



CHESTER ZOO

THE NORTH OF ENGLAND
ZOOLOGICAL SOCIETY

ANNUAL REPORT
1993

Chairman's Report

I am pleased to report to members on a successful year's trading in 1993 and an end of year surplus of £361,211. It is particularly gratifying when such success comes in an economically difficult and uncertain environment and is achieved as a result of painful but necessary decisions. This time last year I reported such decisions to members with the prediction that they would prove to be the right ones for the benefit of the Zoo. This has indeed been the case, and I thank the Director, Management and Staff for the hard work and commitment they have given to achieve a remarkable turnaround during 1993.

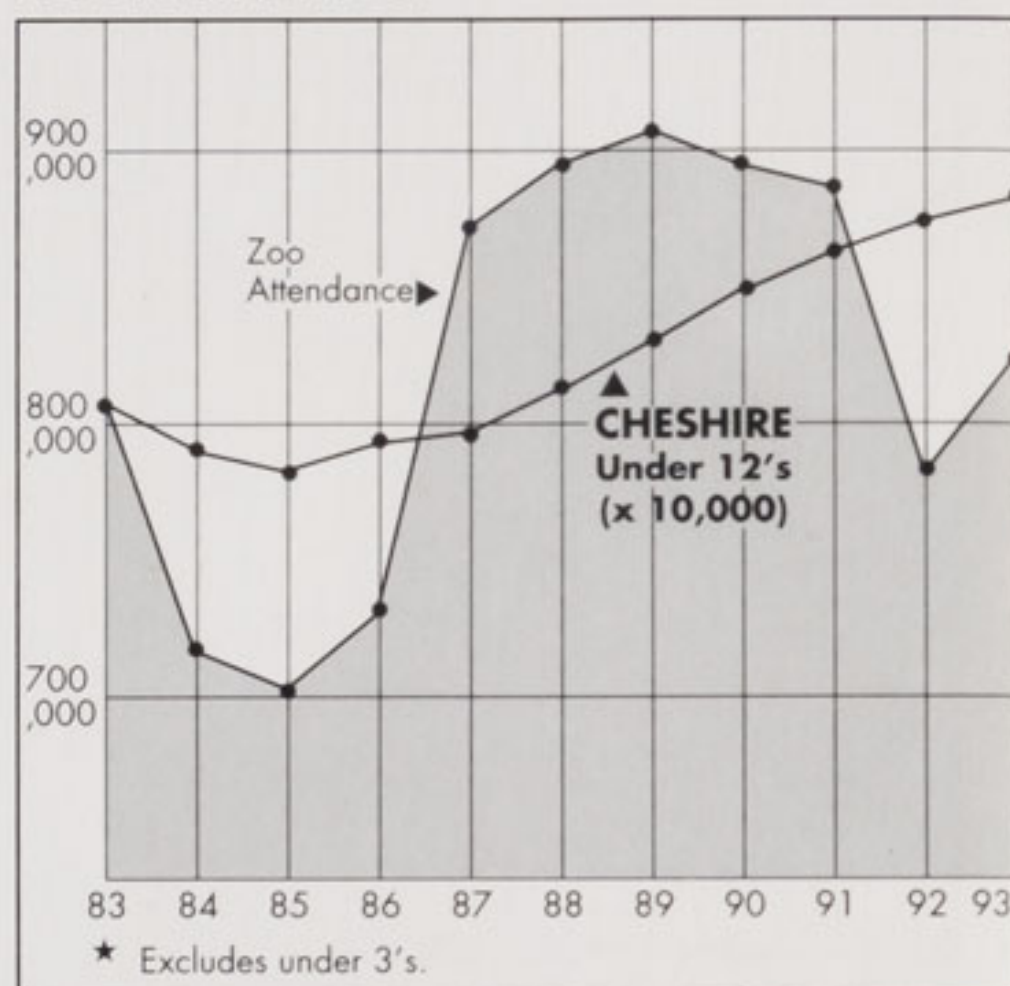
We would have shown an even greater surplus had we not had to make provision in this year's figures for the Inland Revenue demand for the years up to 1991 for unpaid Corporation Tax. This appears as an exceptional item of £225,000 on page 12 of the accounts. Actual payments of this demand will be phased over the next six years beginning July 1994, in interest-free annual instalments of £37,500. This arrangement results from a negotiated agreement between Chester Zoo and the Inland Revenue.

The liability for this tax came to light in 1991 and could have been retrospectively applied by I.R. to all trading years up to that date. In December, 1991, as already reported to members, Chester Zoo Enterprises Ltd. was formed as a legitimate tax avoidance mechanism. (Chester Zoo Enterprises Ltd. pays tax on its profits, and covenants those profits to the Society. The Society then reclaims the tax from the Inland Revenue). Throughout its negotiation with Inland Revenue Chester Zoo was advised by K.P.M.G. Peat Marwick. The Zoo is served on both a regular and ad hoc basis by a number of companies. It is a responsibility of Council to ensure that the Zoo is receiving the best possible service in each particular field. In this respect the Society undertakes periodic reviews of its professional advisers to ensure the best and most appropriate service is received at a competitive rate.

These professional services form part of the structure by which the Zoo is supported and which enable it to do what it does best: to exhibit animals to the highest standards of husbandry and in accordance with the best principles of zoological conservation.

In this context 1993 must stand out as a year of particular achievement. The building and opening of "Europe on the

ZOO ATTENDANCE★



Edge" is a superb example of a mixed-species, conservationally important, exhibit. Credit is due to the Estate Division for an imaginative design, efficiently built and landscaped, and to the Animal Division for the selection and care of the birds introduced into the enclosure. This exhibit is a dramatic demonstration of what a good zoo can achieve. It reminds our visitors of the contribution the Zoo is making to conserving threatened species, at the same time providing an entertaining and exciting viewing experience. Exhibits of this calibre bring together the demands for enlightened entertainment and information, with the needs of zoos to be scientifically valid. It is only by achieving this balance that zoos will be able to survive and prosper. At Chester we have demonstrated once more, our ability to do just that.

Progress too, continued with the new entrance, planning for the first phase of which is well advanced and has been helped by European Grant Aid.

At the end of 1993 Chester Zoo is financially stable, and continues to develop its infrastructure and to excel in the exhibition and care of the animals in its collection.

Beatrice J. Jones

Front Cover Picture: Persian leopard and cub. Born 1993.

1993 AWARDS



The North of England Zoological Society

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The Duke of Westminster DL

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Ph.D., M.V.Sc., B.Sc., (Agric),
F.R.C.V.S., F.I.Biol.

The Council

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B.Sc., M.Sc.

Director of Chester Zoo and Company Secretary

Dr. Michael R. Brambell,
M.A., Vet. M.B., Ph.D., M.R.C.V.S.

Financial Controller and Deputy Director

E.A. Du Cros, Esq., F.C.A.

Registered Office:

Caughall Road, Chester, CH2 1LH.

Company Registration:

Number 287902 (England).

Registered Charity:

Number 306077.

Membership as at 31st December 1993

		1992
Life Members	161	167
Honorary Members	6	8
Members of more than 25 years standing and over pensionable age	30	30
Annual Members	3756	3458
TOTAL	3953	3663
Associate Members	3	3
Junior Members	1854	1740
	1857	1743
GRAND TOTAL (All categories)	5810	5406
	(+ 7.4%)	

Staff Professional Representations

- Dr. M.R. Brambell
Director
Honorary Treasurer, The Federation of Zoological Gardens of Great Britain & Ireland.
Member of Council, The Zoological Society of London.
Member of Council, the Owl Centre, Ravenglass, Cumbria.
Member of Scientific Advisory Panel, Jersey Wildlife Preservation Trust.
- Dr. G. McGregor Reid
Curator-in-Chief
Member of Council, the Linnean Society of London.
Member of Council, Flora & Fauna Preservation Society.
Member of Fish Specialist Group, World Conservation Union (IUCN).
Member of the Joint Management of Species Committee, The Federation of Zoological Gardens of Great Britain & Ireland.
- Dr. R. Wilkinson
Curator of Birds
Member of Council, the Avicultural Society.
Member of the Joint Management of Species Committee, Federation of Zoological Gardens of Great Britain & Ireland.
Member of Pheasant Specialist Group (IUCN/Birdlife/WPA).
Chairman of EEP and JMSG Parrot Taxon Advisory Groups.
Member of Committees of the World Pheasant Association and the Congo Peafowl Trust.
- N.G. Ellerton Esq.
Curator of Mammals
Member of the Captive Care Committee, the Primate Society.
- Miss B.M. Norgain
Head of Education
Member of Education Committee, The Federation of Zoological Gardens of Great Britain & Ireland.
- Mrs. P. Cade
Public Relations Officer
Member of Marketing & P.R. Committee, The Federation of Zoological Gardens of Great Britain & Ireland.
A Director of the North West Tourist Board.

In addition, several staff are members of Taxon Advisory Groups (TAGs), and co-ordinators of European Endangered Species Programmes (EEPs), or Joint Management of Species Programmes (JMSPs).



N.G. Ellerton Esq., Mrs. P.A. Rudd and A.R. Woodward Esq., serve on the N.W. Group committee of the Flora & Fauna Preservation Society as Chairman, Secretary and Financial Controller respectively.

Member of
IUCN
The World Conservation Union

The Society is a member of the World Conservation Union (also known as IUCN) in the category of national non-governmental organisations.

ALVA
ASSOCIATION OF
LEADING VISITOR
ATTRACTIONS

The Zoo is a member of the Association of Leading Visitor Attractions



The Society is a member of the Federation of Zoological Gardens of Great Britain & Ireland, linking zoos in co-operative breeding and joint management projects as well as helping promote the interests of members



Director's Report

Dr. M. R. Brambell Director of the Zoo

We helped formulate the World Zoo Conservation strategy document.

Our Chairman has mentioned the Europe on the Edge aviary, and I want to add one or two points to what she has written about it.

Modern zoos are faced, especially with large animals, with having to rethink radically the design of enclosures, so as not only to provide the basic requirements of each kind of animal they keep, but also to enable each animal to have a full social and behavioural life as well. Our polar bear exhibit was a pioneer in its day, but could not keep up with modern views of what polar bears require. We were faced with what to do with a large and spectacular site in the centre of the Zoo, at a time when there are many calls on our slender resources. Once the decision had been made to make an aviary to cover the polar bear site and the neighbouring pond, it was up to Roger Wilkinson, our Curator of Birds and Mark Pilgrim, his Avicultural Deputy, with Steve O'Brien, our Estate Engineer, to design it. They came up with an economic to build, easy to maintain plan, in which a large fish net, held up by five flag poles, covers a mountain valley (three sides of the old polar bear perimeter) from which a river flows out into a lowland plain and into a lake. It is very simple and we do not claim it to be unique, but it is in the tradition of Chester Zoo and its pragmatic approach to zoo design. When the net needs attention, it takes a very short time to lower the affected piece, using the flag pole mechanism, put whatever needs doing to rights and pull it up again. Europe on the Edge is more than being a good solution to a problem about an old

At long last, we gained proper eastbound signage from the A55 North Wales Coast Expressway leading to the Hoole roundabout.



Zoo exhibit, it has given the Zoo a wonderful opportunity to advance its conservation work, to keep its educational role to the fore, and to provide something very satisfying for our visitors to enjoy.

In 1993 the World Zoo Conservation Strategy was launched at the IUDZG (World Zoo Organisation) conference in Belgium. This 80 page document sets out the role zoos can, and indeed must, play if we are to save many of those species which have or will have lost their natural habitats in the coming decades. It is a most important milestone in the development of zoos and was put together with contributions from zoos from all over the world, Chester playing a not inconsiderable role. If anybody should feel that zoos are whistling in the wind in this matter there are many species in the Zoo with which we are already making a contribution, the Lake Victoria and Lake Malawi Cichlids in the Aquarium being among the more obvious examples.

The Zoo has been planning its new entrance and all that that involves, following the completion of the City of Chester's very successful Park & Ride scheme. We obtained from the European Union a grant of £312,000 towards the work, the largest grant the Society has ever been given.

Unfortunately, the window through which we were able to get this grant

The experience gained in the construction of the Mauritius Kestrel aviary was invaluable in the work on the much larger "Europe on the Edge"

appears to have been closed for further such grants with the change in Chester City's development area status. Nevertheless the grant, together with a most generous promise from one of our suppliers - Ravensden Curios Ltd. - will enable us to complete the first and biggest stage of the new gate development, that is the gate building, shop forecourt, access roads and coach parking, as well as parking for the first 500 cars.

As part of this development we want to convert the Monkey House into an island based series of exhibits and make improvements to the Small Mammal House.

There is still a lot of work to be done at the Zoo to make it as delightful and successful in all weathers in all seasons as it is on a high summer's day.

There is a willingness and sense of purpose amongst our staff, a keenness to experiment and take advantage of new ideas and methods, which gives great confidence that the Zoo is going to continue to blossom.

The newly-constructed Noah's Ark's furthest venture was Liverpool's Lord Mayor's Show, where it received a tumultuous welcome.





Conservation in the field

Increasingly, our conservation commitments take us into the field where problems exist. Senegal, West Africa, was the scene for a Conservation Workshop, co-organised by Gordon Reid as part of an International Conference on Fish Biodiversity. Keeper Vince Smith returned from a second important trip to the Congo to help the Jane Goodall Foundation in a Chimpanzee rehabilitation project. From his dedication to zoo extension work, Vince left in May to manage a chimpanzee sanctuary at Sweetwaters Game Reserve, Kenya. Joining him in Kenya shortly after was 'Sophie' - a fine young zoo-born chimp which (due to being rejected by her mother) could not be integrated with our Zoo colony.

Adam Britt (ex-keeper, now Research Associate of the Zoo) is working in Madagascar on a lemur re-introduction programme, in collaboration with the Malagasy authorities and with Duke University, U.S.A. Complimenting this, a U.K. Overseas Development Administration Grant was obtained to support Mr Ramarson, a Malagasy student, who will be engaged in ecological fieldwork and who will be trained at Chester Zoo and the University of Liverpool. Sean Wheeler, a Liverpool John Moores University Ph.D. research student supervised by Gordon Reid, began a project to study rare goby-like fishes from the surf zone of Lake Tanganyika, East Africa.

Chester, in cash and kind, strongly supports the Indian Zoo Outreach organisation which promotes activities in the field. Curator of Mammals, Nick Ellerton, travelled to India to help in Zoo Outreach Conservation Workshops. This involved population and habitat viability analyses (PHVA's) for Lion-tailed Macaques (in Madras) and for Asiatic Lions (in Baroda), with follow-up action planning at Sakkarbaug Zoo. Nick has also been active in planning a 'Sangai' - the highly endangered brow-antlered deer - project with Indian agencies, Front Royal (the outstation of the National Zoological Park, Washington D.C., U.S.A.) and Dr Caroline McGregor Argos of Liverpool John Moores University.

Conservation awards

Chester's long dedication to conservation, animal welfare and conservation education was recognised by nine awards from the Zoo Federation. The awards for 'sustained breeding over a number of generations and as part of a recognised management programme' were: (1) Chimpanzee colony; (2) Red Lechwe herd; (3) Ring-tailed lemur colony and; (4) Blue-eyed Cockatoo group. It is most encouraging that we obtained far more recognition than any other establishment!

Conservation Status Report

Dr. Gordon McGregor Reid Curator-in-Chief

This year, the 'World Zoo Conservation Strategy' was published by the World Conservation Union Captive Breeding Specialist Group and the International Union of Directors of Zoological Gardens (IUCN/CBSG/IUDZG). Chester Zoo staff made a substantial contribution to this key document which, for the first time, details the role of the zoos and aquaria of the world in global conservation.

Joint action

The Zoo now keeps and aims to breed from 184 species officially listed as being conservationally sensitive. This represents about one-third of our total holdings, including 7 species extinct in nature, 27 highly endangered, 32 vulnerable and 21 species which are otherwise rare. Associated conservation action comes from many collaborative projects which our mammal, bird, reptile and fish specialists engage in and, indeed, often initiate, organise and host. For example, Neil Spooner, Mammal Section Co-ordinator, and Julie Whitear, Secretary, successfully organised at Cricket St. Thomas Wildlife Park, the seventh UK Elephant Workshop, with Gordon Reid in the Chair and keepers Mick Jones and Mark Boardman present. In dramatic size contrast - and giving due attention to conserving rare insects, snails and spiders - the Zoo hosted the first ever Terrestrial Invertebrate Taxon Advisory Group Meeting.

Roger Wilkinson, Curator of Birds, and Mark Pilgrim, Avicultural Deputy, were very active in

1993 Federation Awards

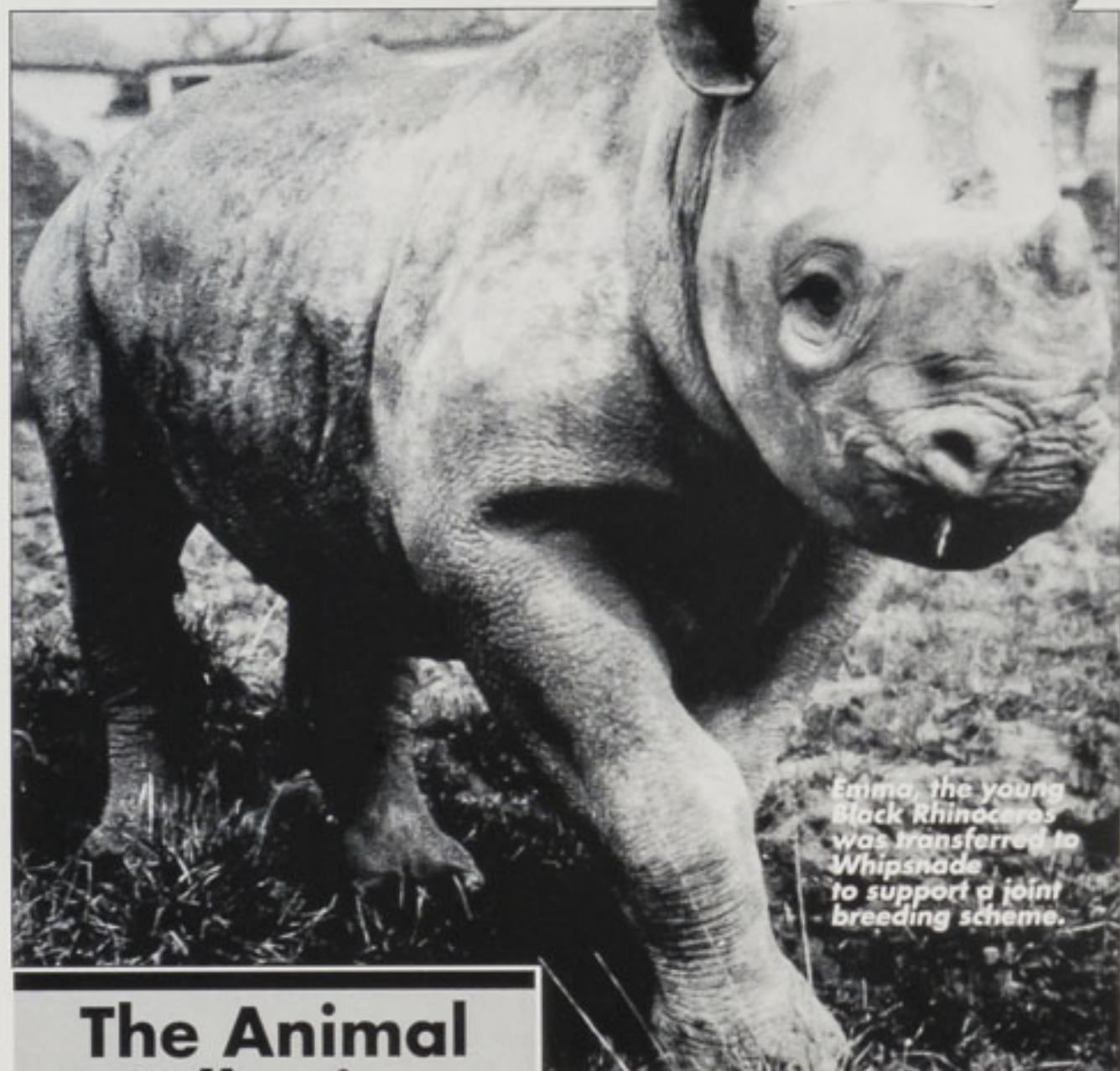
Europe-wide joint breeding schemes for endangered species (EEP's) and attended planning sessions on the continent. Gordon Reid, Roger Wilkinson, Nick Ellerton, Niall Ormerod, Keith Brown and Isolde McGeorge presented informative papers on rare fishes, crowned cranes, chimpanzees, and royal pythons at an important WWF/Nigerian Field Society Symposium for the 'Conservation of West African Wildlife' held at Kew Gardens, London.

A major 'frozen zoo' conservation project (funded by the European Union) is under way. Chester is involved in this scheme for 'genetic resource banking' and cryobiology, designed to develop safe and effective methods in biotechnology which can help rare and endangered species both in the wild and in zoos.

Last, but not least, our splendid gardens contain many rare plants. We thus readily agreed to join in a long-term Conifer Conservation Project. This is being organised by the Royal Botanic Gardens in Edinburgh, with other organisations including Edinburgh Zoo and Paignton Zoo, Devon. Tiny seedlings of endangered exotic species of conifer are now being raised by the Botany Department of Liverpool John Moores University. Some of these will be transferred to Chester Zoo when they are ready for planting-out.



The wallspace of the newly opened Indoor Picnic Area has given the opportunity for a huge conservation map, featuring over 60 species that are in (or likely to be in) the Chester collection. The painting is over 40 feet wide and was planned in 1993, and painted in early 1994 by Liverpool University zoology graduate, Hannah Lawson, who is also using her skills in other parts of the zoo.



Emma, the young Black Rhinoceros was transferred to Whipsnade to support a joint breeding scheme.

The Animal Collection

Dr. Gordon McGregor Reid Curator-in-Chief

The animal collection is managed for the purposes of conservation (mainly through cooperative breeding programmes), education through exhibition and interpretation, and benign scientific study (non invasive, non intrusive research). These activities are, wherever possible, married with the clear need to maintain the Zoo as an attraction for the many thousands of paying visitors who provide most of our financial support.

Budget

Total funds allocated in 1993 to support the animal collection (welfare and management) were £1,169,413. The Division operated at about 3% under budget overall (and 9% under 1992 figures). Costs directly referable to animal welfare are tabulated in the income and expenditure account (p.12). Operating costs were offset to the value of £84,000 (net of V.A.T.) by the 'animal adoptions' sponsorship scheme managed by Maureen Allsopp.

Livestock Management

Among nine Zoo Federation Awards received (see Conservation Report on Page 5) four were for 'significant advances in animal welfare and husbandry' including: (1) use of environmental enrichment techniques; (2) the design of the Chimpanzee House; (3) management techniques with primates, notably Sulawesi Macaques and; (4) the successful operation of the free-range Lemur Island area.

A detailed Livestock Review was prepared for the Scientific Committee in order that we can better manage our collections and plan our holdings for the future. Asian elephant 'Mya' arrived from London Zoo on a short-term visit to mate with our fertile bull Chang. Our three female Cheetahs went to Fota Wildlife Park in southern Ireland in August to be mated and will return to us, hopefully, pregnant. 'Emma', our young Chester-born Black Rhinoceros, went to Whipsnade Zoo on a breeding loan. We were sorry to see her go, but such moves are necessary to promote genetic vigour in small populations. Many other transactions were organised for the cooperative management of rare animals. Male Orang-Utan 'Sibu' went to Blackpool Zoo on a breeding loan. Chester-bred Oman Blind Cavefish and Lake Victoria Cichlids went to the New York Zoo Aquarium and the Cincinnati Zoo Aquarium.

Several aspects of health and safety were tightened-up. Following the London Zoo Lion incident, vulnerable sections were equipped with extra on-site safety equipment and there was a review of the (necessarily strict) arrangements for the storage and deployment of darting equipment, etc. A dramatic fire in the tortoise house was the result of a heater malfunction. The fire brigade was called out after the floor above the heater gave way under the weight of the Tortoises. All inmates were rescued intact and damage to the building was not severe.

Development Work

The recently opened Asian Plains exhibit was gradually stocked during the course of the year. It now holds magnificent herds of Blackbuck, Axis Deer and Nilgai. With the

strong support of the Estates Division, several substantial developments were undertaken including the new Mauritius Kestrel Aviary, (see p.4) and large replacement aviaries in the Owl area. Undoubtedly, the crowning achievement of the year was the completion of 'Europe on the Edge', a huge free-flight aviary (developed in the former Polar Bear enclosure). It is stocked with rare European birds on the edge of their geographical range and, often, on the edge of extinction. These include Black Vulture, Little Egret, Waldrapp Ibis and Demoiselle Crane.

Animal Health

Supplies

More than 680 tonnes of food and bedding were supplied to the animals (see p.21, for details), this year supplemented by crops grown on Zoo land. There have been continued improvements in efficiency of operation and the control of wastage.

Veterinary care

There was sadness over the 'cot death' of the second baby born to black rhino 'Esther'. The long pregnancy of Asian Elephant 'Thi-Hi-Way' also ended tragically, with the infant dying during the birthing process. Thi recovered well and, despite these setbacks, the Zoo remains committed to its Elephant and Black Rhino breeding programmes. An outbreak of influenza in the Chimpanzee colony was controlled—but only after 'Rory', a potentially important male for the breeding group, died. Other notable deaths include a female sealion and old favourites 'Belle' and 'Harry' the black leopards (all from age-related conditions).

The total number of clinical cases presented during the year was 454: comprising 264 Mammals, 165 Birds and 25 Reptiles. Follow up treatments brought the total number of attendances by the Veterinary Officer to 1,917. This figure does not include weekly visits for the purpose of elephant phlebotomy (to study endocrine function and vitamin E status). Anaesthesia, immobilisation or sedation was carried out on 146 occasions. During the period 1st January to 31st December, inclusive, 338 post-mortem examinations were conducted (See table below).

The Quarantine Station at Prenton was closed at the beginning of the year and keeper Tony Hutchinson took on the large task of coordinating departmental plans for a new, improved and more conveniently located station.

Table: Post-mortem examinations 1993

	A	B	TOTAL
MAMMALS	72	40	112
BIRDS	108	84	192
REPTILES	34	0	34
TOTALS	214	124	338*

'A' – animals which were resident in the collection for more than 30 days;
'B' – animals which were less than 30 days in the collection and includes births in the collection and specimens acquired from outside sources.

*From a total of 319 carcasses submitted for post-mortem examination, 57 had been destroyed for humane reasons.

Information

Talks and enquiries

Divisional staff gave very many talks (in the Zoo and to outside audiences) to spread the good word about Chester and to support our activities in education, science and conservation. For example, keeper Ross Meredith organised an excellent Orang Utan evening for the Orang Utan Foundation and the Elephant keepers gave 'Elephant Experience' evenings which were very popular with Zoo Members. Similarly, bird staff initiated successful 'Bird Safari' evenings in the Zoo. A huge number of daily animal enquiries from the public (by letter, telephone and in person) were also answered by staff.

Interpretation

Information Officer, Michael Coupe, retired from the Zoo after nearly thirty years of much-appreciated service. Fortunately, we still have the benefit of Michael's expertise, for he helps us part-time with labelling. Some 650 basic identification signs (covering all animal groups) were supplied during the year and used to replace signs that had become worn-out. Artist-in-residence, Les Grandy, prepared 102 new items of artwork for our label library and for identification and adoption signs. Over 800 copy signs were sold to other zoos.

A series of animal panels highlighting conservation breeding was installed at the main entrance. Elephant House entrance signs (based on designs prepared by keeper Phil Whalley) were also erected. A series of Parrot information panels - prepared by Colin Tudge in collaboration with Zoo staff - was completed as well as several Aquarium panels.

Sponsorship obtained from Pedigree Petfoods allowed for the illumination of the Aquarium panels using a fibre-optic system. Realistic, synthetic rain forest vines were installed on a trial basis in areas where natural growth is not possible (nocturnal house and reptile house). Sarah Bird of the Botany Department, Liverpool Museum, kindly completed a detailed proposal for the future interpretation of plants - some rare, some economically important - in the Zoo gardens.

Record keeping

The computerised animal record keeping system (ARKS, SPARKS and ZRBOOK programmes) was reorganised. Each curatorial department became responsible for their own records. Julie Whitear, Secretary, coordinated record transactions with staff of the International Species Inventory System office in the U.S.A. Keith Brown, Herpetologist, was appointed in the additional post of Computer Systems Analyst to oversee the upgrading of all the Zoo's systems.

Training

Keeper Phil Whalley gained a City & Guilds Animal Management Diploma with credit. A revised Animal Management course for the Diploma commenced with over forty sessions planned to span three years. The course is custom-made to serve keeper needs for training in practical animal husbandry and in other relevant and rapidly changing fields such as

nutrition, health and welfare, reproduction, genetics, behavioural enrichment, zoo legislation and education. Staff attended various training sessions organised elsewhere. For example, Mark Pilgrim, Avicultural Deputy, attended a Small Population Management course at the University of Oxford and Aquarists Mike Crumpler and Justin Bell were trained in cryopreservation techniques at the University of Stirling. Several mammal keepers went on a Rare Breeds Genetics course at the University of Liverpool.

About 45 outside volunteers (many of them advanced students of biology or veterinary medicine) helped on the animal sections in an important Work Experience scheme organised by Personnel Officer, Penny Rudd. The Zoo contributed to a seminar at Leahurst Veterinary School on training needs for veterinary students.

Scientific Study

Scientific study takes on many forms and operates at different levels. Assistance was gladly given to very many enthusiastic schoolchildren doing zoo projects under the national curriculum. Increasingly, the Zoo serves as an academic focus for universities in the northwest (many of which were represented at a stimulating 'Zoologists Dinner' hosted at Chester). With the help of Zoo staff, more than twenty external students completed research projects. From this, many theses (see box inset for examples) were deposited with Lynn Wilkinson, Zoo Librarian. Twenty theses refer to work conducted for the degrees of B.Sc., B.Ed. and M.Sc. Postgraduate researchers also made full use of Zoo study facilities.

Ex-keeper Steven Cooke - a Junior Member who went on to study at the Bolton Institute of Higher Education - gained a B.Sc., Zoology with 1st Class Honours. We are also proud to note that M.Sc. degrees by thesis were awarded to two Chester Zoo mammal keepers Steve Hogarth and Adam Britt. Adam has since gained a Wingate Scholarship to enable him to conduct a programme of field research on lemur conservation for the degree of Ph.D. (see Conservation Report). Several other talented keepers were active in research and publications. Curatorial staff also conducted research and supervised and examined students.



Drawing by P. Whalley

More than 50 publications, reviews, research theses and technical or project reports were produced under the aegis of the N.E.Z.S. (see box inset for examples). In addition numerous popular accounts were contributed to *Zoo Life* by Zoo staff.

North of England Zoological Society Examples from Publications List 1993

- Baird, A. (1993)** Resource partitioning in a community of Lake Malawi Cichlids. B.Sc. Honours Thesis in Applied Biological Sciences, Manchester Metropolitan University, 79 pp.
- Brambell, M. R. (1993)** The time bridge across the next century. IUCN Master works of man and nature: preserving our world heritage. Harper-Macrae.
- Brambell, M.R. (1993)** The evolution of the modern zoo. *International Zoo News*, 40/7 (248): 27-34.
- Britt, A. (1993)** Environmental enrichment for captive *Macaca nigra*. M.Sc. Thesis, University of Liverpool, 239 pp.
- Brown, K. & Reid, G. McG. (1993)** Emergency incident card for snake bite or other envenomation. In Hughes, D.G. (ed) Codes of practice for the care of invertebrates in captivity - Hazardous invertebrates. Invertebrate Working Group (IGW3), Federation of Zoological Gardens, London, 10 pp.
- Cleaver, S. (1993)** The ecology and conservation of the Sumba Hornbill (*Rhyticeros everetti*) on Sumba, NTT, Indonesia. Report of a study sponsored by the N.E.Z.S. Manchester Metropolitan University, Dept. of Biological Sciences.
- Dibb, S. & Simkin L. (with Vere, C.M.N.) (1993)** The Marketing Casebook. Routledge, London & New York. Chapter 17, Chester Zoo. Conservation Cannot Wait, 17pp.
- Durnford, L. J. (1993)** A behavioural study of a group of Cotton top Tamarins (*Saguinus oedipus*) at Chester Zoo: sex differences in time budgets and enclosure use. B.Sc. Honours Thesis in Applied Biology, Liverpool John Moores University 56pp.
- Edwards, K. (1993)** Female behaviour in a captive group of Chimpanzees (*Pan troglodytes*) at Chester Zoo with particular reference to oestrous females and anoestrous females with dependent infants. M.Sc. Thesis in Behavioural Ecology, Manchester Metropolitan University, 191 pp.
- Fuller, S. (1993)** The effects of behavioural enrichment on Zoo tigers (*Panthera tigris altaica*). B.Sc. Honours Thesis, University of Liverpool, 36pp.
- Hogarth, S. (1993)** Left-sided cradling in the great apes and gibbons. M.Sc. Thesis, University of Liverpool, 120 pp.
- Johansen, S. (1993)** Ungulate management in zoos: a comparison of ungulate behaviour under two different management regimes. B.Sc. Honours Thesis, University of Liverpool, 64pp.
- Keating, R. (1993)** Play behaviour in juvenile and infant chimpanzees (*Pan troglodytes*) at Chester Zoo. B.Sc. Honours Thesis, Biology and Environmental Studies, Manchester Metropolitan University, 59pp.
- Kendrick, L. (1993)** An Observational Study of Visitors Viewing and Reading Times in the Chimpanzee, Elephant & Orang-utan Houses at Chester Zoo. B.Ed. Thesis, Chester College of Higher Education 47pp.
- Lond-Caulk, C. (1993)** Can environmental enrichment alter the time budget of macaws at Chester Zoo? Dept. of Biological Sciences, B.Sc. Honours thesis, Combined Biological Sciences, Manchester Metropolitan University, 28pp.
- Meredith, R. (1993)** A keeper's tale - Orang Utans at Chester Zoo. *Mammalaction* 63 (Winter '93).
- Norgain, B. M. (1993)** The Education Role of Live Exhibits in a Zoo Collection. *Journal of Biological Curation* (1991/92) 1 (3/4): 67-76.
- Parlow, M. (1993)** An assessment of ponds for wildlife value with reference to biotic indices. Diploma Thesis in Environmental Biology, Chester College of Higher Education 65 pp.
- Pilgrim, M. (1993)** Lilacine Amazon (*Amazona autumnalis lilacina*) EEP Annual Report 1992. In: L.E.M. de Boer, K. Brouwer and S. Smits (eds), EEP Yearbook 1992/93 including the Proceedings of the 10th EEP Conference, Salzburg 28-30 June 1993. EAZA/EEP Executive Office, Amsterdam.
- Pilgrim, M. (1993)** European Studbook for Lilacine Amazon *Amazona autumnalis lilacina*. North of England Zoological Society.
- Reid, G. McG. (1993)** Britain's Fish and Aquatic Invertebrate Taxon Advisory Group. *Aquatic Survival*, 2 (4): 12-13.
- Reid, G. McG. (1993)** Coelocanths and scientists. *Reviews in Fish Biology and Fisheries*, 3 (1): 84-86.
- Reid, G. McG. (1993)** An aquarium for the future. *J. Biological Curation* (1991/92) 1 (3/4): 63-68.
- Reid, G., McG. (1993)** Workshop on conservation of diversity in situ and ex situ. *Aquatic Survival*, 2 (4): 7-10.
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DIVISIONAL REPORTS

Estates

Although funds for new capital works had had to be held back, the works department still managed to produce a major high quality project with the conversion of the old Polar Bear and Duck Pond areas to a new large free-flight aviary for endangered European Birds. The project involved netting and landscaping the whole area and constructing a new waterfall river and cliff face, for an all-in cost of £48,000.

Meanwhile, the general maintenance work continued. The Tropical House heating was converted to natural gas with the installation of five new heaters, generating over 2,500,000 B.T.U.s/hr.

The gardens were again successful in winning the Britain in Bloom regional competition, rewarding the efforts of planting over 160,000 bedding plants each year. The greenhouse and cold frames which produce the plants cover an area of 16,000 and 2,000 sq. ft. respectively. The gardeners are continually updating the bedding areas and the new layout around the fountain and shop area, in preparation for the anticipated changes in visitor flows because of the resiting of the entrance, is a typical example. (Above right).

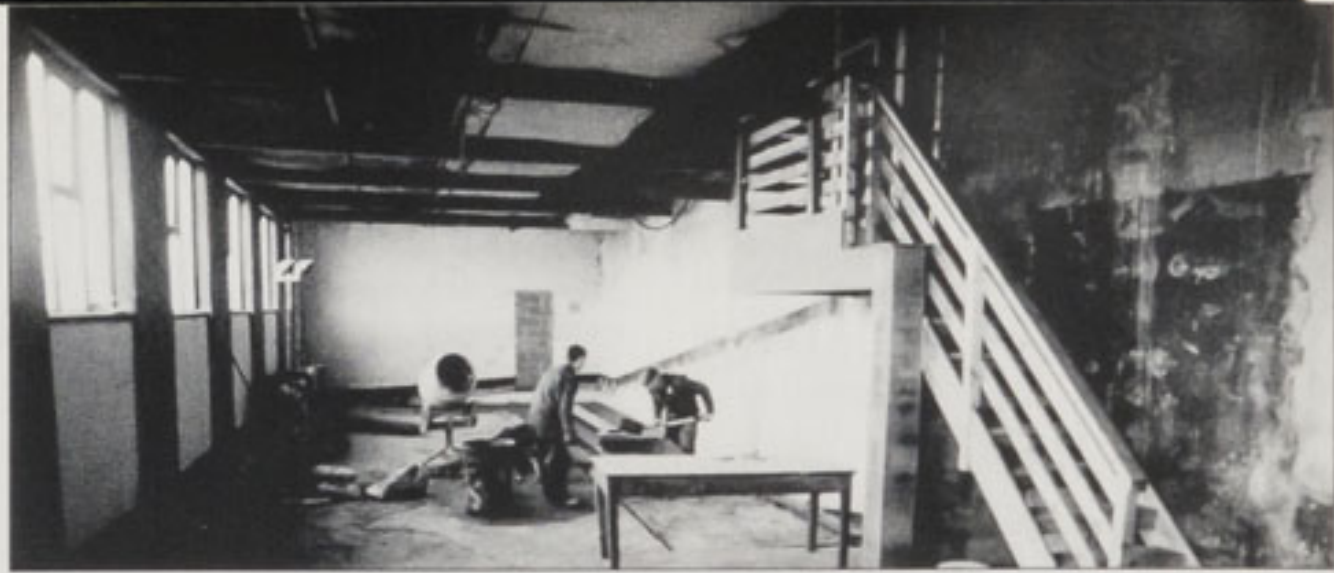
The overhead railway had a record year for the number of visitors using the system. Together with the boat ride, the railway not only offers a pleasant way of getting from one side of the Zoo to the other, it also offers a different perspective of the Zoo.

The groundstaff who ensure that the Zoo's grounds, toilets and carparks are kept clean and tidy and run smoothly, maintained the high standards they have set themselves. On a busy day they have to supervise the parking of several thousand cars at the rate of one every six seconds.

The Cheshire County Council's Employment Training Schemes continued with their painting and joinery programmes. The painters refurbished the perimeter fence and many of the Estate's properties and the joiners rebuilt several owl aviaries as well as building a new enclosure for the Mauritius Kestrels. The high standard to which these two programmes work is a credit to them and greatly enhances the appearance of the Zoo. (see p.4 & p.26).

To meet the challenges of Health & Safety at Work set by the use of much plant and portable equipment, we set in motion the formation of a new department, The Transport and Equipment Department, to take on the responsibility of the management of this type of equipment from the Maintenance Department, which now can concentrate all its efforts on new works and structural maintenance.

S. O'Brien



Top: Refurbishment work in the Tropical House.

Middle: Re-alignment of the footpaths at the Fountain for better visitor flow.

Bottom: Education Division volunteers man the "Things To Do" shop by the Jubilee, offering information & "instant membership" as well as craft goods.

Education

Many factors are still making it difficult for large numbers of schools to arrange educational visits; this is expected to be the case for several years to come. The very slight increase in school visits (3.5%), rather than a further decrease, is therefore pleasing.

Large numbers of student teachers followed work programmes under the supervision of their own tutors who, in previous years, had made use of Division staff. This was a further stage in line with our policy to facilitate teachers/lecturers/group leaders running their own working

programmes in the Zoo. This policy is not only professionally and educationally sound but is also the most economic approach.

Our volunteers, FEDS, have again given sterling service. Nearly 10,000 hours of labour has not only maintained existing activities but also allowed us to introduce a new one, our 'Things to Do' Shop and Information Point.

Judy Moss completed her one-year appointment with the production of a very substantial Physics pack for teachers. Ann Macaulay succeeded her with the brief to produce packs for English teachers. One, titled "Why have Zoos?" - a popular National Curriculum topic - is already published.

Miss B.M. Norgain



Finance and Administration

The Division has been extending its use of Information Technology to enhance its control and recording of all the financial transactions of the Society. During the year improved software applications, upgraded hardware and new machines have been brought in to widen our level of control of both accounting and non-accounting functions.

The new Meridian Telephone exchange, somewhat daunting at first, has been installed. As people are becoming more familiar with Star/Hash keyed telephones, the benefits of the system are showing themselves to be very substantial. The old system was in danger of becoming unmanageable through the volume of nuisance "Can I speak to Mr. C. Lion or Mr. G. Raff" type calls. These have virtually disappeared as time wasting items and only the most credulous callers fail to have recognised that they have been duped by the time they have finished hearing the initial message. The number of calls failing to get through due to the volume of traffic has been very considerably reduced.

In anticipation for the new entrance we have been preparing more modern ticketing procedures than we have been using hitherto, and these will be tested at the old gate during 1994:

E.A. Du Cros

Adoptions

Adopters paid for a third of our feeding bills in 1993, raising £84,000 (after VAT).

Chester Zoo is very grateful to all our adopters because, ultimately, they make it possible to maintain and develop our vital programmes for breeding rare and endangered species. Zoo staff and the adopters know that conservation cannot wait.

Mrs. M.M.A. Allsopp

Marketing

The weather and the national economy moved in our favour this year, and with tighter appropriations, we achieved a good surplus.

All departments beat budget levels of net income. There were healthy increases in the Oakfield functions trade, including a bridal fayre and a lantern-lit November safari evening for a Japanese group.

Membership members continued to respond to promotional initiatives.

The Noah's Ark trailer float gave a strong focus to our presence at the Cheshire Show, and at other outings, giving an excellent new home for Father Christmas alongside the Indoor Picnic area.

We welcomed Mary McManus and Jane Lawson in Membership and Party Offices, and had a further office move around to give everyone more space.



Top left: Work in progress on "Europe on the Edge" aviary. Top right: Noah's Ark became a great success as the Christmas Grotto. Below: Juniors enjoy the Sandstone trail in September.

We are most grateful to Jean Dixon for her help with the organising of the Photographic competition. The elephant keepers kept our Zoo Poo customers well supplied. A satisfactory year.

C.M.N. Vere



Junior Club

Junior Membership continued to grow during 1993 with the monthly events being as well supported as ever.

After a good start with the Contact Session in January, February witnessed our largest turn-out for an external visit with two double decker buses taking Juniors to visit the Sea Life Centre at Blackpool followed by a visit to Blackpool Zoo in the afternoon.

Our Tracks & Signs day in March was as messy and as much fun as ever and we had a lovely day at Croxteth Farm Park in April with pigs registering as the most popular attraction. In May, Juniors enjoyed a very successful day at Dudley Zoo and we then left it until the end of June to visit Hilbre Island and explore the life of the extensive rockpools there with Hilbre's warden.

The eagerly awaited 'day with a keeper' attracted the over twelves in July, whilst the wet weather did not spoil the exciting evening we spent meeting the Elephants in August followed by the annual barbecue.

The sun shone for our Sponsored Walk along Cheshire's Sandstone Trail in September which contributed nearly £300 towards the Monkey House refurbishments.

In October, we had a guided walk through Delamere Forest, and November saw us touring 'behind the scenes' at

Liverpool Museum. The year was complete once the noise of the Christmas party in December had died down!

Mrs. P.A. Rudd
Junior Club Leader

Membership

Another 12 months of growth for membership with figures expanding to a year-end total of 5,810 for all categories.

We are grateful to all members who helped us market the zoo - and boost visitor numbers - by handing out privilege half-price vouchers to friends and relatives. 16,201 vouchers were surrendered during the year, as opposed to 509 pre-paid concessionary tickets.

The Saturday afternoon meetings were all well attended, but of special interest to members was Samantha Hillcox's talk on the Common Brushtail Possum. Samantha received a N.E.Z.S. scholarship to finance her studies of this little Australian mammal.

Finally we would like to express our thanks to everyone who supported the 1992 Christmas raffle. The Mauritius Kestrel aviary complex was largely financed from the proceeds.

Mrs M.M.A. Allsopp

Council Committees & their Terms of Reference

FINANCE COMMITTEE (including TRUST FUND)

MEMBERS

Mr. A.R. Barnes (Chairman)	Dr. M.R. Brambell (Director)
Mr. J.H. Howatt	Mr. E.A. Du Cros (Staff)
Mrs. B.J. Jones	Mr. A.R. Sykes (Staff)
Mr. G.K. Jump	
Mr. N.J.W. Wilson	

Recommends financial policy to Council. This includes reviewing pricing policy, revenue and capital budgets, long term forecasts, long and short term borrowing and lending and the allocation of financial surpluses.

SCIENTIFIC COMMITTEE

MEMBERS

Dr. D.A.P. Cooke (Chairman)
Dr. J.R. Baker
Dr. J.E.D. Charles-Jones
Mr. B.H. Coles
Mr. D.B. Edwards
Mr. B. Livingstone
Dr. J.S. Madden
Mrs. M.C. Parslow
Mr. P. Wisniewski

STAFF

Dr. M.R. Brambell (Director)
Mr. K.W. Brown
Mr. M.C. Crumpler
Mr. D.C. Dinning
Mr. N.G. Ellerton
Miss B.M. Norgain
Mr. M. Pilgrim
Dr. G. McGregor Reid
Dr. R. Wilkinson
Mrs. P.A. Rudd (Secretary)

CONSULTANTS

Mr. D.G. Lyon
Mr. N. Walker

To advise Council on the exhibition and conservation policy of the Society, to monitor animal husbandry and veterinary care of the animal collection, and to advise on Health and Safety.

PENSION FUND

TRUSTEES

Dr. M.R. Brambell (Chairman)	Miss J.P. Dixon
Mr. E.A. Du Cros	Mrs. B.J. Jones

ASSESSORS

Mr. M.J. Fairclough	Mr. S.J. Green
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To manage the Pension Fund and authorise payments therefrom in accordance with the Pension Fund Trust Deed and the instructions of Council.

To advise Council on matters concerning Pension policy.

PROGRAMME COMMITTEE

MEMBERS

Mr. J.H. Howatt (Chairman)	Dr. M.R. Brambell (Director)
Dr. J.R. Baker	Miss B.M. Norgain (Staff)
Mrs. H.E. Betts	Dr. G. McGregor Reid (Staff)
Mr. A. Guy	Mrs. M.M.A. Allsopp (Secretary)
Mrs. J. Jardine	
Mrs. B.J. Jones	
Mrs. E.M. Livingstone	

To be responsible for setting a programme of meetings, talks, lectures and symposia for members and general public.

To concentrate on achieving an identifiable formula for NEZS meetings and to pursue the goal of achieving the status of NEZS as a forum for debate and discussion of appropriate conservational and biological issues.

To advise Council regarding membership policy.

Consultants - 1993

Advertising Agency
Architectural Advisors
Auditors
Bankers
Consultant Engineers
Environmental Consultants
Insurance Advisors

Interpretation Consultants

Land Agents

Williams Barber & Bird, Liverpool.
Austin-Smith:Lord, Warrington.
Afford Bond, Nantwich.
Barclays Bank plc., Chester.
Giffords, Chester & Southampton.
Caldicott Morgan, Mold.
Lowndes Lambert UK Ltd., Manchester.
M.F. Coupe, Esq., Heswall.
G.L. Grandy, Esq., Heswall.
Miss H. Lawson, Meols.
C. Tudge, Esq., London.
Denton Clark & Co., Chester.

Legal Advisors:

General Matters
Employment Law &
Contract Law
Company Law
Market Research Consultants
Medical Advisor (Honorary)

Bremner, Sons & Corlett, Chester.

Mace & Jones, Liverpool.
Walker, Smith & Way, Chester.
John Ardern Associates, Manchester.
Dr. H. Charles-Jones, Chester.

Pension Fund:

Actuaries
Fund Managers
Planning Consultants
Quantity Surveyors
Veterinary Advisors

William M. Mercer Ltd., Liverpool.
Fraser Green Ltd., London.
Cluttons, London.
Davis, Langdon & Everest, Chester.
The Gatehouse Veterinary Hospital,
Rossett. University of Liverpool
Veterinary Field Station, Leahurst.

Young Green Iguanas feeding. Photograph by K. W. Brown, Herpetologist



1. The principal activity of the Society is the running of the zoological gardens at Upton-by-Chester as a scientific and educational charity, supporting wildlife and the conservation of endangered species. There was no significant change in the principal activity of the Society during the year.
2. The Society had a much improved financial performance in 1993, returning to surplus after the deficits of the last two years. The turnaround was the result of both increased visitor related income (up 10% due to both extra visitors and individual visitor spend) and an 8% reduction in operating expenses and overheads. Provision has been made for corporation tax of £225,000 relating to prior years. The results for the year are set out in detail on pages 12 to 17. The state of the Society's affairs at the date of the balance sheet was considered satisfactory.
3. Details of changes in the fixed assets are shown in note 11 to the accounts.
4. Members of the Council, who have all served throughout the year, are listed on page 3.
5. Afford Bond have signified their willingness to be re-appointed auditors and a resolution to that effect will be proposed at the annual general meeting.

Approved by Council and signed on its behalf:

MICHAEL R. BRAMBELL Secretary

25th March 1994

STATEMENT OF COUNCILS' RESPONSIBILITIES IN RELATION TO THE FINANCIAL STATEMENTS

Company law requires the members of Council to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the Society and of the group as at the end of the financial year and of the income and expenditure, total recognised gains or losses and cash flows of the group for that period.

In preparing those financial statements, Council is required to:

- select suitable accounting policies and then 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 group and to enable it to ensure that the financial statements comply with the Companies Act 1985. It is also responsible for safeguarding the assets of the group and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

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

We have audited the financial statements on pages 12 to 17 which have been prepared under the historical cost convention and the accounting policies set out on page 15.

Respective responsibilities of Council and auditors

As described above, the Society's Council is 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 consider necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement whether caused by fraud or other irregularity or error. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In our opinion the financial statements give a true and fair view of the state of the Society's affairs as at 31 December 1993 and of its surplus for the year then ended and have been properly prepared in accordance with the Companies Act 1985.

25th March 1994
31 Wellington Road, NANTWICH

AFFORD BOND
Chartered Accountants
Registered Auditors

CONSOLIDATED INCOME AND EXPENDITURE FOR THE YEAR ENDED 31ST DECEMBER 1993

CONTINUING OPERATIONS:	NOTES	1993		1992	
		£	£	£	£
TURNOVER	3		5,606,162		5,062,343
Direct costs					
Catering		973,336		965,208	
Souvenir shops		528,184		492,722	
Monorail system		233,068		221,024	
Animal welfare		940,404		1,030,515	
Garden upkeep		<u>223,885</u>		<u>263,047</u>	
			(2,898,877)		(2,972,516)
			2,707,285		2,089,827
Indirect costs					
Maintenance		460,379		468,348	
Other operating expenses		<u>1,579,610</u>		<u>1,796,592</u>	
			(2,039,989)		(2,264,940)
OPERATING SURPLUS / (DEFICIENCY)	4		667,296		(175,113)
Profit / (Loss) on sale of fixed assets			68,689		(2,145)
Transfer from capital expenditure grants	7		<u>7,554</u>		<u>6,375</u>
SURPLUS / (DEFICIENCY) BEFORE INTEREST			743,539		(170,883)
Interest receivable	8		783		-
Interest payable	9		<u>(158,111)</u>		<u>(191,331)</u>
SURPLUS / (DEFICIENCY) ON ORDINARY ACTIVITIES			586,211		(362,214)
EXCEPTIONAL ITEM					
Corporation tax - prior years	10		<u>(225,000)</u>		<u>-</u>
NET SURPLUS / (DEFICIENCY) FOR THE YEAR			361,211		(362,214)
Accumulated surplus brought forward			<u>1,197,406</u>		<u>1,559,620</u>
ACCUMULATED RESERVES CARRIED FORWARD			<u>£ 1,558,617</u>		<u>£ 1,197,406</u>

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

The Society has no recognised gains or losses other than the surplus or deficiency on ordinary activities for the two years ended 31 December 1993.

The notes on pages 15 to 17 form part of these financial statements.

	NOTES	SOCIETY		CONSOLIDATED	
		31.12.93 £	31.12.92 £	31.12.93 £	31.12.92 £
FIXED ASSETS					
TANGIBLE ASSETS	11				
Freehold property		487,841	498,348	487,841	498,348
Buildings and enclosures		1,850,891	1,718,869	1,850,891	1,718,869
Monorail system		1,030,613	1,177,461	1,030,613	1,177,461
Machinery and equipment		374,755	364,784	392,740	384,903
Animals		1,000	1,000	1,000	1,000
		3,745,100	3,760,462	3,763,085	3,780,581
INVESTMENT IN SUBSIDIARY COMPANY	12	100	100	-	-
CURRENT ASSETS					
Stocks	13	47,831	55,976	193,883	216,870
Debtors	14	176,127	161,451	150,588	89,808
Balances at bank		374	1,234	374	1,234
Cash in hand		23,054	15,707	66,995	23,906
		247,386	234,368	411,840	331,818
CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR					
Finance leases		187,045	188,586	187,045	188,586
Bank overdraft	15	1,151,338	1,531,485	1,156,762	1,532,627
Trade creditors		109,993	90,747	175,344	147,863
Taxes and social security costs		41,509	46,274	143,206	100,802
Corporation tax	10	37,500	-	37,500	-
Other creditors		16,542	11,189	17,292	11,811
Accruals		38,739	118,426	47,856	122,487
		1,582,666	1,986,707	1,765,005	2,104,176
NET CURRENT LIABILITIES		(1,335,280)	(1,752,339)	(1,353,165)	(1,772,358)
TOTAL ASSETS LESS CURRENT LIABILITIES		2,409,920	2,008,223	2,409,920	2,008,223
CREDITORS: AMOUNTS FALLING DUE AFTER MORE THAN ONE YEAR					
Finance leases - net obligations due from 2 to 5 years		503,067	672,912	503,067	672,912
Corporation tax - due from 2 to 5 years	10	150,000	-	150,000	-
Corporation tax - due after more than 5 years	10	37,500	-	37,500	-
		690,567	672,912	690,567	672,912
NET ASSETS		£ 1,719,353	1,335,311	1,719,353	1,335,311
RESERVES					
Income and expenditure account		1,558,617	1,197,406	1,558,617	1,197,406
Trust fund	16	160,736	137,905	160,736	137,905
		£ 1,719,353	1,335,311	1,719,353	1,335,311

The notes on pages 15 to 17 form part of these financial statements.
These financial statements were approved by Council and signed on its behalf

BEATRICE J. JONES, Chairman of Council
25th March 1994

CONSOLIDATED CASH FLOW STATEMENT FOR THE YEAR TO 31ST DECEMBER 1993

	NOTES	1993		1992	
		£	£	£	£
OPERATING ACTIVITIES					
Operating Surplus / (Deficiency)		735,984		(177,258)	
Depreciation charges		412,595		398,949	
(Profit) / Loss on sale of tangible fixed assets		(68,689)		2,145	
Decrease in stocks		22,987		23,326	
(Increase) in debtors		(60,780)		(34,533)	
Increase in creditors due within 1 year		3,448		42,739	
Net cash inflow from operating activities			1,045,545		255,368
RETURNS ON INVESTMENTS AND SERVICING OF FINANCE					
Interest received		783		-	
Interest (paid) - bank		(91,289)		(121,751)	
Interest (paid) - finance leases		(69,535)		(68,009)	
Net cash (outflow) from returns on investments and servicing of funds			(160,041)		(189,760)
TAXATION - Not ordinarily applicable.					
Net cash outflow from taxation			-		-
INVESTING ACTIVITIES					
Receipts of capital expenditure grants		7,554		6,375	
Receipts from disposal of tangible fixed assets		80,968		4,543	
(Payments) to acquire tangible fixed assets		(407,377)		(318,863)	
Net cash (outflow) from investing activities			(318,855)		(307,945)
NET CASH INFLOW (OUTFLOW) BEFORE FINANCING					
			£ 566,649		£ (242,337)
LESS : FINANCING					
1					
Receipts of sponsorship, donations, legacies etc.		22,831		16,749	
(Repayments) of finance leases		(171,386)		(162,999)	
Net cash (outflow) from financing			(148,555)		(146,250)
CASH AND CASH EQUIVALENTS					
2					
Decrease / (Increase) in bank overdraft		375,865		(247,306)	
Increase/(Decrease) of cash in hand and at bank		42,229		(141,281)	
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS			£ 418,094		£ (388,587)

NOTES TO THE CONSOLIDATED CASH FLOW STATEMENT FOR THE YEAR TO 31ST DECEMBER 1993

	31.12.93	31.12.92	Movement in 1993
	£	£	£
1. ANALYSIS OF CHANGES IN FINANCING DURING THE YEAR			
Donations and legacies etc.	160,736	137,905	22,831
Finance leases	690,112	861,498	(171,386)
Total financing	£ 850,848	999,403	(148,555)
2. ANALYSIS OF CHANGES IN CASH AND CASH EQUIVALENTS DURING THE YEAR			
Bank overdraft	(1,156,762)	(1,532,627)	375,865
Cash at bank and in hand	67,369	25,140	42,229
Total net cash and cash equivalents	£ (1,089,393)	(1,507,487)	418,094

1. ACCOUNTING POLICIES.

The following accounting policies have been applied consistently in dealing with items which are considered material in relation to the Society's financial statements.

- (a) **Basis of Accounting.** The financial statements have been prepared in accordance with applicable accounting standards under the historical cost convention.
- (b) **Fixed Assets.** Council is of the opinion that the market value of the Society's land, property and buildings is in excess of the book values and for insurance purposes, the Zoo buildings and house properties are valued at £ 6,759,475 replacement cost.
- (c) **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 as they are incurred.
- (d) **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.
- (e) **Animals.** No valuation is made of the animal collection at the end of each year. Purchases and sales appear in the accounts as a revenue item in the year in which they arise.
- (f) **Leases.** Where the Society enters into a lease which entails taking substantially all the risks and rewards of ownership of an asset, the lease is treated as a finance lease. The asset is recorded in the balance sheet as a fixed asset and is depreciated over its estimated useful life. Future instalments under such leases, net of finance charges, are included with creditors. Rentals payable are apportioned between the finance element, which is charged to the income and expenditure account 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 income and expenditure account on a straight line basis over the life of the lease.
- (g) **Stocks.** Valued on a basis consistent with that used in previous years at the lower of cost or estimated net realisable value.
- (h) **Pensions.** The Society operates a pension scheme providing benefits based on final pensionable pay. The assets of the scheme are held separately from those of the Society. Contributions to the scheme are charged to the income and expenditure account so as to spread the cost of pensions over employees' working lives with the Society.
- (i) **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 income and expenditure account 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.

3. TURNOVER

Turnover represents cash and invoiced amounts of admission charges, goods sold and services provided (stated net of Value Added Tax).

	1993 £	1992 £
The turnover is attributable as follows:-		
Admission charges	2,769,687	2,463,060
Catering receipts	1,420,410	1,296,071
Souvenir receipts	825,109	763,605
Monorail receipts	237,445	227,257
Motor boat trips	35,955	31,666
Zoo guides	125,862	131,405
Members' subscriptions	92,731	66,580
Property rents	28,671	31,710
Sundry income	70,292	50,989
	<u>£ 5,606,162</u>	<u>£ 5,062,343</u>

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31ST DECEMBER, 1993 (continued)

4. OPERATING SURPLUS / (DEFICIENCY)

This is after charging:

	1993	1992
	£	£
Auditors' remuneration - audit work	12,250	11,940
- non-audit work	2,690	3,000
Depreciation - other than animals (see Note 1)	412,595	398,949
Hire of equipment	3,178	8,340
Operating lease rentals - plant and equipment	3,295	1,766

The Society's results are included in the Consolidated Income and Expenditure Account so a separate income and expenditure account is not presented. The Society's surplus for the financial year, determined in accordance with the Companies Act, was £361,211. (1992; deficit, £362,214)

5. DIRECTORS

The members of Council, being charity trustees, received no remuneration. (1992; Nil)

6. EMPLOYEES**Aggregate staff costs**

Wages and salaries	2,196,053	2,380,854
Social security costs	201,399	221,406
Other pension costs	110,966	113,786
Employee termination costs	-	91,867
	£ 2,508,418	£ 2,807,913

Number of persons employed

The average throughout the financial year was as follows:-

	Permanent	Temporary	Permanent	Temporary
Keeping	55	1	65	1
Maintenance and gardens	51	11	60	8
Education	5	-	5	-
Publicity and fundraising	6	-	5	1
Catering and shops	19	39	23	34
Administration	22	3	24	4
	158	54	182	48

Pensions

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

The 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 future rate of return on investments (8 % pa.) the rate of future salary inflation (6%pa.) the rate of future pension increases (Nil) and the rate of dividend growth (3 %). The most recent valuation was at 31 December 1990 which showed that the market value of the scheme's assets was £1,155,600 and that the actuarial value of those assets represented 104.0% of the benefits that had accrued to members, after allowing for an increase in pensions, in line with the increase in the Retail Price Index, with effect from 1 January 1992.

The contributions made to the scheme since 1 January 1991 have been:

	Members	Society
6 % Contributory members	6%	14.6 %
3 % Contributory members	3%	6.7 %
Non-Contributory members	Nil	2.3 %

The actuary has given it as his opinion that, provided contributions continue as set out above, the next actuarial valuation as at 31 December 1993 is likely to show that the resources of the scheme are likely in the normal course of events to be sufficient to meet in full the liabilities of the scheme as they fall due.

Contributions amounting to £2,088 had been prepaid to the fund at the year end and are included in debtors (1992: £592 outstanding to the fund, included in creditors.)

7. CAPITAL EXPENDITURE GRANTS

	£	£	£	£
Balance at 1.1.93	-	-	-	-
Grants and donations received	-	7,554	-	6,375
Transfer to income and expenditure account	-	(7,554)	-	(6,375)
Balance at 31.12.93	£ -	£ -	£ -	£ -

8. INTEREST RECEIVABLE

Bank deposits, etc.	£ 783	£ -
---------------------	-------	-----

9. INTEREST PAYABLE

Bank	86,859	122,990
Other	1,717	-
	88,576	122,990
Finance leases - Monorail	68,795	67,800
Other	740	541
	69,535	68,341
	£ 158,111	£ 191,331

Interest on finance leases has been calculated on a straight line basis. As the income stream from the Monorail is expected to be relatively constant over the duration of the lease this was considered a more equitable treatment than either the actuarial or the sum-of-the-digits methods recommended by S.S.A.P. 21. The interest payable, had the sum-of-the-digits method been adopted, would have been £21,501 greater in 1993 (£39,606; 1992) and the cumulative increase would have been £64,399 (£42,898; 1992).

10. EXCEPTIONAL ITEM - Corporation tax - prior years

As the Society is a Registered Charity it had been considered that no tax liability (other than V.A.T.) arose on income. However the Inland Revenue have 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 has been agreed which is payable in 6 equal instalments of £37,500, interest free, from 1994 to 1999.

All such activities since 1 January 1992 have been conducted through Chester Zoo Enterprises Ltd., which pays all its profits annually to the Society by Deed of Covenant, so no liability is expected to occur in respect of 1992, 1993 or future years.

11. TANGIBLE FIXED ASSETS

	Freehold Property	Buildings & Enclosures	Monorail System	Machinery & Equipment	Animals	Total
	£	£	£	£	£	£
SOCIETY COST						
At 1.1.93	498,348	3,305,285	1,470,685	1,024,813	149,685	£ 6,448,816
Addition	-	297,639	245	105,632	(see below)	403,516
Disposals	(10,507)	-	-	(7,585)	(see below)	(18,092)
At 31.12.93	487,841	3,602,924	1,470,930	1,122,860	149,685	£ 6,834,240
DEPRECIATION						
At 1.1.93	-	1,586,416	293,224	660,029	148,685	£ 2,688,354
Provided	-	165,617	147,093	93,890	-	406,600
Disposal	-	-	-	(5,814)	-	(5,814)
At 31.12.93	-	1,752,033	440,317	748,105	148,685	£ 3,089,140
NET BOOK VALUE						
At 31.12.93	487,841	1,850,891	1,030,613	374,755	1,000	£ 3,745,100
At 31.12.92	498,348	1,718,869	1,177,461	364,784	1,000	£ 3,760,462

Animal purchases of £11,532 (1992 £20,161) and sales of £12,751 (1992 £8,470) have been treated as revenue transactions. Included in the total net book value of tangible fixed assets is £827,623 (1992 £947,979) in respect of assets acquired under 'finance' leases. Depreciation for the year on these assets was £120,356. (1992 £120,356).

	£	£	£	£	£	£
CONSOLIDATED COST						
At 1.1.93	498,348	3,305,285	1,470,685	1,051,638	149,685	£ 6,475,641
Addition	-	297,639	245	109,493	(see below)	407,377
Disposal	(10,507)	-	-	(7,585)	(see below)	(18,092)
At 31.12.93	487,841	3,602,924	1,470,930	1,153,546	149,685	£ 6,864,926
DEPRECIATION						
At 1.1.93	-	1,586,416	293,224	666,735	148,685	£ 2,695,060
Provided	-	165,617	147,093	99,885	-	412,595
Disposal	-	-	-	(5,814)	-	(5,814)
At 31.12.93	-	1,752,033	440,317	760,806	148,685	£ 3,101,841
NET BOOK VALUE						
At 31.12.93	487,841	1,850,891	1,030,613	392,740	1,000	£ 3,763,085
At 31.12.92	498,348	1,718,869	1,177,461	384,903	1,000	£ 3,780,581

Animal purchases of £11,532 (1992 £20,161) and sales of £12,751 (1992 £8,470) have been treated as revenue transactions. Included in the total net book value of tangible fixed assets is £827,623 (1992 £947,979) in respect of assets acquired under 'finance' leases. Depreciation for the year on these assets was £120,356. (1992 £120,356).

12. INVESTMENT IN SUBSIDIARY COMPANY

Chester Zoo Enterprises Limited - 100% owned.

Registered in England and Wales - Class of shares held :- Ordinary £1 shares.

This company started trading on 1 January 1992 and operates the catering and retail activities of the zoo.

13. STOCKS

Goods for resale
Consumables

	SOCIETY		CONSOLIDATED	
	1993 £	1992 £	1993 £	1992 £
Goods for resale	16,375	14,817	162,374	175,539
Consumables	31,456	41,159	31,509	41,331
	£ 47,831	£ 55,976	£ 193,883	£ 216,870

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

14. DEBTORS

Trade debtors
Intra group debtor
Other debtors
Prepayments and accrued income

Trade debtors	7,460	7,383	12,254	11,725
Intra group debtor	26,624	77,156	-	-
Other debtors	97,517	36,842	93,767	37,775
Prepayments and accrued income	44,526	40,070	44,567	40,308
	£ 176,127	£ 161,451	£ 150,588	£ 89,808

15. BANK OVERDRAFT

The bank overdraft is secured by a fixed charge on the freehold property. Interest is charged at a fixed rate above the bank's base rate.

16. TRUST FUND

Balance at 1.1.93
Adoptions
Less: Transferred to animal foods
Donations and legacies etc.
Balance 31.12.93

Balance at 1.1.93	137,905	121,156	137,905	121,156
Adoptions	83,551	87,072	83,551	87,072
Less: Transferred to animal foods	(83,551)	(87,072)	(83,551)	(87,072)
Donations and legacies etc.	22,831	16,749	22,831	16,749
Balance 31.12.93	£ 160,736	£ 137,905	£ 160,736	£ 137,905

The trust fund comprises unrestricted funds which are expendable at the discretion of Council in furtherance of the objects of the Society. The description has been used by the Society to group together funds which have been earmarked for particular projects but does not legally restrict Council's discretion to apply the funds.

17. CAPITAL COMMITMENTS

The estimated amounts of commitments for future capital expenditure are:-

Under contracts
Authorised by Council but not contracted

Under contracts	558,000	37,900	558,000	37,900
Authorised by Council but not contracted	15,200	210,000	15,200	210,000
	£ 573,200	£ 247,900	£ 573,200	£ 247,900
There is an annual commitment in respect of operating leases which expire within two to five years of:-				
Plant and machinery	£ 2,588	£ 2,701	£ 2,588	£ 2,701

The Society has approval to receive £312,000 of European Regional Development Fund Grant in respect of the above contracted capital commitments.

18. CONTINGENT LIABILITIES

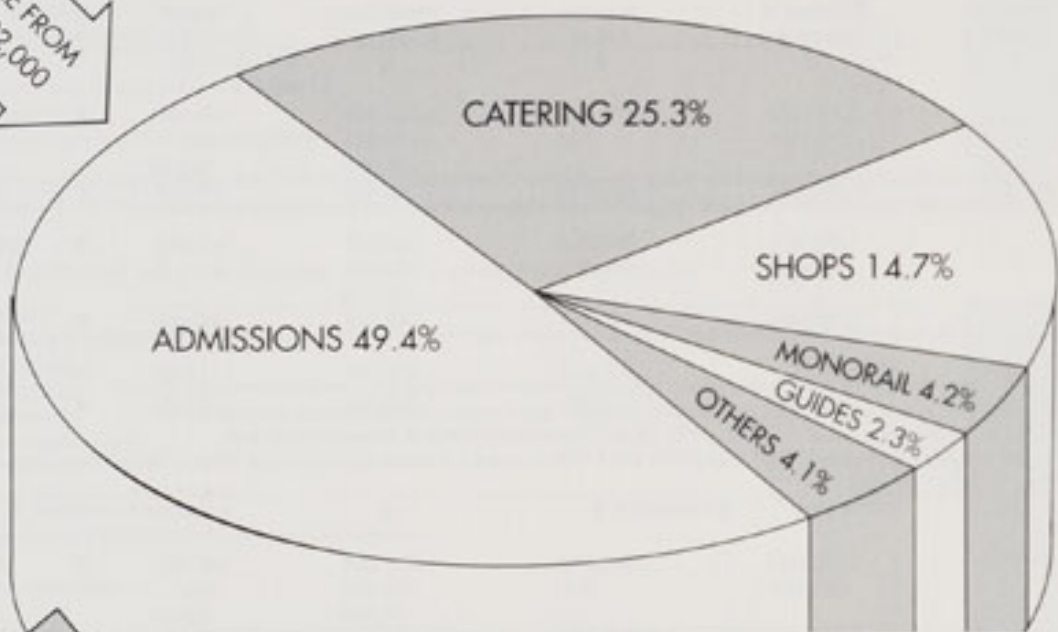
Under Section 4 of the Development of Tourism Act 1969 the Society has received a grant from the English Tourist Board of £39,893 towards the cost of building the new Chimpanzee House. Under certain circumstances this grant could become repayable.

INCOME

1993

EXPENDITURE

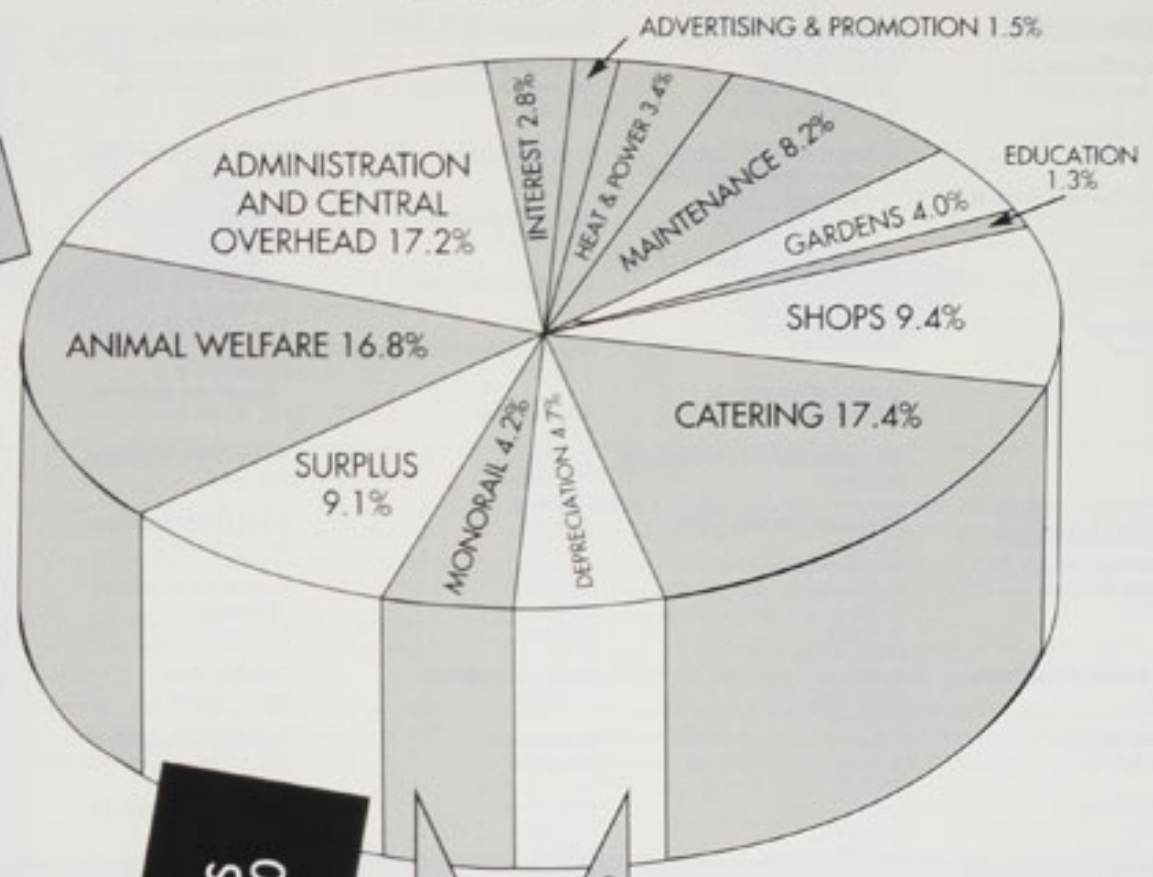
TOTAL INCOME FROM VISITORS £6,502,000



V.A.T. PAID ON INCOME £896,000

INCOME AVAILABLE TO RUN ZOO
£5,606,000

ADOPTIONS
£84,000



1993 VISITOR NUMBERS

	ADULT	CHILD/O.A.P.	TOTAL
NORMAL	504,522	200,686	705,208
PARTY (Non-Educational)	14,934	21,188	36,122
EDUCATIONAL	14,613	58,940	73,553
	534,069	280,814	814,883

SURPLUS
£510,000

MONORAIL
£147,000
OTHER £266,000

DEPRECIATION
£413,000

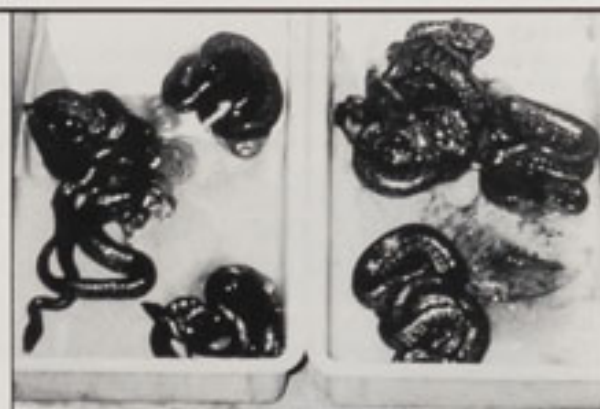
SALES OF FIXED ASSETS
£81,000

GRANTS, LEGACIES AND DONATIONS
£30,000

FUNDS UTILISED BY ZOO FOR CAPITAL DEVELOPMENT
£407,000

NET REDUCTION IN BORROWINGS AND CREDITORS
£402,000

CORPORATION TAX
£225,000



SNAKE BREEDING SUCCESSES

Senior Reptile Keeper, Isalide McGeorge has contributed these photographs. Left: Royal Pythons mate. Eggs laid in May hatched in July. Above: Cuban Boas - an endangered species - give birth to live young (Sept). Below: Jamaican Boas - also endangered - hatched in July.



Staff as at 31st December 1993

DIRECTOR'S SECTION

Director of Chester Zoo
Dr. M.R. Brambell

Director's Secretary
Miss J.D. Lunsford

Computer Systems Analyst
K.W. Brown +

Librarian
Mrs. L. Wilkinson*

Pest Controller
C. Humphries*

FINANCE & ADMINISTRATION

Financial Controller & Deputy Director
E.A. Du Cros

Deputy Financial Controller
A.R. Sykes

Personnel Officer
Mrs. P.A. Rudd +

Security Officer
T.A. Johnson

Assistant Security Officers
M. Boardman +
P.W. Brown
K.N. Done +

Accounts Supervisor
Miss C. Campion

Accounts & Cashiers
Mrs. S. Davies
Mrs. W. Davies*
Mrs. S. Delves*
Mrs. C.M. Evans
Mrs. D. Farnell
Miss K. Hodson
Mrs. L. Richardson

Stores Manager
P.J. Thompson

Store Keepers
M. Fallon
J. Green

Telephonists
Mrs. M. Lewis
Mrs. E.C. Manning

Time Keeper
J.A. Smith

Office Cleaner
Mrs. S. Williams*

EDUCATION

Senior Education Officer & Head of Division
Miss B.M. Norgain

Administration & Teachers
Mrs. J. Butler*
Miss L. Davenport
Mrs. A. Macaulay*
M. Powleson
Mrs. S. Ruks*

ANIMAL DIVISION

Curator-in-Chief & Head of Division
Dr. G. McGregor Reid

Assistant to the Curators & International Movement Co-ordinator
Mrs. P.A. Rudd +

Lab Technician & Safety Officer
D.C. Dinning

Divisional Secretary
Mrs. J. Whitear

Curator of Mammals
N.G. Ellerton

Mammals Section Co-ordinator
N. Spooner

Mammals Keeping Staff

S.A. Blake
M. Boardman +
G. Bouchier
A. Britt
D. Brunger
Miss R. Buckle
M. Cleave
Miss J. Dodd
G. Easton
J. Frost
R. Green
D.I. Hall
J. Hall
S. Hogarth
P. Howse
P.M. Jones
C.G. Lavender
A. Lenihan
C.J. MacKenzie
R. Meredith
P. Molyneux
N.W. Ormerod
R. Packwood
Miss R. Parker
Miss B. Ramsay
M. Roberts
T.L. Rowlands
Miss R. Webb
P. Whalley
J.A. Willis
A.R. Woodward

Curator of Birds
Dr. R. Wilkinson

Avicultural Deputy
M. Pilgrim

Bird Keeping Staff

Miss K.E. Davies
D. Langford
D.N. Manning
W.D. McLeod
R. Merry
P.I. Morris
B. West
S.R. Williams
A. Woolham

Herpetologist
K.W. Brown +

Reptile Keeping Staff
Miss I.A. McGeorge
Miss C. Morris

Aquarist
M.C. Crumpler

Aquarium Keeping Staff
J.T. Bell

Animal Supplies Officer
J.A.C. Forrest

Animal Supplies
A.B. Hutchinson
K.J. Newey
S. Sadler

ESTATES

Estate Engineer & Head of Division
S. O'Brien

Project Engineer
K. Roberts

Divisional Secretary
Miss H. Smith

Maintenance Foreman
P. Brady

Deputy Maintenance Foreman
R. Morrison

Maintenance

I. Blythe
C.J. Bridges
D.C. Holder
D. Kinsella
A. Lennon
E.P. Lindop
J.E. Parry
G.E. Scott
L.L. Shepherd
J. Spencer

Head Groundsman
P. Hughes

Groundstaff

Mrs. J. Cole*
Mrs. C. Cowley
W.G. Evans*
S. Gilyeat
R. Head
M. Hughes
P.T. Hutchins
C. Jones
N. Morris
P. Powell
J. Whitby
C. Yarwood

Head Gardener
E.J. Rudman

Deputy Head Gardener
J.G. Johnson

Foreman Gardener
C. Williams

Gardeners

C.P. Braithwaite
V. Dodd (died 19.9.93)
K.N. Done +
R. Duncan
M. Hargreaves
P. Harrison
G. Hewitt
D.R. Jones
A. Millington
R.A. Newey
S.H. Newey
S.H. Newey
C. Pritchard
J.E. Richardson
I.F. Roberts
N.P. Wood

Plant Engineer
W.P. Bartley (to take up appointment in February 1994)

Plant & Equipment
B. Goss
B. McCone

Monorail & Boats
M. Strefford

D. Paech
P. Quayle
D.A. Toms

* denotes Part-time
+ denotes Dual Responsibilities

MARKETING

Marketing Manager & Head of Division
C.M.N. Vere

Public Relations Officer
Mrs. P. Cade

Divisional Secretary
Miss P.A. McKee

Membership & Adoptions Secretary
Mrs. M.M.A. Allsopp

Membership & Adoptions Assistant
Mrs. M. McManus*

Party Office Manager
Mrs. L. Bell

Party Office Assistant
Mrs. J. Lawson*

Oakfield & Functions Manager
R. Casson

Oakfield Chef
Mrs. G. Foden*

Oakfield Second Chef
Mrs. J. Cleave

Catering Manageress
Mrs. S. Clews

Assistant Catering Manager
B.G. Lloyd

Jubilee Chef
I. Patten

General Catering
Miss R. Don*
D. Keay*
Mrs. P. Keay
Mrs. D. Lenihan
Miss D. Parr
Mrs. B. Smith

Retail Sales Manager
A. Jones

Assistant Retail Sales Manager
Mrs. S. Stanton

Merchandise Controller
Miss W. Locker

Retail Sales Assistants
Mrs. S. Bratchell*
Mrs. B. Jones*
Miss G. Robinson
Miss A. Taylor

Retired - 1993

T. Batty
G. Bellis
A. Castrachino
M.F. Coupe
C. Weaver

Staff Leaving in 1993

Miss H. Burgess
Mrs. J. Jones
Miss A. Livesley
Mrs. J. Moss
A. Oldham
R. Silvester
Miss S. Simpson
V. Smith

Staff Association

Chairman

C.J. MacKenzie

Vice Chairman & Gardens

J.E. Richardson

Groundstaff

P. Powell

Keepers

A. Lenihan
S. Sadler
R. Merry

Retail & Catering

Miss W. Locker

Maintenance

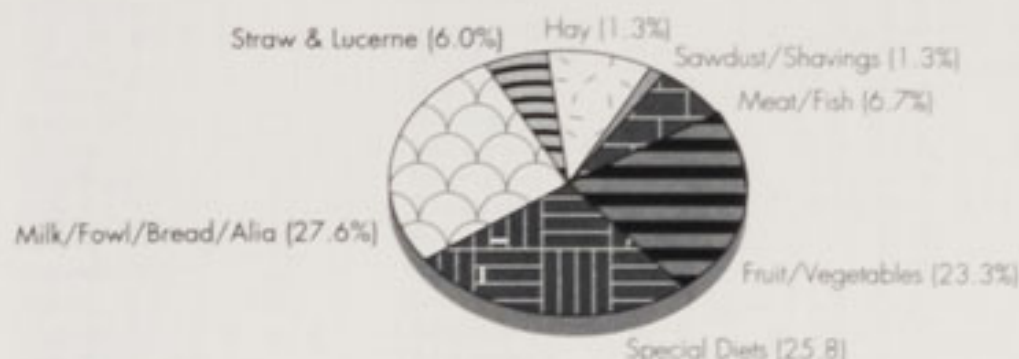
B. McCone

Education & Administration

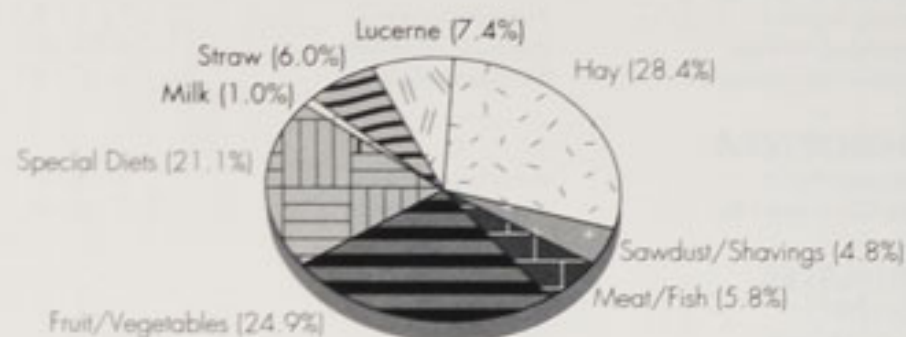
M. Powleson

Animal Food Supplies - 1993

Cost



Weight



More than 680 tonnes of food were supplied to the animals and birds in 1993 at a total cost of over £200,000.

Over 80 tonnes of **fruit** were used including: apple (37.5t); banana (24.6t); pear (8.1t); orange (6.3t or 47,000 units); grape (3.6t) and smaller amounts of seasonal fruit like kiwi fruit, pineapple, peach, plum, melon and others.

Vegetables totalled over 97 tonnes including: carrot (51t); potatoes (30t); cabbage (14.5t); tomato (2.3t) and smaller amounts of leeks, parsnip, celery and other vegetables.

Cereal supplies for consumption and bedding amounted to 337 tonnes including: hay (202t); straw (47t); lucerne (52t); sawdust and shavings (34t) and 7,413 loaves of bread.

Fleshy foods which totalled 41 tonnes included: meat (26t); mackerel (10t) and spratts (5t).

Special diets e.g. flamingo diet, primate diet, coarse mix, canary mix, amounted to 150 tonnes or 33% of the total weight of all the diets.

7,412 litres, or 1961 gallons of **milk** were supplied. 105,626 **frozen units** were supplied to the bird sections. 13,000 were supplied from external sources to the mammal sections.

83,720 locusts, 13,491 mice and 4,768 rats (i.e. 102,000 units) were Zoo produced for the reptile and bird departments.

Over £1000 worth of key additional vitamin and mineral supplements were issued and sweetcorn and kale grown on Zoo land gave added variety to the animals' diets. J.A.C. Forrest, Animal Supplies

The Animal Collection - Notes

In the following pages the animals are listed thus:

- COLUMN 1** shows stock at the start of the year. (This normally agrees with the stock listed at the close of the year in the 1992 Annual Report, but in a few instances resexing and the detection of earlier minor errors have resulted in corrections being made).
- COLUMN 2** shows the stock which came into the collection from outside sources.
- COLUMN 3** shows the additional stock resulting from breeding.
- COLUMN 4** shows stock bred in the Zoo which failed to survive more than 30 days. Although columns 3 and 4 are appropriate means for recording the breeding performance of many species, they are inappropriate for species which produce large

numbers of microscopic young, most of which are unlikely to survive until they are of countable size. In these species, column 4 is ignored and only surviving countable young are included in column 3.

- COLUMN 5** shows animals which died or were destroyed for reasons of ill-health while in the collection.
- COLUMN 6** shows animals which were removed from the collection, except for reasons of ill-health.
- COLUMN 7** shows the closing stock still in the collection at the end of the year.

The seven column accounting system of animal stocks is in line with all other major zoological institutions in the world.

Within each column known male animals are listed under heading-M, female animals are listed under-F, unsexed animals and young stock are listed under heading-Y/?

Stock as at 31st December 1993

	Number of Species		Number of Specimens		Species Breeding & Rearing		Specimens Bred & Reared	
	End 92	End 93	End 92	End 93	End 92	End 93	End 92	End 93
Mammals	79	(78)	676	(658)	32	(29)	164	(134)
Birds	196	(188)	811	(832)	68	(74)	251	(307)
Reptiles	65	(54)	359	(380)	10	(11)	408	(197)
Amphibians	15	(17)	115	(162)	2	(3)	100	(134)
Fish	136	(128)	2444	(2437)	36	(32)	*	*
Invertebrates	29	(27)	424	(1181)	4	(6)	*	*
Totals	520	(492)	4829	(5650)	152	(155)	923	(777)

* Not included

MAMMALS

		STOCK			RECEIVED			BORN/H'CH			D.N.S. 30 DAYS			DEATHS OTHERS			DISPOSALS			STOCK					
		1/1/1993			M F Y/R			M F Y/R			M F Y/R			M F Y/R			M F Y/R			31/12/93					
		M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R			
MONOTREMATA																									
Short-nosed Echidna	<i>Tachyglossus aculeatus</i>	2	0	0																			2	0	0
MARSUPIALIA																									
Tamar Wallaby	<i>Macropus eugenii</i>	1	1	0																			1	1	0
Red-necked Wallaby	<i>Macropus rufogriseus</i>	5	10	0				0	0	7				0	0	3	1	1	0				4	9	4
Western Grey Kangaroo	<i>Macropus fuliginosus</i>	1	2	0				0	2	0	1	0	0										2	4	0
CHIROPTERA																									
Rodrigues Fruit Bat	<i>Pteropus rodricensis</i>	9	13	2																			9	13	2
Seba's Short-tailed Bat	<i>Carollia perspicillata</i>	0	0	0				5	5	1	0	0	1				1	0	0				4	5	2
PRIMATES																									
Slow Loris	<i>Nycticebus coucang</i>	1	1	0																			1	1	0
Ring-tailed Lemur	<i>Lemur catta</i>	12	17	7				0	0	8	0	0	1	1	1	0	2	8	0				9	8	14
White Fronted Lemur	<i>Lemur fulvus albigrison</i>	2	6	0										0	2	0							2	4	0
Ruffed Lemur	<i>Varecia variegata</i>	2	2	0				2	2	0	1	1	0				1	1	0				2	2	0
Red Ruffed Lemur	<i>Varecia variegata rubra</i>	0	2	0				1	0	0							0	1	0				1	1	0
Lesser Bushbaby	<i>Galago senegalensis</i>	1	1	0																			1	1	0
Pygmy Marmoset	<i>Callithrix pygmaea</i>	1	1	6							0	0	5	0	0	4							1	1	7
Common Marmoset	<i>Callithrix jacchus</i>	2	2	0										1	0	0							1	2	0
Cotton Top Tamarin	<i>Saguinus oedipus</i>	4	6	0				2	2	1	2	1	1	1	0	0	0	2	0				3	5	0
White-lipped Tamarin	<i>Saguinus labiatus</i>	3	1	0																			3	1	0
Spider Monkey black face)	<i>Ateles fusciceps robustus</i>	2	4	0				1	0	0	1	0	0										2	4	0
Lion-tailed Macaque	<i>Macaca silenus</i>	4	1	0										1	0	0							3	1	0
Celebes Macaque	<i>Macaca niger</i>	3	6	0				1	0	0													4	6	0
De Brazza Monkey	<i>Cercopithecus neglectus</i>	3	3	0										0	1	0							3	2	0
Talapoin Monkey	<i>Miopithecus talapoin</i>	2	2	0				1	0	0													3	2	0
Chimpanzee	<i>Pan troglodytes</i>	6	19	0				0	1	0	0	2	0	0	1	0	1	2	0				5	19	0
Orang utan (Bornean Form)	<i>Pongo pygmaeus pygmaeus</i>	2	5	0				0	1	0													0	1	6
Orang utan (Sumatran Form)	<i>Pongo pygmaeus abelii</i>	1	3	0																			1	3	0
RODENTIA																									
Prairie Marmot	<i>Cynomys ludovicianus</i>	0	0	100							0	0	14										0	0	114
African Crested Porcupine	<i>Hystrix cristata</i>	2	5	0													1	1	0				1	4	0
Capybara	<i>Hydrochoerus hydrochaeris</i>	3	2	0				1	0	0							3	1	0				1	1	0
Coypu	<i>Myocastor coypu</i>	11	3	0										6	0	0							5	3	0
Mountain Viscacha	<i>Lagidium viscaccia</i>	1	0	0																			1	0	0

Cormac, who joined the collection from Fota Wildlife Park in the Republic of Ireland, is seen here with keeper Tim Rowlands.

The Free range Marmosets on the tree on the Oakfield lawn have been a great success with our visitors.



STOCK 1/1/1993 M F Y/R			RECEIVED M F Y/R			BORN/H'CH M F Y/R			D.N.S. 30 DAYS M F Y/R			DEATHS OTHERS M F Y/R			DISPOSALS M F Y/R			STOCK 31/12/93 M F Y/R		
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CARNIVORA

Bush Dog	<i>Speothos venaticus</i>	1 1 0	1 0 0	2 2 0	2 2 0		1 0 0	1 1 0
Coati	<i>Nasua nasua</i>	7 18 0	1 0 0	20 26 0	4 0 0	2 2 0	21 7 0	1 35 0
Kinkajou	<i>Potos flavus</i>	1 2 0		1 0 0		1 0 0	1 0 0	0 2 0
Small-clawed Otter	<i>Aonyx cinerea</i>	1 2 0					0 1 0	1 1 0
Dwarf Mongoose	<i>Helogale undulata</i>	6 4 0		3 2 8	0 0 4		5 3 0	4 3 4
Meerkat	<i>Suricata suricatta</i>	1 0 5				1 0 0		0 0 5
Margay	<i>Felis wiedi</i>	1 1 0		1 0 1				2 1 1
Jungle Cat	<i>Felis chaus</i>	2 1 0						2 1 0
Wildcat	<i>Felis sylvestris grampia</i>	0 1 0	1 0 0			0 1 0		1 0 0
Black Footed Cat	<i>Felis nigripes</i>	1 0 0						1 0 0
Ocelot	<i>Felis pardalis</i>	1 2 0						1 2 0
Caracal	<i>Felis caracal</i>	1 2 0	1 0 0					2 2 0
European Lynx	<i>Felis lynx</i>	1 1 0						1 1 0
Serval	<i>Felis serval</i>	2 1 0						2 1 0
Geoffroy's Cat	<i>Felis geoffroyi</i>	2 4 0					1 1 0	1 3 0
Lion (African Form)	<i>Panthera leo</i>	1 3 0						1 3 0
Tiger (Siberian Form)	<i>Panthera tigris altaica</i>	1 2 0						1 2 0
Leopard (Black Form)	<i>Panthera pardus pardus</i>	1 1 0				1 1 0		0 0 0
Leopard (Persian Form)	<i>Panthera pardus saxicolour</i>	2 2 0		0 1 0				2 3 0
Cheetah	<i>Acinonyx jubatus</i>	2 3 0					0 3 0	2 0 0

PINNIPEDIA

Californian Sealion	<i>Zalophus californianus</i>	1 4 0	0 1 0			0 1 0		1 4 0
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PROBOSCIDEA

Indian Elephant	<i>Elephas maximus</i>	2 5 0		0 1 0	0 1 0			2 5 0
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PERISSODACTYLA

Przewalski's Horse	<i>Equus przewalskii</i>	2 6 0		0 1 0		0 1 0		2 6 0
Common Zebra	<i>Equus burchelli boehmi</i>	2 5 0		0 1 0				2 6 0
Onager (Persian Form)	<i>Equus hemionus onager</i>	2 6 0				1 0 0	0 2 0	1 4 0
Brazilian Tapir	<i>Tapirus terrestris</i>	1 1 0	0 1 0				0 1 0	1 1 0
Black Rhinoceros	<i>Diceros bicornis</i>	2 3 0		1 0 0	1 0 0		0 1 0	2 2 0
Indian Rhinoceros	<i>Rhinoceros unicornis</i>	1 0 0						1 0 0

ARTIODACTYLA

Collared Peccary	<i>Tayassu tajacu</i>	1 2 0					0 1 0	1 1 0
Guanaco	<i>Lama guanicoe</i>	4 9 0		3 4 0				7 13 0
Bactrian Camel	<i>Camelus bactrianus</i>	1 2 0		1 0 0				2 2 0
Chilean Pudu	<i>Pudu pudu</i>	1 0 0						1 0 0
Axis Deer	<i>Cervus axis</i>	2 11 0		4 3 0	2 1 0	1 1 0		3 12 0
Pere David's Deer	<i>Elaphurus davidianus</i>	3 6 0		0 1 0		0 1 0	1 1 0	2 5 0
Reindeer	<i>Rangifer tarandus</i>	1 13 0		4 0 0	1 0 0	1 0 0		3 13 0
Chinese Water Deer	<i>Hydropotes inermis</i>	1 0 0						1 0 0
Giraffe	<i>Giraffa camelopardalis</i>	2 2 0	1 0 0			0 1 0	1 0 0	2 1 0
Nilgai	<i>Boselaphus tragocamelus</i>	5 12 0		6 4 0	4 1 0	1 2 0		6 13 0
Congo Buffalo	<i>Syncerus caffer nanus</i>	1 7 0					0 1 0	1 6 0
Eland	<i>Taurotragus oryx</i>	3 4 0		1 1 0		2 2 0		2 3 0
Bongo	<i>Tragelaphus eurycerus</i>	1 2 0		1 1 0				2 3 0
Wildebeeste	<i>Connochaetes taurinus</i>	2 5 0		2 2 0		3 3 0	1 0 0	0 4 0
Roan Antelope	<i>Hippotragus equinus</i>	1 1 0	1 0 0			1 0 0		1 1 0
Sable Antelope	<i>Hippotragus niger</i>	2 0 0						2 0 0
Red Lechwe	<i>Kobus lechwe</i>	2 27 0		7 6 0		1 2 0	1 14 0	7 17 0
Scimitar Horned Oryx	<i>Oryx dammah</i>	7 11 0		2 2 0		4 1 0	1 0 0	4 12 0
Gemsbok	<i>Oryx gazella gazella</i>	1 4 0		0 1 0	0 1 0			1 4 0
Blackbuck	<i>Antelope cervicapra</i>	6 22 0		14 8 1	5 6 0	4 3 0		11 21 1
Arabian Gazelle	<i>Gazella gazella arabica</i>	3 10 0		3 6 0	1 1 0	2 5 0		3 10 0
American Bison	<i>Bison bison</i>	2 5 0		3 2 0		0 1 0	4 0 0	1 6 0
		186 354 120	13 11 1	87 81 46	24 16 10	38 34 3	46 52 0	177 345 154

Number of specimens 676,
Number of species 79.

Bongo.

The zoo's first Bongo calf was born in December 1993.



BIRDS

		STOCK			RECEIVED			BORN/H'CH			D.N.S			DEATHS			DISPOSALS			STOCK		
		1/1/1993			M F Y/R			M F Y/R			30 DAYS			M F Y/R			M F Y/R			31/12/93		
		M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R
STRUTHIONIFORMES																						
Ostrich	<i>Struthio camelus</i>	1	1	0										0	1	0				1	0	0
RHEIFORMES																						
Common Rhea	<i>Rhea americana</i>	1	2	0										0	1	0				1	1	0
CASUARIIFORMES																						
Emu	<i>Dromaius novaehollandiae</i>	1	1	0																1	1	0
TINAMIFORMES																						
Chilean Tinamou	<i>Nothoprocta perdicaria</i>	0	0	8										0	0	3				0	0	5
SPHENISCIFORMES																						
Humboldt's Penguin	<i>Spheniscus humboldti</i>	9	8	21	0	0	6	0	0	2	0	0	2	0	0	6				9	8	21
CICONIIFORMES																						
Little Egret	<i>Egretta garzetta</i>	0	0	0	5	2	0							1	0	0				4	2	0
White Stork	<i>Ciconia ciconia</i>	3	2	0				0	0	2	0	0	2				1	0	0	2	2	0
Waldraup Ibis	<i>Geronticus eremita</i>	8	8	15				0	0	12	0	0	1	0	0	2	0	0	10	8	8	14
Chilean Flamingo	<i>Phoenicopterus chilensis</i>	12	11	6				0	0	1										12	11	7
Caribbean Flamingo	<i>Phoenicopterus ruber ruber</i>	16	12	16				0	0	7	0	0	1	1	0	0				15	12	22
Caribbean x Chilean Flamingo	<i>P.r. ruber x P. chilensis</i>	0	1	0																0	1	0
ANSERIFORMES																						
White-faced Whistling Duck	<i>Dendrocygna viduata</i>	4	3	0										3	2	0				1	1	0
Fulvous Tree Duck	<i>Dendrocygna bicolor</i>	3	3	0				0	0	2							0	0	2	3	3	0
Black-necked Swan	<i>Cygnus melanocoryphus</i>	1	1	0				0	0	4	0	0	4							1	1	0
Emperor Goose	<i>Anser canagicus</i>	2	2	0				0	0	1							0	0	1	2	2	0
Lesser White-fronted Goose	<i>Anser erythropus</i>	2	2	0																2	2	0
Ross's Snow Goose	<i>Anser rossii</i>	1	1	0																1	1	0
Red-breasted Goose	<i>Branta ruficollis</i>	3	6	0	3	0	0	0	0	1	0	0	1							6	6	0
Hawaiian Goose	<i>Branta sandvicensis</i>	3	3	0	1	0	0	0	0	8				1	0	0	0	0	8	3	3	0
Ruddy-headed Goose	<i>Chloephaga rubidiceps</i>	1	1	0				0	0	2	0	0	1				1	1	1	0	0	0
Ashy-headed Goose	<i>Chloephaga poliocephala</i>	0	0	0	1	1	0													1	1	0
Common Shelduck	<i>Tadorna tadorna</i>	2	4	0																2	4	0
Baikal Teal	<i>Anas formosa</i>	1	5	0				0	0	10	0	0	4	0	1	0	0	1	6	1	3	0
Falcated Teal	<i>Anas falcata</i>	3	3	0																3	3	0
Northern Shoveler	<i>Anas clypeata</i>	2	1	0																2	1	0
Red Shoveler	<i>Anas platalea</i>	1	2	0										1	1	0				0	1	0
Laysan Teal	<i>Anas laysanensis</i>	4	2	0	1	1	0	0	0	6	0	0	2	1	0	0	0	0	4	4	3	0
Garganey	<i>Anas querquedula</i>	2	2	0																2	2	0
Chiloe Wigeon	<i>Anas sibilatrix</i>	2	2	0										0	1	0				2	1	0
Ringed Teal	<i>Callonetta leucophrys</i>	2	2	0				0	0	7							0	0	7	2	2	0
Marbled Teal	<i>Marmaronetta angustirostris</i>	3	3	0				1	2	7	0	0	5	1	0	1	0	0	1	3	5	0
Common Eider	<i>Somateria mollissima</i>	2	2	0																2	2	0
Tufted Duck	<i>Aythya fuligula</i>	4	3	0				0	0	2							0	0	2	4	3	0
Rosy-billed Pochard	<i>Netta peposaca</i>	2	2	0				0	0	8	0	0	2	0	0	2	0	0	4	2	2	0
Red-crested Pochard	<i>Netta rufina</i>	2	2	0				1	1	0										3	3	0
Maned Goose	<i>Chenonetta jubata</i>	2	3	0										1	1	0				1	2	0
Mandarin Duck	<i>Aix galericulata</i>	7	6	0				0	0	2	0	0	1				0	0	1	7	6	0
Carolina Duck	<i>Aix sponsa</i>	2	3	0				0	0	2				1	1	0	0	0	2	1	2	0
White-winged Wood Duck	<i>Cairina scutulata</i>	3	2	0				1	1	0				0	1	0	1	0	0	3	2	0
Smew	<i>Mergus albellus</i>	2	2	0	0	1	0							0	2	0				2	1	0
Hooded Merganser	<i>Mergus cucullatus</i>	2	3	0	2	0	0	0	0	5				2	0	3	0	0	2	2	3	0
Ruddy Duck	<i>Oxyura jamaicensis</i>	4	1	0	0	2	0							0	1	0				4	2	0
White-headed Duck	<i>Oxyura leucocephala</i>	2	2	0										1	0	0				1	2	0
FALCONIFORMES																						
Mauritius Kestrel	<i>Falco punctatus</i>	0	0	0	2	2	1							1	0	0	0	1	1	1	1	0
Andean Condor	<i>Vultur gryphus</i>	2	1	0				1	0	0							1	0	0	2	1	0
European Black Vulture	<i>Aegypius monachus</i>	1	1	0																1	1	0
Bateleur Eagle	<i>Terathopus ecaudatus</i>	0	1	0													0	1	0	0	0	0
Secretary Bird	<i>Sagittarius serpentarius</i>	0	0	0	1	1	0													1	1	0
GALLIFORMES																						
Variable Chachalaca	<i>Ortalis motmot</i>	3	1	2				0	0	2							2	0	4	1	1	0
Bare-faced Curassow	<i>Crax fasciolata</i>	1	1	0				0	0	3	0	0	2							1	1	1
Californian Quail	<i>Lophortyx californica</i>	4	3	0				3	2	22	0	0	3	1	0	1	0	0	18	6	5	0
Rourol Partridge	<i>Rallulus roulroul</i>	0	1	0	2	1	0							1	1	0				1	1	0
Satyr Tragopan	<i>Tragopan satyra</i>	2	3	0				2	2	1	0	0	1				0	1	0	4	4	0
Temminck's Tragopan	<i>Tragopan temminckii</i>	1	1	0				1	3	5	0	0	2	0	0	2	0	0	1	2	4	0
Himalayan Monal	<i>Lophophorus impeyanus</i>	1	1	0				0	0	11	0	0	4	0	0	1	0	0	6	1	1	0
Brown Eared Pheasant	<i>Crossoptilon mantchuricum</i>	1	1	0				0	0	7	0	0	3	0	0	1	0	0	3	1	1	0
White Eared Pheasant	<i>Crossoptilon crossoptilon</i>	2	1	0																2	1	0
Golden Pheasant	<i>Chrysolophus pictus</i>	1	2	0				0	0	3							0	0	3	1	2	0
Grey Peacock-Pheasant	<i>Polyplectron bicalcaratum</i>	1	1	0				0	0	4	0	0	1				0	0	3	1	1	0
Palawan Peacock Pheasant	<i>Polyplectron emphanum</i>	3	2	0	0	1	0	0	0	1										3	3	1
Edwards' Pheasant	<i>Lophura edwardsi</i>	3	4	0				3	5	5	0	0	2	0	0	1	0	1	2	6	8	0
Common Peafowl	<i>Pavo cristatus</i>	3	2	5													0	0	5	3	2	0
Congo Peafowl	<i>Afropavo congensis</i>	1	1	0																1	1	0
CHARADRIIFORMES																						
Avocet	<i>Recurvirostra avosetta</i>	0	0	0	0	0	2							0	0	2				0	0	0
Stone Curlew	<i>Burhinus oedicnemus</i>	0	0	0	0	2	0													0	2	0
Southern Stone Curlew	<i>Burhinus magnirostris</i>	0	1	0																0	1	0
Blacksmith's Plover	<i>Vanellus armatus</i>	1	1	2										0	1	0	0	0	2	1	0	0
Crowned Plover	<i>Vanellus coronatus</i>	2	2	6				1	1	14	0	0	6	0	0	3	0	0	11	3	3	0
Ruff	<i>Philomachus pugnax</i>	0	0	0	1	0	0													1	0	0

STOCK 1/1/1993			RECEIVED			BORN/H'CH			D.N.S. 30 DAYS			DEATHS OTHERS			DISPOSALS			STOCK 31/12/93		
M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R

COLUMBIFORMES

Speckled Pigeon	<i>Columba guinea</i>	3	0	0															3	0	0	
Pink Pigeon	<i>Nesoenas mayeri</i>	3	4	0								0	2	0					3	2	0	
Laughing Dove	<i>Streptopelia senegalensis</i>	1	1	6			0	0	1		0	0	1						1	1	4	
Emerald Dove	<i>Chalcophaps indica</i>	3	1	0												1	1	0	2	0	0	
Crested Bronzewing Pigeon	<i>Ocyphaps lophotes</i>	2	1	4															2	1	4	
Common Bronzewing Pigeon	<i>Phaps chalcoptera</i>	2	2	0			0	0	2		0	0	1						2	2	1	
Diamond Dove	<i>Geopelia cuneata</i>	1	1	2										0	1	1		0	0	1	1	
Mountain Witch Dove	<i>Geotrygon versicolor</i>	3	3	1			0	0	2		0	0	1		1	0	0		2	3	2	
Golden Heart Pigeon	<i>Gallicolumba rufigula</i>	1	1	0										1	1	0			0	0	0	
Luzon Bleeding Heart Pigeon	<i>Gallicolumba luzonica</i>	4	2	0			0	0	5		0	0	3				1	0	2	1	2	
Celebes Quail Dove	<i>Gallicolumba tristigmata</i>	1	1	0			0	0	5		0	0	3				0	0	2	1	1	
Pink-necked Green Pigeon	<i>Treron vernans</i>	2	2	0										0	1	0		1	0	0	1	
Superb Fruit Dove	<i>Phainopepla superbus</i>	2	2	0			0	0	4		0	0	3				0	0	1	2	2	
Pied Imperial Pigeon	<i>Ducula bicolor</i>	2	2	0																2	2	0
Blue Crowned Pigeon	<i>Goura cristata</i>	1	1	0																1	1	0
Nicobar Pigeon	<i>Caloenas nicobarica</i>	0	0	0			4	1	0											4	1	0

PSITTACIFORMES

Black-winged Lory	<i>Eos cyanogenia</i>	0	2	0																0	2	0
Blue-streaked Lory	<i>Eos reticulata</i>	1	1	0																1	1	0
Duyvenbode's Lory	<i>Chalcopsitta duyvenbodei</i>	1	1	0			1	0	0								1	0	0	1	0	0
Yellow-backed Chattering Lory	<i>Lorius garrulus flavopalliat</i>	2	4	0					0	0	3						0	2	2	2	2	1
Stella's Lorikeet	<i>Charmosyna papou</i>	1	1	0					0	0	5		0	0	3				0	0	2	1
Musschenbroek's Lorikeet	<i>Neopsittacus musschenbroekii</i>	1	2	0					0	1	3		0	0	2		0	0	1	0	1	0
Palm Cockatoo	<i>Probosciger aterrimus</i>	1	1	0			1	0	0								1	0	0	1	0	0
Blue-eyed Cockatoo	<i>Cacatua ophthalmica</i>	4	3	1			1	3	4		0	0	2		1	0	0		1	0	0	3
Red-vented Cockatoo	<i>Cacatua haematuropygia</i>	1	1	0													1	0	0	3	6	3
Kea	<i>Nestor notabilis</i>	3	2	0			1	0	0								2	0	0	2	2	0
Solomon Island Eclectus Parrot	<i>Eclectus roratus solomonensis</i>	1	0	0																1	0	0
"Vosmaeri" Eclectus Parrot	<i>Eclectus roratus vosmaeri</i>	0	1	0			0	1	0											0	2	0
Greater Vasa Parrot	<i>Coracopsis vasa</i>	2	5	0					0	0	4				0	0	1		0	4	2	2
Lesser Vasa Parrot	<i>Coracopsis nigra nigra</i>	4	6	0					0	0	4						0	4	3	4	2	1
Princess of Wales Parakeet	<i>Polytelis alexandrae</i>	0	0	0			1	1	0												1	1
Splendid Parakeet	<i>Neophema splendida</i>	1	1	4			0	1	0						0	1	0		0	0	4	1
Derbyan Parakeet	<i>Psittacula derbiana</i>	3	3	0			0	1	0						1	2	0				2	2
Hyacinthine Macaw	<i>Anodorhynchus hyacinthinus</i>	1	1	0																	1	1
Blue and Yellow Macaw	<i>Ara ararauna</i>	2	2	0					0	0	4				0	0	1		0	0	3	2
Blue-throated Macaw	<i>Ara glaucogularis</i>	1	0	0			0	1	0												1	1
Scarlet Macaw	<i>Ara macao</i>	1	1	0																	1	1
Red-fronted Macaw	<i>Ara rubrogenys</i>	3	2	0					1	1	0							1	0	0	3	3
Yellow-naped Macaw	<i>Ara auricollis</i>	1	1	0																	1	1
Illiger's Macaw	<i>Ara macaca</i>	0	0	0			1	1	0												1	1
Red-masked Conure	<i>Aratinga erythrogenys</i>	2	3	0			2	1	0		0	0	1			2	1	1			2	3
Golden-capped Conure	<i>Aratinga auricapilla</i>	0	0	0			1	1	0												1	1
Queen of Bavaria Conure	<i>Guaruba guarouba</i>	1	1	0																	1	1
Thick-billed Parrot	<i>Rhynchopsitta pachyrhyncha</i>	1	2	0			1	1	0												2	3
Lesser Patagonian Conure	<i>Cyanoliseus patagonus</i>	6	6	0					0	0	2				1	1	1		4	5	1	1
Blue-throated Conure	<i>Pyrrhura cruentata</i>	1	1	0																	1	1
Slender-billed Parakeet	<i>Enicognathus leptorhynchus</i>	1	0	0			1	2	0												2	2
Yellow-faced Parrotlet	<i>Forpus xanthops</i>	3	1	0			1	1	0						0	1	0				4	1
Grey-cheeked Parakeet	<i>Brotogeris pyrrhopterus</i>	3	2	0																	3	2
Lilacine Amazon Parrot	<i>Amazona autumnalis lilacina</i>	1	1	0					1	1	0								0	1	0	2
Cuban Amazon	<i>Amazona leucocephala</i>	1	2	0															0	1	0	1
Green-cheeked Amazon	<i>Amazona viridigenalis</i>	2	2	0																	2	2
Hawk-headed Parrot	<i>Deroptryx accipitrinus</i>	1	1	0													0	1	0		1	0

CUCULIFORMES

Red-crested Turaco	<i>Tauraco erythrolophus</i>	1	1	0					0	0	1		0	0	1		1	1	0		0	0	0
Schalow's Turaco	<i>Tauraco schalowi</i>	2	1	3					1	1	3		0	0	1		1	0	0		0	0	5
White-cheeked Turaco	<i>Tauraco leucotis</i>	2	5	0													0	2	0		0	2	0
Violet Plantain Eater	<i>Musophaga violacea</i>	1	1	0																	1	1	0



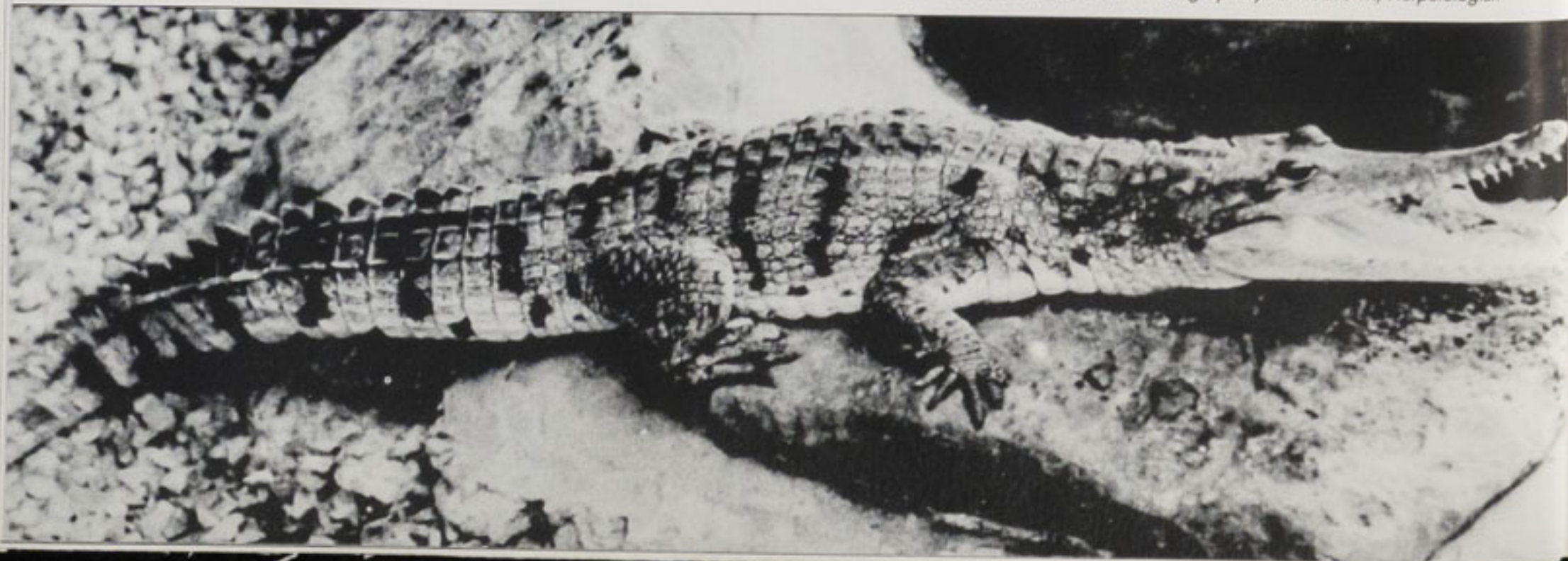
Mauritius Kestrel - the 1992 Members' raffle raised the funds to build the aviary for these birds.
Photograph by Dr. Roger Wilkinson, Curator of Birds.

REPTILES

		STOCK			RECEIVED			BORN/H'CH			D.N.S.			DEATHS			DISPOSALS			STOCK					
		1/1/1993			M F Y/2			M F Y/2			30 DAYS			OTHERS			M F Y/2			31/12/93					
		M	F	Y/2	M	F	Y/2	M	F	Y/2	M	F	Y/2	M	F	Y/2	M	F	Y/2	M	F	Y/2			
CHELONIA																									
Red Legged Tortoise	<i>Geochelone carbonaria</i>	1	6	0																	1	6	0		
Greek Tortoise	<i>Testudo graeca</i>	8	5	0																	1	1	0		
Herman's Tortoise	<i>Testudo hermanni</i>	10	9	0																	0	1	0		
Aldabra Giant Tortoise	<i>Geochelone gigantea</i>	0	3	0																		0	3	0	
Matamata Turtle	<i>Chelus fimbriatus</i>	0	1	1																		0	1	1	
Malayan Box Turtle	<i>Cuora amboinensis</i>	2	2	3																		2	2	3	
Snapping Turtle	<i>Chelydra serpentina</i>	2	2	0																		2	2	0	
Carolina Box Turtle	<i>Terrapene ornata carolinensis</i>	1	1	4				0	0	1											1	1	0		
																						0	0	5	
CROCODYLIA																									
Mississippi Alligator	<i>Alligator mississippiensis</i>	1	2	0																		1	2	0	
Broad-fronted Crocodile	<i>Osteolaemus tetraspis</i>	0	0	0			0	0	4													0	0	4	
Johnston's Crocodile	<i>Crocodylus johnstoni</i>	1	1	0																		1	0	0	
																							0	1	0
RHYNCHOCEPHALIA																									
Tuatara	<i>Sphenodon punctatus</i>	0	1	0																		0	1	0	
SAURIA																									
Egyptian Spiny-tailed Lizard	<i>Uromastyx aegyptius</i>	3	2	0			0	1	0					1	1	0						2	2	0	
Central American Night Lizard	<i>Lepidophyma flavimaculatum</i>	0	1	1										0	1	1						0	0	0	
Northern Green Gecko	<i>Naultinus elegans</i>	4	5	0										0	2	0						4	3	0	
Tokay Gecko	<i>Gekko gekko</i>	4	10	26				0	0	4				2	0	0			0	0	11	2	10	19	
Leopard Gecko	<i>Eublepharis macularius</i>	3	12	20				0	0	16		0	0	2					0	0	130	3	11	4	
Forest Gecko	<i>Hoplodactylus granulatus</i>	1	2	0																		1	2	0	
Common Iguana	<i>Iguana iguana</i>	4	6	4										0	1	0					1	0	0		
Black Spiny-tail Iguana	<i>Ctenosaura similis</i>	2	0	3																		2	0	3	
Rhinoceros Iguana	<i>Cyclura cornuta</i>	2	4	3				0	0	2												2	4	5	
Thailand Water Dragon	<i>Physignathus cocincinus</i>	1	2	0			0	0	5													0	2	5	
Eastern Water Dragon	<i>Physignathus lesuerii lesuerii</i>	3	3	0																		1	0	0	
Philippine Sail Fin Lizard	<i>Hydrosaurus pustulatus</i>	2	4	16			2	0	0													2	3	0	
Malayan Sail Fin Lizard	<i>Hydrosaurus amboinensis</i>	1	8	8									1	1	2							3	3	14	
Crocodile Lizard	<i>Shinisaurus crocodilurus</i>	1	0	0					0	0	20			0	0	4						1	8	24	
Brown Basilisk	<i>Basiliscus basiliscus</i>	1	3	27						0	0	127										1	0	0	
Plumed Basilisk	<i>Basiliscus plumifrons</i>	2	15	0						0	0	126										1	3	154	
Prehensile-tailed Skink	<i>Corucia zebrata</i>	2	4	1			6	3	0													0	0	75	
Salvator Monitor	<i>Varanus salvator</i>	1	1	0																		0	2	0	
																							8	5	1
																							1	1	0
SERPENTES																									
Brazilian Rainbow Boa	<i>Epicrates cenchria cenchria</i>	1	2	0																			1	2	0
Sunbeam Snake	<i>Xenopeltis unicolor</i>	1	1	15																			1	1	15
Indian Python	<i>Python molurus bivittatus</i>	0	1	0																		0	0	0	
Royal Python	<i>Python regius</i>	2	2	1				0	0	2												2	2	3	
Rubber Boa	<i>Charina bottae</i>	2	0	0																		2	0	0	
Green Tree Python	<i>Chondropython viridis</i>	4	2	0																		4	2	0	
Green Anaconda	<i>Eunectes murinus</i>	1	1	0																		1	1	0	
Boa Constrictor	<i>Constrictor constrictor</i>	2	1	0																		2	0	0	
Cuban Boa	<i>Epicrates angulifer</i>	2	2	3																		0	1	0	
Jamaican Boa	<i>Epicrates subflavus</i>	1	2	0				1	0	8		0	0	1								1	0	2	
Rainbow Boa	<i>Epicrates cenchria maura</i>	1	2	1				0	0	13		0	0	1								1	2	12	
Madagascan Boa	<i>Sanzinia madagascariensis</i>	2	2	0																		1	2	1	
Honduran Milk Snake	<i>Lampropeltis triangulum</i>	1	0	3																		0	2	0	
Western Hog Nose Snake	<i>Heterodon nasicus nasicus</i>	0	1	0																			1	0	3
Jewel Racer	<i>Drymobius margareti</i>	4	1	0																		0	1	0	
Mangrove Snake	<i>Boiga dendrophila</i>	1	2	0																		1	0	0	
Indian Cobra	<i>Naja naja</i>	1	1	0																		1	1	0	
Green Mamba	<i>Dendroaspis angusticeps</i>	1	1	0																		1	1	0	
Puff Adder	<i>Bitis arietans</i>	1	1	0																		1	1	0	
African Bush Viper	<i>Atheris squamiger</i>	0	0	2																		0	0	2	
Tropical Rattlesnake	<i>Crotalus durissus colineatus</i>	0	2	0			1	0	0													0	0	0	
San Francisco Garter Snake	<i>Thamnophis sirtalis tetrataenia</i>	1	0	0																		1	2	0	
Moojen's Fer-de-Lance	<i>Bothrops moojeni</i>	1	0	0				0	1	0												0	0	0	
Maximilians Viper	<i>Bothrops neuwiedi</i>	0	1	0				1	0	0												1	1	0	
Emerald Tree Boa	<i>Corallus caninus</i>	1	1	0																		1	1	0	
																							0	0	0
		94	144	142			10	5	9		1	0	419		1	1	10		10	14	3	10	19	397	
							380		24			420			12		27					426		359	

Number of species - 65
 Number of specimens - 359

Johnston's River Crocodile - Photograph by K. W. Brown, Herpetologist.



AMPHIBIA

		STOCK 1/1/1993			RECEIVED			BORN/H'CH			D.N.S. 30 DAYS			DEATHS OTHERS			DISPOSALS			STOCK 31/12/93		
		M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R	M	F	Y/R
Smoky Jungle Frog	<i>Leptodactylus pentadactylus</i>	0	0	16																0	0	16
Axolotl (Black Form)	<i>Ambystoma mexicanum</i>	0	1	0										0	1	0				0	0	0
Axolotl (White Form)	<i>Ambystoma mexicanum</i>	0	0	11	0	1	0	0	0	60				0	0	6	0	0	49	0	1	16
Japanese Fire-bellied Newt	<i>Cynops pyrrhogaster</i>	0	0	12										0	0	2				0	0	10
White's Tree Frog	<i>Litoria caerulea</i>	1	3	0																1	3	0
New Guinea Tree Frog	<i>Litoria infrafrenata</i>	3	4	0																3	4	0
3 Striped Poison Arrow Frog	<i>Epipedobates trucatus</i>	3	2	78				0	0	40				0	0	10	0	0	88	3	2	20
Argentine Ornate Horned Frog	<i>Ceratophrys ornata</i>	1	1	0	0	0	10				0	0	1							1	1	9
African Bullfrog	<i>Pyxicephalus adspersus</i>	1	3	0																1	3	0
Albino South African Clawed Frog	<i>Xenopus laevis</i>	1	3	0	1	0	0										0	1	0	2	2	0
Nigerian Clawed Frog	<i>Xenopus tropicalis</i>	0	0	5																0	0	5
Climbing Toad	<i>Pedostildes hosei</i>	0	1	0																0	1	0
Fire Bellied Toad	<i>Bombina orientalis</i>	3	6	0													3	6	0	0	0	0
Dwarf Congo Frog	<i>Hymenochirus boettgeri</i>	0	0	3	0	0	30							0	0	22	0	0	3	0	0	8
Tiger Salamander	<i>Ambystoma tigrinum</i>	0	0	0	0	0	3													0	0	3
		13	24	125	1	1	43	0	0	100	0	0	1	0	1	40	3	7	140	11	17	87
		162			45			100			1			41			150			115		

Number of specimens, 115

Number of species, 15

aq indicates species kept in the Aquarium

New Guinea Tree Frog - Photograph by K. W. Brown, Herpetologist.



INVERTEBRATES

ARACHNIDS

		STOCK 31/12/93
Pink-toe Tarantula	<i>Avicularia avicularia</i>	2
Mexican Red-knee Tarantula	<i>Evatalus smithii</i>	20
Goliath Bird-eater	<i>Theraphosa leblondi</i>	1

INSECTS

		STOCK 31/12/93
Stick Insect	<i>Baculum extrudentum</i>	50
McCleays Spectre	<i>Extastoma tiaratum</i>	20
Seychelles Millipede	<i>Scathiostreptus seychellarum</i>	4

MOLLUSCS

		STOCK 31/12/93
African Land Snail	<i>Achatina fulica</i>	6
	<i>Partula varia</i>	8
	<i>Partula taeniata</i>	134
	<i>Partula tohiveana</i>	25
	<i>Partula suturalis</i>	60
Conch	<i>Fusinus polygonoides</i>	1

Number of specimens - 424

Number of species - 29

*indicates species bred in the Society's collection in 1993

aq indicates species kept by the Aquarium

COELENTERATES

		STOCK 31/12/93
Sand Anemone	<i>Phymanthus crucifer</i>	2
Leather Coral	<i>Sarcophyton trocheliophorum</i>	11
Soft Coral	<i>Xenia</i> sp.	9
Zoanthid Colony	<i>Zoanthid</i> sp.	2
Soft Coral	<i>Sinularia</i> sp.	2
Soft Coral	<i>Cladiella</i> sp.	14
Hard Coral	<i>Catalaphylla</i> sp.	2
Brain Coral	<i>Trachyphyllia geoffroyi</i>	1
Mushroom Polyps	<i>Actinodiscus</i> sp.	30

ANNELIDA

Feather Duster Worms	<i>Sabella pavona</i>	6
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CRUSTACEANS

Banded Coral Shrimp	<i>Stenopus hispidus</i>	2
Cleaner Shrimp	<i>Lysmata grahami</i>	1
Hermit Crab	<i>Dardanus</i> sp.	2

ECHINODERMS

Red Pencil Urchin	<i>Hetrocentrotus mammillatus</i>	3
Slate Pencil Urchin	<i>Eucidaris tribuloides</i>	1
Serpent Starfish	<i>Ophiolepis superba</i>	2
Green Brittle Starfish	<i>Ophiarachna incrassata</i>	3

TOTAL 424

OSTEOGLOSSIDAE

South American	<i>Arowana Osteoglossum bicirrhosum</i>	4
Black Arowana	<i>Osteoglossum ferreirai</i>	2

NOTOPTERIDAE

African Knife Fish	<i>Xenomystus nigri</i>	2
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MORMYRIADAE

Blunt Jaw Elephant Trunkfish	<i>Gnathonemus elephas</i>	4
Elephant Trunkfish	<i>Gnathonemus ibis</i>	4
Long-nosed Elephant Trunkfish	<i>Gnathonemus petersi</i>	6
Angolan Elephant Trunkfish	<i>Campylomormyrus cassaicus</i>	5
Down Poker	<i>Campylomormyrus rhynchophorus</i>	4
Short-nosed Elephant Trunkfish	<i>Marcusemius angolensis</i>	4
Short-faced Elephant Trunkfish	<i>Mormyrus longirostris</i>	2
Round-nosed Elephant Trunkfish	<i>Pallimyrus castelnaui</i>	4

POLYPTERIDAE

Marbled Bichir	<i>Polypterus palmas</i>	1
Bichir	<i>Polypterus senegalis</i>	2
Ornate Birchir	<i>Polypterus ornatipinnis</i>	3

CHARACIDAE

Red-eyed Characin	<i>Arnoldichthys spilopterus</i>	9
Long-finned Characin	<i>Brycinus longipinnis</i>	5
Cardinal Tetra	<i>Paracheirodon axelrodi</i>	40
Congo Tetra	<i>Phenacogrammus interruptus</i>	18

GYRINOCHEILIDAE

Sucking Loach	<i>Gyrinocheilus aymonieri</i>	10
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CITHARINIDAE

Spotted African Pike	<i>Paraphago rostratus</i>	1
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GASTERAPELECIDAE

Marbled Hatchetfish	<i>Carnegiella strigata</i>	20
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CYPRINIDAE

Silver Shark	<i>Balantiocheilus melanopterus</i>	13
Cherry Barb	<i>Capoeta litteya</i>	*35
Goldfish (various)	<i>Carassius auratus</i>	*100
Grass Carp	<i>Ctenopharyngodon idella</i>	6
Mirror Carp	<i>Cyprinus carpio</i>	8
Koi Carp	<i>Cyprinus carpio</i>	40
Oman Blind Cave Fish	<i>Garra barreimiae</i>	250
Golden Orfe	<i>Idus idus</i>	25
Cummings Barb	<i>Puntius cummingi</i>	12
Ikan Temoleh	<i>Probarbus jullieni</i>	9
Black Ruby Barb	<i>Puntius nigrofasciatus</i>	*30
Harlequin Rasbora	<i>Rasbora heteromorpha</i>	2
Golden Rudd	<i>Scardinius erythrophthalmus</i>	*100

COBITIDAE

Clown Loach	<i>Botia macracantha</i>	11
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ELECTROPHORIDAE

Electric Eel	<i>Electrophorus electricus</i>	5
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CICHLIDAE

Lake Victoria Cichlid	<i>Haplochromis obliquidens</i>	10
Lake Victoria Cichlid	<i>Astatoreochromis alluaudi</i>	*12
Lake Victoria Cichlid	<i>Haplochromis argens</i>	*148
Lake Victoria Cichlid	<i>Haplochromis nyneri</i>	*29
Lake Victoria Cichlid	<i>Haplochromis pyrrocephalus</i>	22
Lake Victoria Cichlid	<i>Haplochromis riponius</i>	*54
Lake Victoria Cichlid	<i>Haplochromis sauvagei</i>	*27
Lake Victoria Cichlid	<i>Haplochromis velvet black-blotched</i>	*110
Lake Victoria Cichlid	<i>Haplochromis xenognathus</i>	*65
Otjikoto Tilapia	<i>Tilapia guinasana</i>	*35
Frontosa	<i>Cyphotilapia frontosa</i>	*50
Heckel Discus	<i>Symphysodon discus discus</i>	6
Turquoise Discus	<i>Symphysodon species</i>	5
Lake Malawi Cichlid	<i>Rhamphochromis macrophthalmus</i>	2
Lake Malawi Cichlid	<i>Nimbochromis venustus</i>	*6
Lake Malawi Cichlid	<i>Melanochromis auratus</i>	*40
Lake Malawi Cichlid	<i>Copadichromis borleyi</i>	3
Lake Malawi Cichlid	<i>Pseudotropheus elongatus chailosi</i>	*40
Lake Malawi Cichlid	<i>Cyrtocara moorii</i>	*15
Lake Malawi Cichlid	<i>Microchromis zebroides</i>	2
Lake Malawi Cichlid	<i>Aulonocara hueseri</i>	2
Lake Malawi Cichlid	<i>Pseudocrenilabrus philander</i>	*10
Lake Malawi Cichlid	<i>Pseudotropheus sacolofi</i>	*60
Yellow Fin	<i>Pseudotropheus acei</i>	*10
Lake Malawi Cichlid	<i>Pseudotropheus lombardoi</i>	*40
Lake Malawi Cichlid	<i>Pseudotropheus aurora</i>	*10
Lake Malawi Cichlid	<i>Pseudotropheus elongatus ornatus</i>	*20
Lake Malawi Cichlid	<i>Placidochromis electra</i>	*15
Lake Malawi Cichlid	<i>Protomelas taeniolatus</i>	2
Lake Malawi Cichlid	<i>Labidochromis caeruleus</i>	*30
Lake Malawi Cichlid	<i>Labidochromis chisumulae</i>	*15
Lake Malawi Cichlid	<i>Labeotropheus fuelleborni</i>	*20
Lake Malawi Cichlid	<i>Nimbochromis polystigma</i>	*3
Altum Angelfish	<i>Pteraphyllum scalare altum</i>	4

ANABANTIDAE

Leopard Climbing Perch	<i>Ctenopoma acutirostre</i>	4
Pearl Gourami	<i>Trichogaster leeri</i>	6

ATHERINIDAE

Red Rainbow Fish	<i>Glossolepis incisus</i>	*40
Boeseman's Rainbow Fish	<i>Melanotaenia boesemani</i>	*150
Lake Tebera Rainbow Fish	<i>Melanotaenia herbertaxelrodi</i>	*200
Lake Kutubu Rainbow Fish	<i>Melanotaenia lacustris</i>	*40

ICTALURIDAE

Channel Catfish	<i>Ictalurus punctatus</i>	4
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MOCHOKIDAE

Polka-dot Upside-down Catfish	<i>Synodontis angelicus</i>	5
Upside-down Catfish	<i>Synodontis nigriventis</i>	8
Upside-down Catfish	<i>Synodontis nigrita</i>	2
Lake Malawi Upside-down Catfish	<i>Synodontis nyassae</i>	6

Puffer Fish - Photograph by Justin Bell, Aquarium staff



CALLICHTHYIDAE

Arched Corydoras	<i>Corydoras arcuatus</i>	4
Burgess's Catfish	<i>Corydoras burgessi</i>	*24
Blue Catfish	<i>Corydoras nattereri</i>	10
Panda Catfish	<i>Corydoras panda</i>	*50
Flag Tail Catfish	<i>Corydoras robiniae</i>	8

LORICARIIDAE

Bristlenose Plecostomus	<i>Xenocara dolichoptera</i>	6
Twig Catfish	<i>Fariowella acus</i>	2
Plecostomus Catfish	<i>Hypostomus plecostomus</i>	2
Clown Plecostomus	<i>Peckoltia</i> sp.	12
Whiptailed Catfish	<i>Sturisoma aureum</i>	*9
Angelicus Peckoltia	<i>Peckoltia</i> sp.	4

TOXOTIDAE

Archer Fish	<i>Toxotes jaculator</i>	5
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POTAMOTRYGONIDAE

Fresh-water Stingray	<i>Potamotrygon motoro</i>	*10
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DIPNOI

African Lung Fish	<i>Protopterus annectens</i>	1
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HOLOCENTRIDAE

Soldierfish	<i>Myripristis axillaris</i>	2
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CENTRISCIDAE

Shrimplish	<i>Aeoliscus strigata</i>	2
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SYNGNATHIDAE

Blue Stripe Pipefish	<i>Dorythamphus excisus</i>	5
Jans Pipefish	<i>Dorythamphus janssi</i>	2
Snake Pipefish	<i>Corythaichthys intestinalis</i>	7
Sea Horse	<i>Hippocampus histrix</i>	6
Oceanic Sea Horse	<i>Hippocampus kuda</i>	6
Banded Pipefish	<i>Dorythamphus dactylophorus</i>	1

CENTROPOMIDAE

Giant Glass Fish	<i>Parambassis gulliveri</i>	6
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SERRANIDAE

Blue-jewelled Grouper	<i>Cephalopholis argus</i>	1
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MONODACTYLIDAE

Mono	<i>Monodactylus argenteus</i>	2
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SCORPAENIDAE

Dwarf Lionfish	<i>Dendrochirus zebra</i>	3
Fumanchu Lionfish	<i>Dendrochirus biocellatus</i>	1
Scorpion Fish	<i>Pterais volitans</i>	2
Spotfin Lionfish	<i>Pterais antennata</i>	1

SCATOPHAGIDAE

Silver Scat	<i>Selenotoca multifasciata</i>	6
Red Tiger Scat	<i>Scatophagus argus</i>	3

POMACANTHIDAE

Cherub Angelfish	<i>Centropyge argi</i>	1
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POMACENTRIDAE

Skunk Clown Fish	<i>Amphiprion akallopisos</i>	1
Fire Clown Fish	<i>Amphiprion ephippium</i>	3
Tomato Clown Fish	<i>Amphiprion frenatus</i>	2
Common Clown Fish	<i>Amphiprion ocellaris</i>	3
Beau Gregory Damsel Fish	<i>Eupomacentrus leucostictus</i>	1
Blue Damsel Fish	<i>Pomacentrus alleni</i>	3

CALLIONYMIDAE

Pink Scooter Blenny	<i>Synchiropus</i> sp.	6
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ACANTHURIDAE

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

BALISTIDAE

Clown Trigger Fish	<i>Balistoides conspicillum</i>	1
Red-tooth Trigger Fish	<i>Odonus niger</i>	2

TETRAODONTIDAE

Puffer Fish	<i>Arothron hispidus</i>	1
Figure-eight Puffer	<i>Tetraodon palembangensis</i>	7
Valentini Puffer Fish	<i>Canthigaster valentini</i>	1
Spiny Puffer Fish	<i>Diodon holocanthus</i>	1

APOGONIDAE

Polka Dot Cardinal Fish	<i>Sphaeramia nematoptera</i>	5
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LABRIDAE

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

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

Long-nose Hawkfish	<i>Oxycirrhites typhus</i>	1
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GOBIIDAE

Orange Spot Goby	<i>Valencienna puellaris</i>	2
Yellow Rose Goby	<i>Stenogobiops xanthurinica</i>	3

ANTHIINAE

Lyre-tail Corallfish	<i>Anthias squamipinnis</i>	2
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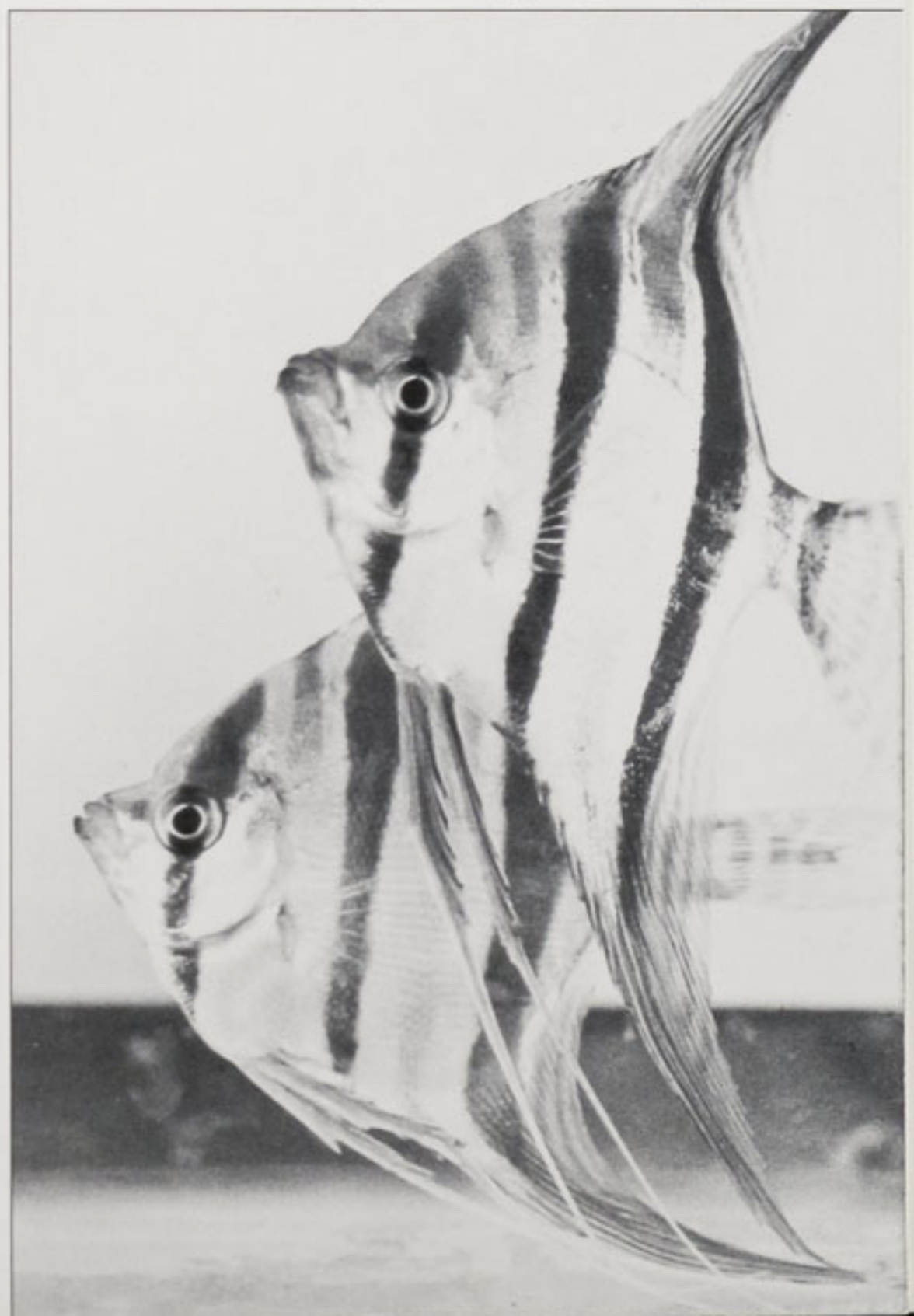
Total 2444

Number of specimens 2444

Number of species 136

*denotes species bred in 1993

Altum Angel Fish - Photograph by Justin Bell, Aquarium staff



European Black Vulture in 'Europe on the Edge' Aviary.
Photograph by
Dr. R. Wilkinson Curator of Birds

Thanks to you all

The Annual Report is a most appropriate place to thank all those individuals, companies, societies, organisations and groups of volunteers who have helped us over the year. Within this, of course, we give an especial "thank you" to the Zoo's staff, to our own volunteers who do so much, and to the members and adopters for their continuing support.

Without this fund of goodwill, much less would have been achieved in the year.

We would also like to thank those who gave us donations and legacies, and in particular, gratefully acknowledge the generous legacy from the estate of the late Miss M.A. Lewis from Merseyside, first details of which reached us just after the end of the year.

The North of England Zoological Society



Registered Charity No. 306077

The Zoo is a member of the North West Tourist Board, The Yorkshire & Humberside Tourist Board and North Wales Tourism Ltd.. It is a founder member of the Cheshire Tourist Attractions Consortium, and a member of the Association of Leading Visitor Attractions.

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