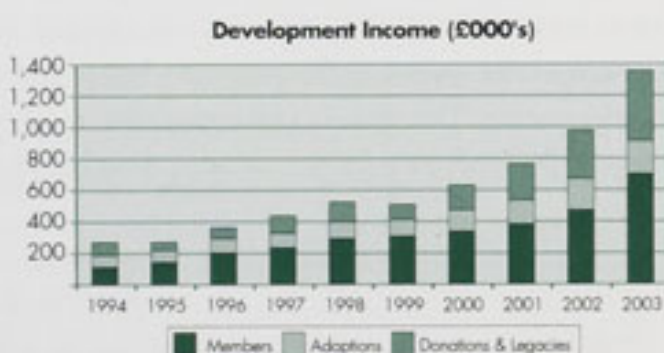
The average total spend per visitor in 2003, excluding VAT, was £13.98; 12.8% above last year.



Of this increase 9.1% relates to the change of VAT status from January 2003 of our admissions income from Standard Rated to Exempt. The net benefit to the Society of this change in 2003 was £812,000.

Donations, legacies and similar incoming resources

The Society's other significant source of funds is the development activity, with a further 38.7% increase in income from memberships, adoptions and donations of which 8.0% relates to the change of VAT status.



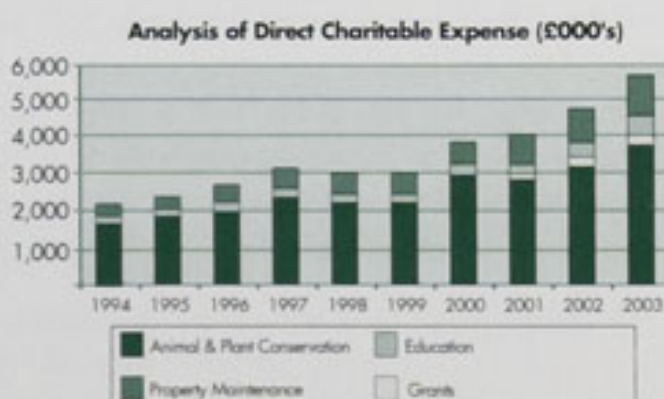
The columnar presentation used in the Statement of financial activities highlights the increasing significance to the Society of restricted income, where the use of the funds is legally restricted, within the overall charitable objects of the Society, to that specified by the donor. At the year end, £645,000 was set aside in this way, principally in respect of the Asian Elephant Survival campaign.

Resources Expended

Costs and overheads are analysed to the activity they relate to. While the methods of allocation may be subjective, they are applied consistently, both between activities and over time. This is important in order to fairly state both charitable expenditure and the cost of generating funds.

Direct Charitable Expenditure

The direct charitable activities of the Society - principally animal and plant conservation, education and grants payable - again expanded substantially, up a further 20.0% in 2003.



Other Expenditure

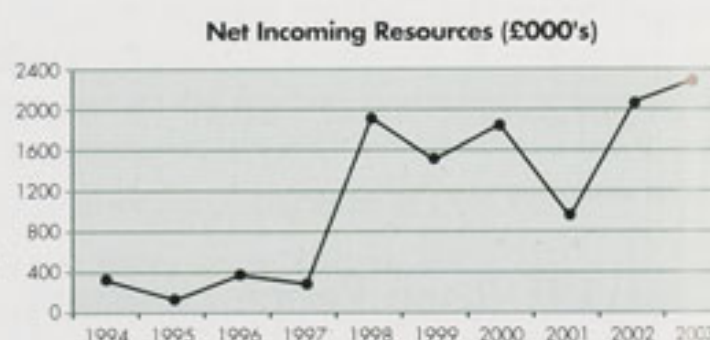
Visitor related expenditure, principally amenity services, keeping the zoo clean and tidy for our visitors, was £1,660,000. As mentioned above, support costs relating both to this and the direct charitable spend, are shown separately, £1,018,000 for the year. The cost of management and administration of the Society was £770,000.

Much of the fundraising and publicity costs of £864,000 relates to advertising and promotional activity specifically to attract visitors. The rest relates to fundraising and to the raising of public awareness about the zoo and its charitable mission.

As a consequence of the change of VAT status of our admissions income, a proportion of the 'Input VAT' that the Society could previously offset against the VAT paid is now irrecoverable. Due to the practical problems of allocating this over the activities to which it relates, this has been isolated as a single expense; £480,000 in 2003.

Net Incoming Resources

The net incoming resources were £2,299,000 for the year. The increase compared to 2002 relates principally to a further improvement in visitor levels and the increased spend per visitor, mainly due to the change in VAT status. Total funds employed increased to £13,100,000.

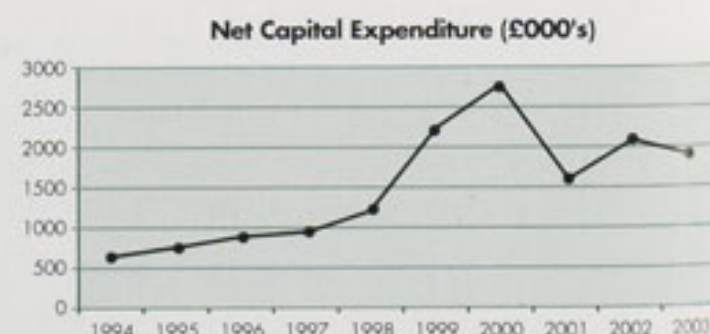


As a charity, there is no inherent value to the Society in producing large net incoming resources, other than to strengthen its reserves or to provide the means for future investment. So long as the increase in incoming resources is seen to be sustainable, the Society chooses to expand the level of its ongoing charitable operations instead.

Capital Expenditure

Net investments in capital developments during 2003 were £1,880,000.

These included the Macaw aviary, the nursery greenhouses, re-roofing the Tropical House, further work to improve the visitor car park, completion of the Komodo Dragons extension to the Islands in Danger exhibit and initial work on the second phase of Cedar House.



Conclusion

Financially, for the second year in succession, we have had the most successful year in the history of the Society. This has enabled the substantial expansion in the level of our direct charitable activities to continue.

Alan Sykes
Financial Controller

2003 Council Report

Trustees elected by the Members

John Makinson	(Chairman)
John Brown	(Vice Chairman)
Prof Malcolm Bennett	(Elected 31 May 2003)
Neville Chamberlain	(Until 31 January 2003)
Chris Clifford	(Elected 31 May 2003)
Brian Coles	(Until 31 May 2003)
Karen Davies	(Until 31 May 2003)
Caroline Evans	(Elected 31 May 2003)
Chris Mahon	(Elected 31 May 2003)
Brian Livingstone	(Until 31 May 2003)
Derek Lyon	
Jeremy Playfer	
Graham Pollard	(Until 31 May 2003)
Alan Sharples	(Until 31 May 2003)
Judith Skeritt	
David Wall	
Alan Watson	
Prof Peter Wheeler	
Tony Williams	

Trustees co-opted by Council

Brian Child	(Co-opted 26 September 2003)
Robert Mee	(Co-opted 26 September 2003)

Director

Professor Gordon McGregor Reid

Company Secretary

Alan Sykes

Registered Office

Oakfield House, Zoological Gardens, Caughall Road, Upton by Chester, Chester, CH2 1LH

Auditors

PricewaterhouseCoopers LLP, 101 Barbirolli Square, Lower Mosley Street, Manchester, M2 3PW

Solicitors

Aaron & Partners, Grosvenor Court, Foregate Street, Chester, CH1 1HG
Mace & Jones Solicitors, Drury House, Liverpool, L2 0RP
Walker, Smith & Way, 26 Nicholas Street, Chester, CH1 2PQ

Bank

Barclays Bank PLC, PO Box 230, 15-33 Moorfields, Liverpool, L69 2RU

Legal and administrative information

The North of England Zoological Society ("the Society") is a registered charity (Number 306077) and a company limited by guarantee (Number 287902), regulated by its Memorandum and Articles of Association. The Society, also known as Chester Zoo, owns a trading subsidiary company, Chester Zoo Enterprises Limited, whose profits are transferred to the Society via Gift Aid.

A resolution to reappoint PricewaterhouseCoopers LLP as auditors to the Society will be put to members at the Annual General Meeting.

Investment powers are limited to those available under charity legislation.

The charity's mission is to save animal and plant species from extinction by operating and developing a zoological garden and by outreach activities. It supports and promotes conservation by breeding threatened species, by excellent animal welfare, high quality public service, recreation, education and science. It collaborates with like-minded organisations on an international basis.

The Council

The Council, as a body of charity trustees, and of directors for the purposes of Company Law, has general control and management of the administration of the Society. It determines the strategic direction and policies of the Society, with consultation and discussion with the Director of the Society as Chief Executive and his staff who implement policy. Council members are elected by the Members of the Society at the Annual General Meeting. They may also be co-opted by Council to hold office for a period not exceeding 15 months. Council holds at least six formal meetings each year, together with an Annual General Meeting. Council has delegated aspects of its powers to committees consisting of some of its members, relevant staff and other advisors. The members of Council, and the Council Committee structure at 31 December 2003, are indicated in the table below.

Committees:	Finance & Personnel	Remuneration	Education	Animal Welfare Conservation & Science	Pension Fund * ()
John Makinson	✓	Chair		✓	✓
John Brown		✓	✓		
Prof Malcolm Bennett			✓	✓	
Brian Child					
Chris Clifford	✓				
Caroline Evans			✓	✓	
Chris Mahon				✓	
Derek Lyon				✓	✓
Robert Mee	✓				
Jeremy Playfer					
Judith Skeritt			Chair		
David Wall	✓				
Alan Watson	Chair	✓			
Prof Peter Wheeler				Chair	
Tony Williams	✓				

* As Trustees of The North of England Zoological Society Superannuation Fund Scheme, established to provide pension benefits to employees of the Society.
() Not formally a committee of Council, the trustees act for the fund members.

Financial report and analysis

The financial statements have been produced in the format prescribed by the Charity Commission's Statement of Recommended Practice ('SORP 2000').

Visitor-related activities in furtherance of the charity's objectives produced a surplus of £8,192,000 (2002: £6,766,000). These principally comprise visitor admissions to the Zoo, monorail and waterbus rides, and sales of guides. The net income of the trading subsidiary was £254,000 (2002: £294,000) from catering and retail activities. Donations, legacies and similar incoming resources, which includes members' subscriptions and animal adoptions increased to £1,351,000 (2002: £974,000).

Zoo Review 2003

2003 Council Report continued

Restricted donations include £239,000 (2002: £Nil) for the Asian Elephant Survival Campaign given by a substantial proportion of our adult visitors who are asked, on arrival at the zoo, to donate a pound to this appeal in addition to the admission charge.

Direct charitable expenditure, principally animal and plant conservation, increased to £5,370,000 (2002: £4,471,000). Grants payable in furtherance of the charity's objectives (principally for outreach activities) were £232,000 (2002: £220,000). Fund raising and publicity costs, which include the marketing and promotional advertising of the zoo, were £864,000 (2002: £670,000).

The Society has benefited substantially this year from the acceptance by HM Customs & Excise that our admission fees from 1 January 2003 may be treated as exempt from VAT. Visitor admissions include £1,214,000 (2002: £Nil) and members' subscriptions and animal adoptions a further £78,000 (2002: £Nil) of 'Output VAT' which would previously have been paid over to HM Customs & Excise. However, as a consequence of this partial exemption to VAT, a proportion of the 'Input VAT' £480,000 (2002: £Nil) that the Society could previously offset against the VAT paid is now irrecoverable. Hence the net benefit to the Society of this change in status in 2003 was £812,000 (2002: £Nil).

Net incoming resources for the year were £2,299,000 (2002: £2,103,000) which increased the accumulated funds carried forward to £13,100,000 (2002: £10,801,000).

The cash inflow from net incoming resources was £3,565,000 (2002: £3,208,000). This was utilised to fund net capital expenditure of £1,880,000 (2002: £2,070,000) causing a net increase in cash over the year of £1,791,000 (2002: £1,176,000).

The European legislation underlying the change of VAT status referred to above applies from 1 January 1990 and the Society is vigorously pursuing a claim for the recovery of VAT, plus interest thereon, for the 13 years to 2002. This is contested by HM Customs & Excise but, if the claim is successful, could result in a substantial refund.

In its November 2003 Pre-Budget Report, the Government stated it's intention to cease the special exemption in the Gift Aid rules that enable the Society to recover Gift Aid on visitor admissions. In response to representations as to the impact of the change on zoos and other affected charities, it has since broadened and extended its consultation on the proposal. However, it is very possible that this concession, introduced in 2000, which generated £986,000 in 2003, may be withdrawn in 2005.

Restricted and designated funds

Restricted income funds derive from the Animal Adoption Scheme and from donations, grants and legacies received. Animal adoption income is all utilised to purchase animal foods, and the remaining restricted funds are put towards a variety of capital projects and outreach activities.

The designated funds relate principally to the Society's capital expenditure programme for the coming year, and to outreach programmes which the Society wishes to support over the next three to five years.

Grant-making policy

The Society makes institutional grants payable in furtherance of the charity's objects, for conservation, outreach, research and animal welfare projects.

Reserves

The Society's reserves may be defined as that part of its unrestricted income funds that are freely available for its general purposes. It therefore excludes those funds that could only be realised by disposing of fixed assets held for charitable use. It is the general policy of the Society to apply towards its objectives as much cash as it reasonably can, without accumulating excessive reserves.

Council does not consider it to be necessary to retain income in respect of the Society's designated fund activities. Whilst these funds have been earmarked by Council for particular purposes or uses, they are not committed or restricted legally. The designation may be cancelled by Council if it later decides that the Society should not proceed with the use or project for which the funds were designated.

The Society must have regard to its substantial continuing commitments, in terms of staffing and of its ongoing charitable objectives, and to the difficulty of predicting its precise income in any year. It must have regard to the annual cyclical swings of cash flow and such variable factors as wet weather at peak visitor times, competing attractions in the region, social trends, support for or opposition to zoos in principle, the potential closure of the zoo to visitors due to contagious disease or other disasters, and varying levels of economic prosperity and employment.

Council considers that reserves at the end of any financial year not exceeding 100% of the total resources expended during the year could properly be regarded as both reasonable and justified. Equally it considers that it would not be prudent to allow such reserves to fall below zero. The Society's reserves at 31 December 2003, as defined above, were within these boundaries.

Risk management

Council actively reviews the major risks that the Society faces on a regular basis both generally and specifically, and believes that maintaining free reserves within the levels indicated above will provide sufficient resources in the event of most adverse conditions. Council also monitors the key financial and internal control systems and examines other operational and business risks to which the Society is exposed and has established systems to mitigate the significant risks identified.

Employees

The Society endeavours to ensure that employees are treated fairly and equality of opportunity is afforded to all staff.

Applications for employment by disabled persons are always fully considered, bearing in mind the respective aptitudes and abilities of the applicant. In the event of members of staff becoming disabled, every effort is made to ensure that where a role is available for which appropriate training can be offered, their Society employment continues. It is the policy of the Society that the training, career development and promotion of a disabled person should, as far as possible, be identical to that of a person who does not suffer from a disability.

The Society continues to consult and discuss with its employees, both through the Staff Association and directly at ad-hoc meetings, a wide range of matters, including development of the Society's mission and its success. Information is also disseminated by means of a staff website, an in-house newsletter, *Zoo Life Magazine*, and the Annual Report that seek to achieve a common awareness on the part of all employees of the Zoo, of the financial, economic and other factors affecting the Society.

2003 Council Report continued

Council's responsibilities in relation to the financial statements

Members of Council are required by UK company law to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the Society and the group as at the end of the financial year and of the net incoming resources of the group for that period.

In preparing these financial statements, Council is required to:

- select suitable accounting policies and apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- state whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements;
- prepare the financial statements on the 'going concern' basis unless it is inappropriate to presume that the Society will continue to operate.

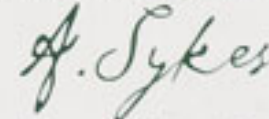
Council is responsible for keeping proper accounting records that disclose with reasonable accuracy at any time the financial position of the Society and the group and enable it to ensure that the financial statements comply with the Companies Act 1985 and applicable accounting standards.

Council is also responsible for safeguarding the assets of the Society and the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Council is responsible for the maintenance and integrity of the Chester Zoo website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Council hereby confirms that these financial statements comply with current statutory requirements, the requirements of the Society's Memorandum and Articles of Association and the requirements of the Statement of Recommended Practice, "Accounting and Reporting by Charities", October 2000.

Approved by Council and signed on its behalf:



Alan Sykes, Company Secretary,
26 March 2004

Independent auditors' report to the members of The North of England Zoological Society

We have audited the financial statements which comprise the consolidated statement of financial activities, the balance sheets, the consolidated cash flow statement, and the accounting policies and the related notes.

Respective responsibilities of directors and auditors

The trustees are also directors of The North of England Zoological Society for the purpose of company law. Their responsibilities for preparing the Annual Report and the financial statements in accordance with applicable United Kingdom law and accounting standards are set out in the statement of Council's responsibilities.

Our responsibility is to audit the financial statements in accordance with relevant legal and regulatory requirements and United Kingdom Auditing Standards issued by the Auditing Practices Board. This report, including the opinion, has been prepared for and only for the company's members as a body in accordance with Section 235 of the Companies Act 1985 and for no other purpose. We do not, in giving this opinion, accept or assume any responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

We report to you our opinion as to whether the financial statements give a true and fair view and are properly prepared in accordance with the Companies Act 1985. We also report to you if, in our opinion, the Council report is not consistent with the financial statements, if the charitable company has not kept proper accounting records, if we have not received all the information and explanations we require for our audit, or if information specified by law regarding directors' remuneration and transactions is not disclosed.

We read the other information contained in the annual report and consider the implications for our report if we become aware of any apparent misstatements or material inconsistencies with the financial statements.

The other information comprises only the Council Report.

Basis of audit opinion

We conducted our audit in accordance with auditing standards issued by the Auditing Practices Board. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures in the financial statements. It also includes an assessment of the significant estimates and judgements made by the directors in the preparation of the financial statements, and of whether the accounting policies are appropriate to the company's circumstances, consistently applied and adequately disclosed.

We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming our opinion, we also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In our opinion, the financial statements give a true and fair view of the state of the affairs of the charitable company and group at 31 December 2003 and of the incoming resources, including the income and expenditure, and cash flows of the group for the year then ended and have been properly prepared in accordance with the Companies Act 1985.

PricewaterhouseCoopers LLP

Chartered Accountants and Registered Auditors
101 Barbirolli Square, Lower Mosley Street
Manchester, M2 3PW
26 March 2004

Financial Activities

Consolidated statement of financial activities (incorporating an income and expenditure account) for the year ended 31 December 2003

	Notes	2003 Unrestricted Funds £'000	2003 Restricted Funds £'000	2003 Total £'000	2002 Total £'000
Incoming resources					
Incoming resources from operating activities					
- Activities in the furtherance of the charity's objects	2	9,852	-	9,852	8,204
- Activities for generating funds – trading by subsidiary company	3	5,190	-	5,190	4,807
Total incoming resources from operating activities		15,042	-	15,042	13,011
Donations, legacies and similar incoming resources	4	748	603	1,351	974
Investment income and other incoming resources	5	207	-	207	114
Total incoming resources		15,997	603	16,600	14,099
Resources expended					
Charitable expenditure					
- Costs of activities in furtherance of the charity's objects					
- Visitor related expenditure	2	1,660	-	1,660	1,438
- Direct charitable expenditure	6	5,000	370	5,370	4,471
		6,660	370	7,030	5,909
- Grants payable in furtherance of the charity's objects	7	232	-	232	220
- Support costs		1,018	-	1,018	912
- Cost of management and administration of the charity	8	770	-	770	686
Total Charitable expenditure		8,680	370	9,050	7,727
Costs of activities for generating funds					
- Trading by subsidiary company	3	3,907	-	3,907	3,599
- Fund raising and publicity		864	-	864	670
Total costs of activities for generating funds		4,771	-	4,771	4,269
Irrecoverable VAT		480	-	480	-
Total resources expended		13,931	370	14,301	11,996
Net income for the year/net movement of funds	9	2,066	233	2,299	2,103
Accumulated funds brought forward		10,389	412	10,801	8,698
Accumulated funds carried forward		12,455	645	13,100	10,801

All activities are continuing.

There is no material difference between historical cost profit and reported profit.

There are no recognised gains or losses for the year other than reported profit generated in the year.

Balance Sheets

Balance sheets as at 31 December 2003

	Notes	Consolidated		Society	
		2003 £'000	2002 £'000	2003 £'000	2002 £'000
Fixed assets					
Tangible assets	13	9,604	9,109	9,559	9,048
Investment in subsidiary company	3	-	-	-	-
		9,604	9,109	9,559	9,048
Current assets					
Stocks	14	365	271	85	37
Debtors	15	431	232	553	394
Cash at bank and in hand		4,100	2,305	4,100	2,305
		4,896	2,808	4,738	2,736
Creditors: amounts falling due within one year	16	1,400	1,116	1,210	987
Net current assets		3,496	1,692	3,528	1,749
Total assets less current liabilities		13,100	10,801	13,087	10,797
Net assets		13,100	10,801	13,087	10,797
Funds employed					
Income funds – restricted	17	645	412	645	412
Income funds – unrestricted					
Designated funds	17	4,338	1,943	4,338	1,943
Other charitable funds	17	8,117	8,446	8,104	8,442
		12,455	10,389	12,442	10,385
Total funds employed	17	13,100	10,801	13,087	10,797

The financial statements on pages 56 to 63 were approved by the Council on 26 March 2004 and signed on its behalf by:

John Makinson
Chairman of Council
26 March 2004

Alan Watson
Chairman of Finance Committee
26 March 2004

Cashflow Statement

Consolidated cash flow statement for the year ended 31 December 2003

	2003 £'000	2002 £'000
Net cash inflow from net incoming resources		
Net incoming resources	2,299	2,103
Net interest receivable	(106)	(38)
Profit on sale of fixed assets	(17)	(2)
Depreciation charges	1,402	1,256
Increase in stocks	(94)	(9)
Increase in debtors	(199)	(92)
Increase (Decrease) in creditors due within 1 year	280	(10)
	3,565	3,208
Returns on investment and servicing of finance		
Interest received	124	49
Interest paid	(18)	(11)
	106	38
Capital expenditure and financial investment		
Receipts from disposal of tangible fixed assets	17	8
Payments to acquire tangible fixed assets	(1,897)	(2,078)
	(1,880)	(2,070)
Increase in net cash in the year	1,791	1,176

Analysis of changes in net debt during the year

	Balance at 1 January 2003 £'000	Cash flow 31 December £'000	Balance at 2003 £'000
Cash			
Bank overdraft	(224)	(4)	(228)
Cash at bank and in hand	2,305	1,795	4,100
Total net cash	2,081	1,791	3,872

Accounting Policies

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

Basis of preparation

The financial statements have been prepared in accordance with applicable accounting standards in the United Kingdom under the historical cost convention, with the SORP and the Charities Act 1993.

The consolidated statement of financial activities consolidated balance sheet and consolidated cash flow statement include the financial statements of the Society and its subsidiary undertaking made up to 31 December 2003 and comply with recommended practice for accounting by charities.

The results of the subsidiary are consolidated on a line by line basis. The charity has availed itself of paragraph 3(3) of Schedule 4 of the Companies Act 1985 and adapted the Companies Act formats to reflect the special nature of the charity's activities. No separate SOFA has been presented for the charity alone as permitted by Section 230 of the Companies Act 1985 and paragraph 304 of the SORP.

Funds employed

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

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

Fixed assets

Fixed assets, including investments in subsidiary undertakings, are included in the balance sheets at their cost to the Society until fully depreciated, when they are written off.

Freehold properties

Depreciation is provided on freehold properties excluding land at 2% per annum.

Special buildings, enclosures, equipment and monorail system

Depreciation is provided at rates varying between 4% and 25% per annum, estimated to write off each asset over the term of its useful life. The rates and method of depreciation are consistent with those used in previous years.

Animals

No annual assessment is made of the value of the animal collection. It is valued consistently at a nominal sum and not depreciated. Purchases and sales during the year are treated as revenue transactions.

Leases

Where the Society enters into a lease which entails taking substantially all the risks and rewards of ownership of an asset, the lease is treated as a finance lease. The asset is recorded in the balance sheet as a fixed asset and is depreciated over its estimated useful life. Future instalments under such leases, net of finance charges, are included within creditors. Rentals

payable are apportioned between the finance element, which is charged to the statement of financial activities as interest, and the capital element, which reduces the outstanding obligation for future instalments. All other leases are operating leases and the rental charges are taken to the statements of financial activities as incurred.

Stocks

Stocks are valued on a basis consistent with that used in previous years at the lower of cost and estimated net realisable value.

Incoming resources

Turnover of charitable trading activities represents cash and invoiced amounts of admission charges, goods sold and services provided (stated net of value added tax). Animal adoptions, donations and legacies are accounted for on a received basis.

Members' annual subscriptions are apportioned over the year of membership.

Pensions

The Society operates a voluntary pension scheme covering the majority of permanent employees providing benefits based on final pensionable pay. The assets of the scheme are held in trustee-administered funds completely independent of the Society's finances. Contributions to the scheme are charged to the statement of financial activities so as to spread the cost of pensions over the employees' working lives with the Society.

In November 2000, the Accounting Standards Board issued Financial Reporting Standard Number 17 (Retirement Benefits). The standard will not be mandatory for the group and Society until the year ended 31 December 2005. The standard has an extended transitional period during which certain disclosure will be required in the notes to the financial statements; these disclosures are shown in note 12.

Property sales

Profit on sales of land and buildings consists of the difference between the net amount realised and the sum of cost and subsequent additions, and is reported within investment income and other incoming resources in the statement of financial activities in any year where a sale has occurred.

Apportionment of costs

The Society's systems analyse expenses departmentally. The SORP calls for expenses to be analysed on the operational basis and accordingly, they have been apportioned on this basis. Different appropriate criteria such as staff numbers, cash revenues and volume of purchases have been used.

Research and development

Research and development expenditure is written off as incurred.

Grants

Liabilities relating to grants are recognised once the Society is irrevocably committed to the provision of the grant.

Notes to the Financial Statements

1 Status

The Society is a company limited by guarantee and has no share capital. Members have guaranteed the liabilities of the Society to the extent of £1 each in the event of the charity being wound up. The Society is registered with the Charity Commission Number 306077. As a registered charity, the Society is entitled to claim exemption from the charge to tax on income and chargeable gains in Section 505 Income and Corporation Tax Act 1988 and Section 256 Taxation of Chargeable Gains Act 1992. Any commercial activity which falls outside the statutory exemption for the purposes of corporation tax is conducted through Chester Zoo Enterprises Limited, which transfers all its taxable profits annually to the Society via Gift Aid. In the opinion of Council, no corporation tax liability arose in respect of the Society's activities in the year.

2 Activities in the furtherance of the charity's objects - Visitor-related (All unrestricted)

Turnover

Visitor admissions
Monorail and boats
Guides and other

	2003 Total £'000	2002 Total £'000
Visitor admissions	9,136	7,512
Monorail and boats	392	383
Guides and other	324	309
	9,852	8,204

Gross expenditure

Visitor admissions
Monorail and boats
Guides and other

	2003 Total £'000	2002 Total £'000
Visitor admissions	1,487	1,183
Monorail and boats	108	155
Guides and other	65	100
	1,660	1,438

Surplus on visitor-related activities in the furtherance of the charity's objects.

	2003 Total £'000	2002 Total £'000
	8,192	6,766

3 Activities for generating funds - Trading by subsidiary company

The Society has a wholly owned trading subsidiary, Chester Zoo Enterprises Limited, incorporated in the UK, (representing an investment of £100 in ordinary £1 shares) which operates the catering and retail activities of the Zoo from outlets rented from the Society. It transfers its taxable profit via Gift Aid to The North of England Zoological Society. A summary of its trading results is shown below. Audited financial statements for the year ended 31 December 2003 will be filed with the Registrar of Companies. Its aggregate assets, liabilities and funds at the year end were £348,244, £335,700 and £12,544 respectively.

Incoming resources

Turnover

Catering	Shops	2003 Total £'000	2002 Total £'000
3,010	2,180	5,190	4,807

Resources expended

Direct costs
Indirect costs - external overheads
Total external costs

	2003 Total £'000	2002 Total £'000
Direct costs	2,427	3,529
Indirect costs - external overheads	61	70
Total external costs	2,488	3,599
	522	1,208

Management charges
paid to parent company

	2003 Total £'000	2002 Total £'000
Management charges paid to parent company	618	503

Property rents paid to
parent company

	2003 Total £'000	2002 Total £'000
Property rents paid to parent company	411	411

Amount transferred to the
Society via Gift Aid

	2003 Total £'000	2002 Total £'000
Amount transferred to the Society via Gift Aid	246	290

Amount retained in subsidiary

	2003 Total £'000	2002 Total £'000
Amount retained in subsidiary	1275	1,204
	8	4

4 Donations, legacies and similar incoming resources

Members' subscriptions
Animal adoptions
Donations and legacies

Unrestricted Funds £'000	Restricted Funds £'000	2003 Total £'000	2002 Total £'000
704	-	704	473
-	210	210	204
44	393	437	297
		748	974

5 Investment income and other incoming resources (All unrestricted)

Investment income

Interest and investment income received
Property rents received, external

	2003 Total £'000	2002 Total £'000
Interest and investment income received	124	49
Property rents received, external	66	63
	190	112

Other incoming resources -

Profit on sale of fixed assets

	2003 Total £'000	2002 Total £'000
Profit on sale of fixed assets	17	2
	207	114

6 Direct charitable expenditure

Animal and plant conservation
Education
Property maintenance

Unrestricted Funds £'000	Restricted Funds £'000	2003 Total £'000	2002 Total £'000
3,449	305	3,754	3,185
535	3	538	412
1,016	62	1,078	874
		5,000	4,471

7 Grants payable in furtherance of the charity's objects

The Society makes institutional grants payable in furtherance of the charity's objects, for conservation outreach, research and animal welfare projects. Details are given in the Society's Annual Report, copies of which may be obtained from the Company Secretary.

8 Cost of management and administration of the charity (All unrestricted)

Interest payable
Bank commissions
Expenses associated with property rents received
Apportionment of management time and overhead cost

2003 Total £'000	2002 Total £'000
18	11
61	47
77	82
614	546
770	686

9 Net Movement in funds (All unrestricted)

This is after charging/(crediting):
Auditors' remuneration for:
Audit (Society £10,000; 2002: £10,000)
Depreciation
Hire of equipment
Interest payable – bank
Interest receivable
Operating lease rentals – plant and equipment

2003 Total £'000	2002 Total £'000
14	14
1,402	1,256
75	69
18	11
(124)	(49)
11	6

As permitted by Section 230 of the Companies Act 1985, the Society's results are included in the consolidated statement of financial activities and no separate statement of financial activities is presented. The Society's surplus for the financial year, determined in accordance with the Companies Act, was £2,299,000 (2002: £2,103,000).

10 Trustees' remuneration

The members of Council, being charity trustees, received no remuneration (2002: £Nil). One trustee (2002: three) were reimbursed during the year for travelling expenses necessarily incurred. The aggregate amount of these expenses was £646 (2002: £1,253).

Insurance costing £1,838 (2002: £1,603) has been taken out by the Society to protect the Society, its trustees and other officers against the consequences of any neglect or default on their part.

11 Employee costs

Wages and salaries
Social security costs
Other pension costs

2003 £'000	2002 £'000
5,122	4,524
443	361
520	315
6,085	5,200

The number of employees, including those employed for only part of the year, whose emoluments for the year (excluding pension contributions) fell within each band of £10,000 from £50,000 upwards is shown below. These employees also had benefits accruing to them under the Society's defined benefit pension scheme.

From £60,001 to £70,000

2003 Number	2002 Number
1	1
1	1

The average number of persons (full time equivalents) employed by the Society during the financial year was as follows:

	2003 Permanent Number	2003 Fixed Term Number	2002 Permanent Number	2002 Fixed Term Number
Animals and plants	85	1	76	3
Education	14	5	10	3
Property maintenance	25	-	24	-
Visitor Services	29	17	30	16
Catering and shops	54	39	40	51
Fund raising and publicity	10	-	8	-
Administration	21	18	20	11
	238	80	208	84

12 Pensions

Composition of the plan

The Society operates a defined benefit plan in the UK. A full actuarial valuation was carried out at 31 December 2002 and projected forward to 31 December 2003 by a qualified independent actuary. The major assumptions used by the actuary were (in nominal terms):

	31 December 03	31 December 02	31 December 01
Rate of increase in salaries	4.14%	3.83%	4.00%
Rate of increase of pensions in payment	2.64%	2.33%	2.50%
Rate of increase of pensions in deferment	2.64%	2.33%	2.50%
Discount rate	5.36%	5.47%	6.00%
Inflation assumption	2.64%	2.33%	2.50%

The assets in the plan and the expected rate of return were:

	31 December 2003 £'000	31 December 2002 £'000	31 December 2001 £'000
Asset class			
Equities	7.30% 3,796	7.02% 2,773	7.45% 3,253
Bonds	4.80% 1,125	4.52% 1,098	4.95% 998
Cash and net current assets	4.00% 281	3.00% 280	3.00% 712
Total market value of assets	5,202	4,151	4,963
Actuarial value of liabilities	7,053	5,680	5,149
Total deficit in the plan	1,851	1,529	186
Related deferred tax liability	-	-	-
Net pension liability	1,851	1,529	186

If the above pension liability were recognised in the financial statements at 31 December 2003, the group's net assets and total funds employed would be as follows:

12 Pensions (continued)

	31 December 03 £'000	31 December 02 £'000
Net assets and total funds employed excluding pension liability	13,100	10,801
Pension liability	1,851	1,529
Net assets and total funds employed including pension liability	11,249	9,272

At the year end £6,875 pension contributions were prepaid (2002: £5,650 accrued).

The following amounts would have been recognised in the performance statements in the year to 31 December 2003 under the requirements of FRS17:

	2003 £'000	2002 £'000
Consolidated statement of financial activities		
Current service cost	356	275
Past service cost	-	-
Total operating charge	356	275

	2003 £'000	2002 £'000
Analysis of net return on pension plan		
Expected return on pension plan assets	264	320
Interest on pension liabilities	(317)	(315)
Net return	(53)	5

	2003 £'000	2002 £'000
Statement of total recognised gains and losses (STRGL)		
Actual return less expected return on assets	423	(1,341)
Experience gains and losses on liabilities	(274)	263
Changes in assumptions	(566)	(294)
Actual loss recognised in STRGL	(417)	(1,372)

	2003 £'000	2002 £'000
Movement in deficit during the year		
Deficit in plan at 1 January 2003	(1,529)	(186)
Current service cost	(356)	(275)
Contributions	504	299
Other finance (costs)/income	(53)	5
Actuarial (loss)	(417)	(1,372)
Deficit in plan at 31 December 2003	(1,851)	(1,529)

	2003 £'000	2002 £'000
History of experience gains and losses during the year		
Difference between expected and actual return on plan assets		
Amount (£000's)	423	(1,341)
Percentage of plan assets	8%	(32%)
Experience gains and losses on plan liabilities		
Amount (£000's)	(274)	263
Percentage of plan liabilities	(4%)	5%
Total amount recognised in STRGL		
Amount (£000's)	(417)	(1,372)
Percentage of plan liabilities	(6%)	(24%)

13 Tangible fixed assets

	Freehold property £'000	Buildings & enclosures £'000	Machinery & equipment £'000	Animals £'000	Total £'000
Cost					
At 1 January 2003	699	12,147	911	1	13,758
Additions	117	1,464	316	-	1,897
Disposals and retirements	-	(93)	(188)	-	(281)
At 31 December 2003	816	13,518	1,039	1	15,374

Depreciation					
At 1 January 2003	179	3,920	550	-	4,649
Provided during year	11	1,201	190	-	1,402
Disposals and retirements	-	(93)	(188)	-	(281)
At 31 December 2003	190	5,028	552	-	5,770

Net book value					
At 31 December 2003	626	8,490	487	1	9,604
At 31 December 2002	520	8,227	361	1	9,109

The net book value at 31 December 2003 represents fixed assets used for:

Charitable trading activities	-	1,985	97	-	2,082
Direct charitable purposes	-	5,733	213	1	5,947
Other purposes	626	772	177	-	1,575
	626	8,490	487	1	9,604

The Society holds no fixed assets for investment purposes.

Assets of the Monorail system, included within Machinery and Equipment, with a cost of £1,174,000 and a net book value of £ nil are held under a peppercorn rent finance lease.

The depreciation charged for the year to 31 December 2003 was allocated:

Charitable trading activities	-	151	10	-	161
Direct charitable purposes	-	901	110	-	1,011
Other purposes	11	149	70	-	230
	11	1,201	190	-	1,402

Animal purchases of £6,228 (2002: £4,514) and sales of £Nil (2002: £Nil) have been treated as revenue transactions.

Council considers that it is not meaningful to consider the market value of most of the Society's land and buildings. Such assets are necessary to the operation of the zoo, which is the primary charitable purpose of the Society. Where an assessment can be made, Council considers that the market value exceeds the book value.

All the tangible fixed assets included in the consolidated statement above relate entirely to the Society with the exception of the machinery and equipment where the equivalent figures for the Society alone are:

At 1 January 2003
Additions
Disposals
Provided during year
At 31 December 2003

Cost £'000	Depreciation £'000	Net book value £'000
613	312	301
316	-	316
(188)	(188)	-
-	176	(176)
741	300	441

14 Stocks

Goods for resale
Consumables

Group		Society	
2003 £'000	2002 £'000	2003 £'000	2002 £'000
272	226	8	2
93	45	77	35
365	271	85	37

The replacement cost of the above stocks would not be significantly different from the values stated.

15 Debtors: amounts falling due within one year

Trade debtors
Amount owed by subsidiary undertaking
Other debtors
Prepayments and accrued income

Group		Society	
2003 £'000	2002 £'000	2003 £'000	2002 £'000
39	21	29	13
-	-	146	116
132	63	131	117
260	148	247	148
431	232	553	394

16 Creditors: amounts falling due within one year

Bank overdraft (secured)
Trade creditors
Other taxes and social security costs
Other creditors and prepaid income
Deferred income and accruals

Group		Society	
2003 £'000	2002 £'000	2003 £'000	2002 £'000
228	224	187	183
454	471	366	424
140	80	115	67
172	7	169	7
406	334	373	306
1400	1,116	1,210	987

The bank overdraft is secured by a fixed charge on the freehold property.

17 Movement of funds

Restricted income funds

Animal adoptions scheme
Animal welfare projects
Education projects
Other projects

Balance at 1 January 2003 £'000	New funds £'000	Funds utilised £'000	Balance at 31 December £'000
-	210	210	-
404	323	90	636
8	3	3	8
-	67	67	-
412	603	370	645

Designated funds

Animal welfare projects
Education projects
Other capital projects

249	2,557	174	2,632
38	0	12	26
1,656	1,680	1,656	1,680
1,943	4,237	1,842	4,338
8,446	11,770	12,089	8,117
10,801	16,600	14,301	13,100

Other charitable funds

Total funds employed

2003 Unrestricted funds £'000	2003 Restricted funds £'000	2003 Total £'000	2002 Total £'000
2,066	233	2,299	2,103
495	-	495	816
1,571	233	1,804	1,287

Resources applied for fixed assets for charity use

Net movement of funds for the year (see above)
Resources used for net acquisitions of fixed assets for charity use
(i.e. the increase in the net book value of tangible fixed assets)
Net movement of funds available for future activities

18 Analysis of group net assets between funds

Restricted funds
Unrestricted funds

Tangible fixed assets £'000	Net current assets £'000	Total £'000
-	645	645
9,604	2,851	12,455
9,604	3,496	13,100

The restricted income funds derive from the Animal Adoption Scheme and certain donations, grants and legacies received. Animal adoption income is all utilised to purchase animal foods, and the remaining restricted funds are put towards a variety of capital projects, equipment or outreach activities.

The designated funds relate principally to the Society's capital expenditure programme for the coming year, and to outreach programmes which the Society wishes to support over the next three to five years.

19 Financial Commitments

Capital expenditure, contracted for but not provided in the financial statements

Group		Society	
2003 £'000	2002 £'000	2003 £'000	2002 £'000
1,971	222	1,971	222

Annual commitment in respect of operating leases, for assets other than land and buildings, which expire:

- in one year or less
- within two to five years

-	4	-	4
6	-	-	-

20 Related party transactions

The Society has taken advantage of the exemptions available under Financial Reporting Standard Number 8, (Related party transactions), not to disclose details of any transactions with entities that are part of The North of England Zoological Society group.

The Society has entered into one related party transaction (2002: One). C. Mahon, a trustee of the Society, is a director of rECOrd Limited (whose mission is the collection and dissemination of all biodiversity information relating to the Cheshire region) which has leased office accommodation within the zoo grounds until 2004 at an annual rental of £3,000.

We need your
support to raise
funds for the Care and
Conservation of our
rare animals and
Endangered Species
across the World.



Chester Zoo, Upton-by-Chester, Chester CH2 1LH.

Tel: 01244 380280 Fax: 01244 371273 or visit www.chesterzoo.org

Registered Charity No. 306077

Chester Zoo - The North of England Zoological Society - is a Charitable Trust, independent of the Government and Local Authorities. Its main source of income is from paying visitors and it welcomes sponsorship.