



CHESTER



1997 ZOO REVIEW

Annual Report of the North of England Zoological Society

nineteen ninety seven





1997 was another good year for the Zoo. We welcomed 830,000 visitors, and generated a net cash inflow of £1,132,000, used for capital expenditure of £886,000 and debt reduction of £246,000. Details are to be found in the Council Report on page 25 and the Accounts which follow.

One of the most important functions of Council lies in its trusteeship of Zoo land and assets on behalf of members. During 1997 Council considered two matters relevant to the exercise of this trusteeship. Firstly, to seek recognition in the District Local Plan of Chester Zoo's development needs. The Zoo has produced a draft Corporate Plan entitled *2020 Vision* which includes plans for expanding the Zoo beyond its present perimeter and which will form the blue print for the development of Chester Zoo into the next century. We must ensure that future development of the Zoo in accordance with its conservation and animal welfare mission is understood and can be accommodated within the Local Plan.

Secondly, the National Pond Life Centre has development implications for the Zoo. Late in June, we received a request from Liverpool John Moores University for participation in their Millennium Commission bid for this project. The conservation, education and scientific basis of this scheme has synergy with the mission of Chester Zoo, and we agreed to participate in principle on that basis. The Millennium bid for £1.9 million pounds has been successful and negotiations are now taking place between ourselves and LJMU regarding the legal, financial and management details of the scheme. At all times, Council places safeguarding the Zoo's interests at the forefront of negotiations.

I must record the grateful thanks of the Society to Hamilton Howatt, who joined Council in 1986, and retired at the AGM in June. It would have been almost impossible to have found a better or better humoured Vice Chairman, over so many years.

We are saddened by the deaths of Dinah, Lady Tollemache, one of our first Vice Presidents and Fred Carson, Member of Council and latterly Estate Engineer. They both gave much of themselves for the Society over many years, and appropriate space in *Zoo Life* has allowed fuller appreciations.

The Zoo greeted 1998 with the birth on New Year's Eve of *Thi's* calf *Sithami*. Such an event augurs well for the future and is an encouraging endorsement for the Zoo's policy for this well-loved but threatened species and to the patience and persistence of both Council and staff. Chester Zoo ended 1997 in sound shape, and with much optimism for the future.

It only leaves me to say farewell after seven enjoyable and eventful years as Chairman of Council. I have been privileged to serve the Society at an exciting and fast developing period in its history. Chester Zoo has established its reputation for excellence in the fields of animal management, conservation, education and recreation, and has maintained a high level of visitor numbers. This has been achieved as the result of the constructive relationship that has been fostered and strengthened over the last decade between Council and executive. The strength of this relationship will remain the keystone for the continuing commercial and scientific achievements of the Zoo. The Zoo's strategic aims can only be pursued and attained by effective and efficient Zoo management, which it is Council's duty to ensure on behalf of members. It has been my pleasure to work towards achieving this with retired director Dr Michael Brambell, and with the present director, Dr Gordon McGregor Reid, and with the support and guidance of the many members of Council who have served with me since 1986, as dedicated and conscientious trustees. My thanks and good wishes go to them all, and in particular to my successor, Chairman Elect, Keith Maybury, to whom I wish a very successful and enjoyable tenure of office.

Beatrice Jones, Chairman

To support and promote conservation by breeding rare and endangered animals, by excellent animal welfare, high quality public service, recreation, education and science.

<i>Chairman's Preface and Mission</i>	2
<i>Director's Overview</i>	3
<i>Summary of the Year</i>	4
<i>Highlights of 1997</i>	6
<i>Presidency, Council and Committees Management</i>	7
<i>Awards</i>	8
<i>Staff and Volunteers</i>	9
<i>External Committees</i>	10
<i>Performance Indicators</i>	11
Animal Division	
<i>Animals Overview</i>	12
<i>International Collaboration</i>	12
<i>Zoo Worldwide Activities</i>	13
<i>Conservation Coordination</i>	14
<i>Conservation Science</i>	15
<i>Conservation Outreach</i>	16
<i>Animal Health Review</i>	17
<i>Mammals</i>	18
<i>Birds</i>	18
<i>Herpetofauna</i>	19
<i>Aquarium</i>	19
<i>Animal Supplies</i>	19
Divisional & Departmental Reports	
<i>Zoo Environment, Health and Safety</i>	20
<i>Personnel</i>	20
<i>Estates and Gardens</i>	21
<i>Education</i>	22
<i>Finance and Administration</i>	22
<i>Marketing</i>	23
<i>Membership and Adoptions</i>	23
<i>Donations, Grants and Development</i>	24
<i>Information Systems and Technology</i>	24
1997 Accounts	
<i>Council Report</i>	25
<i>Auditors' Report</i>	26
<i>Financial Activities</i>	27
<i>Balance Sheet</i>	28
<i>Cash Flow</i>	29
<i>Notes to the Accounts</i>	30
<i>Financial Overview</i>	33
1997 Livestock Review	
<i>Summaries and Explanatory Notes</i>	34
<i>Threatened Species</i>	35
General Holdings:	
<i>Mammals</i>	37
<i>Birds</i>	38
<i>Reptiles</i>	40
<i>Amphibians</i>	41
<i>Fishes</i>	41
<i>Invertebrates</i>	42
Appendices	
<i>Research Students</i>	43
<i>Work Experience Students</i>	44
<i>Lectures and Conferences</i>	45
<i>Publications and Theses 1997</i>	46



This has been a very successful year with 830,000 visitors and a financial surplus well ahead of budget for reinvestment in the Zoo. We managed to bounce

back from an adverse position in June, when the highest rainfall since 1860 caused a significant downturn in visitors. There were also gales towards the end of the year which caused extensive damage, including to the roof of the *Tropical Realm*.

The opening of the *Monkey Islands* by HRH the Duke of York was the crowning achievement of the year. Congratulations are due to the many staff from all divisions who brought this major project to fruition and also to the contractors. In the Animal Division we gave a warm hello to Chris West who has joined as our new Chief Curator and said a sad goodbye to Derek Lyon, when he retired after 30 years as our veterinary consultant. As ever, there have been numerous conservationally important births, including Black Rhino *Kitani* and four more Asiatic Lions.

The saddest event of the year was undoubtedly the death of Asiatic elephant *Karha* on 25th May: a blow to the Zoo and to the keepers, curators and veterinary surgeons who put so much extra work and care into rearing her. Nevertheless we remain optimistic for the future, with the arrival of young bull elephant *Upali* from Switzerland, the pregnancies of *Tonzi* and *Mimbu* (both now safely returned to Twycross Zoo) and of *Jangoli* and *Thi-Hi-Way*. Indeed, *Thi* successfully gave birth to a beautiful female baby on New Year's Eve! We have progressed extensive plans for the long term development of the elephant area, which involve expanding north into the field behind the present facility.

On the scientific side, over 70 publications have been produced by the Zoo, or in association with us. We hosted and co-organised a prestigious Linnean Society scientific conference on the *Biology and Evolution of Monkeys, Apes and Humans*.

Head of Education, Stephen McKeown, completed his first full year. As well as supporting exciting educational initiatives in the Zoo he has taken on the Chairmanship of the Education Committee of the Zoo Federation. The *Monkey Islands* saw a new style of interactive interpretation which is already extremely popular with children of all ages. Education organised and hosted the 1997 *British Zoo Educators' Conference* which was a great success. We received a Zoo Federation award for the most successful education project: for resource material for the Business Studies in Leisure and Tourism course. The volunteers worked more than 10,000 hours in education and their gross revenue is projected at £25,000. We greatly appreciate their input.

The biggest challenge for Estates in 1997 was the successful completion of the building works for the massive *Monkey Islands* development. This key exhibit incorporates high quality staff facilities, including rest room and showers. Almost all other capital expenditure works and over 240 maintenance request jobs were completed. The monorail saw all four trains refurbished, overhauled and running with increased availability. The ground staff continued to provide an excellent service to all areas of the Zoo and an outstanding achievement on Easter Monday saw them parking over

5,500 cars! Nine of our Gardens staff have completed NVQ level II in Amenity Horticulture and have moved on to level III and the gardens received two major awards for their outstanding floral displays.

We appointed a full time Personnel Manager, Jayne Quinn. She has already had a beneficial impact on our organisation, including managing a Zoo-wide exercise designed to clarify responsibilities and to ensure a fairer working and payment system. A new Development Office has been set up under John Regan and this encompasses Membership and Adoptions. Tens of thousands of pounds of additional funds have already been raised from sponsorship and grants. The staff pension scheme has been improved and the majority are now members of the contributory scheme. There was a well-deserved facelift at the Gatehouse and the refurbishment of the Oakfield offices, with greatly improved working conditions for the staff.

In Marketing, a new visitor survey showed that our 'value for money' has improved and most visitors now stay longer. We saw wider TV coverage and a new, improved *Zoo Guidebook*. Our take-per-head was up in both retail and catering and the new *Rainbow* shop improved our sales opportunities. A hugely successful first ever conference on *Zoo Marketing* was co-hosted in Denmark in February, on behalf of the World Zoo Organisation. We received the remarkable total of ten Marketing awards including for our *Zoo Guide*, the *Karha* promotion, electric scooters and for being the North West's *Favourite Day Out*.

A lot of progress has been made this year with improving local communication and generally promoting the name of Chester Zoo. In particular, we have developed a stronger liaison with Chester City and have raised awareness in the local community on the Zoo's role and development strategy as expressed in the document *2020 Vision*. The Zoo's plans for future physical development is represented in the Chester Local Plan (September 1997 deposit draft). This sets out planning policies, proposals and schemes beyond the millennium. We are negotiating within the Local Plan to achieve flexibility to expand the Zoo within our wider land holdings; to offer more space for our animals, in line with modern welfare considerations.

Construction began on the new *Twilight Zone* 'bat cave' and *Penguin Pool* to open for Easter 1998. These will attract more people into the Zoo and allow us to remain competitive.

We are working with Liverpool John Moores University to develop the *National Pond Life Centre* on Zoo land by the year 2000, subject to satisfying the Millennium Commission and the Zoo Council.



Twilight Zone steelwork

An independent survey shows us to be the best value family day out in the Top Twenty tourist attractions nationally. Most encouragingly, the *Good Guide to Britain 1998* has voted us 'Zoo of the Year'!

Dr Gordon McGregor Reid, Zoo Director

FUNCTIONS	OBJECTIVES	HIGHLIGHTS
<p>ANIMALS</p> <p>To manage, care for, and exhibit the Society's animal holdings to the highest possible standards for the purposes of conservation, education and benign scientific study.</p> <p>To increase our knowledge of the animals within the collection.</p> <p>To work closely with like minded bodies in programmes of wildlife conservation and education at home and abroad.</p>	<ul style="list-style-type: none"> ■ To improve the management, good husbandry, planning, development and welfare of the Zoo's collection. ■ Select the best species balance to support the conservational, educational and scientific objectives of the Society, and balance these with reasonable public expectations. ■ Play an active role in supporting national and international zoo and wildlife programmes in conservation and science. 	<ul style="list-style-type: none"> ■ Appointment of Chief Curator, Chris West, to head the Division. ■ Successful rearing of Black Rhinoceros calf, <i>Kitani</i>. ■ Successful birth and mother rearing of Asiatic Elephant calf <i>Sithami</i>. Significant accelerated impetus to UK Asiatic elephant breeding programme with <i>Chang's</i> successful matings of <i>Jangoli</i>, and <i>Mimbu</i> and <i>Tonzi</i> from Twycross. ■ Fitting-out, stocking and Royal opening of the <i>Monkey Islands</i> complex – the finest of its type in Europe. ■ First breeding at Chester of Red-tailed Amazon Parrots, Illiger's Macaw and Mountain Peacock Pheasants. ■ First breeding report on Sunbeam Snake. ■ <i>Aztec Temple</i> and enlargement of <i>Tropical Realm</i> alligator pool. ■ Successful <i>Native Species Week</i>, supported by Junior Members. ■ Hosted <i>Monkeys, Apes and Man</i>, Linnean Society Conference.
<p>EDUCATION</p> <p>To provide education services and materials for schools, colleges, universities and other interest groups. To interpret the collection for visitors by provision of appropriate signage and other devices. To organise resources to meet these aims, including the volunteer programme. To support education outreach programmes at home and abroad.</p>	<ul style="list-style-type: none"> ■ Increase knowledge, awareness and empathy for animals and their environment and the role and work of the Zoo for the general public, schools, colleges of higher education and professional educators at all levels. ■ Expand and enhance the Zoo's information, interpretation and library services. ■ Provide a worthwhile educational input in selected habitat countries to support conservation. 	<ul style="list-style-type: none"> ■ Election of Head of Division, Stephen McKeown as Chairman of Education Committee, The Federation of Zoos of Great Britain and Ireland. ■ Installation of interpretive signage and devices for <i>Monkey Islands</i> exhibit. ■ Successful hosting of 1997 British Zoo Educators' Conference. ■ Development of new, class-contact based teaching programme ready for implementation in 1998. ■ Computer networking of Education Division. ■ Successful relocation of library services coupled with increased opening hours and new, computerised database for books and journals. ■ Development, with Manchester Metropolitan University, of a joint MSc module on conservation and <i>ex situ</i> breeding programmes.
<p>ESTATES AND GARDENS</p> <p>To maintain and develop the fabric of the Zoo, upgrading existing facilities and developing new concepts for the changing Zoo environment. To ensure that the Zoo's grounds are maintained to the highest standard for animals, visitors and employees and that the Society meets all the criteria laid down by legislation, including Health and Safety and environmental codes.</p>	<ul style="list-style-type: none"> ■ Efficient use of utilities ■ Maintain optimum use of the buildings and environs. ■ Upgrade and refurbish the infrastructure. ■ Construct new capital projects to the highest quality with maximum efficiency and economy. ■ Service requests for maintenance and the supply of materials. ■ Maintain and develop our services and public facilities to standards expected of a top leisure attraction. 	<ul style="list-style-type: none"> ■ Car parks reached maximum capacity during Easter Bank Holiday Monday (with over 21,000 visitors). ■ Revised ticketing structure on Zoofari overhead railway gave better value and customer satisfaction. ■ Work commenced on major <i>Twilight Zone</i> ('bat cave') and <i>Penguin Pool</i> developments. ■ Five gardeners attended first ever Plant Taxon Advisory Group (TAG) meeting at Edinburgh Zoo. ■ Completion of <i>Monkey Islands</i>, within budget and on time, using internal resources.
<p>MARKETING</p> <p>To achieve visitor attendance targets through a mix of cost-effective advertising, promotional and public relations activities.</p> <p>To achieve trading targets through high quality catering and retailing operations.</p> <p>To further enhance the stature and public awareness of the Society through effective and appropriate communications.</p> <p>To provide appropriate high quality information services.</p>	<ul style="list-style-type: none"> ■ Maximise Zoo income by achieving/exceeding budgets. ■ Increase the frequency of visits of regular customers, and extend awareness so as to persuade irregular or lapsed visitors to return. ■ To improve business levels in Central, Harlech and Yorkshire TV areas. ■ To keep the Zoo in the forefront of major tourist attractions through constant upgrading of facilities good quality customer service, and participation in external consortia and events. 	<ul style="list-style-type: none"> ■ Substantial involvement in the organisation and presentations at the first WZO/EAZA <i>International Zoo Marketing Conference</i> held in Aalborg, Denmark in February 1997. ■ Highly successful relaunch of <i>Chester Zoo News</i> from a tabloid newspaper to an A4 news magazine. ■ Excellent publicity of opening of <i>Monkey Islands</i> by HRH The Duke of York ■ Independent market research study shows us to be best-value 'Family day out' of the British Tourist Authority <i>Top Twenty</i> attractions. ■ Zoo's own video news releases used by BBC and Granada TV. ■ Successful rebuild of the <i>Rainbow</i> retail kiosk into a self-service, walk-in shop. ■ The specification and purchase of all the retail stock for the Zoo Federation's <i>Native Species</i> campaign.
<p>FINANCE AND ADMINISTRATION</p> <p>To provide financial control, accounting, personnel, office and security services. To manage visitor and staff entrance gates and stores.</p> <p>To help manage and develop the overall planning and budgeting process and support fundraising and development initiatives.</p> <p>Sustain growth in Membership and Adoptions.</p>	<ul style="list-style-type: none"> ■ Plan, budget and manage overall Zoo cash flow. ■ Provide financial information for Council and management. ■ Efficiently operate personnel, secretarial functions, offices, gates, stores, security and health and safety matters. ■ Advise on financial aspects of all Zoo developments. ■ Administer the staff pension fund. ■ Secure external funding support. 	<ul style="list-style-type: none"> ■ Assistance with production of <i>2020 Vision</i> strategic planning document. ■ Budget strategy for 1998. ■ Commenced detailed <i>Job Relativities</i> study. ■ Oakfield computer networking substantially completed. ■ Established 40% higher bank facility. ■ Improved security, gates and stores procedures. ■ New office reorganisation implemented. ■ Assistance to Liverpool John Moores University for Business Plan, <i>National Pond Life Centre</i> (the 'best building project' in the Liverpool Design Awards).

PERFORMANCE

- Planning of the major exhibits for 1998 - *Bat Cave* and refurbished *Penguin Pool*.
- Successful field trips to Myanmar (Burma) by Curator of Mammals, Nicholas Ellerton, to Mexico by the Director and to Cameroon by Aquarist, Justin Bell (as part of the Zoo's contribution to *International Year of the Reef*).
- Successful transfer of young male elephant *Upali* from Zurich Zoo and young females *Tonzi* and *Mimbu* to Twycross Zoo.
- Extensive re-landscaping of the *Children's Farm* complex.
- Publication of more than 70 scientific papers and reports.
- Awards of *City & Guilds Animal Management Course* certificates to 4 members of staff. *Silver Medal Award* to Senior Keeper David Brunger.
- Zoo Federation Award for husbandry and breeding of rare Tadpole Shrimp.

- Nearly 11,000 hours of volunteer time donated to the Zoo and more than 114,000 visitors in direct contact with volunteers.
- Four fold increase in the number of interpretation panels and devices developed and installed.
- 20% increase in teachers and students attending GNVQ/ A Level courses.
- Diversification of activities in *Let's Make Centre* including introduction of combined Storytime/craft activity.
- Winning the *Green Leaf Award* for 'contributing to improvement of Cheshire's environmental performance education' with our stand at the Cheshire Show.
- UK Zoo Federation Award, *Most Successful Education Project*, for GNVQ Tourism and Leisure/Business Studies resource package.

- Successful completion of extensive capital programme and an increased level of maintenance work.
- Re-roofing for the rhinoceros house.
- New roadway and car park markings have increased the number of cars that can be accommodated and have also reduced traffic congestion on public roads.
- CDROM based, improved system installed on all four trains, with up to date commentary.
- Land use planning exercise complete.
- Gardens won top awards in *North West in Bloom 1997* and *Chester in Bloom 1997*.

- Annual visitor budget achieved in ten months, with all trading departments exceeding sales and contribution budgets.
- Completion of our largest-yet visitor survey, showing improvements in value-for-money perception and a expansion of visitor base.
- Substantial advertising in *Granada*, *Central* and *Harlech* TV areas, with the proposition 'Chester Zoo - Always New'.
- Catering consultancy project completed to recommendation stage.
- An unprecedented total of ten marketing awards, including two 'golds' from the *North West Tourist Board* and 'golds' from *Merseyside Tourism and Conference Bureau*, *International Zoo Marketing Conference* in Aalborg, and the *Federation of Zoos of Great Britain and Ireland*.

- A very successful financial year exceeding 1996 performance.
- Successful lending of surplus cash on the money market.
- Appointed Personnel Manager.
- New Development Office established with early success in fundraising.
- Healthy income stream through Membership and Adoptions.
- Installed new staff radio communications system.
- Installed improved staff pension scheme.

DIRECTIONS FOR 1998

- Opening of the *Bat Cave* and refurbished *Penguin Pool*
- Collection Plan review.
- Establish Fish and Aquatic Invertebrate TAG within Europe.
- Gashaka Gumti (Nigeria) fish species conservation management project with World Wide Fund for Nature (WWF).
- Improvements to roofing of the *Tropical Realm* and *Exotic Bird House* after storm damage. Plan *Endangered Islands*.
- Completion of plans for extended and improved elephant facilities and construction of Bull Pen.
- New enclosures for Tapirs and Capybara and Tuatara colony.
- Develop opportunities for behavioural welfare research and closer scientific, clinical links with Liverpool University Veterinary School.

- Implementation of new class-contact based teaching programmes.
- Appointment of two extra teachers.
- Completion of interpretation for *Bat Cave* and *Penguin Pool*.
- Development of animal close-contact sessions for visitors and educational parties.
- Provision of CDROM based information in the library.
- Completion of library databasing exercise.
- More effective marketing of Education Services.
- Conduct signage audit.

- Complete 1998 Capital programme.
- Complete *Twilight Zone* and *Penguin Pool* works.
- Review of the Gardens Department.
- Review planned maintenance.
- Appraisal of usage and supply of utilities.
- Complete design stage of projected Elephant facility and begin Phase I.
- Conduct landscape planning exercise.
- Begin work on Physical Masterplan.

- Protection of our visitor levels in the face of anticipated competitive pressures from new tourist attractions in the North West. This will be achieved through sharper focussed advertising, PR and sales promotion techniques, extending awareness of the major improvements of 1997 and those scheduled for 1998.
- Renewal of three of the catering kiosk sites in the new 'soft format', creating two new picnic areas at the waterbus terminus and *Tropical Realm*.
- Plan major catering changes and implement first phase.
- Introduce new design of two fold A4 general zoo leaflets.

- Tight expenditure control.
- Capital expenditure co-ordination - Animal, Estates and Finance divisions.
- Five year Financial Plans.
- Finance for catering developments.
- Complete *Job Relativities* study.
- Computer training for all staff.
- Revision of time management system.
- Review accounting system.

View Finder Pictures

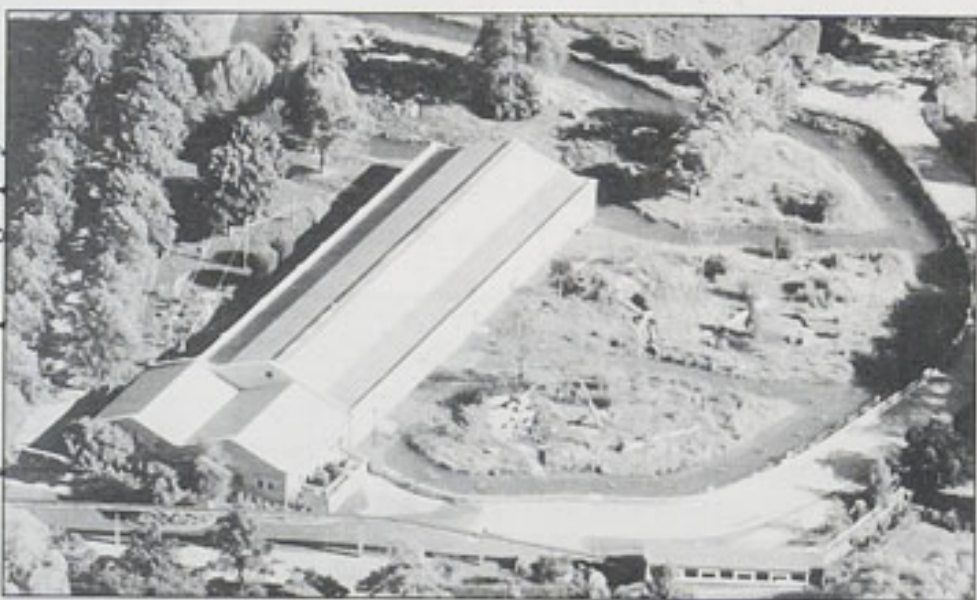


HRH The Duke of York unveils the commemorative plaque

Monkey Islands

After more than a year of work, the old Monkey House in West Zoo has been transformed into *Monkey Islands*. Three huge moated island

Van Rhiijn Aerial photography

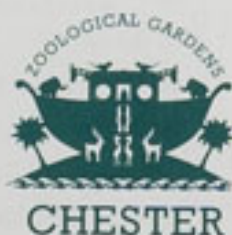
Aerial view of *Monkey Islands* looking south

enclosures with waterfalls house rare Lion Tailed Macaques, Mandrills and Sulawesi Black Macaques, and a fourth has the Columbian Spider Monkeys. Landscaping and retained trees give a totally new dimension, echoed inside the extended building with state of the art, *hands-on* interpretation generously funded by Chester's *Capital Bank*. There are large viewing windows, sound effects, a waterfall and a bark-covered floor. Opened by HRH The Duke of York on 9th October, this must rank as the finest of its type in Europe!

Show stealers

The unexpected New Year's Eve arrival of baby elephant *Sithami* stole the show! The birth and parent rearing of *Kitani* in May brings further impetus to the development of our rare Black Rhinoceros breeding scheme. Born to *Pangani*, sired by *Quinto*

(both from Zurich) her birth opens up new gene pools to the UK and must also rank as the most important of the year for Mammals.

*Sithami* with *Thi Hi Way**Pangani* on the paddock with baby *Kitani*

Hands on

In a happy blend of *Junior Members'* enthusiasm, and Education Division facilities, Penny Rudd, Administrative Manager, Animal Division and Stephen McKeown, Head of Education, mounted a hands-on presentation of endangered British Native Species. This is a nationwide Zoo Federation project. Supporting the promotion, Alan Jones, Retail Sales Manager sourced and negotiated appropriate merchandise for all the Federation members.

Pelican view

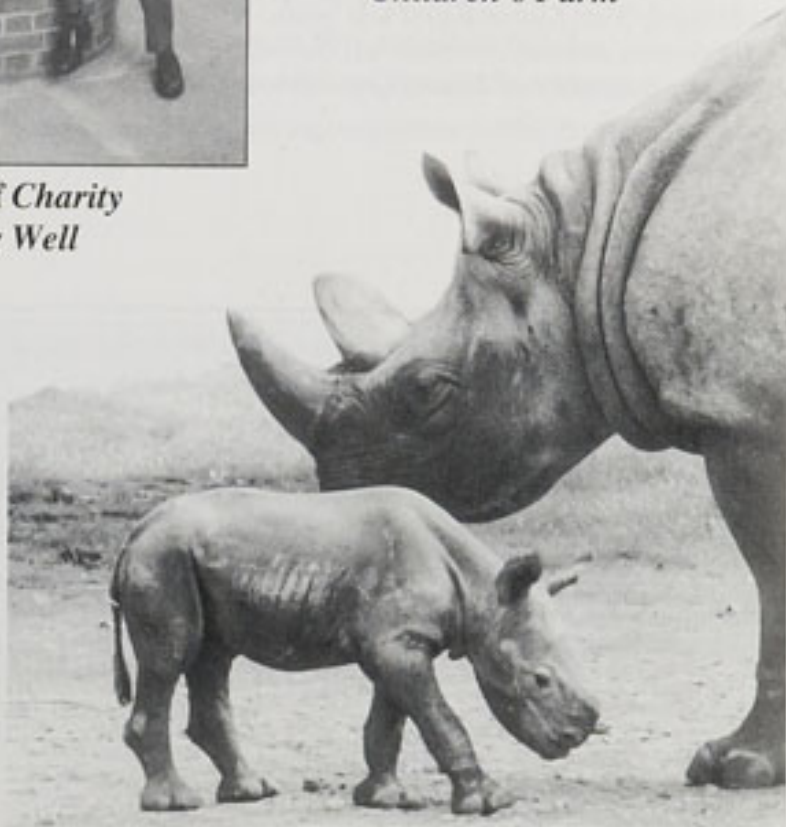
A welcome extra facility in West Zoo is the Wetlands Bird Hide, overlooking the waterfowl lake. Complete with lower level windows for visitors with disabilities, this bonus addition was financed through a generous grant from our old friends at the *Ronald Pryor Foundation*.



Opening of the Hide

Thanks

An imaginative gift by local supermarket group *Kwik Save* has helped with landscaping, tree planting and enclosure improvements within the *Children's Farm*. Good friends at *Deva Rotary Club* have furnished the wishing well to the delight of many young visitors. We are among the several local charities who share the proceeds.

Opening of *Charity Wishing Well*Opening of refurbished *Children's Farm*

THE PRESIDENCY



The President.
His Grace, The Duke of Westminster OBE, TD, DL
The 6th Duke continues the tradition of Grosvenor family support for the Society.



Vice President
Professor Emeritus Oliver King BSc(Agric), MVSc, PhD, FRCVS, CBiol, FIBiol
Chairman of Council from 1972-1986. Former Dean of the University of Liverpool's Veterinary Faculty. He became a Vice President in 1987.

Vice President, Dinah, Lady Tollemache died in January 1998

THE COUNCIL



Chairman
Beatrice Jones BSc
Chairman since 1991.
Lecturer in Chemistry.



Dr David Cooke
FRCGP, FRPS
Retired General Practitioner in Ellesmere Port. Wildlife photographer. Advisor, GB and England swimming teams.



Brian Livingstone MB, ChB, FRCS
Consultant orthopaedic surgeon in Leigh and Wigan. Re-elected in 1997.



Alan Sharples BA, IPFA, IRRV
Financial Controller with major Hospital Trust in Merseyside. Local Upton resident. Co-opted in 1997.



Vice Chairman
Keith Maybury MA, DM, FRCS
Consultant surgeon in Greater Manchester.



Jean Dixon CChem, FRSC
Retired Research Chemist. Wildlife photographer.



Chris Mahon MSc
Director and Head of Conservation. The Cheshire Wildlife Trust.



Tony Williams
Assistant General Manager, Chester-based bank.



John Brown
Public Affairs Manager with major petrochemical company. Elected 1997.



Kathryn Edwards BSc
Manager with leading London based-merchant bank. Active Junior Members' Club supporter.



John Makinson TD, MA
Retired solicitor from Chester and a long term supporter of the Society.



Nicholas Wilson
Enjoys a long-standing family link with the Zoo. Managing Director of company in Winsford, Cheshire.



Brian Coles BVSc, MRCVS, DipECAMS
Consultant avian veterinary surgeon, lecturer, author, govt wildlife inspector. Re-elected in 1997.



Professor Brian Gardiner BSc, PhD, DSc, PLS
Professor of Zoology at King's College, University of London. President of the Linnean Society of London.



Graham Pollard BSc, LLB, MA, EurBiol, CBiol, MIBiol
Biologist and Environmental lawyer. Elected in 1997.



Pat Wisniewski BSc, MSc
Zoologist. Centre Manager of the Wildfowl and Wetlands Trust, Martin Mere, Burscough, Lancs.

Hamilton Howatt, Vice Chairman, retired during the year.

COUNCIL COMMITTEES

Finance Committee*

Recommends financial policy, including pricing, revenue and capital budgets, long term forecasts, long and short term borrowing and lending and allocation of surpluses. Meets the Auditors at least annually to discuss their findings.

Nicholas Wilson (Chairman)
John Makinson
Tony Williams
Michael Johnson (Staff)
Chris Vere (Staff)

Beatrice Jones
Alan Sharples
Dr Gordon McGregor Reid (Director)
Alan Sykes (Staff)

Programmes and Membership Committee*

Responsible for talks and events for members and the general public, within the general remit of enhancing the Society's status as a forum for communication and debate on conservational and biological topics. Advises on membership policy.

Kathryn Edwards (Chairman)
Beatrice Jones
Maria Warrington
Stephen McKeown (Staff)
Chris Vere (Staff)
Maureen Allsopp (Secretary)

Jean Dixon
Graham Pollard
Dr Gordon McGregor Reid (Director)
John Regan (Staff)
Alan Woodward (Staff)

Pension Fund

Manages the superannuation fund scheme, and authorises payments in accordance with its deed and Council instructions. Advises on Pension policy.

Trustees

Beatrice Jones (Chairman)
Jean Dixon
Alan Sykes (Staff)

Alan Du Cros
Tony Williams
Michael Johnson (Staff)

Advisors

Bill Bowman - Wm. M Mercer Ltd.
Nigel Coles - Nikko Capital Management (UK) Ltd.

Scientific and Veterinary Committee*

Advises on exhibition and conservation policy and on scientific and Health and Safety matters. Monitors animal husbandry, welfare and veterinary care.

Members

Keith Maybury (Chairman)
Dr John Baker
Dr John Charles-Jones
Brian Coles
Dr David Cooke
Brian Edwards
Brian Livingstone
Chris Mahon
Dr Spenser Madden
Pat Wisniewski

Staff

Dr Gordon McGregor Reid (Director)
Keith Brown
Michael Crumpler
Don Dinning
Nicholas Ellerton
Mark Pilgrim
Neil Spooner
Chris West
Dr Roger Wilkinson
Penny Rudd (Secretary)

Consultants

Derek Lyon
Noel Walker (Gatehouse Veterinary Hospital)

Remuneration Committee*

Determines remuneration and conditions of service for the Director and Heads of Divisions.

Beatrice Jones (Chairman)

Nicholas Wilson

Zoo Estates Panel

Liaises between the Society, its Land and Property Agents and tenants

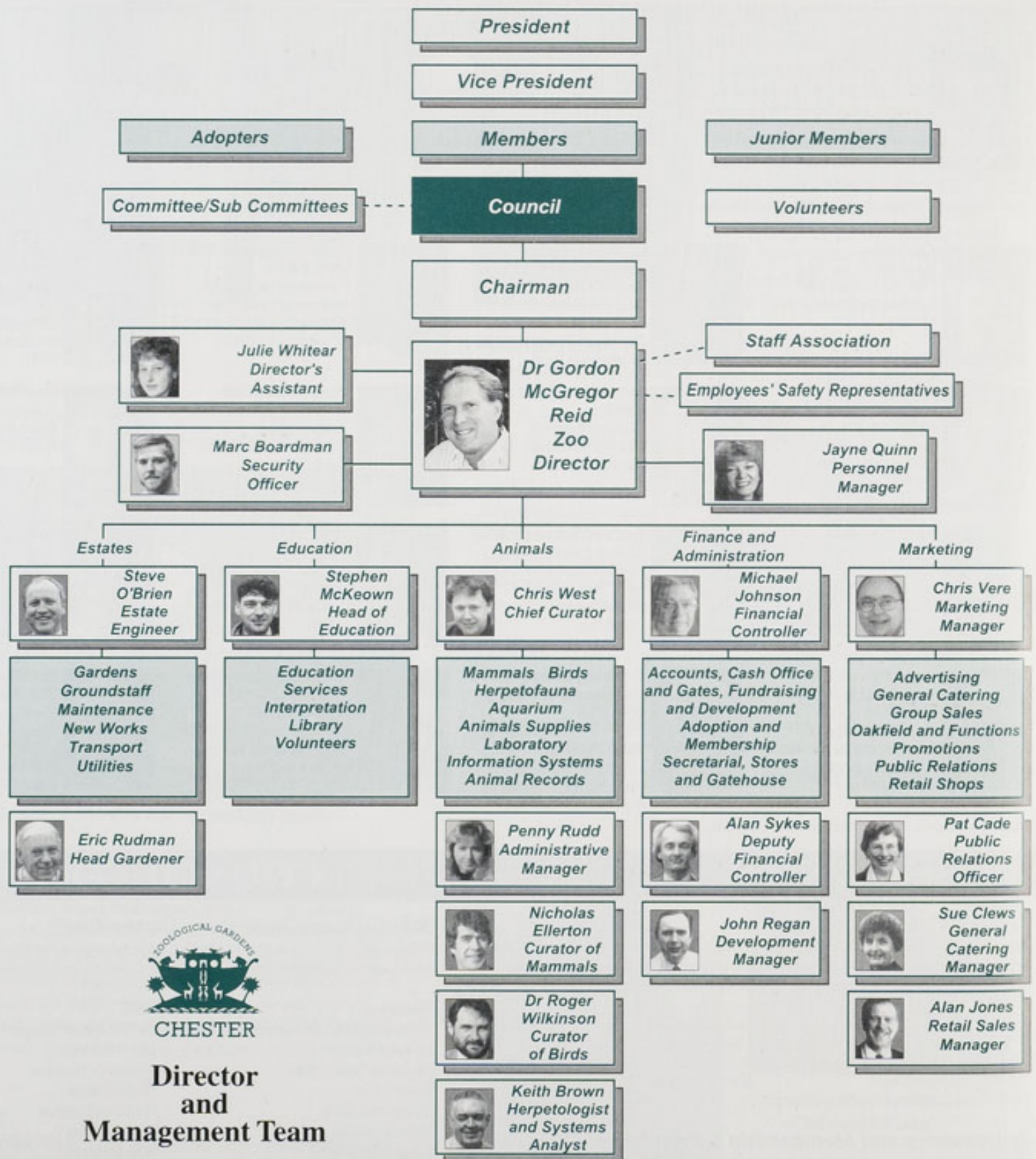
Society

Dr Gordon McGregor Reid
Michael Johnson
Steve O'Brien

Denton Clark & Co.

Michael Scott
Julian Mellis

* Sub committees of Council.



AWARDS



Just some of the 17 awards won by the Society in 1997. The Director also had a fish named in his honour: *Labeo reidi*.

DIRECTOR'S DEPARTMENT

Director of Chester Zoo and Chief Executive

Dr Gordon McGregor Reid, BSc, PhD, CBiol, FIBiol

Director's Assistant and Oakfield Manager

Julie Whitear, Dip Anim Mgt, AIQPS

Personnel Manager

Jayne Quinn, BA, PG Dip HRM, Dip RSA, MIPD

Security Officer

Marc Boardman

FINANCE AND ADMINISTRATION DIVISION

Financial Controller and Head of Division

Michael Johnson, MA, FCA, FCMA, MIMC

Deputy Financial Controller

Alan Sykes, FCA, Dip BA

Computer Systems Analyst

Keith Brown, Cert Adv Comp Sci +

IT Assistant

Lorraine Ellison ☐

Assistant Security Officers

Mervyn Garside
Bruce West +

Accounts Supervisor

Carol Campion

Accounts and Cashiers

Julie Bird

Chris Capner

Sue Davies

Wendy Davies *

Sylvia Delves *

Elaine Mulreay *

Carmel Pearson

Lorraine Richardson

Development Manager

John Regan, BA, MA, MICFM

Membership Secretary

Maureen Allsopp

Adoptions Secretary

Mary McManus *

Stores and Gatehouse Manager

Peter Thompson +

Store Keepers

Mark Fallon +
John Green +
Scott Wilson BSc +

Telephonists

Carol Karim *

Marie Lewis

Eunice Manning

Timekeepers

Mark Fallon +

John Green +

Peter Hutchins +

Scott Wilson BSc +

Office Cleaner

Sue Read +

EDUCATION DIVISION

Head of Education Services and Head of Division

Stephen McKeown, BSc, PGCE

Librarian

Lynn Wilkinson, ALA *

Administration and Teachers

Linda Davenport, LLB

Heather Dibb *☐

Teresa Gibson, BA +☐

Mark Powleson, BA

Sara Ruks, BSc, PGCE

ANIMAL DIVISION

Chief Curator and Head of Division

Chris West, BVetMed, MRCVS, CBiol, MIBiol,

Administrative Manager (Animals)

Penny Rudd, BA, Dip RSA

Veterinary Laboratory Officer and Safety Officer

Don Dinning *+

Veterinary Laboratory Assistant

Gail Mills *

Divisional Secretary

Karen King-Sharp

Administrative Assistant

Teresa Gibson, BA +☐

Curator of Mammals

Nicholas Ellerton

Mammal Section Co-ordinator

Neil Spooner

Student Co-ordinator, Mammals

Alan Woodward, Dip Anim Mgt

Mammal Staff

James Andrewes

Lois Bassett, BSc

Shane Blake

Nigel Brooks

Dave Brunger, Dip Anim Mgt

Mark Cleave, Dip Anim Mgt

David Dawbin, BTEC Nat Dip Anim Care

Joyce Dodd

John Frost, Dip Anim Mgt

Dave Hall

Steve Hogarth, BSc, MSc, Dip Anim Mgt

Paul Howse, BA, Dip Anim Mgt

Richard Hughes, BA

Mick Jones

Chris Lavender

Andrew Lenihan

Alan Littlehales

Chas MacKenzie, Dip Anim Mgt

Catherine McLoughlin, Dip Anim Sci ☐

Phil Molyneux, Dip Anim Mgt

Patrick O'Brien

Niall Ormerod

Ray Packwood, Dip Anim Mgt

Beryl Ramsay

Allan Reid, Dip Anim Mgt, SVQ3

Tim Rowlands

James Thwaite, BSc

Phil Whalley, Dip Anim Mgt

John Willis

Curator of Birds and Research Co-ordinator

Dr Roger Wilkinson, BSc, PhD

Avicultural Deputy

Mark Pilgrim, BSc

Bird Staff

Karen Davies

Stuart Davies ☐

Darren Langford, Dip Anim Mgt

Nick Manning

Wayne McLeod

Roger Merry

Paul Morris, Dip Anim Mgt

Fiona Nelson, BSc ☐

Bruce West +

Steve Williams, Dip Anim Mgt

Andrew Woolham

Herpetologist

Keith Brown, Cert Adv Comp Sci +

Reptile Staff

Sara Cocks, BSc

John Lannin *

Isolde McGeorge

Aquarist

Mike Crumpler

Aquarium Staff

Justin Bell, Dip Anim Mgt

Gary Dodd

Animal Supplies Officer

Anthony Hutchinson

Animal Supplies Staff

Andrew Foxall

Ken Newey

Mervyn Ranasinghe

Pest Controller

Colin Humphries *

ESTATES DIVISION

Estate Engineer and Head of Division

Steve O'Brien

Project Engineer

Ken Roberts, CEng

Divisional Secretary

Helen Smith, AIQPS

Maintenance Foreman

Ray Morrison

Planning Supervisor

Peter Owens

Maintenance

Ian Blythe

Chris Bridges

Dave Holder

Denis Kinsella

Anthony Lennon

Paul Lindop

Kevin McDonagh

Richard Read ☐

George Scott

Jason Spencer

Nick Young

Head Groundsman

Peter Hughes

Groundstaff

Hazel Dean

Stephen Gilyeat

Ray Head

Mark Hughes

Peter Hutchins +

Sandra Jebb

Cyril Jones

Malcolm Lloyd

George O'Connor

Peter Powell

Sue Read +

Head Gardener

Eric Rudman

Deputy Head Gardener

John Johnson

Foreman Gardener

Chris Williams

Gardens

Peter Braithwaite

Keith Done

Robert Duncan

Mark Hargreaves

Paul Harrison

Gwyn Hewitt

Richard Hoddinott

Paul Leach

Al Millington

Ray Newey

Steve Newey

John Richardson

Nigel Wood

Transport and Plant Engineer

Peter Bartley

Plant and Equipment

Brian Goss

Bernard McCone

Railway and Boats

Darren Paech

Peter Quayle

Derek Toms

MARKETING DIVISION

Marketing Manager and Head of Division

Chris Vere, MBE, TD, MA

Public Relations Officer

Pat Cade, MIPR

Divisional Secretary

Pauline McKee

Group Sales Manager

Jane Lawson

Group Sales Assistant

Sue Thomas *

Oakfield and Functions Manager

Richard Casson

Oakfield and Functions Assistant Manager

Richard Jobson, BA

Oakfield Chef

Liam Adamson

General Catering Manager

Sue Clews

Assistant Catering Manager

Brian Lloyd

Chef Supervisor

Ian Patten

Catering Supervisors

Johanna Glossop

Phyllis Keay

Debbie Lenihan

Staff Canteen Supervisor

Barbara Smith

General Catering

Jo-Anna Birmingham

Dee Jones

Darren Keay *

Retail Sales Manager

Alan Jones

Assistant Retail Sales Manager

Susanne Stanton

Merchandise Controller

Wendy Locker

Retail Supervisor

Celia Long

Retail Sales Assistants

Brenda Jones *

Gaynor Robinson

Education Division Volunteers

Ron Ackroyd

Thelma Ackroyd

David Banks

Julie Bates

Margaret Bell

Cynthia Bergstrand

Jane Bie

Carole Bowness

Violet Brickland

Eric Chesworth

Brian Cox

Margaret Cox

Colin Davies

Shirley Davies

Peter Duxbury

Hazel Edwards

Will Edwards

Bett Ellwood

Margaret Fairweather

Mavis Fazey

Michael Fieldhouse

Dorothea Fisher

Bill Fletcher

Margaret Fletcher

Tracey Green

Annabelle Grey

Bill Hanks

Gill Hanks

Heather Harrison

Rose Harrison

Janet Henderson

Di Holbrook

Neil Holbrook

Geoffrey Knapp

Dr Gordon McGregor Reid, Director

- President, British Cichlid Association.
- Member of Council, Federation of Zoological Gardens of Great Britain and Ireland and Membership and Licensing Committee.
- Member of Council, Linnean Society of London.
- Member of Council and Conservation Committee, Fauna and Flora International.
- Member of World Conservation Union (IUCN) UK Committee.
- Member of Conservation Breeding Specialist Group, Species Survival Commission, World Conservation Union (IUCN).
- Member of Fish Specialist Group, Species Survival Commission, World Conservation Union (IUCN).
- Member of Joint Management of Species Committee, Federation of Zoological Gardens of Great Britain and Ireland.
- Member of Research Committee, European Association of Zoos and Aquaria (EAZA).
- Member of European Union of Aquarium Curators.
- Member of World Zoo Organisation/ International Union of Directors of Zoological Gardens (IUDZG/WZO) and WZO Marketing and Education Group.
- Member of Council, Association of Leading Visitor Attractions (ALVA).

Julie Whitear, Director's Assistant

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

Dr Roger Wilkinson, Curator of Birds

- Honorary Research Fellow, University of Keele.
- Member of Council, Avicultural Society.
- Scientific Advisor to the World Parrot Trust.
- Member of British Ornithologists' Union Records Committee.
- Member of the Joint Management of Species Committee, Federation of Zoological Gardens of Great Britain and Ireland.

- Member of Pheasant Specialist Group (IUCN/Birdlife/WPA).
- Member of Committees of the World Pheasant Association and the Congo Peafowl Trust.
- Secretary to the West African Ornithological Society.
- Member of the Research Group, Federation of Zoological Gardens of Great Britain and Ireland.
- Member of Cheshire Wildlife Trust Barn Owl Group.

Nicholas Ellerton, Curator of Mammals

- Member of Captive Care Committee, Primate Society.
- Member of Joint Management of Species Committee, Federation of Zoological Gardens of Great Britain and Ireland.
- Member of Asiatic Elephant Specialist Group (SSC, IUCN).
- Chairman of Fauna and Flora International, North West Group.
- Member of Cheshire Environmental Forum Agenda 21.

Penny Rudd, Administrative Manager – Animals

- Member of Reaseheath College of Agriculture's Animal Care Course Industrial Liaison Group.
- Secretary/Co-ordinator of Fauna and Flora International, North West Group.

Jayne Quinn, Personnel Manager

- Member of Advisory, Conciliation and Arbitration Service (ACAS), Chester Personnel Group.

Pat Cade, Public Relations Officer

- Member of Marketing and PR Committee, Federation of Zoological Gardens of Great Britain and Ireland.
- A Director of North West Tourist Board.
- Alternate Member of Council, Association of Leading Visitor Attractions (ALVA).

Stephen McKeown, Head of Education

- Chairman of Education Committee, Federation of Zoological Gardens of Great Britain and Ireland.
- Educational Employer's Liaison Group, Manchester Metropolitan University.

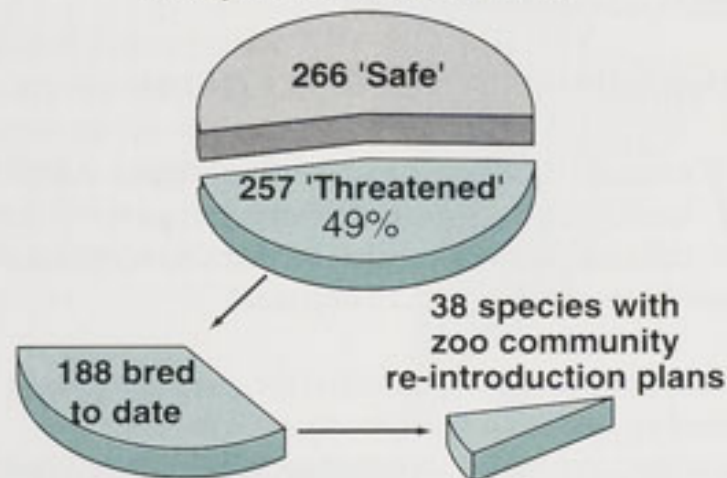
In addition to those listed above, several staff are Chairmen or members of Taxon Advisory Groups (TAGs) and co-ordinators of European Endangered Species Programmes (EEPs), UK Joint Management of Species Programmes (JMSPs) or other conservation groups (see Conservation Co-ordination, page 14).

The first 'wave' of the 'benchmarking' research by the Association of Leading Visitor Attractions (ALVA) has been completed. While detailed results are confidential, Chester Zoo has performed well against its natural 'peer group' in terms of *dwell time*, *value for money* and *exceeding visitor expectations*. Further 'waves' of this research are planned in 1998.

Our 1997 indicators cover six key areas of achievement.*

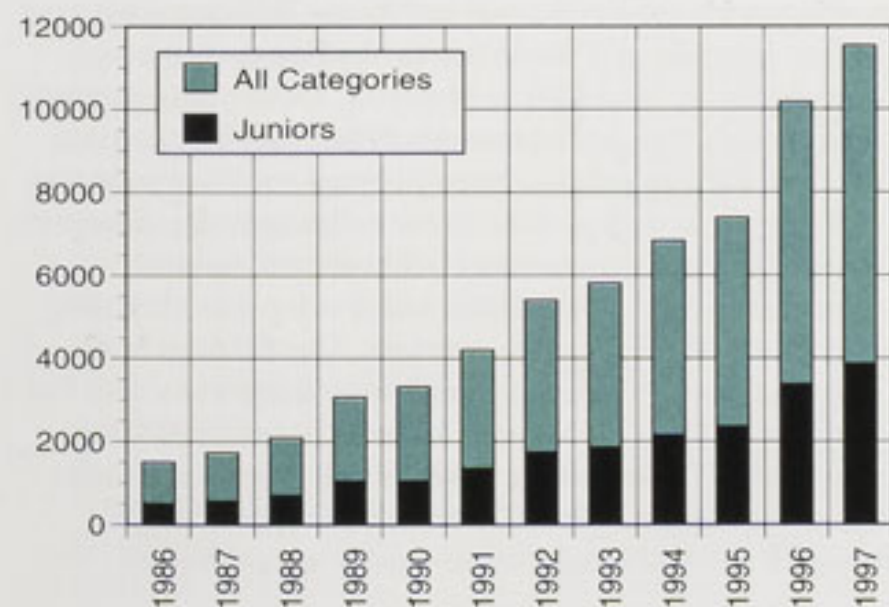
1. *Threatened species: breeding*

523 species in the collection



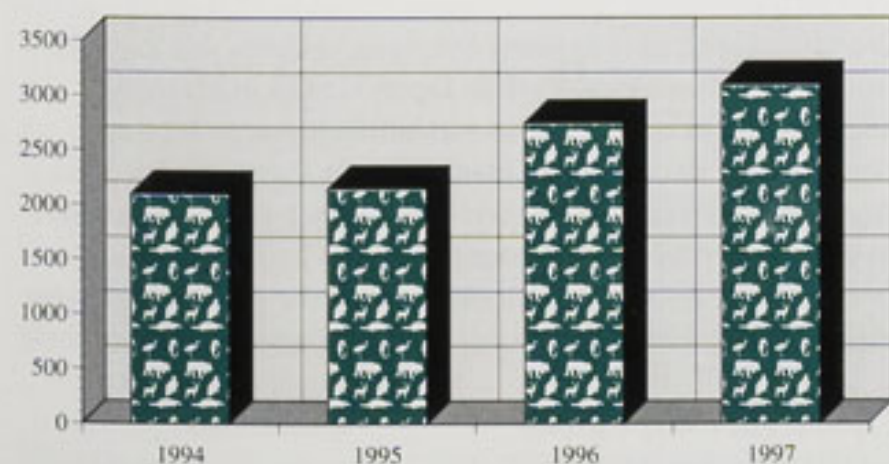
Within a similar number of conservationally sensitive species in the collection, there was an increase of the number of breedings to date and zoo community re-introduction plans (compared with 1996).

2. *Membership growth*



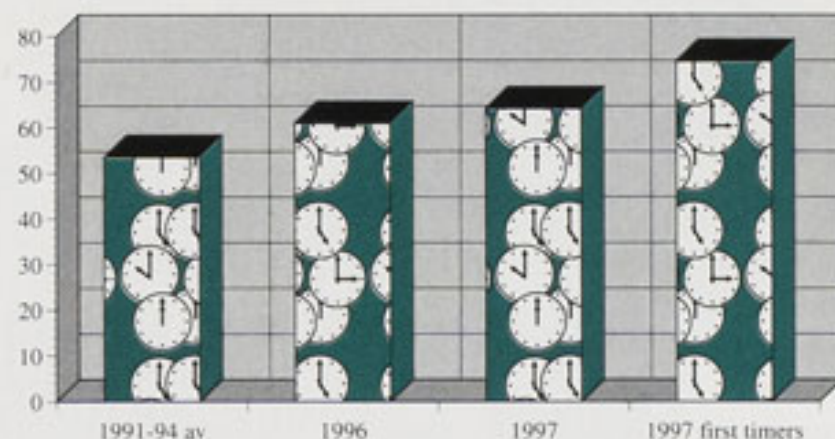
Adult and Junior memberships have continued the excellent upward trend from 1996, and now, at 11,531 are our highest ever. There was 14% growth in the year.

3. *Animal Adoptions growth*



The number of individual adoptions has risen to a record of more than 3,000, our highest to date. We are very grateful for this generous help to the Society.

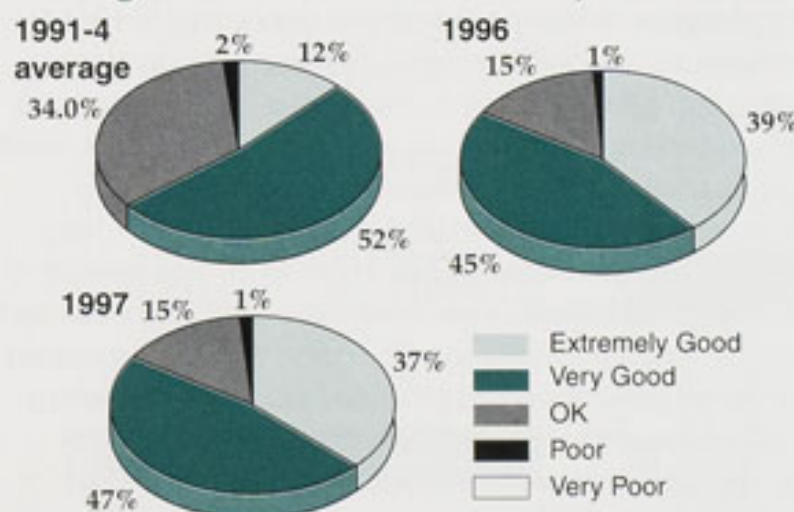
4. *High Season Visitor 'Dwell Time'*



1997 data shows an encouraging continuation of the trend of growing 'dwell time' in the zoo. Approaching two-thirds of visitors (64%) now stay over five hours in the high season, compared with just over half (54%) for the 1991-4 average. Three quarters of first time visitors (75%) stayed longer than 5 hours in 1997.

Data from the ALVA survey in October/November showed we had one of the longest dwell times of any attraction.

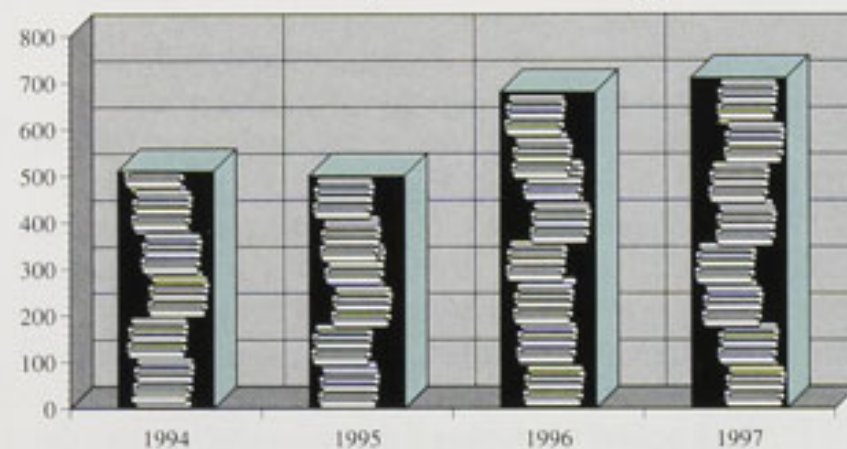
5. *Ratings on for 'Value for Money'*



Visitor ratings for 'value for money' are one of the best guides to overall site performance. 1997 ratings for the highest quintile ('extremely good') and second highest ('very good') are similar to 1996 data, showing that we have maintained standards. Over five out of six visitors (84%) gave ratings in the first or second quintile categories.

In the ALVA data, we had >90% ratings in the two highest 'value for money' quintiles.

6. *Recorded Publicity - Press Cuttings***



Press Cuttings for 1997 were the highest ever at 712, reflecting continued interest in baby elephants, the birth of Black Rhinoceros *Kitani*, and the Royal opening of *Monkey Islands*. Zoo/media contacts are invaluable, and we are very pleased at 'national' coverage of notable events at the zoo.

*Percentages are rounded throughout.

**Publicity figures are based on a simple count (unduplicated), and do not include technical/ specialist material. There is no attempt to weight by readership or to assess space 'value'.

ANIMALS OVERVIEW

At the end of 1997 our total of threatened species was 257 which equates to 49% of our total holding (see Livestock Review, page 34).

Two of the highlights of our breeding year are our new female Asiatic Elephant calf *Sithami* and *Kitani* the female Black Rhino, both growing fast! Four more Asiatic Lion cubs (with three females) were born - our third successful litter from *Jake* and *Chandani*. Significant births expected in 1998 include another elephant calf when *Jangoli* produces in April/May.



As we plan new developments ahead over a five to ten year time frame, the birth of our latest elephant is particularly encouraging. She is settling in well in the family group and already sampling solid foods in imitation of her elders. With the young male *Upali*, *Sithami* will we hope eventually produce our next generation of elephants. Chester's long tradition of elephant keeping has given us an opportunity to significantly contribute to the maintenance of European and ultimately Asian populations. Of course we must pay equal tribute to the dedication and professionalism of keepers of the many other endangered species, that sometimes may attract less public interest. Similarly, whilst a proposed expansion of our elephant house and paddock (starting with a bull facility to be completed in 1998) is central to the Animal Division's plans, we are also looking forward to the new *Twilight Zone*, including rare bats and invertebrates, a vastly improved *Penguin Pool* and the refurbishment of the *Tropical Realm* and *Exotic Bird House*.

Zoologists based at the zoo have been involved in a large number of scientific projects. Some as lead researchers, others as collaborators and many as helpful supporters (See *Conservation Science* and *Research Students* pp 15 and 43).

Through Mark Pilgrim, we are conducting DNA studies on Parrots. With colleagues at The University of Liverpool Veterinary School we have gained great experience in breeding, hand-rearing, sedation, anaesthesia and surgery of elephants. Looking to the future we aim to publish the veterinary findings, broaden our research base to increase behavioural *cum* welfare projects and have even more interaction between the Zoo and outreach programmes in the field. An example of the latter will be at Gashaka Gumti in Nigeria during March 1998 when a WWF/NEZS project identifying fish species and advising on their conservation management is to be carried out by Justin Bell from our Aquarium.

Of the key projects completed within the Animal Division, the *Monkey Islands* has been described elsewhere. Another valuable exercise was to re-roof the Rhino House with more

robust, insulating, light-transmitting panels. With higher light levels we can develop a rich and geographically relevant planting.

During 1998 the Animal Division Management Team will be reviewing the Zoo's Collection Plan and, with Estates and Education, developing exciting programmes including elephants, and perhaps hippos and (in the longer-term), bears.

Such developments will ensure we maintain our position as an exciting family day out and remain a premier Zoo for conservation, education and research.

INTERNATIONAL COLLABORATION

We continued this year to uphold our high international standing involving extensive collaboration with zoologists and conservationists throughout the world (see page 13 opposite).

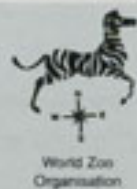
International collaboration is essential for zoos to maintain viable breeding stock and achieve conservation goals. Throughout the year lots of animals have moved from Chester and other collections in the UK and overseas (see p 35).

Many members of staff travelled overseas and attended conservation group meetings including the annual European Association of Zoos and Aquaria (EAZA) and European Endangered Species Breeding Group (EEP) meetings and the World Zoo Organisation (WZO) meetings. Nicholas Ellerton attended the Asiatic Elephant Specialist Group meeting in Myanmar (Burma) and Roger Wilkinson attended the first International Workshop on the Conservation and Management of Hornbills in Malaysia. Other staff travelled on field study trips and our members had the chance to take part in an African safari — strengthening our involvement in wild animals as well as those in our collection. Our Director travelled to Mexico to conduct fieldwork and present lectures at zoology conferences and develop a fish breeding programme with colleagues overseas. Our field work in Gashaka Gumti, Nigeria continues in collaboration with The World Wide Fund for Nature. Adam Britt, who this year gained his PhD, has left the Division to continue his studies out in Madagascar. We will continue to support him as a Research Associate and receive regular update reports.

As part of our contribution to *International Year of the Reef* Justin Bell engaged in a reef survey in Cameroon (see *Zoo Life*, Summer 1997). Taronga Park Zoo in Australia took part in a keeper swap, with James Thwaite going to work over there for six months while Kara Woodward came here, providing valuable experience for them both.

We also played host to many overseas visitors. Mr Jun Sato from Tama Zoological Park in Japan visited in March to learn about our conservation and education activities and Nguyen Cuc Phuong from Hanoi Zoo in Vietnam visited in April. Six directors from zoos in the Czech Republic visited us in June as part of a UK tour of zoos. The Horticulturist from Denver Zoo, Merle Moore, visited the gardens for some expert advice from Eric Rudman of our Gardens Department.

Chris West, Chief Curator



World Zoo Organisation



IUCN
The World Conservation Union
International Union for the Conservation of Nature



Conservation Breeding Specialist Group



Joint Management of Species Programmes



European Association of Zoos and Aquaria



European Union of Aquarium Curators



Federation of Zoological Gardens of Great Britain and Ireland



Chester Zoo's global involvement in conservation and scientific study in 37 countries

North and South America

- 1 Brazil**
 - Snake Bite Antidote project with the Government of Brazil and Liverpool School of Tropical Medicine
 - Further advice on herpetological aspects of translocation project
- 2 Ecuador**
 - Project Guandera 1997 (Studentship project)
- 3 Falkland Islands**
 - Penguin conservation support
- 4 Mexico**
 - Director's visit to wildlife projects and Universities
- 5 United States of America**
 - Educational staff fact-finding tour
 - Staff visit to Elephant Keepers' Workshop, Texas.
 - Visit from Denver Zoo

Europe

- 6 Austria**
 - Staff visit to European Zoo Educators' conference
- 7 Belgium**
 - Visual Anthropology — student MA thesis
- 8 Cyprus (Northern)**
 - Marine turtle hatchlings — effects of temperature on behaviour (Studentship project)
- 9 Czech Republic**
 - Visit from six Zoo Directors
 - Orang utan transfer
- 10 Denmark**
 - Co-hosted first World Zoo Organisation (WZO) International Zoo Marketing Conference, Aalborg.
- 11 Germany**
 - Assistance from Berlin Institute of Wildlife Biology
 - Visits from our staff
 - Transfer of Cichlids to Wuppertal Zoo aquarium
 - Work experience students
- 12 Italy**
 - Director's visit to Rome on cryobiology project
- 13 The Netherlands**
 - Visits from our curators and staff
 - Work experience students
 - Transfer Lion cubs to Rhenen
- 14 Spain**
 - Transfer of Seahorses to Madrid Zoo aquarium
 - Student work placement
 - Curatorial visit
- 15 Sweden**
 - Work experience students
- 16 Switzerland**
 - Transfer of *Upali*, young Asiatic Elephant to Chester
 - Director and staff at European Union of Aquarium Keepers meeting in Basle
- 17 UK**
 - Director and Gardens staff at first Plant TAG
 - Species recovery programmes for Tadpole Shrimp and Sand Lizard
 - Dormouse re-introduction programme
 - Harvest Mouse conservation programme
 - Conifer conservation programme
 - Barn Owl release programmes

- Transfers of Sea Horses to four UK Aquaria
- Transfers of Crayfish from Dudley Zoo
- Environmental enrichment project for seals (Studentship project)
- Genetic studies of White Fronted Lemurs (Studentship project)

Africa

- 18 Cameroon**
 - Staff visit — International Year of the Reef
 - African Grey Parrot ecology study
- 19 Ethiopia**
 - Ethiopian wolf conservation programme (Studentship project)
- 20 Guinea Congo**
 - Zoogeographical studies
 - Behavioural studies on Colobus Monkeys (Studentship project)
- 21 Madagascar**
 - Lemur re-introduction programmes
- 22 Nigeria**
 - Staff visits to Gashaka Gumti for Chimpanzee projects
- 23 Tanzania**
 - First Members' Safari
 - Continued Junior members' support for *Mali Hai Club* at Enderofa Secondary School projects
 - Cichlid fish taxonomy study
- 24 Zaïre (now Congo)**
 - Support for Northern White Rhino Reserve

- 25 Zambia**
 - Helmet Shrike behavioural study
- 26 Zimbabwe**
 - Support for Hunting Dog ecology survey

Asia

- 27 India**
 - Support for ZOO Outreach
 - Visits from ZOO Outreach
- 28 Indonesia**
 - Flores Expedition support
- 29 Japan**
 - Visit from staff from Tama Zoological Park
- 30 Papua New Guinea**
 - Field research support for Crowned Pigeons
- 31 The Philippines**
 - Spotted Deer Recovery Programme
- 32 Malaysia**
 - Curatorial visit
- 33 Myanmar (Burma)**
 - Curatorial visit to Asiatic Elephant Specialist Group
 - Visit from Research Director, Myanmar elephants
- 34 Singapore**
 - Staff visits from Singapore Zoo and Jurong Bird Park
- 35 Taiwan**
 - Student MSc thesis
- 36 Vietnam**
 - Research support
 - Staff visit from Hanoi Zoo

Australasia

- 37 Australia**
 - Keeper exchanges — Taronga Zoo
 - Staff visit from Parks and Wildlife Commission, Alice Springs

TAXON ADVISORY GROUP CHAIRMEN

Chester Zoo provides Chairmen at a high level of conservation management and co-ordination to lead four key Zoo Federation Taxon Advisory Groups (TAGs), as members of the Zoo Federation Joint Management of Species Group (JMSG) for Great Britain and Ireland. In some cases the responsibilities of the Chairman extend into continental Europe, as with the endangered species programme or EEP's organised by the European Association of Zoos and Aquaria (EAZA) or comparable programmes organised by the European Union of Aquarium Curators (EUAC).

Taxon

Elephants (JMSG)
Deer (EEP)
Parrots (EEP, JMSG)
Fish and Aquatic Invertebrates (EEP/EUAC/JMSG)

Chairman

Nicholas Ellerton
Nicholas Ellerton (Co-chair)
Dr Roger Wilkinson
Dr Gordon McGregor Reid (Co-chair)

BREEDING PROGRAMME CO-ORDINATORS

Chester Zoo is an active participant in 17 national Federation Joint Management of Species Programmes or JMSPs) and international (European Endangered Species Programme or EEPs) studbooks and registers for the co-ordination of breeding programmes within Taxon Advisory Groups (TAGs).

Species

Chimpanzee (JMSP)
De Brazza Monkey (JMSP)
Talapoin Monkey (JMSP)
Gemsbok (JMSP)
Palm Cockatoo (EEP)
Blue-eyed Cockatoo (European Stud Book)
Spectacled Owl (JMSP)
West African Crowned Crane (UK Co-ordinator)
Green-cheeked Amazon Parrot (EEP)
Lilacine Amazon Parrot (EEP)
Cuban Amazon Parrot (JMSP)
Prehensile-tailed Skink (JMSP)
Madagascan Tree Boa (JMSP)
Philippine Sail-fin Lizard (JMSP)
African Cichlid Fishes Conservation Group (EUAC/FAITAG)
Mexican Livebearers Conservation Group (EUAC/FAITAG)
Coral Conservation Group (EUAC/FAITAG)

Co-ordinator

Nicholas Ellerton
David Brunger
David Brunger
Charles McKenzie
Dr Roger Wilkinson
Dr Roger Wilkinson
Roger Merry
Dr Roger Wilkinson
Mark Pilgrim
Mark Pilgrim
Mark Pilgrim
Keith Brown
Keith Brown
Keith Brown
Justin Bell
Justin Bell
Justin Bell



Prehensile-tailed Skink in *Tropical Realm*



Two week old elephant calf *Sithami*

CONSERVATION SCIENCE: 13 POSTGRADUATE/POSTDOCTORAL PROJECTS SUPPORTED BY CHESTER ZOO
(Supervisor/Coordinators indicated in brackets, if applicable)

SUBJECT	RESEARCHER	QUAL.	FUNDING/ SUPPORTING BODY	COLLABORATING BODY
Chimpanzee behavioural study in Gashaka Gumti, Nigeria	S Hogarth (Dr G Reid)	PhD	World Wide Fund for Nature (UK) & NCF	WWF & Nigerian Conservation Foundation / University of Liverpool (Dr B Stevens-Wood)
Population census of Chimpanzees in Gashaka Gumti, Nigeria	Dr A Britt	Post Doctoral Research	WWF NCF	World Wide Fund for Nature & Nigerian Conservation Foundation
African Hunting Dog ecology, Zimbabwe	A Pole	PhD	NEZS/MMU	Manchester Metropolitan University (Dr B Stevens-Wood)
Lemur behaviour in the context of reintroduction programmes	Dr A Britt (Dr G Reid)	PhD	Wingate Scholarship/BAANC	University of Liverpool (Dr R Crompton) Completed in 1997
Conservation biology & behavioural ecology	R Meredith Justin Bell Dave Brunger	MSc	NEZS/MMU	Manchester Metropolitan University (Dr B Stevens-Wood)
Taxonomic/conservation evaluation of rare Amazonian Parrots	M Pilgrim (Dr R Wilkinson)	PhD	NEZS/ Amazona Society	Liverpool John Moores University (Dr Mark Willcox <i>et al.</i>)
Survival and movement of zoo bred Barn Owls in a local release programme	I Mason (Dr R Wilkinson)	MPhil	NEZS / L&D Blond Trustees	Keele University (Dr C Hackney) Completed in 1997
Behaviour and ecology of Helmet Shrikes in Zambia	R Stjernstedt (Dr R Wilkinson)	PhD	NEZS/MMU	Manchester Metropolitan University (Dr C Goldspink)
Ecology of African Grey Parrots in Cameroon	Dr A Tamungang (Dr R Wilkinson)	PhD	NEZS/WWF/ WAOS	University of Ibadan, Nigeria (Prof. S S Ayaji) / World Wide Fund for Nature. Completed in 1997
Status and taxonomy of eretmodine cichlid fish of Lake Tanganyika	S Wheeler (Dr G Reid)	PhD	LJMU	Liverpool John Moores University (Dr P Oakland)
Genome Resource Bank Cryobiology project	Dr G Reid	Post Doctoral Research	EU Biotechnology grant	University of Stirling, Scotland/FAO, Rome (Dr K Rana) and Institute of Zoology, London (Dr W Holt) Phase 2 completed in 1997
Micro-satellite DNA in determining parentage	Dr G Reid	Post Graduate Research	Fisheries Society of Great Britain	London Zoo Aquarium (Dr H Hall)
Zoogeography of the Guinea-Congo region	Dr G Reid	Post Doctoral Research	NEZS	WWF, Nigerian Conservation Foundation, Nigerian Field Society and other partners

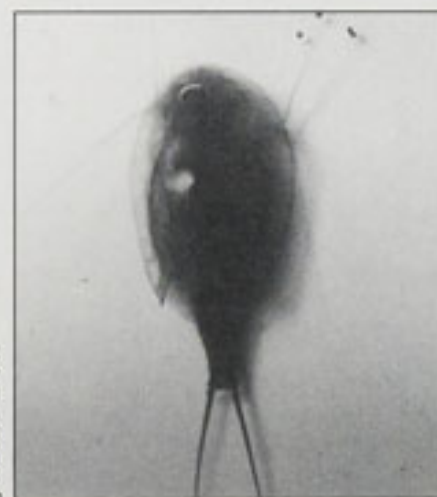


Justin Bell

Seahorse



Red Squirrel



Justin Bell

Tadpole Shrimp



Dr Roger Wilkinson

Red-legged Honeycreeper

CONSERVATION OUTREACH: 25 FIELD PROJECTS SUPPORTED BY CHESTER ZOO

SUBJECT	COORDINATOR(S)/ CONTACTS	FUNDING/ SUPPORTING BODY	COLLABORATING BODY
Tadpole Shrimp Species Recovery Programme, UK	M Crumpler, J Bell Aquarium Dept	English Nature/ Dudley Zoo/NEZS	English Nature and Zoo Federation Fish and Aquatic Invertebrate Taxon Advisory Group (Ian Hughes)
Sand Lizard Species Recovery Programme, UK	Dr G Reid, K Brown, Reptile Dept	English Nature/ CCW/WWF(UK) European Life	English Nature with Herpetological Conservation Trust, Sefton Rangers, Cheshire Wildlife Trust, Countryside Council for Wales and WWF
Harvest Mouse Conservation Programme, UK	P Rudd	NEZS	British Museum of Natural History, New Forest Quest, Vincent Wildlife Trust and others
Dormouse Reintroduction Programme, UK	N Ellerton P Rudd	English Nature/ NEZS	Cheshire Wildlife Trust
Support for Zoo Outreach, India	N Ellerton	NEZS BAANC	CBSG / ZOO Outreach India (Dr Sally Walker)
Conservation Breeding Specialist Group	Dr G Reid, Animal Division	NEZS	Financial Support for several CAMP/PHVA projects from NEZS as one of many contributing zoos
Save the Rhino International	Dr G Reid	NEZS / Save The Rhino	Financial Support from NEZS for a Northern White Rhino reserve, East Africa
Philippine Spotted Deer Recovery Programme	N Ellerton	NEZS	Financial Support <i>in situ</i> Mulhouse Zoo, Melbourne Zoo, Berlin Zoo
Orang utan Conservation Lower Kinabatangan Region, Sabah, Malaysia	N Ellerton	NEZS	Busch Gardens, Chicago Zoological Society, Columbus Zoo, Denver Zoo, Topeka Zoo Wildlife Conservation Society, Zoological Society of Milwaukee
Falklands Conservation - Penguins	Dr R Wilkinson	NEZS / Penguin TAG	Financial Support from NEZS through membership and collection box
World Parrot Trust	Dr R Wilkinson	NEZS / World Parrot Trust	Financial support from NEZS through interpretation display and collection box
Conifer Conservation Project	Dr G Reid, E Rudman (Gardens)	Sainsbury Trust Grant	Royal Botanic Gardens, Edinburgh, with Edinburgh and Paignton Zoos and Liverpool John Moores University
Crowned Pigeons, Field Research, Papua New Guinea (Marc Damen)	Dr R Wilkinson	NEZS/EEP	Financial support through EEP
Indonesian Hornbills (Alex Cahill)	Dr R Wilkinson	NEZS/Manchester Metropolitan University	Financial support for field research PhD
Conservation Research Vietnam (Katie Hampson)	Dr G Reid	NEZS	Financial support
Flores '97 Expedition (John Pilgrim)	Dr G Reid	NEZS	Financial support
Avian skull studies	J C Waite (Veterinarian)	NEZS	Materials supplied
Otter preservation (Marianne Molnar)	Animal Division	NEZS	NEZS Zoology studentship funded through membership
Project Guandera 1997 (Steven Bright)	Animal Division	NEZS	NEZS Zoology studentship funded through membership
Behavioural studies on Black and White Colobus monkeys (Joanna Szkutnicki)	Animal Division	NEZS	NEZS Zoology studentship funded through membership
Effects of temperature on behaviour of marine turtle hatchlings (Fiona Glen)	Animal Division	NEZS	NEZS Zoology studentship funded through membership
Enrichment for captive seals to offset stereotypic behaviour (Emma Goldsworth)	Animal Division	NEZS	NEZS Zoology studentship funded through membership
Ethiopian wolf conservation programme (Jane Dyson)	Animal Division	NEZS	NEZS Zoology studentship funded through membership
Genetics of White-fronted Lemurs (Katerina Wheat)	Animal Division	NEZS	NEZS Zoology studentship funded through membership
Conservation projects, Mexico	Dr G Reid	NEZS/Zoological Society of Mexico	Advice and support to Consortium of Mexican Universities (Drs T Contreras MacBeath, E. Dias Pardo, R. Pineda-Lopez, M. Carmen Uribe)

ANIMAL HEALTH REVIEW

This veterinary health review has been compiled from clinical case records, laboratory findings and autopsy reports from 1997. There were regular veterinary performance audits via the Zoo's Scientific and Veterinary Committee which meets every three months.

The veterinary work at the Zoo is contracted to the Gatehouse Veterinary Hospital, Lavister, Rossett near Wrexham. We were sad to see Derek Lyon, our veterinary consultant from the hospital retire after 30 years service and warmly acknowledge his huge contributions to the Zoo. Noel Walker will now take on Derek's consultancy role. Additional input on some aspects of veterinary pathology is provided by the University of Liverpool, Veterinary Pathology Department, Leahurst, Wirral. Diagnostic and analytical services were carried out by: the Veterinary Investigation Service, Ministry of Agriculture, Fisheries and Food (MAFF); Vauxhall Laboratories Limited (Norwich); Vet-Gen Europe (Winchester) and the International Zoo Veterinary Group. Opportunities for practical training were provided for veterinary students from Britain and abroad.

Clinical Medicine

We are most grateful to our veterinary colleagues at Leahurst for successfully operating on baby elephant *Karha* to remove a pebble she swallowed. Details of this dramatic, life-saving operation involving 7 hours of anaesthesia are given in *Zoo Life* (Summer, 1997).

During the year the Veterinary Officer attended to:

Mammals	194
Birds	212
Reptiles	46
Total Case Load (including follow-up treatment)	1608

Sixty-two cases required chemical restraint and/or general anaesthesia to perform clinical, radiographic and/or surgical procedures. Additional advice was given regarding husbandry, anthelmintic treatment and export and import cases. There were various, routine preventative medicine procedures. For example, the Asiatic Elephants were blood sampled about every month to establish vitamin E levels and haematological parameters. Urine samples were collected by keeping staff to establish hormonal levels for detection of oestrous/pregnancy. There was also surgical sexing

There were several major animal transactions involving transfers, importation, quarantine and/or export of various species, including an Amur Tiger to France, and Asiatic Lions and Humboldt's Penguins to The Netherlands. Routine vaccinations and screening were conducted, including for:

- Cats - feline panleucopenia and viral rhino-tracheitis
- Hoof Stock - clostridial infections
- Parrots - Psittacine Beak and Feather Disease (PBFD)

Pathology

The main objectives for carrying out *post-mortem* examinations are:

- To establish the cause of death and take suitable action to prevent any further losses from the collection.
- To determine any possible zoonotic risks (i.e. risks to people).
- To determine possible extrinsic or environmental factors
- To acquire clinical and diagnostic information, important to the conservation and welfare of animals in zoos and also in the wild.

The most significant *post-mortem* was that on baby elephant *Karha* who died at 17 months from malabsorption in the hind gut.

The summary statistics for *post-mortem* examinations 1st Jan 31st December 1997 are:

Destroyed for humane reasons	40
Injuries / accidents	24
Bacterial and fungal infections	117
Parasitic losses	4
Total <i>post-mortems</i>	373

Bacteria routinely encountered included *Escherichia* spp., *Salmonella* spp., *Klebsiella* spp., *Pseudomonas* spp., *Yersinia* spp. and yeast/ fungal infections, mainly *Aspergillus* spp.

To minimise parasites, routine preventative treatments were carried out by veterinary and keeping staff. However some deaths occurred from chronic parasite burden, caused by certain species in fixed locations of the collection.

Noel Walker, Consultant Veterinary Surgeon

Don Dinning, Veterinary Laboratory Officer



Chimpanzee and young

MAMMALS

1997 has been an excellent year with the Asiatic elephants providing us with both 'highs' and 'lows'. The death of the elephant calf *Karha* in May saddened us all. However, this should not overshadow the successes among our Asiatic elephants. *Upali*, a two year old bull born in Zurich, arrived in May bringing with him hope for the future. A female calf, *Sithami* was born on 31st December to *Thi-Hi-Way* who is on long term loan to Chester from London Zoo. *Thi* is proving to be an excellent mother with this calf. *Jangoli* is also pregnant and we are all hoping that she too will make an excellent mother. Indeed 1998 may provide us with three elephant calves all sired by *Chang* who is on loan to us from Copenhagen Zoo. The other two prospective calves are from *Tonzi* and *Mimbu* from Twycross Zoo, mated by *Chang* and now returned home. Without inter-zoo cooperation this would not be possible.

Perhaps even better than an elephant, in conservation terms, was the birth of a female Black Rhino *Kitani*. The dam, *Pangani* is on loan from Zurich Zoo. *Pangani* has been a somewhat shy mother preferring to stay inside rather than show off her calf. The Asiatic Lions gave us a welcome problem with one male and three female cubs being born in August; an interbirth gap of only 15 months when 22 is the normal gap. The three 1996 male cubs were sent to Rhenen in the Netherlands in October. Provision will be made earlier for the outplacement of cubs in the future. Our Asiatic lions have been an extremely successful pair with the male *Jake* siring 13 surviving cubs. His brief visit to London Zoo in September 1996 resulted in three cubs being born there!

Oscar the male Sumatran Orang utan was sent to Liberec Zoo in the Czech Republic and has settled well with a new female. The male Sumatran Orang from Perth, Australia has integrated well with our females and 1998 should provide us with some young Sumatran Orang. Our last Sumatran Orang birth was in 1987. Sadly in May the young Bornean Orang *Weston* died suddenly of a meningeal infection. Our male Bornean Orang *Sibu* was returned from Blackpool in October and the 'overly successful' male *Oscar* will be moved to Moscow Zoo. Our greatest achievement for the primates was the completion of the new *Monkey Islands*. I now thoroughly enjoy taking people around this building. It is world class, with the monkeys enjoying considerable space both inside and outside. There are four main enclosures which allow us to hold large groups of primates in a naturalistic way. A new species to Chester are the Mandrills who share their enclosure with a small group of Grivet Monkeys. Other new arrivals include a pair of Maned Wolves and a pair of Babirusa (South East Asian wild pigs). The Babirusa were mixed with the Anoa (dwarf wild cattle from the same region).

In 1998 we will complete the *Twilight Zone*, our free flight bat exhibit. This will be a spectacular experience that will leave our visitors marvelling at these and other wonderful nocturnal or cave animals.

Nicholas Ellerton, Curator of Mammals



Maned Wolf in new enclosure

BIRDS

In total, 87 species hatched chicks in the collection in 1997 from which 262 chicks of 72 species were successfully reared.

Chester Zoo is world famous for its parrot collection. Our most important breeding in 1997 was that of the endangered Red-tailed Amazon. This is the first time this species has been bred at Chester and to our knowledge the first breeding by Red-tailed Amazons on public display in any zoo.

Another parrot bred in 1997 for the first time at Chester was the Illiger's Macaw. Other parrots bred included Red-fronted Macaws, Green-cheeked and Cuban Amazons, Blue-eyed Cockatoos, Thick-billed Parrots, Derbyan Parakeets, Splendid Parakeets and Yellow-backed Chattering Lorries. Important new arrivals to the collection included Red and Blue Lorries a pair of Leadbeater's Cockatoos and two Black-cheeked Lovebirds and Mount Apo Lorikeets received on loan from Loro Parque.

Mountain Peacock Pheasants were bred for the first time at Chester in 1997. Other galliformes bred included Congo Peafowl, Satyr Tragopans, Palawan Peacock Pheasants, Himalayan Monals, Golden Pheasants, Lady Amherst's Pheasants, Roulroul Partridges, Red-legged Partridges and Chinese Painted Quail.

One Red-crowned Crane and two West African Crowned Cranes were reared. Two Little Egrets were hand-reared and one of the pairs of Little Egrets in *Europe on the Edge* successfully hatched and reared their own chick. Waldrapp Ibis bred in *Europe on the Edge* and in the *Big Flight* opposite the Parrot House. The European Black Vultures spent weeks on their nest but no eggs! A pair of European Griffon Vultures received on loan from Bristol Zoo this winter have already settled well into *Europe on the Edge*. Other new arrivals to add to the new *Condor Cliffs* exhibit included an Egyptian Vulture, which has been housed together with the Secretary Birds and four Turkey Vultures, an American Black Vulture and a Crested Caracara.

Caribbean and Chilean Flamingos were both very late nesting. Although two Caribbean chicks hatched neither survived; and of four Chilean Flamingos hatched, only one survived, giving us our poorest year with flamingos since 1990. Our successes in breeding Humboldt's Penguins over the last few years has resulted in them being so well represented in other European zoos that we agreed not to hand-rear any chicks in 1997. All chicks were left with their parents resulting in three parent-reared youngsters. Waterfowl reared in 1997 included Hawaiian Geese, Ruddy Shelduck, Cuban Whistling Ducks, Smew, Red-crested Pochard, Laysan and Marbled Teal, Chiloe Wigeon, Common Shelduck, Mandarin Duck and, for the first time at Chester, Meller's Ducks, Falcated Teal and Garganey.

Nicobar Pigeons, Luzon Bleeding Heart Doves, Speckled Pigeons, Crested Bronzewings and Rock Doves were bred. Four Red Turtle Doves were received from the Tropical Bird Gardens, Rode. Two Spectacled Owls and one Barn Owl were raised. The White-faced Scops Owls have reared many youngsters over the last few years. We followed the studbook co-ordinators request to split this pair, resulting in no breeding in 1997. Although a new female was introduced to the breeding male, these showed little interest in each other. Two Tawny Frogmouths and two Kookaburras were reared.

We had a less successful year with hornbills. The Great Indian Hornbills muddled-up but the female emerged without evidence of egg laying. Wrinkled and Trumpeter Hornbills hatched chicks but these failed to fledge and only one African Grey Hornbill was reared. Turacos were more successful with three Schalow's Turacos and one Violet Plantain-eater reared. Four Red-billed Magpies were raised by their parents and two Bali Starlings hand-reared.

Dr Roger Wilkinson



Humboldt's Penguin

In the *Tropical Realm* the Emerald Starlings, Red-eared Bulbuls, Pekin Robins and Silver-beaked Tanagers fledged chicks. The White-rumped Shamans fledged chicks and a Plumbeous Redstart was hand-reared. Mexican House Finches, Zebra Finches and Red-cheeked Cordon-Bleus also reared chicks. Gale force winds over the Christmas period caused extensive damage to the roofs of the *Tropical Realm* and the *Exotic Birds*, sadly with some loss of livestock. Repairs are underway for the reopening of these areas early in 1998. The biggest project for 1998 will be the completely revamped *Penguin Pool*.

Dr Roger Wilkinson, Curator of Birds

HERPETOFAUNA

We built on last year's progress, with further work on environmental improvements for our reptiles and amphibians. As well as the main reptile exhibit area improvements, there were additional works for the Alligator, Mediterranean Tortoise and Tuatara exhibits: the last two projects for completion in 1998.

The Alligator project involved doubling the pool area, more land and caves for the alligators to go into to cool-off during very warm periods and two waterfalls and a rope bridge under a new, simulated *Aztec Temple*. It has been designed to benefit the Alligators, to be interesting for the public and safer for the keeping staff to work in.

Good breeding results have been achieved with Sunbeam Snakes (see publications), Madagascan Tree Boas, Boa Constrictors and Cuban Boas. Asian Box Turtles, Sail Fin lizards, Bearded Dragons, Thailand Water dragons, Tokay Geckos, Giant Madagascan Day Geckos and Leopard Geckos have also produced healthy youngsters.

The Sand Lizards emerged from their first hibernation period in the new enclosure and all were soon basking and feeding during the sunny days. The plants grew well and we are extremely pleased with the results of a successful hibernation. Although no young were raised, we are confident that given the successful hibernation period and the behaviour shown by the lizards during the Spring and Summer of 1997, breeding will take place in the enclosure in 1998.

The Amphibian enclosures have undergone redesign and refurbishment changes and are looking very good. This should ensure improved breeding results in the future. Plans are ongoing to improve the displays within the *Tropical Realm*. These include an interpretative scheme for venomous snakes being developed in collaboration with the Education Division. The damage to the *Tropical Realm* roof by Christmas gales temporarily caused cooling problems for some reptiles including the Matamata turtles. This problem is now under control, thanks to prompt action by the staff on Christmas day.

Among land invertebrates, various species of Stick Insects, Fruit Beetles and African Praying Mantis have bred extremely well and we are continually trying to improve their environments. The rare Partula Snails are still increasing in numbers. Hopefully, if another release plan is implemented in 1998, some more of our stock can be returned to their native habitat.

Keith Brown, Herpetologist

AQUARIUM

Banggai Cardinal fish and Fire Clown fish have been reared. The Clown fish are second generation and live in sea anemones, bred here. The beautiful black and white Cardinal fish only inhabits a few bays around Banggai Island in Indonesia. The male incubates the eggs in his mouth but, unlike other species, it keeps the fry in his mouth until they are nearly 8mm long before releasing them. It could soon become extinct in the wild from trade over-collection, but is being bred in Monaco Aquarium and Artis Aquarium, Amsterdam. Artis stock should arrive here early in 1998. The Seahorses are still breeding well, and offspring have been sent to the zoo aquaria at Madrid, London and Whipsnade, the new London Aquarium and the new Birmingham *Sea Life Centre*. London and Madrid Zoo aquaria have been successful in breeding from this stock. We sent rare Lake Victoria Cichlids (*Haplochromis pyrrhocephalus*) to Wuppertal Zoo to spread the risks.

A Livebearing species, the Golden Saw-finned Goodeid has been acquired from the Livebearer Study group *Viviparous*. It has been long extinct in Mexico. Our stock originally came from Detroit Zoo Aquarium in March, and twelve specimens have now bred to over 100. We hope to help with a reintroduction programme based on field contacts developed by the Director in Central Mexico (see *Zoo Life*, Summer 1997).

In February, Justin Bell went to survey the Coral Reefs around Cameroon as our part in the 1997 *International Year of the Reef* campaign. Displays and interpretation panels were produced highlighting threats to coral reefs, and showing illegally imported dead coral and sea turtles, confiscated by HM Customs.

Staff attended Fish and Aquatic Invertebrate Taxon Advisory Group meetings. Two new FAITAG groups were formed for Coral and native Crayfish. The Coral Group held a well attended seminar here in November entitled *Coral Cultivation - The Way Forward*. Dudley Zoo sent us four young Crayfish - rare British freshwater crustaceans - to help us learn husbandry: with the possibility of *English Nature* allowing us to stock the new *Monkey Islands* moats with them.

We attended the European Union of Aquarium Curators (EUAC) meeting at Basle. It was agreed to develop the FAITAG in Europe: a major step in a conservation process which the Director began. The first planning meeting will be held here in January 1998.

A new kitchen, laboratory and office bring improved food preparation, scientific analysis and record keeping.

We supported a fish conservation exercise India and gained a national award for the breeding of the British Tadpole Shrimp.

Mike Crumpler, Aquarist

ANIMAL SUPPLIES DEPARTMENT

Beginning the year as Acting Supervisor, Anthony Hutchinson and was later confirmed as the new Animal Supplies Officer. We continue to supply the Animal Division's total annual food and bedding requirements. In 1997 more than 1000 tonnes were supplied with 292 of fruit and vegetables, 438 of cereals, 175 of specialist, 54 of meat, fish, chickens and rabbits and 0.5t of mealworms; plus 300,000 invertebrates, 43,000 mice and rats and 90,000 locusts from our breeding colonies.

Food items are sourced from markets, abattoirs, sea food distributors, agricultural food merchants, specialist zoo food suppliers, local stores, home grown crops and the food industry's surpluses.

We deliver daily to all the sections. Every request, however diverse or exotic, is attended to promptly. Throughout this logistically complex operation, stringent quality control and hygiene is as essential as careful budgeting. Very substantial cost savings have been made.

Anthony Hutchinson, Animal Supplies Officer

We continue to discharge our obligations under the *Zoo Licensing Act 1981* and the *Dangerous Wild Animals Act 1976*. An interim inspection is due in 1998.

There has been a lot of activity this year in negotiations with the local planning authorities (Cheshire County Council and Chester City Council) regarding the Zoo's position within the *Cheshire Structure Plan* and the *Chester District Local Plan* (Deposit Draft, September 1997). This involves discussing the limits of the Zoo's operating area and the status of our extensive wider land holdings.

We have always been active in conserving the numerous ponds on our land. This has been done with input from the Cheshire Wildlife Trust and the National Pondlife Project

based at Liverpool John Moores University. From this a project has been developed by LJMU with Zoo support to site a *National Pond Life Centre* on Zoo land. This £4 million scheme has attracted matching funding of nearly £2 million from the Millennium Commission and is planned for completion by the year 2000.

An ecological survey of the wider Zoo estate was carried out by a multi-disciplinary team of ecologists representing the Cheshire Wildlife Trust in July. There were 589 records of 216 species. The site is largely under agricultural use and management with arable and pasture, ponds, hedgerows and trees creating important habitats.

Dr Gordon McGregor Reid, Zoo Director

ZOO HEALTH AND SAFETY

The Society's commitment to health, safety and welfare remains unaltered. To the best of our knowledge and belief, the Society meets the requirements of the 1974: *Health and Safety at Work Act* and subordinate legislation.

There were two important changes in the law in 1997; the introduction of the *Health and Safety (Consultation with Employees) Regulations 1996 (HSCER)* and the *Fire Precautions (Workplace) Regulations 1997*. In the first, the changes were introduced to benefit those employees who are not represented by a trade union, such organisations having the right, under 1977 Regulations, to appoint safety representatives. Negotiations between the Society and its employees are conducted through an in-house Staff Association. Health and safety matters came into the remit of a committee of appointed safety representatives. *Duties of employer to consult and persons to be consulted* (Regulations 3 and 4 of the *HSCER*) lay down the relevant guidelines to be adopted in the safety consultation process.

Under the new arrangements, the Society will consult those employees (or representatives), in good time, on matters relating to their health and safety at work. This is particularly applicable with regard to the employer's arrangements for appointing, or nominating competent persons to assist in undertaking the measures needed to ensure compliance with statutory requirements (health,

safety, planning, organisation, training, information and the introduction of new technology).

A transition from old to new arrangements was agreed from appointed staff safety representatives to representatives of employee safety (*HSCER*). After consultation, nominations were obtained from groups of employees representing the main working areas of the Zoo. Eight employees were then elected as representatives of employee safety.

On 1 December 1997, the *Fire Precautions (Workplace) Regulations* came into force and require employers to put in place a system of fire safety risk assessment. These Regulations fulfil the final element of the EC Framework and Workplace Directive and place fire safety matters within the scope of the Management of Health and Safety at Work Regulations 1992. For many years, the Society has given priority attention to fire safety, because of the variety of visitor amenities and we calculate that the incoming Regulations will not be burdensome or costly.

Cheshire St John Ambulance Brigade assisted the zoo first aid team in the main season. In 1997 there were 1,288 requests for first aid assistance: 254 were staff, 1,034 visitors. Sixty-six cases were referred to hospital for further treatment.

Don Dinning, Safety Officer

ZOO PERSONNEL

The new dedicated post of Personnel Manager was created early in 1997, to further develop the excellent personnel service created by Penny Rudd — originally split between central administration and the Animal Division. There was an immediate need to fill vacancies in all areas of the Zoo, a key appointment being that of the Chief Curator. This attracted an international pool of applicants from academic, industrial, veterinary and curatorial backgrounds, all of a very high standard. Chris West was successful.

Seasonal staffing needs reached their peak in Summer, with 150 temporary staff employed, in catering, retail and ground staff departments. Seasonal turnover is usually high but, in 1997, was higher than normal, creating an additional recruitment workload. This also placed extra burdens on supervisory staff, who had to ensure that the public continued to receive good service while new staff were trained.

Work began on establishing a fair assessment of job relativities throughout the workforce, which will ultimately

lead to an overhaul of payment structures, ensuring that the Zoo complies with current legislation and best practise in pay systems. The *Advisory, Conciliation and Arbitration Service (ACAS)* have agreed to chair a joint staff and management group and coach them in the development of a scheme that will be specific to the Zoo.

Investigations began for a computerised personnel information system, to streamline and improve staff records already held and provide information for areas such as staff training, skills development and equal opportunities monitoring. A new central archive is being set up for the Director's Office. We began updating *Zoo Standing Procedures*, so as to issue the revised version in 1998.

Having standardised word processing, spreadsheet and database software within the Zoo, computer software training is planned to begin in January 1998.

Jayne Quinn, Personnel Manager

The improved Zoo economy has allowed for the development of more ambitious and challenging programmes for capital works and maintenance.

Historically, the policy for capital projects has been to carry out as much of the work 'in house' as possible. However, to complete the more extensive programme, it was necessary in some cases to use specialist consultants and outside contractors. To accommodate this, our own administration and project teams had to restructure their work and adapt to the specific needs of each project.



Sulawesi Crested Macaques on *Monkey Islands*

The highlight of the year was the successful completion of the *Monkey Islands* development on time and within budget. This project was a typical 'in house' job which involved all of the Estates Division, with the use of specialist sub-contractors where required. The exhibit has proved to be very successful – working well for the animals, the visitors and the staff.

Other substantial projects successfully completed during 1997 were:

- Maned Wolf enclosure
- Bird Hide at waterfowl lake
- Aztec Temple in the *Tropical Realm*
- Alligator enclosure
- Reptile windows in the *Tropical Realm*
- Aquarium coral reef exhibit
- Aquarium roof
- Aquarium kitchen / laboratory
- Rhino house roof
- Re-roofing of the *Fountain* building
- Library transfer to Education Division
- Estates office re-organisation
- Re-tiling part of the roof of the *Oakfield*
- Oakfield* office reorganisation (phase 1)
- First Aid Centre
- Perimeter fence around the old car park

We began the *Twilight Zone* 'bat cave' development. This major project was placed with an external contractor, who

unfortunately was unable to fulfil the contract. The resultant problem has been resolved, with the Zoo taking on the role of main contractor.

We also began the redevelopment of the *Penguin Pool*. This large project includes a new 'state of the art' water recirculation and filtration plant to give a clear sight of the birds through the underwater viewing panels. There is also extensive new rockwork and landscaping, together with new service buildings and public views into the working areas.

An increase in funding has also allowed the opportunity to accelerate the maintenance programme. A record number of 240 requests from basic to complex maintenance were completed. We said a sad farewell to Joe Parry and Larry Shepherd who retired from the maintenance team having completed over 45 years service between them!

The Groundstaff are responsible for car parking in the peak season. Each year we try to safely improve the rate of parking, making best use of the available space. A new perimeter road was built around the Northern overflow car park. This was a great help in easing the traffic flow into the zoo from the public roads on the Bank holidays and peak days of the season.

The new 'two trip' ticket on the *Zoofari* overhead railway has improved value for money, and was well received by visitors. New CD Rom technology has been installed to provide an on-train commentary that is easy to update.

The Estates Division also has responsibilities in managing our wider estates and properties and much progress has been made in these areas this year. In particular, there have been detailed discussions with Chester City Council on the *Local District Plan*. Formal proposals have been submitted on the status of Chester Zoo land within the *Local Plan* and *Cheshire Structure Plan*.

Gardens

The Gardens Department maintained their customary high standards of display, once again gaining major awards in the *North West in Bloom* and *Chester in Bloom* competitions. The gardens at Chester Zoo have been world renowned for many years. In an age of heightened awareness of wildlife conservation, we are now focussing on integrating horticulture with exhibit development in the Zoo.

Further training is important and several members of our gardening staff have taken their NVQ stage two qualifications this year and have now enrolled for stage three. We are developing areas of conservational planting around the Zoo including for some conifers. We have also started to mix appropriate plant life with animal exhibits, such as the grasses round the elephants, replacing the traditional roses. All new exhibits developed will include plans for naturalistic planting.

Animal TAGs (Taxon Advisory Groups) have been in existence for some years now for conservation breeding programmes. September saw the first ever Plant TAG meeting at Edinburgh Zoo, strongly supported by Chester. We are planning to host the next meeting in 1998 and we hope that plant displays – on their own and in conjunction with animals – will have a much higher profile in UK zoos in the future.

Steve O'Brien, Estate Engineer

1997 has seen a diversification of our activities coupled with the strengthening and expansion of existing areas of involvement.

The teaching staff concentrated largely on the development of a major new teaching programme with 'flagship' topics such as *Sex Education*, *Wildlife in Danger* and the *Chester Zoo Dinosaur Experience* featuring prominently. We are confident that these will prove popular on their launch next spring. Our GNVQ/A level *Business Studies/Leisure and Tourism* Courses continue to attract large numbers and our resource material won a national award in May.

Our hard-working corps of 77 Education Volunteers contributed even more time and generated even more revenue in 1997. Something like one-in-ten visitors come into contact with a volunteer during their stay: and this is an ideal opportunity to get the Zoo's conservation message over in an informal and very effective manner.

The Head of Education continued his national involvement with the UK Zoo Federation's *Native Species Campaign*, helping plan the Campaign's strategy over a two year period. He also, with the assistance of Sara Ruks, produced a *Native Species Schools Pack* which is to be sent to every UK primary school. A Welsh language edition will also be printed.

1997 was a big year for interpretation with many signs being upgraded or replaced. New, innovative, interpretative devices funded by Capital Bank, in and around the *Monkey Islands* Exhibit, have proved extremely popular with our visitors. This reinforces our view that learning can often be great fun!

In November we hosted the annual *British Zoo Educators' Conference* at Chester. Deciding to risk a new format, we introduced practical workshop sessions where delegates learned how to variously surf the internet, make plaster

castings of assorted zoological objects, use the latest PC software to make an information label and design a range of zoo-branded craft activity packs. Over sixty delegates attended including representatives from three other European countries. The Conference was a huge success and was certainly worth all the hard work involved in planning it!

Various physical changes were made in the Education Centre with the creation of a small office for the Head of Education. The Library was moved to a disused classroom. There was also a rationalisation of general storage facilities to provide more room for teaching.

Staffing levels remained the same but Sara Ruks, who previously had been employed only during school term time, became full time and thus much more involved in other areas. Sara and I have benefitted from visits to zoos in the USA and Ireland to find out how they organise educational activities.

The Education Division remained on the cutting edge with the upgrading and networking of our computing equipment. This has enabled us to work much more efficiently and to produce work to a high standard in-house that previously would have been sent out to designers and printers. We have also been working hard with an external consultant on the production of a *Chester Zoo CD Rom* and have been discussing the possibilities of establishing an information database on our website to help cope in a more cost-effective and up to date manner with the many 'Dear Zoo' letters we receive throughout the year!

During the year we were saddened at the death of Don Lloyd, one of our regular volunteers. Don's cheery nature brightened up our 'Things To Do' Kiosk on Monday afternoons.

Stephen McKeown, Head of Education

FINANCE AND ADMINISTRATION

The Division is responsible for key administrative controls, which provide efficient management and co-ordination of the Society's affairs. In particular, planning work keeps the *Zoo Mission Statement* in mind.

The accounts, now known as the *Statement of Financial Activities*, show an excellent result for a second consecutive year, underpinned by the high visitor numbers. As a result, development of new animal attractions has been optimised, with capital expenditure of over £1.6m between 1996 and 1997. Maintenance expenditure has also been kept very high, so that the never ending task of refurbishing and modernising the Zoo's facilities can be accelerated.

Accountants are sometimes thought of as reporters of dull historical facts. However, we increasingly regard ourselves as co-ordinators and planners. Much of the year has been spent looking forward to the watershed year of 1998 and onwards: financial planning for future capital expenditure, for education expansion, for fund raising and Lottery Fund applications, and for more aggressive marketing and promotion. A long-term strategic view of financial and other aspects of Zoo development have been included in the planning document *2020 Vision*.

The computer net-working in our main Oakfield offices has been virtually completed. Training plans have been agreed

for *WordPerfect* and *Quattro Pro* users. The installation of a more modern system of personal radio telephones has improved our internal communications and staff security systems. An office reorganisation, with long-overdue decorations and modern office furniture and storage units have improved the working environment and given more effective use of restricted space.

The Society is still fighting for its charitable rights in terms of VAT exemption. 1998 should produce the results of two legal tribunal cases. The main staff pension scheme was ably reviewed by the Trustees and Council. Benefits were improved and many more staff have joined the scheme. As a result, staff are in a much stronger financial position.

The new Development Office under John Regan is already beginning to generate useful sums of money from external sources to reinforce the Zoo's income stream.

Finally, it is sad to report the deaths of Doreen Farnell, our Wages Supervisor and Derrick Thompson, who worked on computer projects within the Oakfield until he retired, and then became a Volunteer. Doreen was a tower of strength for over 25 years and we miss her. Derrick's gentle courtesy and humour were a mark of the man.

Michael Johnson, Financial Controller

The arrival of *Upali*, the young male elephant from Zurich, and *Kitani*, the baby black rhinoceros, gave us the all-important high profile young mammals that attract the visitors; and advertising was quickly adapted. Despite the dismal June weather, we achieved a very credible result. We are beginning to feel the benefit of *Monkey Islands* in extending dwell time and this will be vital for 1998.

We had the sad death of baby elephant *Karha*; but her legacy included an unprecedented number of ten marketing awards. The 'gold' Marketing Award from the Federation and the 'gold' and 'silver' from the North West Tourist Board relate closely to her. We also scored with environmental, energy efficiency, publishing and public relations awards. One, won with a poem, sent the Director to Rome on an excursion to develop our 'Frozen Zoo' (cryobiology) programme! We retained our listing in the British Tourist Authority 'Top Twenty' and were named 'Zoo of the Year 1998' by the prestigious *Good Guide to Britain 1998* published by Ebury Press. Our work on committees with the City of Chester, Cheshire County Council, the North West Tourist Board, tourist consortia, the Federation and the Association of Leading Visitor Attractions (ALVA) was important in maintaining our national position. Internationally, we co-organised the first *International Conference on Zoo Marketing*. This was hosted by Aalborg Zoo on behalf of EAZA and the World Zoo Organisation.

An enhanced advertising budget took us back to Central and Harlech TV areas. Our biggest ever visitor survey, masterminded by researcher Michelle Baxter from University College Warrington, demonstrated useful gains from these areas, and a continuing lift in perceived *value for money* (see p 11). This is an excellent omen.

Media liaison continued smoothly, with excellent press, radio and television pieces, including Channel 5's

Attractions. This was so good that we have included it, with permission, in our own *Travel and Tourism* video pack! Our skills with video news releases means we are less dependent on television company resources. We have proved this twice, including the coverage of the Royal visit.

In publishing, we updated both videos, completely revised the Membership leaflet for the Development department and turned the promotional tabloid newspaper *Chester Zoo News* into an A4 magazine. We have continued *Chester Zoo Life*, in full colour with a record print run. In outreach, we added the two-day Wirral show and *Cheshire Oaks* to the *Noah's Ark* schedule, and plan further excursions in 1998. Our joint GNVQ/A level *Business Studies/Leisure and Tourism* Courses with Education continue to pack the Lecture Theatre.

There was a masterly performance by the retailers, with the best ever Christmas Grotto, season-long solid work by the two catering departments and Group Sales pitching for new business. Our thanks to all the team!

Three new kiosks, in the new soft livery, are being installed for Easter, with two new picnic sites created. Last, the consultancy report on catering has given us a fresh vision for the future.

Chris Vere,
Marketing Manager



JUNIORS, MEMBERSHIP AND ADOPTIONS

JUNIOR MEMBERS

Events held during 1997 for the Junior Club, included the usual Contact Session, Tracks and Signs, Day with a Keeper, Summer Barbeque and Christmas Party. Other events were our visits to Liverpool Museum, Dudley Zoo, the Chestnut Centre for owls and otters, Hilbre Island and the incredible follies and caves at Hawkstone Park. We enjoyed our visit to Ainsdale Nature Reserve to see the red squirrels and to The Wildfowl and Wetlands Trust at Martin Mere.

In addition, correspondence has continued with the *Mali Hai Club* at Endorofta School in Tanzania. Seventeen members spent an enjoyable week on a field trip, watching the wildlife on the Isle of Wight with Penny and the Head of Education, Steve McKeown. We are very grateful to the twenty Juniors who 'manned' the special exhibition during *Native Species Week* at Education Division, and to the enthusiastic and reliable volunteers who helped throughout the year.

Penny Rudd, Junior Club Leader

Penny Rudd, continues to lead the club but is on a sabbatical from the Zoo itself. She must be applauded for her sterling work in organising the Juniors, not only during 1997, but over many years. A good number of her former juniors are now adult members of the Society!

MEMBERSHIP

We are delighted that, under the stewardship of Membership Secretary, Maureen Allsop, membership continued to rise steeply from 10,171 for 1996, to reach 11,531 by the year end. A number of very successful Members' meetings were held throughout the year concluding with a splendid Christmas lunch in the *Oakfield* Restaurant.

Many members were present to greet HRH, the Duke of York when he officially opened the *Monkey Islands* complex.

ADOPTIONS

The number of adopters rose again, from 2,700 for 1996 to 3,200 at the year end. The run-up to St. Valentine's Day and, of course, the pre-Christmas season were especially busy.

Two *Adopter Days*, organised by Adoption Secretary Mary McManus, were a great success, attracting 1,200 participants.

Members and Adopters both responded favourably to the Director's Christmas 'share issue' in the *Twilight Zone* 'bat cave' (including bats, creepy crawlies and educational adventures!). Shares will continue to be made available up to the maximum of 400.

John Regan, Development Manager

The continued systems upgrading of the Zoo computers throughout most of the year dominated and stretched our information technology (IT) resources. However, with it completed, we can now begin to take advantage of new operating systems, networking, intranet and internet facilities.

A new network has been established in the Education Division, which now enables members of staff to share projects and files in a very efficient way. This network is one of several sites that will eventually be all linked together to enable sharing of work, ease of communication and access to services of the Oakfield building, e-mail and the internet.

The availability of new technology, telecommunication lines, access to computer systems and information providers will allow us to be able to fully utilise our IT facilities and benefit from the whole range of IT. In addition to the core use of IT, we will be able to offer computer connections within our conferencing/meeting facilities in the Zoo. This will open up a new market for our Group Sales – as customers will have the ability to connect (via our intranet/internet server) to our offices or other information providers.

The benefits of the current hardware strategy will allow individual areas such as animal sections and maintenance to have access to all the relevant IT facilities in the Zoo. Another exciting venture within IT is the development of our own interactive *Zoo CD Rom*. This is a joint venture with an external computer-aided graphic designer and developer and is coordinated with the Head of Education (and myself for the software development aspect). This will be a very high quality product with wide appeal. In addition it will contain lots of very useful information and pictures and will spread the word about the excellent work carried out at Chester Zoo.

Along with this extremely fast paced and very fluid IT phenomenon, comes a need for strict protocols for security and operation. Unfortunately, there is also the added burden to learn how to use the systems and to prevent the risk of 'information overload'. We are, therefore, putting into place a step-by-step approach when bringing the systems on-line.

Everyone is now feeling the benefit of new systems: and the Zoo as a whole will greatly advance from the continuing development of IT.

Keith Brown, Systems Analyst

DONATIONS, GRANTS AND DEVELOPMENT

John Regan took up his appointment as Development Manager in January. Some solid foundations have been laid for future fundraising, and the Zoo has already benefited from an increased level of donations, sponsorships, grants, and other contributions.

The Zoo is especially indebted to *Capital Bank*, whose extremely generous gift allowed an extensive educational and recreational enhancement of the *Monkey Islands* development

Kwik Save very kindly agreed to sponsor the *Children's Farm* for one year beginning in the summer.

Railtrack agreed a donation of £7,500 towards improving disabled facilities within the Education Division building.

Grants towards the *Twilight Zone* ('bat cave') project were successfully negotiated from the Committee for the Public Understanding of Science (COPUS) and Lord Leverhulme's Charitable Trust.

We are also grateful to the Right Honourable Michael Heseltine MP for a gift towards our work with the White-headed Duck.

MBNA bank agreed that its staff should act as volunteers within the Education Division.

An application to the National Lottery Charities Board for a programme of sex education was unfortunately turned down. This project will remain in abeyance until we find a suitable alternative funding mechanism.

However, a further major application to the National Lottery Charities Board for £330,000 to enable a *Close Contact with Animals Service* was submitted in November and we are expecting to hear the outcome in March 1998.

An application to the National Lottery Arts Board was also prepared; and, after further consultation with the North West Arts Board, will be submitted in 1998.

The Society engaged in a discretionary legacy system and, through this achieved a bequest from the estate of Mrs Bella Sackloff.

In November, Council approval was given for the formation of an Advisory Fundraising Group.

Major donations in 1997 included:	£
Capital Bank	58,442
Capital Bank	3,289
Ronald & Kathleen Pryor Charity	12,000
Kwik Save	6,000
<i>Twilight Zone</i> ('bat cave') Shares	3,050
World Wildlife Fund	3,000
Committee for the Public Understanding of Science	3,000
Mr John Blewett	2,991
Frank Roberts Bakery	2,500
Lord Leverhulme's Charitable Trust	2,000
Yapp Charitable Trust	1,000
Gibb Limited of Mauritius	1,000
Manchester Airport	500
Railtrack	500
Mrs Lillian Hughes	500
Sir René Maingard de La Ville ès Offrans	250
Smaller and anonymous donations	4,419
TOTAL	104,441

John Regan, Development Manager

The following mandatory information is given in the manner required by legislation.

• The North of England Zoological Society owns a trading subsidiary, Chester Zoo Enterprises Ltd, whose profits are covenanted to the Society. The Society is a registered charity (No. 306077) a company limited by guarantee (No. 287902), regulated by its Memorandum and Articles of Association.

• **The Council as elected by the members are:**
(Dates for those newly elected and those resigning are given)

Trustees Name	Sub committees				
	Finance	Remuneration	Pension Fund*	Programmes and Membership	Scientific and Veterinary
Beatrice Jones (Chairman)	•	•	•	•	
John Brown (June 1997)					
Brian Coles (June 1997)					•
Dr David Cooke					•
Jean Dixon			•	•	
Kathryn Edwards				•	
Prof Brian Gardiner					
Brian Livingstone (June 1997)					•
Chris Mahon					•
John Makinson	•				
Keith Maybury (Vice Chairman)					•
Graham Pollard (June 1997)				•	
Tony Williams	•		•		
Nicholas Wilson (June 1997)	•	•			
Pat Wisniewski (June 1997)					•

* Not formally a sub committee of Council.

Hamilton Howatt	resigned June 1997
Rennie Barnes	resigned June 1997
Elizabeth Livingstone	resigned June 1997
Nicholas Wilson	resigned June 1997 and was re-elected
Pat Wisniewski	resigned June 1997 and was re-elected
Alan Sharples	was co-opted on to Council in November 1997

• The registered address of the Society is Upton, Chester, CH2 1LH.

• The principal advisors of the Society are:
Auditors Coopers & Lybrand, Liverpool
Bankers Barclays Bank plc, Liverpool

Legal Advisors Mace, Jones, Grundy Kershaw, Liverpool
Walker, Smith & Way, Chester

- Investment powers are limited to those available under charity legislation.
- The charity's objectives are to run and develop a zoological gardens. Its policy is the encouragement of people to support wildlife and particular emphasis is placed on conservation, scientific and educational aspects on an international basis.
- The strategic direction and policies of the Society are determined by the elected Council as Trustees, with consultation and discussion with the Director of the Zoo as Chief Executive and his staff who implement policy. The Trustees have six formal meetings a year, together with an Annual General Meeting. The Council Sub-committee structure is indicated against the names (opposite).

• The development, activities and achievements of the Zoo in 1997 are detailed fully in the Annual Report, principally in the Chairman's and Director's reviews (pp 2 and 3).

• Financial results 1997 (1996 comparative in brackets):

The net incoming resources for the year of £307,000 (£375,000) resulted from turnover of £7,484,000 (£7,434,000) less expenses of £7,177,000 (£7,059,000). These figures are derived from the consolidated accounts for the group. Property maintenance £572,000 (£465,000) has been accelerated and additional promotional monies have been spent as shown under fundraising and publicity £467,000 (£326,000). The £943,000 depreciation charges include an exceptional £456,000 write-down of special buildings, which principally affects animal welfare expenditure £2,139,000 (£1,779,000). 1996 depreciation also included an exceptional £400,000 in respect of write down of the Monorail. All fixed assets are now written down on a straight line basis at very prudent rates.

The operating activities generated a cash flow of £1,132,000 (£1,466,000) and was a decrease on 1996 because more working capital was required. This was mainly used for fixed asset addition of £886,000 (£842,000) and payments on the final monorail lease £168,000 (£168,000).

The net assets consist of fixed assets and working capital as required for the housing of animals and the Zoo's trading. Donations and sponsorships received during the year totalled £104,000 (£56,000). The 1998 capital expenditure projects include a new concept *Twilight Zone* ('bat cave'), a completely transformed penguin pool and an elephant bull pen.

Deep Sea Leisure plc, a rival commercial aquarium attraction, has received a £3 million European Regional Development Grant, and is building within three miles of the Zoo. Opening is expected in summer 1998 and, as reported last year, some adverse impact in the Zoo's income may occur.

In accordance with Section 384 of the Companies Act 1985, resolutions proposing the reappointment of the Coopers & Lybrand as auditors of the Society and to authorise Council to determine their remuneration will be put to members at the Annual General Meeting.

Signed on behalf of Council,
Michael Johnson, Company Secretary
27 March 1998

STATEMENT OF COUNCIL'S RESPONSIBILITIES IN RELATION TO 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 those financial statements, Council is required to:

- select suitable accounting policies and apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- 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 which disclose with reasonable accuracy at any time the financial position of the Society and the group and to enable it to ensure that the financial statements comply with the Companies Act 1985 and applicable accounting standards. It 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.

Approved by Council and signed on its behalf by:
Michael Johnson
Company Secretary
27 March 1998

AUDITOR'S REPORT

AUDITORS' REPORT TO THE MEMBERS OF THE NORTH OF ENGLAND ZOOLOGICAL SOCIETY

We have audited the financial statements on pages 27 to 32, which have been prepared under the historic cost convention and accounting policies set out on page 30.

Respective responsibilities of Council and auditors

As described above, the Society's Council are responsible for the preparation of financial statements. It is our responsibility to form an independent opinion, based on our audit, on those statements and to report our opinion to you.

Basis of 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 Council in the preparation of the financial statements, and of whether the accounting policies are appropriate to the Society'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 affairs of the Society and the group at 31 December 1997 and of its incoming resources and application of resources, including its income and expenditure, and of the cash flows of the group for the year then ended and have been properly prepared in accordance with the Companies Act 1985.

Coopers & Lybrand
Chartered Accountants and Registered Auditors
Liverpool
27 March 1998

**CONSOLIDATED STATEMENT
OF FINANCIAL ACTIVITIES FOR
THE YEAR TO 31 DECEMBER 1997**

	NOTES	1997		1996	
		£ 000's	£ 000's	£ 000's	£ 000's
INCOMING RESOURCES					
Turnover of charitable trading activities	3		4,339		4,353
Other incoming resources					
Members' subscriptions		229		199	
Animal adoptions (restricted)		97		96	
Donations and legacies (see below)		96		56	
Property rents received - external		39		36	
Property rents received - from trading subsidiary	4	297		297	
Net income of trading subsidiary	4	390		393	
			<u>1,148</u>		<u>1,077</u>
TOTAL INCOMING RESOURCES			<u>5,487</u>		<u>5,430</u>
RESOURCES EXPENDED					
Gross expenditure of charitable trading activities	3		986		1,413
Direct charitable expenditure					
Animal welfare (including exceptional depreciation, see note 9)		2,139		1,779	
Education		248		249	
Gardens		325		308	
Property maintenance		572		465	
			<u>3,284</u>		<u>2,801</u>
Other expenditure					
Fundraising and publicity		467		326	
Management and administration		443		515	
			<u>910</u>		<u>841</u>
TOTAL RESOURCES EXPENDED			<u>5,180</u>		<u>5,055</u>
NET INCOMING RESOURCES / MOVEMENT IN FUNDS	5		307		375
Accumulated funds brought forward			<u>2,555</u>		<u>2,180</u>
ACCUMULATED FUNDS CARRIED FORWARD			<u>2,862</u>		<u>2,555</u>

All activities are continuing.

There is no material difference between the result disclosed above and that on an unmodified historical cost basis.

All the Society's income is unrestricted except for animal adoptions of £97,000 (1996 £96,000) and donations, grants and legacies of £18,000 (1996 £29,000) are held for, or expended on, specific projects (see note 15).

The Society has no recognised gains or losses other than the net surpluses above and therefore no separate statement of total recognised gains and losses has been presented.

The notes on pages 30 to 32 form part of these financial statements.

BALANCE SHEETS
AT 31 DECEMBER 1997

	NOTES	CONSOLIDATED		SOCIETY	
		1997 £000's	1996 £000's	1997 £000's	1996 £000's
FIXED ASSETS					
Tangible assets	9	3,924	3,979	3,858	3,919
Investment in subsidiary company	10			0	0
		<u>3,924</u>	<u>3,979</u>	<u>3,858</u>	<u>3,919</u>
CURRENT ASSETS					
Stocks	11	268	274	52	62
Debtors	12	188	174	315	285
Cash at bank and in hand		51	68	40	62
		<u>507</u>	<u>516</u>	<u>407</u>	<u>409</u>
CREDITORS:					
AMOUNTS FALLING DUE WITHIN ONE YEAR	13	1,532	1,865	1,367	1,700
NET CURRENT LIABILITIES		<u>(1,025)</u>	<u>(1,349)</u>	<u>(960)</u>	<u>(1,291)</u>
TOTAL ASSETS LESS CURRENT LIABILITIES		<u>2,899</u>	<u>2,630</u>	<u>2,898</u>	<u>2,628</u>
CREDITORS:					
AMOUNTS FALLING DUE FROM TWO TO FIVE YEARS					
Corporation tax	14	37	75	37	75
NET ASSETS		<u>2,862</u>	<u>2,555</u>	<u>2,861</u>	<u>2,553</u>
FUNDS EMPLOYED					
INCOME FUNDS - RESTRICTED		<u>15</u>	<u>14</u>	<u>15</u>	<u>14</u>
INCOME FUNDS - UNRESTRICTED					
Designated funds		1,393	802	1,393	802
Other charitable funds		1,454	1,739	1,453	1,737
		<u>2,847</u>	<u>2,541</u>	<u>2,846</u>	<u>2,539</u>
TOTAL FUNDS EMPLOYED	15	<u>2,862</u>	<u>2,555</u>	<u>2,861</u>	<u>2,553</u>

The notes on pages 30 to 32 form part of these financial statements.

The financial statements on pages 27 to 32 were approved by Council and were signed on its behalf by :

Beatrice Jones
Chairman of Council
27 March 1998

Nicholas Wilson
Chairman of Finance Committee
27 March 1998

**CONSOLIDATED CASH FLOW STATEMENT
FOR THE YEAR TO 31 DECEMBER 1997**

	NOTES	1997		1996	
		£000's	£000's	£000's	£000's
CASH FLOW FROM OPERATING ACTIVITIES					
Net incoming resources		307		375	
Net interest payable		89		114	
(Profit) on sale of fixed assets		(2)		(2)	
Depreciation charges net of amortisation of capital grants		943		979	
Decrease / (Increase) in stocks		6		(19)	
(Increase) in debtors		(14)		(32)	
(Decrease) / Increase in creditors due within 1 year		(91)		166	
Net cash inflow from operating activities			1,238		1,581
RETURNS ON INVESTMENTS AND SERVICING OF FINANCE					
Interest received		7		9	
Interest paid - bank and other		(44)		(54)	
Interest paid - finance leases		(69)		(70)	
Net cash outflow from returns on investments and servicing of finance			(106)		(115)
TAXATION					
Net cash outflow from taxation			(38)		(37)
CAPITAL EXPENDITURE					
Receipts of capital expenditure grants		-		-	
Receipts from disposal of tangible fixed assets		4		17	
Payments to acquire tangible fixed assets	9	(890)		(859)	
Net cash outflow from capital expenditure			(886)		(842)
NET CASH INFLOW BEFORE FINANCING			208	587	
Less : FINANCING					
Repayments of capital element of finance leases	16	(168)		(168)	
Net cash outflow from financing			(168)		(168)
CASH					
Decrease in bank overdraft	16	57		375	
(Decrease) / Increase in cash at bank and in hand		(17)		44	
INCREASE IN CASH IN THE YEAR			40	419	

The notes on pages 30 to 32 form part of these financial statements.

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 1997

1. ACCOUNTING POLICIES

These accounts have been prepared in accordance with the Statement of Recommended Practice (SORP) for Accounting by Charities.

The following accounting policies have been applied in dealing with items which are considered material in relation to the financial statements of The North of England Zoological Society ('the Society') and are consistent with those of the 1996 financial statements.

The Society's systems analyse expenses departmentally. The SORP calls for expenses to be analysed on an operational basis and accordingly they have been apportioned on this basis.

- (a) **Basis of accounting** – The financial statements have been prepared in accordance with applicable accounting standards in the United Kingdom under the historical cost convention.
- (b) **Basis of consolidation** – The consolidated statement of financial activities, balance sheet and cash flow statement include the financial statements of the Society and its subsidiary undertaking made up to 31 December 1997 and comply with recommended practice for accounting by charities. The net profit of the subsidiary trading company, covenanted to the Society, has been shown as a single line on the statement of financial activities. The turnover and expenses relating thereto are shown in the notes to the financial statements. Its net profit is shown after accounting for various intra-group charges. Rent paid by the subsidiary to the Society has been shown within incoming resources whereas the apportioned overheads, recharged by the Society, have been deducted from the appropriate expense line in the statement of financial activities.
- (c) **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.
- (d) **Fixed assets** – Fixed assets are included in the balance sheets at their cost to the Society.
- (e) **Freehold property** – In accordance with the practice adopted in previous years, no depreciation has been provided on freehold land or property. It is the Society's policy to maintain its property in good condition, prolonging its useful life and making any depreciation provision immaterial. Repairs and maintenance costs are charged against income in the year that they are incurred.
- (f) **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. Grants are amortised at a rate equal to the depreciation rate applied to the asset to which they relate.
- (g) **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.
- (h) **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 installments under such leases, net of finance charges, are included with 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 statement of financial activities as incurred.
- (i) **Stocks** – Stocks are valued on a basis consistent with that used in previous years at the lower of cost and estimated net realisable value.
- (j) **Turnover** – Turnover represents cash and invoiced amounts of admission charges, goods sold and services provided (stated net of value added tax).
- (k) **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.
- (l) **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 separately on the face of the statement of financial activities in any year where a sale has occurred.

2. 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. The Society is registered with the Charity Commission No. 306077. As a registered charity, the Society is entitled to claim exemption from the charge to tax on income and chargeable gains at Section 505 Income and Corporation Tax Act 1988 and Section 256 Taxation of Chargeable Gains Act 1992. In the opinion of Council, no corporation tax liability arose in respect of the Society's activities in the year.

3. CHARITABLE TRADING ACTIVITIES

	1997		1996	
	£ 000's	£ 000's	£ 000's	£ 000's
Turnover				
Zoo admissions	3,841		3,844	
Monorail and boats	250		257	
Guides and other	248	4,339	252	4,353
Gross expenditure				
Zoo admissions	604		470	
Monorail and boats	230		796	
Guides and other	152	986	147	1,413
		<u>3,353</u>		<u>2,940</u>

4. TRADING SUBSIDIARY - CHESTER ZOO ENTERPRISES LIMITED

	1997			1996
	Catering £ 000's	Shops 1997 £ 000's	Total £ 000's	£ 000's
Turnover	1,838	1,307	3,145	3,081
Direct Costs	1,224	825	2,049	2,036
Gross profit	614	482	1,096	1,045
Indirect Costs - property rents paid to parent company	160	137	297	297
Indirect Costs - management charges paid to parent company	233	115	348	291
Indirect Costs - other overheads	58	4	62	65
Net profit	163	226	389	392
Amount covenanted to the Society			390	393
Retained in subsidiary			(1)	(1)

5. NET MOVEMENT IN FUNDS

	1997		1996	
	£ 000's	£ 000's	£ 000's	£ 000's
This is after charging:				
Auditors' remuneration - audit (Society : £ 8,000, 1996 £ 8,000)		11		11
- non-audit		-		50
Depreciation (net of grant amortisation)		943		979
Hire of equipment		15		14
Interest payable - bank	44		54	
Interest payable - finance leases	52		69	
	<u>96</u>		<u>123</u>	
Less : Interest receivable	7	89	9	114
Operating lease rentals - plant and equipment		<u>7</u>		<u>3</u>

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 £308,000 (1996; £376,000).

6. DIRECTORS

- (a) **Remuneration and expenses** – The members of Council, being charity trustees, received no remuneration (1996 Nil). One trustee was reimbursed during the year for travelling expenses necessarily incurred. The aggregate amount of those expenses was £144 (1996 £35).
- (b) **Transactions with trustees** – The Society entered into contracts with one firm with which a Trustee has business connections, as detailed below: J H Howatt, partner, ERP Selection and Search, £ Nil (1996 £1,000), recruitment services.
- (c) **Trustee indemnity insurance**
Insurance costing £3,000 (1996 £3,000) has been taken out by the Society to protect the Society, its trustees and other officers against the consequences of any other than reckless neglect or default on their part.

7. EMPLOYEES

	1997 £ 000's	1996 £ 000's
(a) Aggregate staff costs		
Wages and salaries	2,726	2,656
Social security costs	227	223
Other pension costs	155	143
	<u>3,108</u>	<u>3,022</u>

(b) Emoluments

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 £40,000 upwards was as follows:

	1997 Number		1996 Number	
	Permanent	Temporary	Permanent	Temporary
From £40,001 to £50,000	1	1	1	1
From £50,001 to £60,000	1	1	1	1
(c) Number of persons employed				
The average (full time equivalents) throughout the financial year was as follows:				
Animal Welfare	56	4	55	3
Maintenance and gardens	49	12	52	10
Education	4	-	3	-
Publicity and fundraising	6	-	6	-
Catering and shops	18	54	18	48
Administration	21	8	21	5
	<u>154</u>	<u>78</u>	<u>155</u>	<u>66</u>

8. PENSIONS

Pension contributions are determined by a qualified actuary on the basis of triennial valuations using the projected unit method. The assumptions which have the most significant effect on the results of the valuations are those relating to the valuation rate of interest (9% pa.) the rate of future salary inflation and future increases in Lower Earnings Limit (7% pa.) the rate of future pension increases (4% pa.) and the rate of future dividend growth (4.5% pa.). The most recent valuation was at 31 December 1996 which showed that the market value of the scheme's assets was £3,088,000 and that the actuarial value of those assets represented 107.4% of the benefits that had accrued to members, after allowing for an increase in pensions, in line with the increase in the Retail Prices Index, with effect from 1 January 1998. In addition to the cost of reinsuring the lump sum death benefit, the contributions made to the scheme have been:

	Members	Society
6% Contributory members	6%	19.3%
3% Contributory members	3%	9.1%
Non-contributory members	Nil	2.2%

The actuary gave it as his opinion that, provided contributions continued at the rates as set out above, the next actuarial valuation as at 31 December 1999 would be expected to show that the resources of the Scheme were likely, in the normal course of events, to be sufficient to meet in full the liabilities of the Scheme as they fell due.

During 1997, the future benefits from the 3% category have been improved and the non-contributory category has been closed for future service. The impact of these changes on the Society's contributions is not expected to be material.

Contributions amounting to £9,000 were prepaid by the Society to the fund at the year end and are included in debtors (1996 £1,000 accrued, in creditors).

9. TANGIBLE FIXED ASSETS

	Freehold property £000's	Buildings & enclosures £000's	Monorail system £000's	Machinery & equipment £000's	Animals £000's	Total £000's
CONSOLIDATED COST						
At 1 January 1997	581	5,155	1,498	1,543	150	8,927
Additions	-	688	18	184	-	890
Disposals / Written off	-	(1,716)	-	(977)	(149)	(2,842)
At 31 December 1997	<u>581</u>	<u>4,127</u>	<u>1,516</u>	<u>750</u>	<u>1</u>	<u>6,975</u>
DEPRECIATION						
At 1 January 1997	-	2,336	1,287	1,176	149	4,948
Provided during year	-	701	52	190	-	943
Disposals / Written off	-	(1,716)	-	(975)	(149)	(2,840)
At 31 December 1997	<u>-</u>	<u>1,321</u>	<u>1,339</u>	<u>391</u>	<u>0</u>	<u>3,051</u>
NET BOOK VALUE						
At 31 December 1997	<u>581</u>	<u>2,806</u>	<u>177</u>	<u>359</u>	<u>1</u>	<u>3,924</u>
At 1 January 1997	<u>581</u>	<u>2,819</u>	<u>211</u>	<u>367</u>	<u>1</u>	<u>3,979</u>

The net book value at 31 December 1997 represents fixed assets used for:

Charitable trading activities	-	956	177	28	-	1,161
Direct charitable purposes	-	1,626	-	157	1	1,784
Other purposes	581	224	-	174	-	979
	<u>581</u>	<u>2,806</u>	<u>177</u>	<u>359</u>	<u>1</u>	<u>3,924</u>

The depreciation charged for the year to 31 December 1997 was allocated:

Charitable trading activities	-	65	52	12	-	129
Direct charitable purposes	-	564	-	103	-	667
Other purposes	-	72	-	75	-	147
	<u>-</u>	<u>701</u>	<u>52</u>	<u>190</u>	<u>-</u>	<u>943</u>

Animal purchases of £11,000 (1996 £6,000) and sales of £1,000 (1996 £1,000) have been treated as revenue transactions.

Included in the total net book value of tangible fixed assets is £52,000 (1996 £70,000) in respect of the Monorail system acquired under 'finance' leases. Depreciation for the year on these assets was £17,000 (1996 £517,000).

An additional £456,000 depreciation was provided in 1997 in respect of some buildings acquired before 1992, which principally relates to animal welfare, to convert their method of depreciation from reducing balance to straight line basis, so as to be consistent with the method used in respect of assets purchased subsequently and to reflect their remaining useful life.

Council considers that the market value of the Society's land, property and buildings exceeds their book values.

TANGIBLE FIXED ASSETS (Continued)

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:

	COST £000's	DEPRECIATION £000's	NET BOOK VALUE £000's
At 1 January 1997	1,415	1,108	307
Additions	156	156	
Disposals	(977)	(975)	(2)
Provided during year	168	(168)	
At 31 December 1997	<u>594</u>	<u>301</u>	<u>293</u>

10. INVESTMENT IN SUBSIDIARY COMPANY

The Society has a wholly owned trading subsidiary, comprising 100 ordinary £1 shares in Chester Zoo Enterprises Limited, incorporated in the UK, which operates the catering and retail activities of the zoo from outlets rented from the Society. It covenants its taxable profit to The North of England Zoological Society. Audited accounts for the year to 31 December 1997 will be filed with the Registrar of Companies. A summary of its trading results has been included in Note 4 above.

	GROUP		SOCIETY	
	1997 £000's	1996 £000's	1997 £000's	1996 £000's
11. STOCKS				
Goods for resale	239	235	23	23
Consumables	29	39	29	39
	<u>268</u>	<u>274</u>	<u>52</u>	<u>62</u>

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

12. DEBTORS

Trade debtors	10	17	7	11
Intra group debtor	-	-	93	93
Other debtors	137	118	175	143
Prepayments and accrued income	41	39	40	38
	<u>188</u>	<u>174</u>	<u>315</u>	<u>285</u>

13. CREDITORS - AMOUNTS FALLING DUE WITHIN ONE YEAR

Bank overdraft (secured)	936	993	923	983
Obligations under finance lease	-	185	-	185
Corporation tax	38	38	38	38
Trade creditors	313	388	261	337
Other taxes and social security costs	143	143	49	54
Other creditors	3	29	3	21
Accruals	99	89	93	82
	<u>1,532</u>	<u>1,865</u>	<u>1,367</u>	<u>1,700</u>

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

14. CORPORATION TAX

As the Society is a Registered Charity it had been considered that no tax liability (other than V.A.T.) arose on income. However in 1993 the Inland Revenue raised an assessment on certain of the catering and souvenir retailing activities in respect of the financial years up to 1991. A settlement figure of £225,000 was agreed, payable in 6 equal instalments of £37,500, interest free, from 1994 to 1999.

Since 1 January 1992 any commercial activity which falls outside the statutory exemption for the purposes of Corporation Tax has been conducted through Chester Zoo Enterprises Limited, which covenants all its taxable profits annually to the Society.

15. FUNDS EMPLOYED

	Balance 1 January 1997 £000's	New funds £000's	Funds utilised £000's	Balance 31 December 1997 £000's
Restricted Income Funds				
Animal adoptions scheme	0	97	97	0
Animal welfare projects	10	11	9	12
Education projects	4	7	8	3
	<u>14</u>	<u>115</u>	<u>114</u>	<u>15</u>
Designated Funds				
Animal welfare projects	562	1,100	573	1,089
Education projects	19	177	86	110
Other capital projects	221	223	250	194
	<u>802</u>	<u>1,500</u>	<u>909</u>	<u>1,393</u>
Other Charitable Funds	<u>1,739</u>	<u>3,872</u>	<u>4,157</u>	<u>1,454</u>
Total Funds Employed	<u>2,555</u>	<u>5,487</u>	<u>5,180</u>	<u>2,862</u>

16. ANALYSIS OF CHANGES IN NET DEBT DURING THE YEAR

	Balance 1 January 1997 £000's	Cash Flow in 1997 £000's	Balance 31 December 1997 £000's
FINANCING			
Finance leases, being total financing	(168)	168	0
CASH			
Bank overdraft	(993)	57	(936)
Cash at bank and in hand	68	(17)	51
Total net cash	<u>(925)</u>	<u>40</u>	<u>(885)</u>
NET DEBT	<u>1093</u>	<u>(208)</u>	<u>885</u>

17. FINANCIAL COMMITMENTS

	GROUP		SOCIETY	
	1997 £000's	1996 £000's	1997 £000's	1996 £000's
Capital expenditure, contracted for but not provided:	404	91	404	91
There is an annual commitment in respect of operating leases which expire within two to five years, of:	<u>9</u>	<u>3</u>	<u>9</u>	<u>3</u>

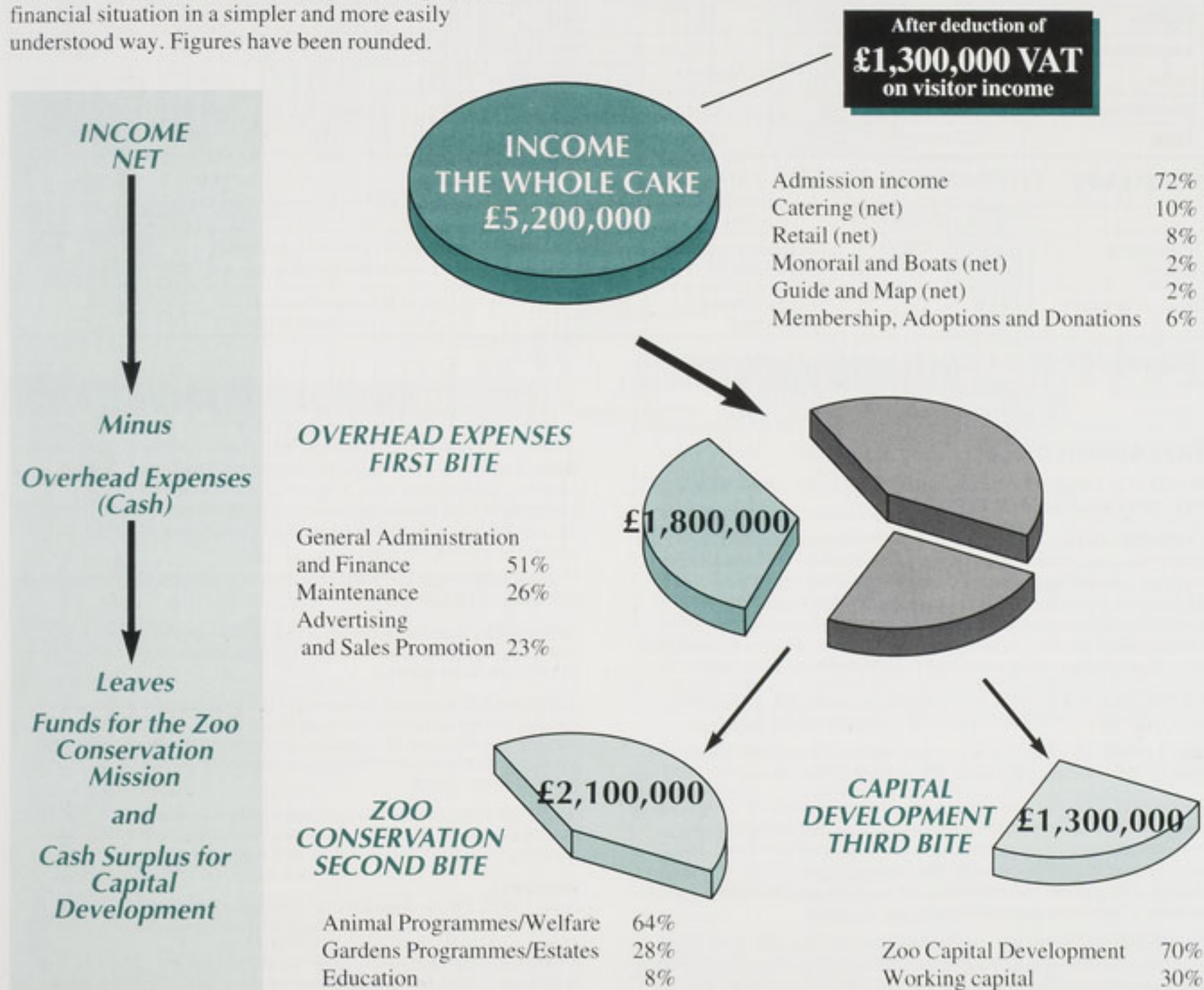
18. CONTINGENT LIABILITIES

In 1989, under Section 4 of the Development of Tourism Act 1969, the Society received a grant from the English Tourist Board of £40,000 towards the cost of building the new Chimpanzee House. Under certain circumstances this grant could become repayable, although no liability is expected to arise.

The Accounts, as presented on pages 27-32 are subject to detailed technical and legal requirements.

This informal presentation is designed to explain our financial situation in a simpler and more easily understood way. Figures have been rounded.

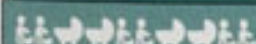
We show below where our income comes from, and what is available for conservational expenditure and capital development after deducting VAT. Capital development provides better facilities for animals, visitors and staff.



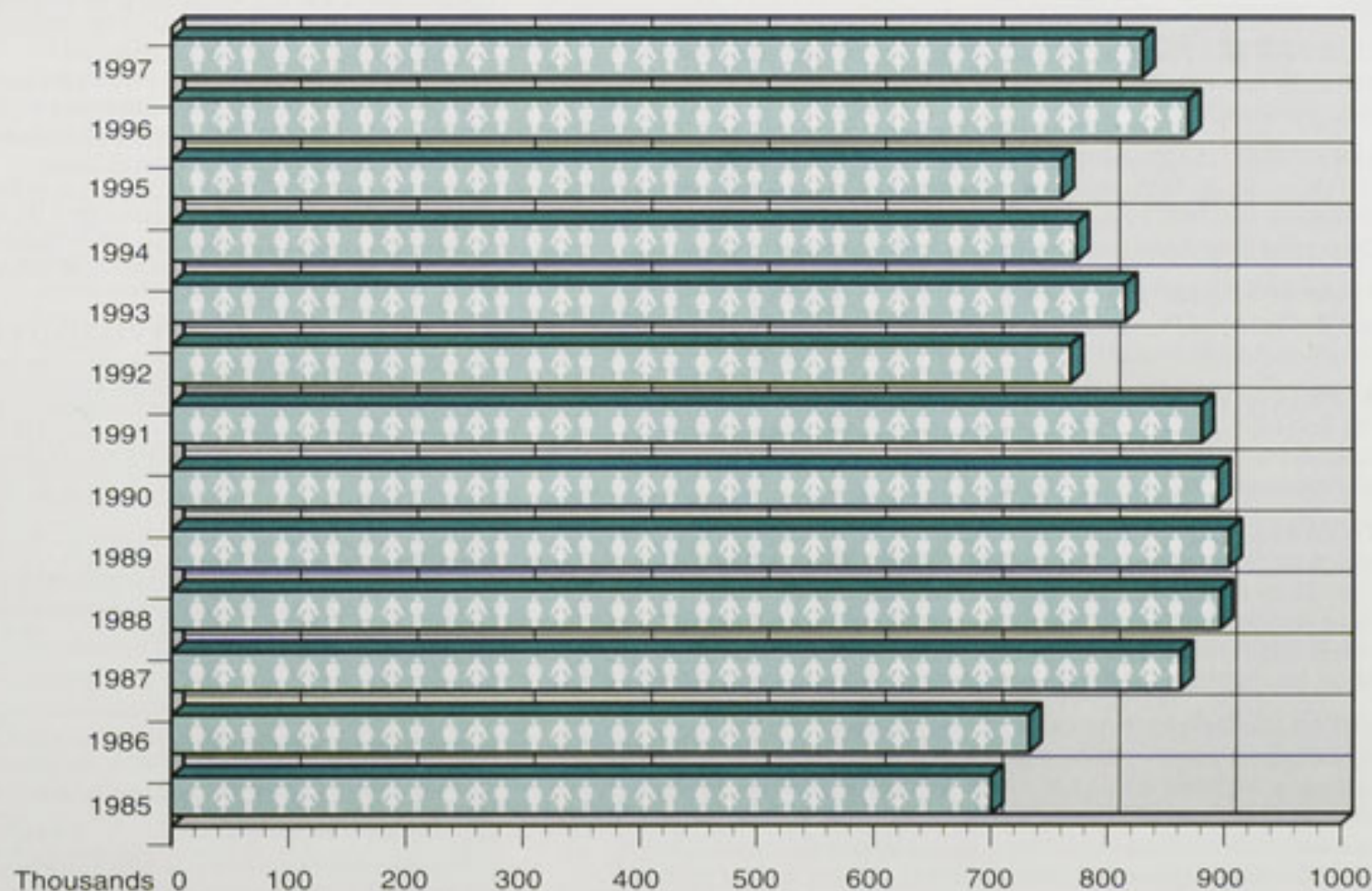
ZOO VISITORS 1985-97

ANNUAL ZOO VISITORS (excluding under 3's)

1997 visitor levels have been above the figures for the period 1992-1995



Note: If under 3's are included in our visitor total, we estimate that it now adds 11%, taking it to more than 920,000 for 1997.



SUMMARY - LIVESTOCK GENERAL HOLDINGS - TOTALS AS AT 31ST DECEMBER 1997

	Number of Species	(End 96)	Number of Specimens	(End 96)	Species Bred & Reared	(End 96)	Specimens Bred & Reared	(End 96)
Mammals	77	73	670	618	33	32	136	144
Birds	221	210	1013	952	68	76	262	293
Reptiles	51	50	267	362	13	6	143	146
Amphibians	16	18	135	114	3	4	46	135
Fishes	122	136	3123	2833	42	44	not included	not included
Invertebrates	36	40	1386	622	18	18	not included	not included
Total	523	527	6594	5501	177	180	587	718

SUMMARY - THREATENED SPECIES 1997

	1997	(1996)		1997	(1996)		1997	(1996)
Threatened species	257	(246)	Threatened species bred to date	188	(168)	Species with zoo community re-introduction plans	38	(30)
% of all livestock	49%		% of threatened species bred	73%		% of threatened species with re-introduction plans	15%	

TRANSFERS TO OTHER COLLECTIONS 1997

Mammals	21 species were sent to 18 collections	Birds	40 species were sent to 41 collections	1997 total transfers
Reptiles	4 species were sent to 3 collections	Aquarium	10 species were sent to 8 collections	75 species

EXPLANATION OF CODES USED

WORLD CONSERVATION UNION (IUCN) AND BIRDLIFE INTERNATIONAL (ICBP) CODES:

COMMERCIALY THREATENED (CT) Taxa not currently threatened with extinction, but most or all of whose populations are threatened as a sustainable commercial resource, or will become so, unless their exploitation is regulated. This category applies only to taxa whose populations are assumed to be relatively large. In practice, this category has only been used for fish and aquatic invertebrate species of commercial importance that are being overfished in several parts of their ranges.

CRITICAL (C) A taxon is 'Critically Endangered' when it is facing a very high risk of extinction in the wild in the immediate future.

DECLINING (D) Population in moderate decline and population more than 10,000 breeding pairs or 40,000 wintering individuals.

ENDANGERED (E) Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included are taxa whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction. Also included are taxa that may be extinct but have definitely been seen in the wild in the past 50 years.

EXTINCT (Ex) Species not definitely located in the wild during the past 50 years (criterion as used by the Convention on International Trade in Endangered Species of Wild Fauna and Flora). On a few occasions, the category Ex? has been assigned; this denotes that it is virtually certain that the taxon has recently become extinct.

INDETERMINATE (I) Taxa known to be 'Endangered', 'Vulnerable' or 'Rare' but where there is not enough information to say which of the three categories is appropriate.

INSUFFICIENTLY KNOWN (K) Taxa that are suspected but not definitely known to belong to any of the above categories, because of lack of information.

LOCALISED (L) Population more than 10,000 breeding pairs or 40,000 wintering birds, and neither in moderate nor in large decline, but with more than 90% of the population occurring at 10 or fewer sites (Important Bird Areas) as listed in Grimmett and Jones (1989).

NEAR THREATENED (NT) In a 'Low Risk' category and does not qualify for any of the categories 'Critical', 'Endangered', 'Vulnerable' etc., but are close to qualifying for the threatened categories.

RARE (R) Taxa with small world populations that are not at present 'Endangered' or 'Vulnerable', but are at risk. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

THREATENED (T) Threatened is a general term to denote species which are 'Endangered', 'Vulnerable', 'Rare', 'Indeterminate' or 'Insufficiently Known' and should not be confused with the use of the same term by the US Office of Endangered Species. In previous volumes it has been used to identify taxa comprised of several sub-taxa which have differing status categories.

VULNERABLE (V) Taxa believed likely to move into the 'Endangered' category in the near future if the causal factors continue operating. Included are taxa of which most or all the populations are decreasing because of over-exploitation, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security has not yet been

assured; and taxa with populations that are still abundant but are under threat from severe adverse factors throughout their range. NB. In practice, 'Endangered' and 'Vulnerable' categories may include, temporarily, taxa whose populations are beginning to recover as a result of remedial action, but whose recovery is insufficient to justify their transfer to another category.

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES (CITES) CODES:

APPENDIX I Includes species threatened with extinction and for which trade must be subject to particularly strict regulation and only authorised in exceptional circumstances.

APPENDIX II species are not necessarily now threatened with extinction but may become so unless trade is strictly regulated. Appendix II further contains so-called look-alike species, which are controlled because of their similarity in appearance to the other regulated species, thereby facilitating a more effective control.

APPENDIX III includes species that are subject to regulation within the jurisdiction of a Party and for which the cooperation of other Parties is needed in order to prevent or restrict their exploitation.

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ABBREVIATED CODES

Ex = Extinct in wild form	I = Indeterminate	X = bred in indicated period
E = Endangered	K = Insufficiently known	C = Critical (by Birdlife)
V = Vulnerable	K* = Under Review	NT = Listed as Near Threatened by Birdlife
R = Rare	D = Declining	1 = CITES I. 3 = CITES III
L = Localised (European status in parenthesis)	S = Safe	2 = CITES II C1 = Annex C1
	N/A = Not applicable	

RE-INTRO PROG = Species held at Chester Zoo that are, or have been, the subject of zoo community re-introduction programmes (but not necessarily with NEZS).

X^ = English Nature programmes * not currently in a breeding pair or group
*** Species to join the collection in 1998. + recent arrivals or not yet of breeding age.

SUMMARY OF THREATENED SPECIES BY CATEGORY

	IUCN Red List	Other Categories	Total	IUCN Red List by Category		CITIES I	CITIES II	BIRDLIFE
				Ex	9			
MAMMALS	38	11	49	E	35	65		
BIRDS	50	80	130	V	47	100		
REPTILES	11	19	30	R	24			90
AMPHIBIANS	1	4	5	I	5			
FISHES	29	1	30	K*	1			
INVERTEBRATES	6	7	13	K	13			
TOTALS	135	122	257	V/R	1			

For explanation of codes, see p34.

9	Bornean Orang utan	<i>Pongo pygmaeus pygmaeus</i>	E	1				
10	Sumatran Orang utan	<i>Pongo pygmaeus abelii</i>	E	1				
11	Eastern Lowland Gorilla	<i>Gorilla gorilla graueri</i>	E	1				
12	White-handed Gibbon	<i>Hylobates lar</i>		1				
13	Bush Dog	<i>Speothos venaticus</i>	V	1				
14	Margay	<i>Felis wiedi</i>	K	1				
15	Geoffroy's Cat	<i>Felis geoffroyi</i>		2				
16	Asiatic Lion	<i>Panthera leo persica</i>	E	1				
17	Asiatic Elephant	<i>Elephas maximus</i>	E	1				
18	Persian Onager	<i>Equus hemionus onager</i>	E	2				
19	South American Tapir	<i>Tapirus terrestris</i>		2				
20	Black Rhinoceros	<i>Diceros bicornis</i>	E	1				
21	Southern White Rhinoceros	<i>Ceratotherium simum simum</i>	V	1				
22	Guanaco	<i>Lama guanicoe</i>		2				
23	Père David's Deer	<i>Elaphurus davidianus</i>	E					
24	Bongo	<i>Tragelaphus eurycerus</i>	V	3				
25	Kafue Flats Red Lechwe	<i>Kobus leche kafuensis</i>	V	2				
26	Scimitar-horned Oryx	<i>Oryx dammah</i>	E	1				
27	Blackbuck	<i>Antelope cervicapra</i>	V	3				
28	Arabian Gazelle	<i>Gazella gazella arabica</i>	V					

MAMMALS

		IUCN Red List	BRED 97	BRED <97	CITES Listing	Re-Intro Prog
1	Rodrigues Fruit Bat	<i>Pteropus rodricensis</i>	E	X	X	2
2	Ring-tailed Lemur	<i>Lemur catta</i>	V	X	X	1
3	Black and White Ruffed Lemur	<i>Varecia variegata variegata</i>	E	X	X	1 X
4	Red Ruffed Lemur	<i>Varecia variegata rubra</i>	E	X	X	1
5	Silvery Marmoset	<i>Callithrix argentata melanura</i>			X	2
6	Cotton Top Tamarin	<i>Saguinus oedipus oedipus</i>	E	X	1	X
7	Buffy-headed Capuchin	<i>Cebus apella xanthosternus</i>	V	X	1	
8	Colombian Black Spider Monkey	<i>Ateles fusciceps robustus</i>	V	X	X	2
9	Lion-tailed Macaque	<i>Macaca silenus</i>	E	X	1	
10	Sulawesi Crested Macaque	<i>Macaca nigra</i>	I	X	2	
11	Mandrill	<i>Mandrillus sphinx</i>	V		1	
12	Chimpanzee	<i>Pan troglodytes</i>	V	X	X	1 X
13	Bornean Orang utan	<i>Pongo pygmaeus pygmaeus</i>	E	X	1	X
14	Sumatran Orang utan	<i>Pongo pygmaeus abelii</i>	E	X	1	X
15*	Red Squirrel	<i>Sciurus vulgaris</i>				
16	Maned Wolf	<i>Chrysocyon brachyurus</i>	V		1	
17	Bush Dog	<i>Speothos venaticus</i>	V	X	1	
18	Oriental Small-clawed Otter	<i>Aonyx cinerea</i>	K	X	2	
19	Caracal Lynx	<i>Felis caracal</i>		X	2	
20	Geoffroy's Cat	<i>Felis geoffroyi</i>		X	2	
21	Jungle Cat	<i>Felis chaus</i>		X	2	
22	Scottish Wild Cat	<i>Felis sylvestris</i>		X	2	
23	European Lynx	<i>Felis lynx</i>		X	2	
24	Serval	<i>Felis serval</i>		X	2	
25	Ocelot	<i>Felis pardalis</i>	V		1	
26	Margay	<i>Felis wiedi</i>	K	X	1	
27	Persian Leopard	<i>Panthera pardus saxicolor</i>	I	X	1	
28	Amur Tiger	<i>Panthera tigris altaica</i>	E	X	1	
29	Asiatic Lion	<i>Panthera leo persica</i>	E	X	1	
30	Cheetah	<i>Acinonyx jubatus</i>	V		1	X
31	Asiatic Elephant	<i>Elephas maximus</i>	E	X	1	
32	Persian Onager	<i>Equus hemionus onager</i>	E	X	2	X
33	Przewalski's Horse	<i>Equus przewalskii</i>	Ex	X	1	X
34	South American Tapir	<i>Tapirus terrestris</i>		X	2	
35	Black Rhinoceros	<i>Diceros bicornis</i>	E	X	1	
36*	Indian Rhinoceros	<i>Rhinoceros unicornis</i>	E		1	
37	Babirusa	<i>Babirusa babirusa</i>	V			
38	Guanaco	<i>Lama guanicoe</i>	X	X	2	
39	Bactrian Camel	<i>Camelus bactrianus</i>	V	X	X	
40	Chilean Pudu	<i>Pudu pudu</i>	K	X	1	
41*	Burmese Brow Antlered Deer	<i>Cervus eldi thamin</i>	V	X	1	
42	Père David's Deer	<i>Elaphurus davidianus</i>	E	X	X	X
43	Lowland Anoa	<i>Bubalus depressicornis</i>	E		1	
44	American Bison	<i>Bison bison</i>		X	X	X
45	Bongo	<i>Tragelaphus eurycerus</i>	V	X	3	
46	Kafue Flats Red Lechwe	<i>Kobus leche kafuensis</i>	V	X	2	
47	Scimitar-horned Oryx	<i>Oryx dammah</i>	E	X	1	X
48	Blackbuck	<i>Antelope cervicapra</i>	V	X	3	
49	Arabian Gazelle	<i>Gazella gazella arabica</i>	V	X	X	

MAMMALS on loan at other Zoos

1	Rodrigues Fruit Bat	<i>Pteropus rodricensis</i>	E		2	
2	Ring-tailed Lemur	<i>Lemur catta</i>	V			
3	White Fronted Lemur	<i>Lemur fulvous albifrons</i>	R	X	1	
4	Black and White Ruffed Lemur	<i>Varecia variegata variegata</i>	E		1	
5	Cotton Top Tamarin	<i>Saguinus oedipus</i>	E		1	
6	Colombian Black Spider Monkey	<i>Ateles fusciceps robustus</i>	V		2	
7	Sulawesi Crested Macaque	<i>Macaca niger</i>	I		2	
8	Lion-tailed Macaque	<i>Macaca silenus</i>	E		1	

BIRDS

		IUCN Red List	BRED 97	BRED <97	CITES Listing	Birdlife Listing	Camp Status	Re-Intro Prog
1	Ostrich	<i>Struthio camelus</i>			X	1		
2	Common Rhea	<i>Rhea americana</i>		X	X	2	NT	
3	Humboldt's Penguin	<i>Spheniscus humboldti</i>	K*	X	X	1	NT	
4	White Stork	<i>Ciconia ciconia</i>			X		(V)	
5	Black Stork	<i>Ciconia nigra</i>				2(C1)	(R)	
6+	White Pelican	<i>Pelecanus onocrotalus</i>	R					
7+	Dalmatian Pelican	<i>Pelecanus crispus</i>	V			1	V	
8	Scarlet Ibis	<i>Eudocimus ruber</i>			X	2		
9	Eurasian Spoonbill	<i>Platalea leucorodia</i>				2(C1)	(E)	
10	Chilean Flamingo	<i>Phoenicopterus chilensis</i>		X	X	2(C1)		
11	Caribbean Flamingo	<i>Phoenicopterus r. ruber</i>		X	X	2(C1)		
12	Waldrao Ibis	<i>Geronticus eremita</i>	E	X	X	1	C	X
13	Little Egret	<i>Egretta garzetta</i>		X		3	C1	
14	Black-necked Swan	<i>Cygnus melanocoryphus</i>			X	2		
15	Black-billed Whistling Duck	<i>Dendrocygna arborea</i>	V	X	X	2	V	
16	Lesser White-fronted Goose	<i>Anser erythropus</i>	R				V(V)	X
17	Red-breasted Goose	<i>Branta ruficollis</i>	K		X	C1	V(L)	
18	Hawaiian Goose	<i>Branta sandvicensis</i>	V	X	X	1	V	E X
19	Ruddy Shelduck	<i>Tadorna ferruginea</i>		X	X		(V)	
20	Baikal Teal	<i>Anas formosa</i>	V		X	2	V	V
21+	South Georgia Pintail	<i>Anas georgica georgica</i>					V	
22	Laysan Teal	<i>Anas laysanensis</i>	R	X	X	1	V	E
23	Ringed Teal	<i>Anas leucopygia</i>			X		V	
24	Ferruginous Duck	<i>Aythya nyroca</i>				3	V	
25	Marbled Teal	<i>Marmaronetta angustirostris</i>	V	X	X		V(E)	V
26	Meller's Duck	<i>Anas melleri</i>		X			NT	V
27	Garganey	<i>Anas querquedula</i>		X		3	(V)	
28	Red-crested Pochard	<i>Nettion rufina</i>		X	X		(D)	
29	Mandarin Duck	<i>Aix galericulata</i>	K	X	X		NT	
30	Smew	<i>Mergus albellus</i>		X	X		(V)	
31	White-winged Wood Duck	<i>Cairina scutulata</i>	V		X	1	E	C
32	White-headed Duck	<i>Oxyura leucocephala</i>	V	X	X	2	V(E)	V
33	Andean Condor	<i>Vultur gryphus</i>			X	1		X
34+	Griffon Vulture	<i>Gyps fulvus</i>		N/A	X	2	(R)	X
35	European Black Vulture	<i>Aegypius monachus</i>	V			2	NT(V)	X
36	Secretary Bird	<i>Sagittarius serpentarius</i>				2		
37	Mauritius Kestrel	<i>Falco punctatus</i>	E		X	1	E	X
38*	Crested Caracara	<i>Polyborus plaucus</i>		N/A	N/A	2		
39	Red-legged Partridge	<i>Alectoris rufa</i>		X	X		(V)	
40	Rouillou Partridge	<i>Rouillou rousou</i>		X	X	3		V
41+	Blyth's Tragopan	<i>Tragopan blythii</i>	R			1	V	E
42	Satyre Tragopan	<i>Tragopan satyra</i>		X	X	3	NT	V
43	Temminck's Tragopan	<i>Tragopan temminckii</i>			X		NT	
44	Himalayan Monal	<i>Lophophorus impeyanus</i>		X	X	1		
45	Brown Eared-pheasant	<i>Crossoptilon mantchuricum</i>	E		X	1	V	E
46	White Eared-pheasant	<i>Crossoptilon crossoptilon</i>	V		X	1	V	V
47	Golden Pheasant	<i>Chrysolophus pictus</i>		X	X		NT	
48	Lady Amherst's Pheasant	<i>Chrysolophus amherstiae</i>		X	X		NT	
49*	Grey Peacock Pheasant	<i>Polyplectron bicalcaratum</i>			X	C1		
50	Palawan Peacock Pheasant	<i>Polyplectron emphanum</i>	V	X	X	1	E	E
51	Mountain Peacock Pheasant	<i>Polyplectron inopinatum</i>		X		3	V	V
52	Edwards's Pheasant	<i>Lophura edwardsi</i>	V		X	1	C	C
53	Malayan Crestless Fireback	<i>Lophura e. erythroptialma</i>				3	V	E
54	Green Peafowl	<i>Pavo muticus</i>				2	V	E
55	Congo Peafowl	<i>Atrypa congensis</i>	K	X	X		V	?
56*	Ocellated Turkey	<i>Agriocharis ocellata</i>		N/A		3	NT	
57	Red-crowned Crane	<i>Grus japonensis</i>	V	X	X	1	V	E
58	Wattled Crane	<i>Buceros carunculatus</i>	K			2	V	V
59	White-naped Crane	<i>Grus vipio</i>	V			1	B	E
60	Demoiselle Crane	<i>Anthropoides virgo</i>				2		
61+	Blue Crane	<i>Anthropoides paradisea</i>				2	V	C
62	West African Crowned Crane	<i>Balearica pavonina pavonina</i>		X	X	2	E	X

63	Gough Island Moorhen	<i>Gallinula nesiotis</i>	R	X	V				
64*	Little Black Bustard	<i>Eupodotis afra</i>		X	2				
65*	Avocet	<i>Recurvirostra avosetta</i>			2	(L)			
66+	Stone Curlew	<i>Burhinus oediconemus</i>				(V)			
67	Pink Pigeon	<i>Columba mayeri</i>	E	X	1	C	C	X	
68	Nicobar Pigeon	<i>Caloenas nicobarica</i>	R	X	X	1	NT		
69	Mountain Witch Dove	<i>Geotrygon versicolor</i>			X		NT		
70	Luzon Bleeding-heart Pigeon	<i>Gallicolumba luzonica</i>		X	X	2	NT	V	
71	Blue Crowned Pigeon	<i>Goura cristata</i>	R		X	2(C1)	V	E	
72	Mount Apo Lorikeet	<i>Trichoglossus johnstoniae</i>		N/A	N/A	2	V		
73	Red and Blue Lory	<i>Eos histrio</i>	R	N/A	N/A	1	E		
74	Black-winged Lory	<i>Eos cyanogenia</i>	R	X		2	V	E	
75	Blue-streaked Lory	<i>Eos reticulata</i>	R			2	NT	VE	
76	Duyvenbode's Lory	<i>Chalcopsitta duivenboidei</i>				2			
77	Yellow-backed Chattering Lory	<i>Lorius garrulus flavopalliat</i>		X	X	2	V	E	
78	Stella's Lorikeet	<i>Charmosyna papou</i>		X	X	2			
79	Musschenbroek's Lorikeet	<i>Neopsittacus musschenbroekii</i>			X	2			
80	Palm Cockatoo	<i>Probosciger aterrimus</i>				1	NT	SV	
81	White-tailed Black Cockatoo	<i>Calyptorhynchus latirostris</i>			N/A	2	V		
82	Blue-eyed Cockatoo	<i>Cacatua ophthalmica</i>		X	X	2		S?	
83	Red-vented Cockatoo	<i>Cacatua haematurus</i>	E		N/A	1	C	C	
84	Kea	<i>Nestor notabilis</i>			X	2	NT	V	
85	Vosmaer's Eclectus Parrot	<i>Eclectus roratus vosmaeri</i>			X	2		V/S	
86	Greater Vasa Parrot	<i>Coracopsis vasa</i>		X	X	2		V/S	
87	Splendid Parakeet	<i>Neophema splendida</i>	R	X	X	2	V	S?	
88	Derbyan Parakeet	<i>Psittacula derbyana</i>		X	X	2	NT	V	
89	Hyacinth Macaw	<i>Anodorhynchus hyacinthinus</i>	VR			1	V	E	
90	Blue and Yellow Macaw	<i>Ara ararauna</i>			X	2			
91	Blue-throated Macaw	<i>Ara glaucogularis</i>	E		N/A	1	E	V	
92	Scarlet Macaw	<i>Ara macao</i>				1			
93	Red-fronted Macaw	<i>Ara rubrogenys</i>	V	X	X	1	E	V	
94	Yellow-naped Macaw	<i>Ara auricollis</i>			X	2			
95	Blue-winged Macaw	<i>Ara maracana</i>		X		1	V	V	
96	Red-masked Conure	<i>Aratinga erythrogenys</i>			X	2		V/S	
97	Golden-capped Conure	<i>Aratinga auricapilla</i>	V			2	NT	V	
98	Golden Conure	<i>Guaruba guarouba</i>	V		X	1	E	V	
99	Thick-billed Parrot	<i>Rhynchopsitta pachyrhyncha</i>	V	X	X	1	E	VE	X
100	Princess of Wales Parakeet	<i>Polytelis alexandrae</i>				2	V	V/S	
101	Blue-throated Conure	<i>Pyrrhura cruentata</i>	R	X	X	1	V	V	
102	Slender-billed Parakeet	<i>Enicognathus leptorhynchus</i>			X	2	NT	V/S	
103	Yellow-faced Parrotlet	<i>Forpus xanthops</i>	V		X	2	V	V	
104	Lilacine Amazon	<i>Amazona autumnalis lilacina</i>		X	X	2		E	
105	Cuban Amazon	<i>Amazona leucocephala</i>		X	X	1	NT	V/S	
106	Green-cheeked Amazon	<i>Amazona viridigenalis</i>	V	X	X	2	E	E	
107	Red-tailed Amazon	<i>Amazona brasiliensis</i>	E	X	N/A	1	E		
108	Schalow's Turaco	<i>Tauraco schalowi</i>		X	X	2			
109	Barn Owl	<i>Tyto alba</i>		X	X	2	(D)	X*	
110	White-faced Scops Owl	<i>Otus leucotis</i>			X	2			
111	Milky Eagle Owl	<i>Bubo lacteus</i>				2			
112*	Vermiculated Fishing Owl	<i>Scotopelia bouvieri</i>		N/A	N/A	2			
113	Ferruginous Pygmy Owl	<i>Glaucidium brasilianum</i>				2			
114*	Great Grey Owl	<i>Strix nebulosa</i>		N/A	N/A	2			
115	Spectacled Owl	<i>Pulsatrix perspicillata</i>		X	X	2			
116	Snowy Owl	<i>Nyctea scandiaca</i>		X	X	2	(V)		
117	Great Indian Hornbill	<i>Buceros bicornis</i>	E		X	C1		E	
118	Rhinoceros Hornbill	<i>Buceros rhinoceros</i>	V			2		C/S	
119	Wrinkled Hornbill	<i>Aceros corrugatus</i>	R	X	X	2	V	V	
120	Writhe-billed Hornbill***	<i>Aceros leucocephalus</i>	E	N/A	N/A	2			
121	Silver-eared Mesia	<i>Leiothrix argentauris</i>			X	2			
122	Red-billed Leiothrix (Pekin Robin)	<i>Leiothrix lutea</i>		X	X	2			
123	Gouldian Finch	<i>Chloebia gouldiae</i>	K	X	X			E	
124	Java Sparrow	<i>Padda oryzivora</i>		X	X			V	
125	Yellow-throated Laughing Thrush	<i>Garrulax galbanus</i>		X	X		NT		
126	Red-tailed Laughing Thrush	<i>Garrulax milnei</i>			X		NT		
127	Red-winged Laughing Thrush	<i>Garrulax formosus</i>			N/A		NT		
128*	Omei Shan Liocichla	<i>Liocichla omeiensis</i>					V		
129	Bali Starling	<i>Leucopsar rothschildi</i>	E	X	X	1	C	X	
130	Red-billed Chough	<i>Pyrrhocorax pyrrhocorax</i>			X		(V)	X	

REPTILES

		IUCN Red List	BRED 97	BRED <97	CITES Listing	Other Listing	Re-Intro Prog
1*	Aldabra Giant Tortoise	<i>Geochelone gigantea</i>	R		2		
2	Greek Tortoise	<i>Testudo graeca</i>	V	X	2		
3	Hermann's Tortoise	<i>Testudo hermanni</i>	V	X	2		
4+	Horsfield's Tortoise	<i>Testudo horsfieldi</i>			2		
5	Red-footed Tortoise	<i>Geochelone carbonaria</i>			2		
6	Mississippi Alligator	<i>Alligator mississippiensis</i>			2		
7+	West African Dwarf Crocodile	<i>Osteolaemus t. tetraspis</i>			1		
8+	Tuatara	<i>Sphenodon punctatus</i>	R		1		X
9	Ornate Day Gecko	<i>Phelsuma ornata</i>		X	2		
10	Rhinoceros Iguana	<i>Cyclura cornuta</i>	I	X	1		
11	Philippine Sail-fin Lizard	<i>Hydrosaurus pustulatus</i>	V	X	X		

12	Prehensile-tailed Skink	<i>Corucia zebrata</i>			X	2	
13	Black and White Tegu	<i>Tupinambis teguixin</i>				2	
14	Sand Lizard	<i>Lacerta agilis</i>			X		X*
15	Common Iguana	<i>Iguana iguana</i>			X	2	
16	Salvator Monitor	<i>Varanus salvator</i>				2	
17+	Four-horned Chameleon	<i>Chamaeleo quadricornis</i>				2	
18	Cuban Boa	<i>Epicrates anguifer</i>	I	X	X	2	
19	Jamaican Boa	<i>Epicrates subflavus</i>	V		X	1	
20	Madagascan Tree Boa	<i>Sanzinia madagascariensis</i>	K	X	X	2	
21*	Rubber Boa	<i>Charina bottae</i>	R				
22	Brazilian Rainbow Boa	<i>Epicrates cenchria cenchria</i>			X	2	
23	Royal Python	<i>Python regius</i>			X	2	
24	Green Tree Python	<i>Chondropython viridis</i>				2	
25	Green Anaconda	<i>Eunectes murinus</i>				2	
26	Boa Constrictor	<i>Constrictor constrictor</i>		X	X	2	
27	Pacific Boa	<i>Candoia carinata</i>				2	
28+	Aruba Island Rattlesnake	<i>Crotalus unicolor</i>	R	X			
29	Indian Cobra	<i>Naja kaouthia</i>		X	X	3	
30	Neotropical Rattlesnake	<i>Crotalus durissus collineatus</i>			X	3	

AMPHIBIANS

		IUCN Red List	BRED 97	BRED <97	CITES Listing	Other Listing	Re-Intro Prog
1	Axolotl	<i>Ambystoma mexicanum</i>	R	X	X	2	
2	Black and Gold Poison Arrow Frog	<i>Epipedobates truncatus</i>		X	X	2	
3+	Black and Green Poison Arrow Frog	<i>Dendrobates auratus</i>				2	
4+	Yellow Striped Poison Arrow Frog	<i>Dendrobates leucomelas</i>		X		2	
5+	Golfoadicean Poison Arrow Frog	<i>Phyllobates vittatus</i>		X		2	

FISHES

		IUCN Red List	BRED 97	BRED <97	CITES Listing	Other Listing	Re-Intro Prog
1	Cumming's Barb	<i>Puntius cummingi</i>	V		X		
2	Black Ruby Barb	<i>Puntius nigrofasciatus</i>	V	X	X		
3	Cherry Barb	<i>Puntius titteya</i>	V		X		
4	Silver Shark	<i>Balanitochelius melanopterus</i>	I				
5	Omani Blind Cave Fish	<i>Garra barreimiae</i>	R		X		
6	Pla Eesok	<i>Probarbus jullieni</i>	K			1	
7	Red Rainbowfish	<i>Glossolepis incisus</i>	R	X	X		
8	Boeseman's Rainbow Fish	<i>Melanotaenia boesemani</i>	V	X	X		
9	Lake Tebera Rainbow Fish	<i>Melanotaenia herbertaxelrodi</i>	R	X	X		
10	Lake Kutubu Rainbow Fish	<i>Melanotaenia lacustris</i>	V	X	X		
11	Dwarf Rainbow Fish	<i>Melanotaenia praecox</i>	R	X	X		
12	Lake Victoria Cichlid	<i>Haplochromis 'argens'</i>	Ex	X	X		X
13	Lake Victoria Cichlid	<i>Astatoreochromis aliuaudui</i>	E	X	X		X
14	Lake Victoria Cichlid	<i>Haplochromis pyrrhocephalus</i>	Ex	X	X		X
15	Lake Victoria Cichlid	<i>Haplochromis riponanus</i>	E	X	X		X
16	Lake Victoria Cichlid	<i>Haplochromis saugei</i>	E	X	X		X
17	Lake Victoria Cichlid	<i>Haplochromis 'Velvet Black'</i>	E	X	X		X
18	Lake Victoria Cichlid	<i>Haplochromis xenognathus</i>	E	X	X		
19	Otjokoto Tilapia	<i>Tilapia guinasana</i>	E	X	X		
20	Asiatic Arowana	<i>Scleropages formosus</i>	K			1	
21	Killifish	<i>Nothobranchius korhausae</i>			X		
22	Nosy Be Killifish	<i>Pachypanchax homolotus</i>	K	X	X		
23	Killifish	<i>Pachypanchax sakarami</i>	K	X	X		
24	Butterfly Goodeid	<i>Ameba splendens</i>	E	X	X		
25	Bold Characodon	<i>Characodon audax</i>	V	X	X		
26	Golden Saw-finned Goodeid	<i>Skiffia francesae</i>	Ex	X			
27	Solo Goodeid	<i>Xenoporphus captivus</i>	E	X	X		
28	Crescent Zoe	<i>Zoogoneticus sp.</i>	Ex	X	X		
29	Sword Tail	<i>Xiphophorus clemenciae</i>	R	X	X		
30	Monterey Platy 'Apodaca'	<i>Xiphophorus couchinanus</i>	E	X	X		

INVERTEBRATES

		IUCN Red List	BRED 97	BRED <97	CITES Listing	Other Listing	Re-Intro Prog
1	Partula Snail	<i>Partula taeniata</i>	Ex	X	X		X
2	Partula Snail	<i>Partula tohiveana</i>	Ex	X	X		X
3	Partula Snail	<i>Partula suturalis</i>	Ex		X		X
4	Partula Snail	<i>Partula varia</i>	Ex		X		X
5	Mexican Red-knee Tarantula	<i>Euatulus smithii</i>	K			2	
6	Macleay's Spectre	<i>Extatosoma taratum</i>				(Z)bk	
7	Tadpole Shrimp	<i>Triops cancriformis</i>		X	X		X*
8	Southern Giant Clam	<i>Tridacna derasa</i>	V				
9+	Coral	<i>Euphyllia picteti</i>				2	
10+	Frog Spawn Coral	<i>Euphyllia divisa</i>				2	
11+	Bouquet Coral	<i>Euphyllia glabrescens</i>				2	
12+	Star Coral	<i>Favia sp.</i>				2	
13	White-clawed Crayfish	<i>Austropotamobius pallipes</i>					X*

The animals are listed in the world-wide standard seven columns. A detailed explanation is at the foot of p42.

MAMMALS STOCKLIST

		STOCK 31/12/96			RECEIVED			BORN/H'CH			D.N.S. 30 DAYS			DEATHS OTHERS			DISPOSALS			STOCK 31/12/97			
		M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	
MARSUPIALIA																							
Tammar Wallaby	<i>Macropus eugenii</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Red-necked Wallaby	<i>Macropus rufogriseus</i>	8	11	0	0	0	0	2	2	3	0	0	3	2	2	0	0	0	0	0	8	11	0
Western Grey Kangaroo	<i>Macropus fuliginosus</i>	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	3	0
CHIROPTERA																							
Rodrigues Fruit Bat	<i>Pteropus rodricensis</i>	17	10	0	0	0	0	6	5	1	0	0	1	4	2	0	0	0	0	0	19	13	0
Seba's Short-tailed Bat	<i>Carollia perspicillata</i>	3	5	31	0	0	0	0	0	20	0	0	0	0	0	4	0	0	0	0	3	5	47 (estimate)
PRIMATES																							
Slow Loris	<i>Nycticebus coucang</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Ring-tailed Lemur	<i>Lemur catta</i>	11	12	0	0	0	0	0	0	9	0	0	3	0	0	0	0	2	0	0	11	10	6
Black and White Ruffed Lemur	<i>Varecia variegata variegata</i>	1	3	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	1	4	0
Red Ruffed Lemur	<i>Varecia variegata rubra</i>	4	2	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	0	0	4	2	0
Pygmy Marmoset	<i>Callithrix pygmaea</i>	6	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	5	2	0
Silvery Marmoset	<i>Callithrix argentata melanura</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
Cotton Top Tamarin	<i>Saguinus oedipus</i>	3	3	0	0	0	0	0	0	2	0	0	1	0	1	0	1	0	0	0	2	2	1
White-lipped Tamarin	<i>Saguinus labiatus</i>	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0
Buffy-headed Capuchin	<i>Cebus apella xanthosternus</i>	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	1
Colombian Black Spider Monkey	<i>Ateles fusciceps robustus</i>	2	5	0	2	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	3	5	0
Lion-tailed Macaque	<i>Macaca silenus</i>	2	1	0	2	2	0	0	0	0	0	0	0	1	0	0	1	1	0	0	2	2	0
Sulawesi Crested Macaque	<i>Macaca niger</i>	4	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	10	0
Grivet Monkey	<i>Cercopithecus aethiops</i>	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Mandrill	<i>Mandrillus sphinx</i>	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0
Chimpanzee	<i>Pan troglodytes</i>	5	22	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	5	23	0
Bornean Orang utan	<i>Pongo pygmaeus pygmaeus</i>	3	5	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	5	0
Sumatran Orang utan	<i>Pongo pygmaeus abelii</i>	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0
RODENTIA																							
Prairie Marmot	<i>Cynomys ludovicianus</i>	0	0	70	0	0	0	0	0	35	0	0	0	0	0	35	0	0	0	0	0	0	70 (estimate)
African Crested Porcupine	<i>Hystrix cristata</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Capybara	<i>Hydrochaeris hydrochaeris</i>	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Mountain Viscacha	<i>Lagidium viscaccia</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Red Squirrel	<i>Sciurus vulgaris</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
CARNIVORA																							
Zorilla	<i>Ictonyx striatus</i>	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Maned Wolf	<i>Chrysocyon erachyurus</i>	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Bush Dog	<i>Speothos venaticus</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Coati	<i>Nasua nasua</i>	1	8	0	1	0	0	7	9	0	1	1	0	5	0	0	7	0	0	0	3	16	0
Kinkajou	<i>Potos flavus</i>	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Oriental Small-clawed Otter	<i>Aonyx cinerea</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Dwarf Mongoose	<i>Helogale parvula</i>	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	1	0
Meerkat	<i>Suricata suricatta</i>	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0
Margay	<i>Felis wiedi</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Jungle Cat	<i>Felis chaus</i>	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Scottish Wild Cat	<i>Felis sylvestris</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Ocelot	<i>Felis pardalis</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Caracal	<i>Felis caracal</i>	3	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	1	0
European Lynx	<i>Felis lynx</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Serval	<i>Felis serval</i>	2	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	1	0
Geoffroy's Cat	<i>Felis geoffroyi</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
Asiatic Lion	<i>Panthera leo persica</i>	4	1	0	0	0	0	1	3	0	0	0	0	0	0	0	3	0	0	0	2	4	0
Amur Tiger	<i>Panthera tigris altaica</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
Persian Leopard	<i>Panthera pardus saxicolor</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Cheetah	<i>Acinonyx jubatus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Common Genet	<i>Genetta genetta</i>	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1	1	0
PINNIPEDIA																							
Californian Sealion	<i>Zalophus californianus</i>	2	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	2	3	0
PROBOSCIDEA																							
Asiatic Elephant	<i>Elephas maximus</i>	2	8	0	1	0	0	0	1	0	0	0	0	0	1	0	0	2	0	0	3	6	0
PERISSODACTYLA																							
Przewalski's Horse	<i>Equus przewalskii</i>	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
Common Zebra	<i>Equus burchelli boehmi</i>	1	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0
Persian Onager	<i>Equus hemionus onager</i>	2	7	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	8	0
South American Tapir	<i>Tapirus terrestris</i>	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0
Black Rhinoceros	<i>Diceros bicornis</i>	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	3	0
Indian Rhinoceros	<i>Rhinoceros unicornis</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ARTIODACTYLA																							
Babirusa	<i>Babryrousa babryrousa</i>	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Guanaco	<i>Lama guanicoe</i>	5	9	0	0	0	0	3	3	0	0	0	0	2	1	0	0	0	0	0	6	11	0
Bactrian Camel	<i>Camelus bactrianus</i>	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Lesser Malayan Mouse Deer	<i>Tragulus javanicus</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Chilean Pudu	<i>Pudu pudu</i>	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2	0
Axis Deer	<i>Cervus axis</i>	4	11	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	5	14	0
Barasingha	<i>Cervus duvauceli duvauceli</i>	0	0	0	0	3	0																

BIRDS STOCKLIST

		STOCK 31/12/96			RECEIVED			BORN/H'CH			D.N.S. 30 DAYS			DEATHS OTHERS			DISPOSALS			STOCK 31/12/97		
		M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?
STRUTHIONIFORMES																						
Ostrich	<i>Struthio camelus</i>	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0
RHEIFORMES																						
Common Rhea	<i>Rhea americana</i>	2	3	1	0	0	0	0	0	3	0	0	3	0	0	1	0	0	0	2	3	0
CASUARIIFORMES																						
Emu	<i>Dromaius novaehollandiae</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
SPHENISCIFORMES																						
Humboldt's Penguin	<i>Spheniscus humboldti</i>	15	14	19	1	1	1	0	0	31	0	0	29	0	0	1	0	0	10	16	15	11
PELECANIFORMES																						
White Pelican	<i>Pelecanus onocrotalus</i>	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2	0
Dalmatian Pelican	<i>Pelecanus crispus</i>	1	1	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0
CICONIIFORMES																						
Little Egret	<i>Egretta garzetta</i>	3	3	0	0	0	0	0	3	5	0	0	5	0	0	0	0	2	0	3	4	0
White Stork	<i>Ciconia ciconia</i>	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Black Stork	<i>Ciconia nigra</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Waldraup Ibis	<i>Geronticus eremita</i>	11	8	8	0	0	0	0	0	12	0	0	5	2	0	1	0	0	0	9	8	14
Scarlet Ibis	<i>Eudocimus ruber</i>	2	1	0	3	1	0	0	0	0	0	0	0	2	0	0	0	0	0	3	2	0
Eurasian Spoonbill	<i>Platalea leucorodia</i>	3	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	2	0
Chilean Flamingo	<i>Phoenicopterus chilensis</i>	12	11	19	0	0	0	0	0	4	0	0	3	0	0	0	0	0	0	12	11	20
Caribbean Flamingo	<i>Phoenicopterus ruber ruber</i>	15	12	28	0	0	0	0	0	2	0	0	2	0	0	2	0	0	0	15	12	26
Caribbean x Chilean Flamingo	<i>P.r. ruber x P. chilensis</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
ANSERIFORMES																						
Fulvous Tree Duck	<i>Dendrocygna bicolor</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Black-billed Whistling Duck	<i>Dendrocygna arborea</i>	3	3	6	0	0	0	0	0	8	0	0	2	0	1	2	0	0	6	3	2	4
White-faced Whistling Duck	<i>Dendrocygna viduata</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Black-necked Swan	<i>Cygnus melanocoryphus</i>	1	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0
Emperor Goose	<i>Anser canagicus</i>	1	2	1	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	0
Lesser White-fronted Goose	<i>Anser erythropus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Ross's Snow Goose	<i>Anser rossii</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Red-breasted Goose	<i>Branta ruficollis</i>	7	8	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	6	6	0
Hawaiian Goose	<i>Branta sandvicensis</i>	1	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	1	1	0
Common Shelduck	<i>Tadorna tadorna</i>	2	4	0	0	0	0	0	0	7	0	0	1	0	0	0	0	0	6	2	4	0
Ruddy Shelduck	<i>Tadorna ferrunginea</i>	1	3	0	0	0	0	0	0	3	0	0	0	1	1	0	0	2	3	0	0	0
Baikal Teal	<i>Anas formosa</i>	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
Falcatel Teal	<i>Anas falcata</i>	4	2	0	0	1	0	0	2	2	0	0	0	0	1	2	0	0	0	4	4	0
Northern Shoveler	<i>Anas clypeata</i>	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Chilean Pintail	<i>Anas georgica spinicauda</i>	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
South Georgia Pintail	<i>Anas georgica georgica</i>	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Red Shoveler	<i>Anas platalea</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Laysan Teal	<i>Anas laysanensis</i>	3	2	0	1	0	0	0	0	2	0	0	0	1	0	1	0	0	1	3	2	0
Mellers Duck	<i>Anas melleri</i>	1	1	0	0	0	0	1	2	1	0	0	1	0	0	0	0	0	0	2	3	0
Garganey	<i>Anas querquedula</i>	1	1	0	0	0	0	1	1	2	0	0	0	1	1	2	0	0	0	1	1	0
Chiloe Wigeon	<i>Anas sibilatrix</i>	2	3	0	0	0	0	1	3	0	0	0	0	1	4	0	0	0	0	2	2	0
Ringed Teal	<i>Callonetta leucophrys</i>	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Marbled Teal	<i>Marmaronetta angustirostris</i>	2	2	0	1	1	0	0	0	14	0	0	2	1	1	10	0	0	2	2	2	0
Common Eider	<i>Somateria mollissima</i>	2	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0
Ferruginous Duck	<i>Aythya nyroca</i>	1	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0
Tufted Duck	<i>Aythya fuligula</i>	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	1	0
Rosy-billed Pochard	<i>Netta peposaca</i>	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	0
Red-crested Pochard	<i>Netta rufina</i>	2	3	0	0	0	0	3	1	9	0	0	3	2	1	1	0	0	5	3	3	0
Mandarin Duck	<i>Aix galericulata</i>	13	12	0	0	0	0	0	0	4	0	0	0	1	0	0	0	0	4	12	12	0
Carolina Duck	<i>Aix sponsa</i>	4	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	5	0
White-winged Wood Duck	<i>Cairina scutulata</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Bufflehead	<i>Bucephalus albeola</i>	2	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0
Smew	<i>Mergus albellus</i>	3	3	0	0	0	0	1	0	8	0	0	6	0	0	2	0	0	0	4	3	0
Hooded Merganser	<i>Mergus cucullatus</i>	3	0	0	0	3	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0
Ruddy Duck	<i>Oxyura jamaicensis</i>	2	2	3	0	0	0	0	3	3	0	0	5	0	0	1	0	1	0	2	4	0
White-headed Duck	<i>Oxyura leucocephala</i>	4	2	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	4	2	0
FALCONIFORMES																						
Turkey Vulture	<i>Cathartes aura</i>	0	0	0	2	3	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2	0
American Black Vulture	<i>Coragyps atratus</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Andean Condor	<i>Vultur gryphus</i>	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Egyptian Vulture	<i>Neophron percnopterus</i>	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Griffon Vulture	<i>Gyps fulvus</i>	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
European Black Vulture	<i>Aegypius monachus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Secretary Bird	<i>Sagittarius serpentarius</i>	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
Crested Caracara	<i>Polyborus plaucus</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Mauritius Kestrel	<i>Falco punctatus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
GALLIFORMES																						
Grey-headed Chachalaca	<i>Ortalis cinereiceps</i>	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0
Bare-faced Curassow	<i>Crax fasciolata</i>	2	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	0
Chinese Painted Quail	<i>Excalfactoria chinensis</i>	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0
Red-legged Partridge	<i>Alectoris rufa</i>	1	1	2	0	0	0	0	0	23	0	0	7	0	0	6	0	0	6	1	1	6
Roullou Partridge	<i>Rollulus roullou</i>	1	2	0	2	1	0	2	0	1	0	0	1	1	1	0	0	0	0	4	2	0
Blyth's Tragopan	<i>Tragopan blythii</i>																					

		STOCK			RECEIVED			BORN/H'CH			D.N.S.			DEATHS			DISPOSALS			STOCK		
		31/12/96									30 DAYS			OTHERS						31/12/97		
		M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?
Kookaburra	<i>Dacelo novaeguineae</i>	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	1	1	0
Blue-crowned Motmot	<i>Momotus momota</i>	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Lilac-breasted Roller	<i>Coracias caudata</i>	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3	0
Green Wood Hoopoe	<i>Phoeniculus purpureus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Grey Hornbill	<i>Tockus nasutus ephrinus</i>	1	1	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	1	1	1	0
Trumpeter Hornbill	<i>Bycanistes buccinator</i>	1	1	0	1	0	0	0	0	2	0	0	2	1	0	0	0	0	0	1	1	0
Great Indian Hornbill	<i>Buceros bicornis</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Rhinoceros Hornbill	<i>Buceros rhinoceros</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Wrinkled Hornbill	<i>Aceros corrugatus</i>	1	2	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0	1	2	0
Red-billed Hornbill	<i>Tockus erythrorhynchus</i>	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PASSERIFORMES																						
Lesser Green Broadbill	<i>Calyptomena viridis</i>	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
Spangled Cotinga	<i>Cotinga cayana</i>	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Red-eared Bulbul	<i>Pycnonotus jocosus</i>	0	0	4	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	4
Fairy Bluebird	<i>Irena puella</i>	1	1	0	0	0	0	0	0	2	0	0	2	1	0	0	0	0	0	0	1	0
White-rumped Shama	<i>Copsychus malabaricus</i>	2	2	0	0	0	0	0	1	14	0	0	11	1	1	1	0	0	2	1	2	0
Plumbeous Redstart	<i>Rhyacornis fuliginosus</i>	2	1	0	0	0	0	0	1	4	0	0	4	0	0	0	0	0	0	2	2	0
Blue Whistling Thrush	<i>Myiophonus caeruleus</i>	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Orange-headed Ground Thrush	<i>Zoothera citrina</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Yellow-throated Laughing Thrush	<i>Garrulax galbanus</i>	3	4	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	4	0
White Crested Laughing Thrush	<i>Garrulax l. leucolophus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Red-tailed Laughing Thrush	<i>Garrulax milnei</i>	0	0	4	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	3
Red-winged Laughing Thrush	<i>Garrulax formosus</i>	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Omei Shan Liocichla	<i>Liocichla omeiensis</i>	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0
Red-billed Leiothrix (Pekin Robin)	<i>Leiothrix lutea</i>	2	1	4	0	0	0	0	0	8	0	0	1	0	0	5	0	0	0	2	1	6
Silver-eared Mesia	<i>Leiothrix argenteauris</i>	1	2	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	1	1	0
Silver-eared Mesia x Pekin Robin	<i>L. argenteauris x L. lutea</i>	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1
Mountain Fulvetta	<i>Alcippe peracensis</i>	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Oriental White-eye	<i>Zosterops palpebrosa</i>	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Rufous-collared Sparrow	<i>Zonotrichia capensis</i>	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Red-crested Finch	<i>Coryphospingus cucullatus</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Silver-beaked Tanager	<i>Ramphocelus carbo</i>	1	0	0	1	2	0	0	0	2	0	0	0	0	0	2	0	0	0	2	2	0
Red-legged Honeycreeper	<i>Cyanerpes cyaneus</i>	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Yellow-fronted Canary	<i>Serinus mozambicus</i>	0	0	0	2	2	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0
Mexican House Finch	<i>Carpodacus mexicanus</i>	7	7	0	4	3	0	0	1	3	0	0	0	0	2	0	4	0	3	7	9	0
Red-billed Firefinch	<i>Lagonosticta senegala</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Red-cheeked Cordon-bleu	<i>Uraeginthus bengalus</i>	4	2	0	0	0	0	0	1	1	0	0	0	1	1	1	0	0	0	3	2	0
Orange-cheeked Waxbill	<i>Estrilda melpoda</i>	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
Red Avadavat	<i>Amandava amandava</i>	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
Golden-breasted Waxbill	<i>Amandava subflava</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Gouldian Finch	<i>Chloebia gouldiae</i>	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Zebra Finch	<i>Poephila guttata</i>	1	0	0	1	2	0	0	0	13	0	0	0	0	0	0	0	0	0	8	2	5
Spice Finch	<i>Lonchura punctulata</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Java Sparrow	<i>Padda oryzivora</i>	0	0	12	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	7
Red-billed Buffalo Weaver	<i>Bubalornis niger</i>	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
White-headed Buffalo Weaver	<i>Dinemellia dinimelli</i>	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Taveta Golden Weaver	<i>Ploceus castaneiceps</i>	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Red-billed Weaver	<i>Quelea quelea</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Fire-fronted Bishop	<i>Euplectes diadematus</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Scissor-billed Starling	<i>Scissirostrum dubium</i>	0	0	0	3	3	0	0	0	0	0	0	0	2	1	0	0	0	0	1	2	0
Asian Glossy Starling	<i>Aplonis panayensis</i>	1	1	6	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	1	1	4
Red-winged Starling	<i>Onycognathus morio</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Blue-eared Glossy Starling	<i>Lamprolornis chalybaeus</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Purple Glossy Starling	<i>Lamprolornis purpureus</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Emerald Starling	<i>Lamprocolius iris</i>	1	1	2	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	1	2
Amethyst Starling	<i>Cinnyricinclus leucogaster</i>	3	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	1	0
African Pied Starling	<i>Spreo bicolor</i>	1	2	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	1	2	0
Superb Starling	<i>Spreo superbus</i>	2	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2	0
Fischer's Starling	<i>Spreo fischeri</i>	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0
Hildebrandt's Starling	<i>Spreo hildebrandtii</i>	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Royal Starling	<i>Cosmopsar regius</i>	3	1	0	0	0	0	0	0	5	0	0	5	3	0	0	0	0	0	0	1	0
Rothschild's Mynah	<i>Leucopsar rothschildi</i>	10	9	0	2	3	0	0	2	0	0	0	0	0	1	0	8	6	0	4	7	0
Red-billed Blue Magpie	<i>Urocissa erythrorhyncha</i>	1	2	0	0	0	0	1	1	4	0	0	0	0	1	2	0	0	2	2	2	0
Azure-winged Magpie	<i>Cyanopica cyana</i>	4	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	2	0
Red-billed Chough	<i>Pyrrhocorax pyrrhocorax</i>	3	3	0	0	0	0	0	0	5	0	0	5	0	1	0	0	0	0	3	2	0
		395	372	185	68	65	18	42	44	360	0	0	184	57	54	92	40	24	83	411	402	200
		952			151			446														

		STOCK 31/12/96			RECEIVED			BORN/H'CH			D.N.S. 30 DAYS			DEATHS OTHERS			DISPOSALS			STOCK 31/12/97			
		M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	
Forest Gecko	<i>Hoplodactylus granulatus</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Common Iguana	<i>Iguana iguana</i>	4	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rhinoceros Iguana	<i>Cyclura cornuta</i>	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Black Spiny-tail Iguana	<i>Ctenosaura similis</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Plumed Basilisk	<i>Basiliscus plumifrons</i>	3	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Helmeted Lizard	<i>Corytophones cristatus</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bearded Dragon	<i>Pagana barbatus</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Eastern Water Dragon	<i>Physignathus lesuerii lesuerii</i>	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Thailand Water Dragon	<i>Physignathus cocincinus</i>	1	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Philippine Sail Fin Lizard	<i>Hydrosaurus pustulatus</i>	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Prehensile-tailed Skink	<i>Corucia zebrata</i>	8	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Black & White Tegus	<i>Tupinambis teguixin</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Salvator Monitor	<i>Varanus salvator</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Four Horned Chameleon	<i>Chamaeleo quadricornis</i>	0	0	0	5	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SERPENTES																							
Sunbeam Snake	<i>Xenopeltis unicolor</i>	3	2	10	0	0	0	0	0	12	0	0	0	0	0	3	0	0	6	3	2	13	
Royal Python	<i>Python regius</i>	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	
Green Tree Python	<i>Chondropython viridis</i>	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	
Cuban Boa	<i>Epicrates angulifer</i>	3	2	4	0	0	0	0	0	6	0	0	0	0	0	0	0	0	4	3	2	6	
Brazilian Rainbow Boa	<i>Epicrates cenchria cenchria</i>	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	
Jamaican Boa	<i>Epicrates subflavus</i>	1	8	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	6	
Rubber Boa	<i>Charina bottae</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	
Madagascan Boa	<i>Sanzinia madagascariensis</i>	5	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5	4	1	
Emerald Tree Boa	<i>Corallus caninus</i>	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Boa Constrictor	<i>Constrictor constrictor</i>	1	1	0	0	0	0	0	0	29	0	0	0	0	0	0	0	0	29	1	1	0	
Green Anaconda	<i>Eunectes murinus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	
Jewel Racer	<i>Drymobius margareteriferus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Honduran Milk Snake	<i>Lampropeltis triangulum</i>	1	3	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	5	1	3	0	
Mangrove Snake	<i>Boiga dendrophila</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Indian Cobra	<i>Naja naja</i>	1	1	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	9	1	1	0	
Green Mamba	<i>Dendroaspis angusticeps</i>	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Puff Adder	<i>Bitis arietans</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Gaboon Viper	<i>Bitis gabonica</i>	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	
Tropical Rattlesnake	<i>Crotalus durissus collineatus</i>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	
Urutu	<i>Bothrops alternatus</i>	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Aruba Island Rattlesnake	<i>Crotalus unicolor</i>	2	3	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	1	2	3	0	
		137	148	73	9	11	4	0	0	143	0	0	0	14	20	16	1	3	141	79	142	46	
		358			24			143			0			50			145			267			

No of specimens - 267

No of species - 51

AMPHIBIANS STOCKLIST

		STOCK 31/12/96			RECEIVED			BORN/H'CH			D.N.S. 30 DAYS			DEATHS OTHERS			DISPOSALS			STOCK 31/12/97		
		M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?	M	F	Y/?
Smoky Jungle Frog	<i>Leptodactylus pentadactylus</i>	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Axolotl (Black Form)	<i>Ambystoma mexicanum</i>	aq	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Axolotl (White Form)	<i>Ambystoma mexicanum</i>	aq	0	0	13	0	0	0	0	40	0	0	0	0	0	3	0	0	0	0	0	50
Japanese Fire-bellied Newt	<i>Cynops pyrrhogaster</i>	aq	0	0	11	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	8
Red Eyed Tree Frog	<i>Agalychnis callidryas</i>	1	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0
White's Tree Frog	<i>Litoria caerulea</i>	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	0
Mexican Leaf Frog	<i>Pachymedusa dacnycolor</i>	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
Black and Gold Poison Arrow Frog	<i>Epipedobates truncatus</i>	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Black and Green Poison Arrow Frog	<i>Dendrobates auratus</i>	0	0	8	0	0	0	0	0	0	0	0	0	0	0	7	0	0	1	0	0	0
Yellow Striped Poison Arrow Frog	<i>Dendrobates leucomelas</i>	0	0	9	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	7
Golfoducean Poison Arrow Frog	<i>Phyllobates vittatus</i>	0	0	8	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	13
Argentine Ornate Horned Frog	<i>Ceratophrys ornata</i>	2	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	2	1
African Bullfrog	<i>Pyxicephalus adspersus</i>	aq	1	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0
Albino South African Clawed Frog	<i>Xenopus laevis</i>	aq	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Nigerian Clawed Frog	<i>Xenopus tropicalis</i>	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
Surinam Toad	<i>Pipa pipa</i>	aq	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
		17	12	85	0	0	0	0	0	46	0	0	0	0	1	25	0	0	1	18	11	106
		114			0			46			0			26			1			135		

Number of specimens 135

Number of species 16

aq indicates species kept by the Aquarium

FISHES STOCKLIST

		STOCK 31/12/97					STOCK 31/12/97		
OSTEOGLOSSIDAE									
South American Arowana	<i>Osteoglossum bicirrhosum</i>			2					9
Black Arowana	<i>Osteoglossum ferreirai</i>			2					10
Asiatic Arowana	<i>Scleropages formosus</i>			4					40
MORMYRIDAE									6
Blunt Jaw Elephant Trunkfish	<i>Gnathonemus elephas</i>			4					6
Elephant Trunkfish	<i>Gnathonemus ibis</i>			3					30
Long-nosed Elephant Trunkfish	<i>Gnathonemus petersi</i>			6					115
Angolan Elephant Trunkfish	<i>Campylomormyrus cassaicus</i>			4					4
Down Poker	<i>Campylomormyrus rhynchophorus</i>			3					7
Short-nosed Elephant Trunkfish	<i>Marcusenius angolensis</i>			4					60
Short-faced Elephant Trunkfish	<i>Mormyrus longirostris</i>			2					25
Round-nosed Elephant Trunkfish	<i>Pollinurus castelnaui</i>			4					
CHARACIDAE									
Red-eyed Characin	<i>Arnoldichthys spilopterus</i>			4					Resting eggs only
Long-finned Characin	<i>Brycinus longipinnis</i>			2					23
Cardinal Tetra	<i>Paracheirodon axelrodi</i>		</						

		STOCK 31/12/97
Guppy	<i>Poecilia picta</i>	* 30
Guppy	<i>Poecilia reticulata</i>	* 400
HEMIRAMPHIDAE		
Halfbeaks	<i>Nomoramphus ebrardti</i>	* 35
COBITIDAE		
Clown Loach	<i>Botia macracantha</i>	10
Dwarf Loach	<i>Botia sidhimunki</i>	10
ELECTROPHORIDAE		
Electric Eel	<i>Electrophorus electricus</i>	1
CICHLIDAE		
Lake Victoria Cichlid	<i>Haplochromis obliquidens</i>	* 10
Lake Victoria Cichlid	<i>Astatoreochromis alluadi</i>	* 100
Lake Victoria Cichlid	<i>Haplochromis 'argens'</i>	* 80
Lake Victoria Cichlid	<i>Haplochromis pyrrhocephalus</i>	* 56
Lake Victoria Cichlid	<i>Haplochromis riponians</i>	* 80
Lake Victoria Cichlid	<i>Haplochromis sauvagei</i>	* 37
Lake Victoria Cichlid	<i>Haplochromis 'velvet black'</i>	* 90
Lake Victoria Cichlid	<i>Haplochromis xenognathus</i>	* 20
Otjikoto tilapia	<i>Tilapia guinasana</i>	* 30
Heckel's Discus	<i>Symphysodon discus discus</i>	5
Lake Malawi Cichlid	<i>Rhamphochromis macrophthalmus</i>	1
Lake Malawi Cichlid	<i>Nimbochromis venustus</i>	3
Lake Malawi Cichlid	<i>Melanochromis auratus</i>	* 10
Lake Malawi Cichlid	<i>Pseudotropheus elongatus chailosi</i>	* 15
Lake Malawi Cichlid	<i>Cyrtocara moorii</i>	5
Lake Malawi Cichlid	<i>Pseudotropheus socolofi</i>	* 70
Lake Malawi Cichlid	<i>Pseudotropheus lombardoi</i>	* 8
Lake Malawi Cichlid	<i>Pseudotropheus sp. elongatus ornatus</i>	* 10
Lake Malawi Cichlid	<i>Labidochromis caeruleus</i>	* 20
Lake Malawi Cichlid	<i>Labeotropheus fuelleborni</i>	* 40
Altum Angelfish	<i>Pterophyllum scalare altum</i>	7
ANABANTIDAE		
Pearl Gourami	<i>Trichogaster leeri</i>	10
Moonlight Gourami	<i>Trichogaster microlepis</i>	2
ATHERINIDAE		
Red Rainbow Fish	<i>Glossolepis incisus</i>	10
Boeseman's Rainbow Fish	<i>Melanotaenia boesemani</i>	* 200
Lake Tebera Rainbow Fish	<i>Melanotaenia herbertaxelrodi</i>	* 50
Lake Kutubu Rainbow Fish	<i>Melanotaenia lacustris</i>	* 12
Dwarf Rainbow Fish	<i>Melanotaenia praecox</i>	* 18
ICTALURIDAE		
Channel Catfish	<i>Ictalurus punctatus</i>	2
MOCHOKIDAE		
Polka-dot Upside-down Catfish	<i>Synodontis angelicus</i>	8
Upside-down Catfish	<i>Synodontis nigriventis</i>	7
Lake Malawi Upside-down Catfish	<i>Synodontis nyassae</i>	5
CALLICHTHYIDAE		
Arched Corydoras	<i>Corydoras arcuatus</i>	3
Burgess's Catfish	<i>Corydoras burgessi</i>	8
Panda Catfish	<i>Corydoras panda</i>	* 70
Flag Tail Catfish	<i>Corydoras robiniae</i>	5
Peppered Catfish	<i>Corydoras paleatus</i>	* 10
LORICARIIDAE		
Bristlenose Plecostomus	<i>Ancistrus dolichopterus</i>	* 80
Twig Catfish	<i>Farlowella acus</i>	1
Plecostomus Catfish	<i>Hypostomus plecostomus</i>	5
Clown Plecostomus	<i>Peckoltia sp.</i>	12
Whiptailed Catfish	<i>Sturisoma aureum</i>	2
Dwarf Sucking Catfish	<i>Otocinclus affinis</i>	8
Angelicus Peckoltia	<i>Peckoltia sp.</i>	2
Emperor Peckoltia	<i>Hypancistrus zebra</i>	2
TOXOTIDAE		
Archer Fish	<i>Toxotes jaculator</i>	4
POTAMOTRYGONIDAE		
Fresh-water Stingray	<i>Potamotrygon motoro</i>	3
DIPNOI		
African Lung Fish	<i>Protopterus annectens</i>	1
CENTRISCIDAE		
Shrimpfish	<i>Aeoliscus strigata</i>	2
SYNGNATHIDAE		
Seahorse	<i>Hippocampus sp.</i>	* 350
CENTROPOMIDAE		
Giant Glass Fish	<i>Parambassis gulliveri</i>	5
MONODACTYLIDAE		
Mono	<i>Monodactylus argenteus</i>	1
SCORPAENIDAE		
Dwarf Lionfish	<i>Dendrochirus zebra</i>	1
White Fin Lionfish	<i>Pterois radiata</i>	2
SCATOPHAGIDAE		
Silver Scat	<i>Selenotoca multifasciata</i>	1
Red Tiger Scat	<i>Scatophagus argus</i>	3
POMACENTRIDAE		
Skunk Clown Fish	<i>Amphiprion akallopisos</i>	1
Fire Clown Fish	<i>Amphiprion ephippium</i>	* 5
Tomato Clown Fish	<i>Amphiprion frenatus</i>	2

		STOCK 31/12/97
Common Clownfish	<i>Amphiprion ocellatus</i>	3
Blue Damsel Fish	<i>Pomacentrus alleni</i>	4

ACANTHURIDAE

Regal Tang	<i>Paracanthurus hepatus</i>	4
Yellow Tang	<i>Zebrasoma flavescens</i>	5
Sailfin Tang	<i>Zebrasoma veliferum</i>	1

APOGONIDAE

Emperor/Banggai Cardinal Fish	<i>Pterapogon kauderni</i>	7
Polka Dot Cardinal Fish	<i>Sphaeramia nematoptera</i>	2
Red Cardinal Fish	<i>Apogon sp.</i>	1

LABRIDAE

Dragon Wrasse	<i>Novaculichthys taeniourus</i>	1
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SCARIDAE

Bicolour/Clown Parrotfish	<i>Cetoscarus bicolor</i>	1
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Gobiidae

Peacock Goby	<i>Tateurndina ocellicauda</i>	* 10
Yellow Coral Goby	<i>Gobiodon okinawae</i>	1

ANTHIAE

Lyre-tail Coralfish	<i>Anthias squamipinnis</i>	2
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Number of specimens 3123
Number of species 122

* denotes species bred in 1997

INVERTEBRATES STOCKLIST

		STOCK 31/12/97
ARACHNIDS		
Chilean Rose Tarantula	<i>Phrixotrichus cala</i>	* 2
Mexican Red-knee Tarantula	<i>Brachypelma smithii</i>	* 12
INSECTS		
Jungle Nymph	<i>Heteropryx dilitata</i>	* 40 +
Stick Insect	<i>Baculum extradentatum</i>	* 200 +
Spiny Stick Insect	<i>Eurycantha calcarata</i>	* 200 +
Macleay's Spectre	<i>Extastoma tiaratum</i>	* 150 +
Seychelles Millipede	<i>Scathiostreptus seychellarum</i>	* 10
Fruit Beetle	<i>Pachnoda sp.</i>	* 100 +
MOLLUSCS		
Turbo Snail	<i>Turbo castaneus</i>	aq 1
African Land Snail	<i>Achatina fulica</i>	2
Partula Snail	<i>Partula varia</i>	* 60
Partula Snail	<i>Partula taeniata</i>	* 470
Conch	<i>Fusinus polygonoides</i>	aq 1
Clam	<i>Tridacna derasa</i>	aq 1
COELENTERATES		
Star Coral	<i>Favia sp.</i>	aq 2
Bouquet Coral	<i>Euphyllia glabricsens</i>	aq 1
Frog spawn Coral	<i>Euphyllia divisa</i>	aq 4
Sea Anemone	<i>Heteractis sp.</i>	aq* 10
Sand Anemone	<i>Phymanthus crucifer</i>	aq 1
Leather Coral	<i>Sarcophyton trocheliophorum</i>	aq* 6
Soft Coral	<i>Xenia sp.</i>	aq* 2
Zoanthid Colony	<i>Zoanthid sp.</i>	aq* 4
Soft Coral	<i>Sinularia sp.</i>	aq 1
Soft Coral	<i>Cladiella sp.</i>	aq* 20
Brain Coral	<i>Trachyphyllia geoffroyi</i>	aq 2
Mushroom Polyyps	<i>Actinodiscus sp.</i>	aq* 50
Mouse Ear Coral	<i>Lobophytom crassum</i>	aq* 2
Encrusting Anemone	<i>Palythoa sp.</i>	aq 2
Bowl Coral	<i>Turbinaria pelata</i>	aq 1
CRUSTACEANS		
White-clawed Crayfish	<i>Austropotamobius pallipes</i>	aq 4
Banded Coral Shrimp	<i>Stenopus hispidus</i>	aq 1
Tadpole Shrimp	<i>Triops cancriformis</i>	aq Resting eggs only
ECHINODERMS		
Red Pencil Urchin	<i>Hetrocentrotus mammillatus</i>	aq 2
Slate Pencil Urchin	<i>Eucidaris tribuloides</i>	aq 1
Serpent Starfish	<i>Ophioplepis superba</i>	aq 1
Green Brittle Starfish	<i>Ophiarachna incrassata</i>	aq* 20
TOTAL		
		1386
Number of specimens - 1386		
Number of species - 36		
* indicates species bred in 1997 aq indicates species kept by the Aquarium		

STANDARD SEVEN COLUMN TEXT LISTINGS, pp37-41

- Col 1 - Beginning year stock, normally agrees with end 1996.
Minor adjustments from re-sexing and detection of minor errors.
- Col 2 - Stock that has come to the collection from outside sources.
- Col 3 - This is the addition to our stocks through breeding.
- Col 4 - Stock bred in the Zoo which did not survive more than 30 days. Although col 3/4 are appropriate for breeding performance of many species, they are inappropriate for those with large numbers of small/microscopic young, most of which are unlikely to survive until they are of countable size. For these, col 4 is ignored, and only countable survivors shown in col 3.
- Col 5 - Animals which died or were humanely destroyed for reasons of ill-health.
- Col 6 - Animals removed from the collection other than for reasons in Col 5 above.
- Col 7 - Closing stock as at 31st Dec 1997.

In each column known males are shown 'M', females 'F' and as yet unsexed/young are shown 'Y/?'

61 registered students engaged in research projects based on the Zoo.

First name	Surname	Qualification	Subject	University/College	Zoo area of study	Home
Christine	Aldis	BA	Illustration	NEWI, Wrexham	Animal movement	Deeside
Baxter	Michelle	BA	Marketing and IT	Warrington UC	Visitor research	Warrington
Lesley	Beard	HND	Travel & Tourism	Wirral Metro C (IBMC)	Winter visitors	Moreton
Ann	Belfield	BA	Psychology/Sociology	Liverpool Hope UC	Chimpanzees	Manchester
Beverley	Bertwistle	BA	Psychology	Liverpool Hope UC	Chimpanzees	Liverpool
Nicola	Birkin	BSc	Psychology	Bolton Institute	Lemurs	Bolton
Rebecca	Cecil-Wright	MSc	Evolutionary Psychology	Liverpool	Zebras	Bodmin
Mei-Chun	Chiang	MSc	Marketing	Stirling	Zoo public relations	Taiwan
Alexia	Coppe	MA	Visual Anthropology	Manchester	Keeper animal interaction	Namur Belgium
Stuart	Davey	BSc	Applied Biology	Liverpool John Moores	Chimpanzees	East Sussex
Jillian	Davies	BA	Biology	Warwick	Primates	Bebington
Neil	Dobie	BA	Design Illustration	NEWI, Wrexham	Animal movement	Wrexham
Simon	Dobson	HND	Marketing	Halton College	Marketing	Widnes
Alison	Fletcher	Postdoctoral Research	Zoology	Miami USA	Chimpanzees	Chester
Emma	Frazier	'A' Level	History, Economics, Ancient Civilisations	Cheltenham Ladies' College	Business Studies	Colwyn Bay
Sarah	Gallagher	BA	Design	NEWI, Wrexham	Tactile sculpture project	West Sussex
Susanne	German	BA	Psychology	Liverpool Hope UC	Chimpanzees	Liverpool
Helen	Gibbons	BA	Graphic Design	Plymouth	Graphic design	Exeter
Lisa	Hannah-Stewart	BSc	Zoology	Liverpool	Chimpanzees	Liverpool
Rebecca	Harrison	PhD	Archaeology	Sheffield	Primates	Sheffield
Simon	Harrison	BA	Marketing	Central Lancashire	Zoo sales promotion	Chester
Lorna	Harvey	BSc	Human Evolution	Liverpool	Chimpanzees	Caernarfon
Jason	Hender	BA	Museum Design	Lincoln & Humberside C	Primate interpretation	Humberside
John	Highet	Postgraduate BVSc MSc Research	Diets and Environmental Enrichment	(Voluntary Veterinary Work)	Chimpanzees	Ormskirk
Kathryn	Hill	BA PreMSc Research	Archaeology and Prehistory	Applicant	Orang utans	Rotherham
Catherine	Hizzard	BA	Design	NEWI, Wrexham	Tactile sculpture project	Ludlow
Anna	Holbrook	BSc	Applied Zoology	Liverpool John Moores	Prairie Marmots	Gt Missenden
Wendy	Hope	BA	Psychology/Sociology	Liverpool Hope UC	Orang utans	Macclesfield
Angela	Howe	BSc	Biology/IT	UC Chester	Small Cats	Manchester
Emma	Hughes	BSc	Zoology	Leeds	Lemurs	Pirbright
Linda	Hughes	BSc	Psychology	Liverpool	Primates	Wallasey
Robert	Jenkins	BSc	Biology & Geography	UC Chester	Orang utans	Cwmbran
Mark	Johnson	BSc	Applied Biology	Liverpool	Chimpanzees	Harrogate
Clare	Jones	BEEd	Biology & Behavioural Ecology	Liverpool Hope UC	Primates	Liverpool
Claire	Leiper	BSc	Biological Sciences	UC Chester	Lemurs	Chester
Sally	Lipcombe	BSc	Applied Biology	Liverpool John Moores	Monkey Islands	Sunderland
Victoria	Longbottom	BSc	Zoology	Liverpool	Parrots	Halifax
Michael	McCabe	BA	Psychology	Liverpool	Chimpanzees	Kingston-upon-Thames
Tammie	MacFie	BSc	Applied Zoology	Liverpool John Moores	Parrots	Morecambe
Winifred	McKague	BSc	Biology	UC Chester	Lemurs	Chester
Joanne	Martin	PhD	Primate Behaviour	Bolton Institute	Chimpanzees	Bristol
Heather	Mellor	BA	Education/Biology	Warwick	Chimpanzees	Farndon
Janet	Morrow	MPhil/PhD	Biology/Environmental	Bolton Institute	Primates	Warrington
Sophie	Naylor	BSc	Psychology	Portsmouth	Orang utans	London
Victoria	Powell	BSc	Biological Sciences	Manchester Metro	Monkey Islands	Wrexham
James	Richardson	BSc	Psychology	Liverpool	Monkey Islands	N Yorkshire
Sarah	Saxton	BA	Geography	Sheffield	Consumption landscapes	Bebington
Timothy	Shaw	BSc	Psychology	Liverpool	Monkey Islands	Wigan
Rachel	Solomon	BSc	Applied Zoology	Liverpool John Moores	Small and Nocturnal Mammals	Truro
Derek	Snee	MBA	Business Studies	Warwick	Visitor levels and effects on service	Hawarden
Caroline	Thatcher	BSc	Zoology	Liverpool John Moores	Lemurs	Parkgate
David	Thomas	BSc	Applied Biology	UC Chester	Chimpanzees	Harpden
Kerry	Thompson	HND	Travel & Tourism	Wirral Metro C (IBMC)	Winter visitor survey	Gayton
Tobie	Tomkinson	BSc	Psychology	Liverpool	Monkey Islands	London
Kate	Wade	BSc	Biology & Psychology	Bolton Institute	Lemurs	E Yorkshire
Jennifer	Weghorst	BSc	Zoology	Miami, USA	Chimpanzees	Chester
Martin	Wilcock	BSc	Behavioural Biology	St Andrews	Chimpanzees	Stockport
Deborah	Wilson	BA	Tourism Management	Leeds Metro	In-depth study of Chester Zoo	Leeds
Michelle	Wilson	BSc	Applied Zoology	Liverpool John Moores	Przewalski's Horses	Leeds
Suzu	Wood	BSc	Zoology	Liverpool	Chimpanzees	Bristol
Katherine	Worthington	BSc	Environmental & Biological Studies	Liverpool Hope UC	Chimpanzees	Manchester

We are grateful to 86 students who gave work experience time to the Zoo.

First Name	Surname	Course and College/School/University	Home	First Name	Surname	Course and College/School/University	Home
Hareth	Abdulla	A levels, pre vet/zoology degree	Heswall	Janet	Lockyer	Biology - Manchester U	Kettering
Paul	Aggarwal	GCSE Manchester GS	Bramhall	Mark	Lowrie	[JM] pre veterinary science	Frodsham
Nicola	Austen	Post graduate	Alsager	Kenneth	Lundell	Animal Management - Westby C	Sweden
Lois	Bassett	Pre MSc in Animal Behaviour	Heswall	Catherine	McLaughlin	Animal Science - W Cheshire C	Birkenhead
Susanne	Bäumler	Animal management experience	Germany	David	McMahon	Zoo Animal Management	Wallasey
Julia	Bellis	National Diploma Animal Care, Reaseheath C	Malpas	Matthew	Merrit	Animal Science - W Cheshire C	Chester
Claire	Black	Pre zoology degree	Manley	Christina	Murray	Manchester Girls S	Stockport
Charlotte	Bonney	Zoology - Glasgow U	Blackpool	Daniel	Newell	First Diploma Animal Care, Llysfasi C	Chester
Richard	Burgess	Pre veterinary degree	Wetherby	Vicki	North	Biology postgraduate	Lancaster
Alex	Calhoun	Prince's Trust	Chester	Paul	O'Donoghue	Zoology - Oxford U	Wigan
Johanne	Coxon	Post graduate - Liverpool U	Liverpool	Kim	O'Neil	A levels, pre veterinary degree	Birkenhead
Jennifer	Crossan	Pre veterinary degree	Chester	Stephen	Orford	Biology - Manchester U	Haslemere
Sarah	Crump	[JM] St Richard Gwyn S	Deeside	Rhian	Owens	National Diploma Animal Care, Reaseheath C	Chester
Claire	Crumpler	Upton High S	Chester	Alison	Parker	Pre veterinary - Oakham S	Oakham
Nick	Davies	MSc, Animal Behaviour/Animal Welfare, Edinburgh U	Prescot	Ruth	Pearson	[JM] - Bishop Heber HS	Malpas
Marit	de Vries	BSc Animal Management, Van Hall Inst.	Netherlands	Emma	Pennington	[JM] - Weatherhead HS	Wirral
Michelle	Duffield	Pre vet - De Aston S	Glenthams	Paul	Powell	First Diploma Animal Care, Pibwrllyed C, Carmarthen	Carmarthen
Joanne	Dyer	Veterinary Science - Liverpool U	Exmouth	Roger	Powell	Veterinary Medicine Cambridge U	Stafford
Donna	Ellis	Applied Biology - Liverpool JMU	Liverpool	Arthit	Prasartkul	A Levels Shrewsbury S	Bangkok
Adrian	Ely	Zoology post graduate	Chester	Giles	Roadnight	Pre veterinary degree	Campden
Hazel	Fisher	Catering experience - Bishop Heber HS	Tattenhall	Veronica	Roberts	Biological Science - Oxford U	Herts
Emily	Fletcher	A levels, pre veterinary degree	Tarporley	Sapna	Romani	BSc Biology & Environmental Science	Derby
Paul	Floyd	Dip in Aquatics - Sparsholt C	Manchester	Margo	Romein	BSc Animal Management, Van Hall Inst.	Netherlands
Jennifer	Fogg	Pre veterinary degree	Wrexham	Hannah	Rowland	Pre veterinary - Wirral County Grammar S for Girls	Wirral
David	Francies	[JM] - Tarporley HS	Tarporley	Guiomar	Santamaria	Post graduate, Oviedo U, Spain	Spain
Carly	Graham	Zoology - Liverpool U	Liverpool	Elizabeth	Seed	Post A levels - pre university	York
Craig	Gresty	Zoo animal management experience	Chester	Hayley	Shackleton	Pre marine biology degree	Eastham
David	Hardman	[JM] - Tarporley HS	Kelsall	Rebecca	Shackleton	Pre zoology degree	Oswestry
Bill	Harrison	First Diploma in Animal Care, Llysfasi C	Prestatyn	Kate	Shaw	National Diploma Animal Care, Reaseheath C	Wallasey
Simon	Haynes	Dip in Aquatics - Sparsholt C	Stourbridge	John	Shirley	A levels, pre veterinary degree	Weaverham
Ruth	Hollinghurst	Pre veterinary medicine degree	Liverpool	Niamh	Simmons	[JM] Prenton HS	Birkenhead
Elizabeth	Hooley	A levels, pre zoology degree	Chester	Helen	Stephens	National Diploma Animals Care, Bloomfield C	Derby
Susan	Huddy	Environmental Science - Bolton Inst	Nantwich	Frances	Terrell	Veterinary Science - Bristol U	Frodsham
Katie	Hughes	Pre veterinary degree, Bishop Heber HS	Farndon	Rebecca	Thomas	Pre vet - Hawarden HS	Hawarden
Neeltje	Huizenga	BSc Animal Management, Van Hall Inst.	Netherlands	Tara	Vallance	National Diploma Animal Care, Pembrokeshire C	Milford Haven
Luke	Johnson	Business Studies, Manchester U	Manchester	James	Wathen	Pre vet - St Nicholas RC School	Northwich
Nicola	Johnson	National Diploma Animal Care, Rodbaston C	Penkridge	Alison	Whittemore	First Diploma Animal Care, Reaseheath College	Neston
Gemma	Jones	Higher Dip in Admin - West Cheshire C	Chester	Clare	Williams	Zoology - Aberystwyth UC	Huddersfield
Nick	Jones	Gardening experience - Upton HS	Chester	Craig	Williams	[JM] Shavington HS	Crewe
Tony	Jones	Connah's Quay HS	Deeside	Helen	Williams	Pre veterinary science	Chester
James	Kenworthy	Pre-veterinary degree	Leigh on Sea	Eve	Wilmer	Pre veterinary Neston CHS	Ness
Richard	Kerr	Fishery Studies, Brooksby C	Leicester	Phillipa	Wolfendale	A levels, pre veterinary degree	Stockport
Deborah	Lee	Undergraduate UC Chester	Chester				
Michelle	Lloyd	BEd undergraduate - UC Chester	Chester				

[JM] = Junior Member

Sixty nine lectures were given in our lecture theatre during the year, together with numerous joint presentations to schools and colleges organised by Education and Marketing Divisions.

8 Feb	<i>Biology and Conservation of Whales.</i> Dr Tony Martin (MM)	11 Oct	<i>Recreating the Dawn of Zoological Microscopy.</i> Brian Ford (MM)
21 Feb	<i>Bats.</i> Dave Fawcett (FFI)	7 Nov	<i>Tropical Rainforests.</i> Dave Shaw (FFI)
12 Apr	<i>Zoo Review.</i> Director and staff (MM)	8 Nov	<i>31 Years in the Life of a Zoo Vet.</i> Derek Lyon (MM)
18 Apr	<i>Chimpanzees of Gashaka Gumti.</i> Nicholas Ellerton and Steve Hogarth (FFI)	21-23 Nov	<i>British Zoo Educators' Conference (SM)</i> (26 papers and 63 participants).
4 Jun	<i>Association of Veterinary Teachers and Research Workers.</i> Professor Emeritus Oliver King (SM).	25 Nov	<i>Underwater World.</i> Les Kemp Joint meeting with Chester Camera Club (SM)
7 Jun	AGM of the NEZS (MM)	29 Nov	<i>Conserving Corals</i> FAITAG Coral Conservation Group (SM) (12 papers and 83 participants).
8 Jun	<i>50th Anniversary Meeting, Federation of Northern Aquarium Societies.</i> Dr Gordon McGregor Reid (SM)	13 Dec	<i>Mokwepa and the Lightning Lizard.</i> Stephen McKeown (MM)
4-5 Sept	<i>Biology and Evolution of Monkeys, Apes and Man.</i> Linnean Society Conference (SM) (19 papers and 60 participants).		
10 Oct	<i>Black Rhinos of Tanzania.</i> Reggie Heyworth (FFI)		

MM	Member's Meeting
FFI	Fauna & Flora International Meeting (NW Group)
SM	Special Meeting/Conference



The Linnean Society Conference, *Biology and Evolution of Monkeys, Apes and Man*

We are grateful to 86 students who gave work experience time to the Zoo.

First Name	Surname	Course and College/School/University	Home	First Name	Surname	Course and College/School/University	Home
Hareth	Abdulla	A levels, pre vet/zoology degree	Heswall	Janet	Lockyer	Biology - Manchester U	Kettering
Paul	Aggarwal	GCSE Manchester GS	Bramhall	Mark	Lowrie	[JM] pre veterinary science	Frodsham
Nicola	Austen	Post graduate	Alsager	Kenneth	Lundell	Animal Management - Westby C	Sweden
Lois	Bassett	Pre MSc in Animal Behaviour	Heswall	Catherine	McLaughlin	Animal Science - W Cheshire C	Birkenhead
Susanne	Bäumler	Animal management experience	Germany	David	McMahon	Zoo Animal Management	Wallasey
Julia	Bellis	National Diploma Animal Care, Reaseheath C	Malpas	Matthew	Merrit	Animal Science - W Cheshire C	Chester
Claire	Black	Pre zoology degree	Manley	Christina	Murray	Manchester Girls S	Stockport
Charlotte	Bonney	Zoology - Glasgow U	Blackpool	Daniel	Newell	First Diploma Animal Care, Llysfasi C	Chester
Richard	Burgess	Pre veterinary degree	Wetherby	Vicki	North	Biology postgraduate	Lancaster
Alex	Calhoun	Prince's Trust	Chester	Paul	O'Donoghue	Zoology - Oxford U	Wigan
Johanne	Coxon	Post graduate - Liverpool U	Liverpool	Kim	O'Neil	A levels, pre veterinary degree	Birkenhead
Jennifer	Crossan	Pre veterinary degree	Chester	Stephen	Orford	Biology - Manchester U	Haslemere
Sarah	Crump	[JM] St Richard Gwyn S	Deeside	Rhian	Owens	National Diploma Animal Care, Reaseheath C	Chester
Claire	Crumpler	Upton High S	Chester	Alison	Parker	Pre veterinary - Oakham S	Oakham
Nick	Davies	MSc, Animal Behaviour/Animal Welfare, Edinburgh U	Prescot	Ruth	Pearson	[JM] - Bishop Heber HS	Malpas
Marit	de Vries	BSc Animal Management, Van Hall Inst.	Netherlands	Emma	Pennington	[JM] - Weatherhead HS	Wirral
Michelle	Duffield	Pre vet - De Aston S	Glenthams	Paul	Powell	First Diploma Animal Care, Pibwrllyed C, Carmarthen	Carmarthen
Joanne	Dyer	Veterinary Science - Liverpool U	Exmouth	Roger	Powell	Veterinary Medicine Cambridge U	Stafford
Donna	Ellis	Applied Biology - Liverpool JMU	Liverpool	Arthit	Prasartkul	A Levels Shrewsbury S	Bangkok
Adrian	Ely	Zoology post graduate	Chester	Giles	Roadnight	Pre veterinary degree	Campden
Hazel	Fisher	Catering experience - Bishop Heber HS	Tattenhall	Veronica	Roberts	Biological Science - Oxford U	Herts
Emily	Fletcher	A levels, pre veterinary degree	Tarporley	Sapna	Romani	BSc Biology & Environmental Science	Derby
Paul	Floyd	Dip in Aquatics - Sparsholt C	Manchester	Margo	Romein	BSc Animal Management, Van Hall Inst.	Netherlands
Jennifer	Fogg	Pre veterinary degree	Wrexham	Hannah	Rowland	Pre veterinary - Wirral County Grammar S for Girls	Wirral
David	Francies	[JM] - Tarporley HS	Tarporley	Guiomar	Santamaria	Post graduate, Oviedo U, Spain	Spain
Carly	Graham	Zoology - Liverpool U	Liverpool	Elizabeth	Seed	Post A levels - pre university	York
Craig	Gresty	Zoo animal management experience	Chester	Hayley	Shackleton	Pre marine biology degree	Eastham
David	Hardman	[JM] - Tarporley HS	Kelsall	Rebecca	Shackleton	Pre zoology degree	Oswestry
Bill	Harrison	First Diploma in Animal Care, Llysfasi C	Prestatyn	Kate	Shaw	National Diploma Animal Care, Reaseheath C	Wallasey
Simon	Haynes	Dip in Aquatics - Sparsholt C	Stourbridge	John	Shirley	A levels, pre veterinary degree	Weaverham
Ruth	Hollinghurst	Pre veterinary medicine degree	Liverpool	Niamh	Simmons	[JM] Prenton HS	Birkenhead
Elizabeth	Hooley	A levels, pre zoology degree	Chester	Helen	Stephens	National Diploma Animals Care, Bloomfield C	Derby
Susan	Huddy	Environmental Science - Bolton Inst	Nantwich	Frances	Terrell	Veterinary Science - Bristol U	Frodsham
Katie	Hughes	Pre veterinary degree, Bishop Heber HS	Farnon	Rebecca	Thomas	Pre vet - Hawarden HS	Hawarden
Neeltje	Huizenga	BSc Animal Management, Van Hall Inst.	Netherlands	Tara	Vallance	National Diploma Animal Care, Pembrokeshire C	Milford Haven
Luke	Johnson	Business Studies, Manchester U	Manchester	James	Wathen	Pre vet - St Nicholas RC School	Northwich
Nicola	Johnson	National Diploma Animal Care, Rodbaston C	Penkridge	Alison	Whittemore	First Diploma Animal Care, Reaseheath College	Neston
Gemma	Jones	Higher Dip in Admin - West Cheshire C	Chester	Clare	Williams	Zoology - Aberystwyth UC	Huddersfield
Nick	Jones	Gardening experience - Upton HS	Chester	Craig	Williams	[JM] Shavington HS	Crewe
Tony	Jones	Connah's Quay HS	Deeside	Helen	Williams	Pre veterinary science	Chester
James	Kenworthy	Pre-veterinary degree	Leigh on Sea	Eve	Wilmer	Pre veterinary Neston CHS	Ness
Richard	Kerr	Fishery Studies, Brooksby C	Leicester	Phillipa	Wolfendale	A levels, pre veterinary degree	Stockport
Deborah	Lee	Undergraduate UC Chester	Chester				
Michelle	Lloyd	BEd undergraduate - UC Chester	Chester				

[JM] = Junior Member

Sixty nine lectures were given in our lecture theatre during the year, together with numerous joint presentations to schools and colleges organised by Education and Marketing Divisions.

8 Feb	<i>Biology and Conservation of Whales,</i> Dr Tony Martin (MM)	11 Oct	<i>Recreating the Dawn of Zoological Microscopy,</i> Brian Ford (MM)
21 Feb	<i>Bats,</i> Dave Fawcett (FFI)	7 Nov	<i>Tropical Rainforests,</i> Dave Shaw (FFI)
12 Apr	<i>Zoo Review,</i> Director and staff (MM)	8 Nov	<i>31 Years in the Life of a Zoo Vet,</i> Derek Lyon (MM)
18 Apr	<i>Chimpanzees of Gashaka Gumti,</i> Nicholas Ellerton and Steve Hogarth (FFI)	21-23 Nov	<i>British Zoo Educators' Conference (SM)</i> (26 papers and 63 participants).
4 Jun	<i>Association of Veterinary Teachers and Research Workers.</i> Professor Emeritus Oliver King (SM).	25 Nov	<i>Underwater World,</i> Les Kemp Joint meeting with Chester Camera Club (SM)
7 Jun	AGM of the NEZS (MM)	29 Nov	<i>Conserving Corals</i> FAITAG Coral Conservation Group (SM) (12 papers and 83 participants).
8 Jun	<i>50th Anniversary Meeting, Federation of Northern Aquarium Societies,</i> Dr Gordon McGregor Reid (SM)	13 Dec	<i>Mokwepa and the Lightning Lizard,</i> Stephen McKeown (MM)
4-5 Sept	<i>Biology and Evolution of Monkeys, Apes and Man,</i> Linnean Society Conference (SM) (19 papers and 60 participants).		
10 Oct	<i>Black Rhinos of Tanzania,</i> Reggie Heyworth (FFI)		

MM	Member's Meeting
FFI	Fauna & Flora International Meeting (NW Group)
SM	Special Meeting/Conference



The Linnean Society Conference, *Biology and Evolution of Monkeys, Apes and Man*

71 selected publications and theses of staff, students and associates of the North of England Zoological Society (NEZS).

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THE NORTH OF ENGLAND ZOOLOGICAL SOCIETY
AUTHORISATION FOR PROXY VOTE

I Member number

of the Society, whose subscription is not in arrears hereby appoint:

..... Member number
or, failing him/her:

..... Member number

or (if no name entered above) the Chairman of the Meeting

as my proxy to vote on my behalf at the Annual General Meeting of the Society to be held on Saturday, 30 May 1998 and at any adjournment thereof.

Signed this day of 1998

.....Signature

Agenda Item 8 - Election of Members of Council

You may instruct your proxy to vote as he/she thinks fit or you may enter the names of up to five duly nominated candidates you wish your proxy to vote for:

Candidates your proxy is to vote for:

1	
2	
3	
4	
5	

Though Council is charged with nominating candidates to fill vacancies and has included the names of its nominees with the Notice of Meeting, the final list of candidates will not close until noon Saturday, 16 May 1998. Members wishing to vote by proxy may wish to defer giving their instruction until after this date. A list of candidates will be displayed on the Society's Notice Board in Oakfield House, Chester Zoo, and will be sent to those who intend to vote by proxy and who have asked by 19 May 1998 for the final list to be posted to them.

**This proxy form is to reach the Company Secretary at Oakfield House,
Zoological Gardens, Chester, CH2 1LH by noon Thursday, 28 May 1998**

NOTE: New members who submitted their applications to join the Society on or after Sunday 3 May 1998 are not entitled to vote at the Annual General Meeting on 30 May 1998, 28 days not having elapsed in the meantime.

PROXY STATEMENT FOR THE ANNUAL MEETING OF THE BOARD OF DIRECTORS

THIS PROXY FORM IS TO BE USED BY THE STOCKHOLDERS OF THE COMPANY TO VOTE AT THE ANNUAL MEETING OF THE BOARD OF DIRECTORS TO BE HELD AT 10:00 A.M. ON MAY 15, 1992, AT THE COMPANY'S HEADQUARTERS, 10000 WILSON AVENUE, BETHESDA, MARYLAND 20814.

Member number _____

Member number _____

Member number _____

Member number _____

Member number _____

Member number _____

Member number _____

Member number _____

Member number _____

Member number _____

Member number _____

Member number _____

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Member number _____

Member number _____

Member number _____

The North of England Zoological Society

Nominees for Council
1998

David Cooke - Member No 674

A long serving member of Council and a General Medical Practitioner. His special interests are conservation and natural history.

Karen Davies - Member No 11204

A local member of the Zoo who is a Dental Practitioner. She has interests in animal welfare and sound breeding programmes.

Derek Lyon - Member No 16632

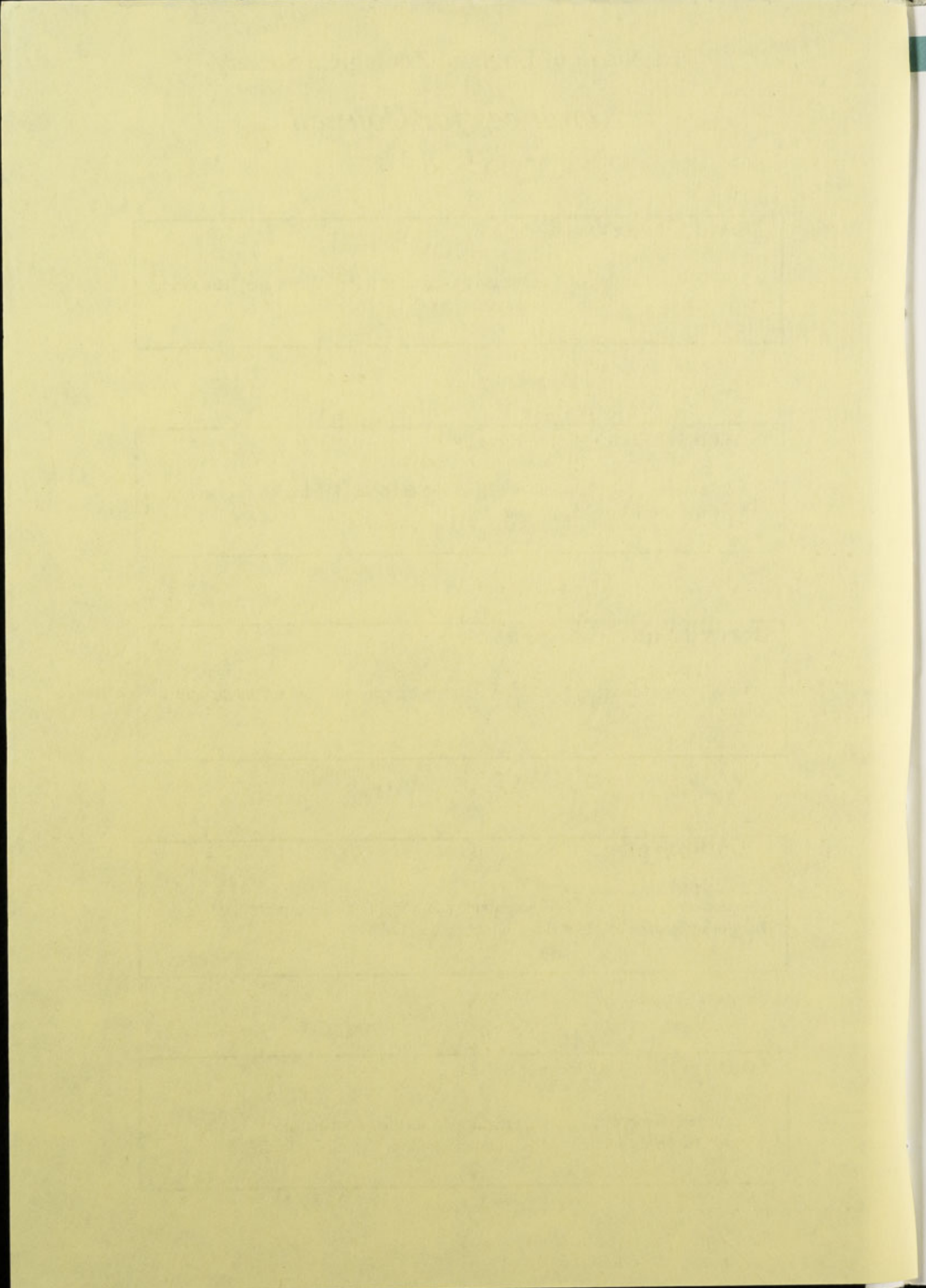
Our well respected and long serving Veterinary Practitioner, now retired but still joining in.

Alan Sharples - Member No 2181

Co-opted on to Council in 1997 to provide additional financial expertise. He is Director of Finance at Alder Hey Children's Hospital.

Tony Williams - Member No 3848

As a current member of Council, provides invaluable assistance on marketing matters. He heads publicity and communications at Capital Bank PLC.



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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.



Female elephant calf *Sithami* was born on 31st December 1997
photo courtesy Daily Mirror Group



North of England Zoological Society

The Society would like to thank everyone who has helped in 1997 — Council, Members, Benefactors, individual and corporate Adopters, permanent and seasonal Staff, members of the Employment Training Teams, Work Experience Students, Visiting Researchers, Chester City Council, Cheshire County Council, Volunteers and our many Visitors and Friends.

We are also grateful to Suppliers and Contractors for often achieving that 'extra' for us that makes all the difference.

Registered Charity No. 306077
Licenced under the Zoo Licencing Act 1981

For further information
please write to:
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Chester CH2 1LH

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