



# Zoo Life

Spring 2001 – Issue 5

CHESTER ZOO'S MAGAZINE FOR MEMBERS AND ADOPTERS



Inside this Issue: Spirit of the Jaguar Update • Photo Competition Results • Conservation Outreach

## From the Director's Desk

Professor Gordon McGregor Reid



### WELCOME TO KIRSTY...

A year ago, it was the Orang utans who produced a Christmas time baby, when *Bella* gave birth to a son called *Bengara* on Christmas Eve. In 2000, it was their cousins the Chimps, who were celebrating a new arrival, when *Alice* gave birth to a female baby on Boxing Day. Keepers have named her *Kirsty*. I am glad to say that both mother and baby are doing well.

### ... FAREWELL TO OLD MEG

Sadly, just a few days later, the chimpanzee colony lost *Meg*, its oldest member. *Meg* died on 30 December at 54 years old. She had been at the zoo since January 1950. *Meg* had become increasingly frail over recent months, and, in chimp terms, she was a very old lady indeed. She was treated with great respect and affection by the rest of the colony – which includes several of her children, grandchildren and great-grandchildren! The keeping staff will greatly miss her – especially Niall Ormerod, our Specialist Primate Keeper, who worked with *Meg* for over 28 years. Niall wrote an article about *Meg* in the summer 1999 issue of this magazine. She was certainly the oldest chimp in the UK, and probably the oldest in Europe.

### SPIRIT OF THE JAGUAR

There is great anticipation and excitement throughout the Zoo, as the final stages of *Spirit of the Jaguar* are being

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completed. At the time of writing, we do not have a fixed date for opening this superb habitat to visitors, but it is not far away! As the exhibit reaches completion, it is obvious just how vast the Jaguar complex is in terms of area and volume. There is no doubt that this will be the largest and finest Jaguar facility in the world. When Jaguar Cars offered the sponsorship of almost £2 million for this, their only condition was that it should be the top Jaguar exhibit in the world.

We believe that we will deliver this, and my very deep thanks go to everyone involved in this ambitious project, including sponsors, staff and outside contractors.

It has been a tremendous team effort, involving the architects and contractors working closely with Zoo staff from many different disciplines. In this magazine there are articles by staff from Horticulture and Botany, Education and Animal Divisions, describing the imagination and creativity that has gone into making this spectacular exhibit.

### 2000 REVIEW

March seems a little late to review last year. However, as this is the first *Zoo Life* of 2001, I make no excuses for doing just that!

As predicted in the Winter 2000 issue, we did achieve over one million paying visitors for the first time since 1973. The total number was 1,020,785 and when the non-paying, under three year olds are included, it comes to 1,118,491. Chester Zoo was the most visited wildlife attraction in the country last year.

2000 was also a good year for awards, particularly for our gardeners. They collected a Gold Medal at the Southport Flower Show; a Silver at the RHS Show at Tatton; the Britain in Bloom, North West trophy for best large attraction and a special award in the Chester in Bloom competition. We received Zoo Federation commendations for the breeding of flamingos, *Monkey Islands* interpretation

and the Marketing Division's outreach work with the *Noah's Ark*.

### WEDDINGS

Fancy a wedding with the roar of lions in the background? You don't have to travel to expensive and exotic locations. The boardroom, and all the other ground floor rooms in Oakfield House, are now licensed for civil marriage ceremonies. I had vaguely hoped that this would mean, like legendary captains of ships at sea, that I would be able to officiate and make the declaration that 'you are now man and wife.' On making enquiries, it seems that you still need a qualified registrar!

### ALWAYS BUILDING!

...That was the zoo's slogan in the '70s and it is still true!

**BLACK RHINOS.** We are currently planning a new rhino development, which will give the animals larger paddock space and will meet the best standards in animal welfare, conservation, education and public amenity.

**FOREST ZONE,** close to the new Jaguar complex, is another new concept to be developed very soon. This will provide an attractive approach to the Jaguar complex, and will eventually include newly designed gardens and areas for Hyacinthine Macaws, Buffy-headed Capuchins, Bush Dogs and a public indoor picnic area.

**SEALION UPGRADE.** Work will be completed this spring on upgrading the sealion pool.

We are replacing the rather antiquated stand-off barrier with a replica 'tide-break wall' complete with glazed viewing panels. The next step is a beach area and pupping pool.

We hope that with so much happening in the Zoo this year, we will be able to match – or even overtake – last year's excellent visitor numbers. My personal thanks for your continuing support. Please spread the word, so that more and more people visit us and so help to fund our valuable work with the animals.

Front cover: The Snowy Owl and Elephant shots are the major winners in the 2000 Photographic Competition. Details on pages 14/15. Baby Tapir G'Kar was born in December.

# Notice Board

Update your diary with the following events

## MEMBERS' MEETINGS

**SATURDAY 17 MARCH 2001** –  
2.30 pm in Lecture Hall – *Dr Stephanie Wehnelt* – 'Enrichment – more than just toys, it's animal welfare'.  
Stephanie is the Zoo's Research Officer, and her particular interest is the welfare of the animals in the Zoo. Her talk will discuss techniques of environmental enrichment, including well tried and established ideas as well as some innovative and ingenious ones devised by the keeping staff.

**SATURDAY 7 APRIL 2001** –  
2.30 pm in Lecture Hall – *Sally Walker* – 'Zoo Outreach Work in India'.  
Sally is the Director, Zoo Outreach Organisation, (ZOO) India. She is an

## MEMBERS ADMISSION TO OTHER ZOOS

Chester Zoo members are reminded that the reciprocal arrangements at London, Bristol, Edinburgh, Whipsnade, Marwell, Dublin, Fota and Belfast Zoos, are for free entry for members only. The other benefits of Chester Zoo membership – eg half price tickets, shop discounts – do NOT apply at these other collections.

## PROFESSOR EMERITUS J. O. L. KING

BSc(Agric), MVSc, PhD, FRCVS, CBIol, FIBiol

21.12.1914 – 11.12.2000

By the retired Director of Chester Zoo, Dr Michael Brambell

PROFESSOR OLIVER KING was deeply involved with Chester Zoo for more than 37 years. He was Chairman of Council of the North of England Zoological Society from 1972 to 1986. He guided Council during the last years of George Mottershead's life, through the interregnum following Mr Mottershead's death and into the early years of my directorship. Though we did not always see eye-to-eye, he was a man whose integrity and sense of duty earned great respect, and whose personality engendered admiration and affection. From 1987 to 1999, he served the Society as Vice President.

A favourite memory is of the day the Duchess of Kent formally opened the monorail in April 1991. Following the embarrassing breakdown of the train halfway round the track, I had to ask the Duchess and our other guests to accompany me walking across the Zoo. When, rather breathless, we reached the station where we should have arrived by train, Professor King began his well prepared speech of welcome with the words 'We have been making great strides at Chester Zoo...' At this juncture, the Duchess responded with a hearty 'Yes, indeed! We have just been making great strides!'

After Helen, his wife, suffered a major stroke, Oliver King nursed and supported her for many years. The strain on him was enormous, but he did not falter in the love and care he showed her, simply saying 'this is what marriage is about.'

His own health had been failing for some time, and last year he felt it was time that he should step down from the Society's Vice Presidency.

Oliver King was a man of strong Christian convictions, whose sense of duty enabled the Society to survive through what we can now see were very difficult times. I am glad to have known him and I am glad that, following our very public differences over policy, he and I were able to return to the friendship that had preceded our rift. The Society can take great pride in his having served it so well.



▲ Leaford Patrick.

particular interest in Marine Biology. Alan Watson was the Agent of the Manchester Branch of the Bank of England until his retirement in 1995. He is a Director of N M Rothschild & Sons, Northern Board, and a Member of the University of Manchester Court.

## NEW COUNCIL MEMBERS

TWO new members have been co-opted onto the North of England Zoological Society Council.

Leaford Patrick was a Curator in the Department of Natural History, Horniman Museum, London until his retirement in 1997. He has a



▲ Alan Watson.

## TRIP TO KENYA

There's just time to book for this exciting trip to see conservation work with Black Rhinos, supported by Chester Zoo. The dates are 1-12 July. For details contact Vicky Sterling, Farside Africa, 54 Parma Crescent, London SW11 1LT. Telephone 020-7223 9528. E-mail: [vicky@farsideafrica.com](mailto:vicky@farsideafrica.com).

## CHESTER ZOO 100 CLUB

The winners of recent monthly prizes are:

NOVEMBER 2000

£100 Mr Nicholas Morgan, Warrington

£100 Mr Kenneth Day, Chorley

£50 Mr A M Jones, Ellesmere Port

£50 Mrs E J Norman, Chester

£50 Mr & Mrs D L Milligan, Thornton Hough

DECEMBER 2000

£900 Miss S E Wilks, Prescot

£100 Miss A M Wakefield, Chester

£50 Mr. Gordon F Weston, Mold

£50 Mr I D Ogden, Ashton

£50 Mr E Gary Wynne, Norley

All prize winners will be notified by post and will be listed in the next edition of Chester Zoo Life.

## SCRATCHING THE SURFACE

ANN BRIDGES, currently the Zoo's 'Artist in Residence' has a solo exhibition of her work at Theatre Clwyd in Mold, from 10 March to 22 April. The exhibition features monoprints and sketchbook studies that Ann has produced during her two year placement at the Zoo. It includes images from the *Twilight Zone*, the Aquarium, *Islands in Danger* and *Spirit of the Jaguar*.

The show is called *Scratching the Surface*, and refers to Anne's printmaking method, where the picture surface is often scratched before inks are applied.

# Zoo Review

## Katie is One in a Million



THE Zoo topped one million paying visitors in 2000 for the first time in 24 years!

The total number for the year was 1,020,785.

The millionth visitor went through the gate at mid-day on Sunday 19th November.

She was 4 year old Katie Woodward from Runcorn, visiting the Zoo with big brother Ben, 6, and parents Sue and Jonathan. Young Katie was met by Brookside actor Louis Emerick – who plays Mick Johnson – and an enormous cuddly lion!

Katie and Ben were then given the run of the Zoo's spacious gift shop and £200 worth of vouchers to spend.

◀ *Katie Woodward with Brookside's Louis Emerick.*

## Keeper Chris

WORLD Cycling Champion Chris Boardman has always loved the idea of being a zoo keeper! When he heard of Chester's 'Keeper for a Day' scheme, he

booked himself in to spend a day on the Primate Section.

After clocking in at 8am, Chris reported for duty to Primate Team Leader Andrew Lenihan. He shadowed Andrew and his team for the rest of the day,



enthusiastically joining in with cleaning, food preparation and animal feeding. His day included working with monkeys, lemurs, chimpanzees and orang utans.

Our photograph shows him with Leroy, a red-ruffed lemur.

## STAFF NEWS

### Congratulations ...

...to Research Officer Stephanie Wehnelt, on recently gaining her doctorate. Stephanie has also been accorded Visiting Lecturer status by Chester College.

### Welcome ...

...to Alexandra Zimmerman, who is now the Zoo's Conservation Officer.  
...to Tony Mathews, who is working as Project Manager for six months, helping to develop the new Rhino exhibit.

## LEGACY CLUB NEWS

THE Legacy Club continues to grow and our newest members are Michael and Gillian Edwards who live in Crewe. They have both been members of the Zoo for several years and are adopters of the Satyr Tragopans.

Gillian's surprise birthday present from Michael was the chance to be a 'Keeper for the Day' on the Elephant Section. She had a wonderful day in December mucking out, feeding and enjoying some very close contact with our Elephants.

When they bought their present house a couple of years ago they felt that this was the proper time to sort out a will. As the Edwards wanted to avoid constant amendments in respect of changes in inflation, they felt that leaving a bequest in percentage terms, rather than stating exact sums would be best.

We are extremely grateful to them and to all members of our Legacy Pledge Club for their far-sightedness and their generosity, and, of course would welcome more new members at any time.

As well as a certificate and a 'Behind the Scenes Tour' all Legacy Pledgers are eligible for invitations to various events held at the Zoo.

If anyone would like any further details about the Legacy Pledge Club – you don't even have to be a member of the Zoo – then please ring Hazel Russell in the Development Office on 01244 650229, or email her at [h.russell@chesterzoo.co.uk](mailto:h.russell@chesterzoo.co.uk)



## CHESTER TO BARNESLEY EXPRESS

THIS photograph was sent to *Zoo Life* by Member Jenny Hill, with a note of explanation:

'Your shop staff may remember giving some stickers to an elderly gentleman. I'd thought I'd put the record straight and assure you he's not as mad as he may have seemed! He's my Dad, and while visiting the Zoo he was inspired and now has several carriages on his model garden train line, bearing a wide variety of zoo animals! My partner and I usually leave the zoo on every visit with yet another animal to add to his collection back in Barnsley!'

## MOSCOW ZOO DIRECTOR



IN the Autumn, a delegation from Moscow Zoo visited Chester, led by the Director Vladimir Spitsin – seen here with Chester Zoo Director, Gordon Reid. Mr Spitsin is also Chairman of the Eurasian Regional Association of Zoos and Aquaria.

## FLY HIGH

WE often get requests for the rich by-product of our animals, known as *Zoo Poo*. The vegetarian variety is highly regarded for its propagation properties, and there is a rumour that the carnivores produce a powerful deterrent to garden pests – particularly the ginger tom from next door.

But a request from biologist Dr Coulson of Liverpool John Moores University was definitely a first! He asked for reindeer dung: not for hormone analysis or genetic investigations – but to keep his flies alive! Dr Coulson is involved in a large-scale project studying ecosystems in general and the dispersal and colonisation abilities of High Arctic invertebrates in particular. During his last field season, he collected dung fly larvae with a quantity of reindeer dung. This has now been exhausted – hence the need to obtain more in order to keep his culture of dung flies breeding!



## Po Chin Portrait

MANY *Zoo Life* readers bought packs of the delightful Christmas card 'A little stocking filler' featuring elephant calf *Po Chin*, drawn by local artist Anthony Wyatt.

Each year, Anthony generously donates a special piece of artwork to raise funds at our Elephant Experience Evenings. Last year, it was the original line drawing of *Po Chin*, born in July. The print was auctioned and Judy Vale of Buxton made the winning bid of £500. She is seen here receiving her picture from Anthony, far left, watched by her husband and Team Leader Mick Jones. Judy and her husband are keen supporters of the Zoo, as both members and adopters. Judy has also taken part in our 'Keeper for a Day' scheme, working on the elephant section. She described the experience as her most wonderful day out ever!

For details of this year's Elephant Experience Evenings, see page 6.



## The World Through Native Eyes

RAY MEARS, television's survival and wilderness expert, gave a lively talk to members in November. After listening to Ray's guidance, and watching his informative slides, the audience felt they could survive anywhere! Our photograph shows Ray, with his wife Rachel, in the Roman Garden.

# Raising Oliver

## A VERY TALL TALE!

*Tim Rowlands, Team Leader Giraffe Section, reports on the challenge of hand-rearing a six-foot baby!*

ON the 8th July last year, we were waiting for the birth of our second giraffe for the year; Penny was due to be a mum for the first time! This was rather a tense time for the giraffe section, as we all had the uneasy feeling that our mum to be was not going to be as good a parent as we would hope for. She had shown signs of a maternal instinct the previous month with the birth of *Jester*, *Samara's* third youngster. *Samara* could not have been a better role model - but *Penny* had made us wary with some of her actions, frequently kicking the youngster. We all hoped that this was a learning curve and she would be better with her own calf.

By 10.30am when the first hoof was showing, nails were being bitten down to the knuckles - time really does stand still when you are waiting for something special. At 12.00 noon she pushed hard and showed us for the first time the head of our young giraffe. Eventually, a very calm *Penny* pushed for a final time and falling to earth from a great height (6 foot) dropped our long awaited arrival. For what seemed like an eternity we waited for the first signs of life!

Eventually we had movement, and mum stood over the calf, cleaning him up and everything seemed to be going well. An hour later, propped in the corner but still standing, he made his first steps towards mum looking for his first feed. At this point our worst fears were realised as mum sent him flying with a swift kick to the rib cage. Everyone held their breath, although

this is quite common with hoof stock - especially a first time mother. An hour later, with mum kicking at the fence every time the youngster moved close, we decided to give him his first feed from a bottle (1 litre of colostrum).

The next morning, with renewed optimism, we tried mum and calf together again, but with no luck. We then tried introducing the calf to *Samara* in the hope that she would adopt him, alongside her own baby, but it soon became obvious that this was not going to work. The only option left was to hand rear a six foot male giraffe for the next seven months. The problems came thick and fast - firstly eight pints of gold top milk (full cream) had to be found, and secondly we had to convince our newly named *Oliver* that we were the good guys, and should not be kicked. So for the first two days we tube fed him, four times a day, two pints at a time. The next problem to overcome was to get *Ollie* to suckle from a bottle. We did this by cutting out his feeds until he was hungry enough to allow us to put a bottle in his mouth, and eventually he suckled on his own. From now on it should have been easy! Far from it! We not only had to keep up with his demands of up to 18 pints a day, we also had the worry of *Ollie* deciding not to feed for days at a time.

Putting him back into the group proved less of a challenge. He was accepted readily by all, even *Penny*. She appeared to have quite a special bond



▲ *Belinda Porter gives Oliver his bottle.*

with her calf, as long as he didn't try to feed. Our male, *Cormac*, tolerated him as much as any of the other of the youngsters, but he made a good friend in *Jester* his half brother, who taught him all about being a giraffe, including how to get in as much trouble as possible. On his first day out with the group, he decided to swerve past the staff and dive into the moat, only to jump out nearly as quickly as he flew in. With very little publicity or fuss we worked our way to our target of seven months to wean *Ollie*, who before long was eating solids at every opportunity. This date passed without too many problems, other than a few tantrums for a couple of days after his last bottle feed, but at nearly eight feet tall, we decided he was too big for this treat! This has been a tremendous seven months for the section; never before has there been a successful hand-rearing of a giraffe at Chester Zoo, so congratulations to everyone involved in a job very very well done!

# Zoo Events Programme

## Saturday 17th March & Sunday 18th March

**Uniform Weekend.** Special admission rates for all uniformed groups (Rainbows, Cubs, Brownies etc.) **£5.00 per child and adult helpers.**

## Sunday 25th March

**Mothering Sunday Lunch. £17.95 adult; £10.95 child.** Three course lunch with a gift for each Mum. PRICE INCLUDES ADMISSION. Pre-booking and payment essential. 10% discount for Zoo Members.

## Saturday 7th April

**Teddy Bears Picnic at the Zoo.** Children bringing their teddy bear will receive free entry when accompanied by a paying adult.

## Friday 18th May

**Family Picnic Evening.** Admission into the Zoo from 4.30pm. Collect your picnic from the Oakfield Restaurant from 6.45pm onwards and select your favourite spot in the gardens. Must be pre-booked. **£16.95 per adult £12.95 per child** (under 11 years). Please note that the animal houses will not be open.

## Friday 15th June

**Evening Zoo Safari & BBQ.** Have cocktails with the elephants and meet the chimps, followed by a great barbecue on the Oakfield Terrace. Booking essential. **£21.95 per person.**

## Thursday 21st June

**Midsummer Cycle.** Enjoy a bike ride through the Zoo. Admission from

6.30 pm; last entry 7.15pm. Price includes a fish and chip supper in the Ark Restaurant. **£8.00** adults; **£6.00** children. (Bring your own bike!) Please note that the animal houses will not be open.

## Friday 13 July

**Primate Evening and Dinner.** Meet our keepers during an evening visit to our Chimpanzee and Orang utan houses. Three course dinner in the Oakfield Restaurant. A *Keeper for a Day* prize will be raffled during the evening. **£22.95 per person.** Booking essential.

## Friday 27th July

**Evening Jaguar Experience and Dinner.** Enjoy drinks in our new *Spirit of the Jaguar* followed by dinner in the Oakfield Restaurant. Booking essential. **£22.95 per person.**

## Fauna & Flora International (North West Group)

### Friday 16 March : *Owls and Illusions* – Michael Leach

Michael Leach is one of Europe's top professional wildlife photographers. He has travelled extensively, photographing animals throughout the world. The evening will be split into two talks. In the first half, Michael will reveal some of the cunning, underhand and downright devious tricks that professional wildlife photographers use to get those breathtaking pictures!

After the buffet, there will be a talk based on Michael's book, *The Complete Owl*. This will be illustrated with his own photography of owls around the world.

### Friday 20 April : *Shark Art* – Rolf Williams

Rolf Williams has a passion for sharks, and has worked in London Zoo on a Black-tip Reef Shark project, as well as

working in the Florida Keys and the Bahamas. With a degree in Scientific Illustration, the idea of simply drawing sharks was soon overtaken as he became fascinated by the mystery surrounding these creatures. He joined the BBC as a 'shark wrangler' when they filmed *Jaws – the Truth* for the wildlife series 'Survivors'. Rolf's remarkable illustrations and deep commitment to conservation of marine life will be evident in his 'Shark Art' presentation.

FFI evenings are open to everyone. They are held at the Zoo's Lecture Hall, starting at 7.30pm.

A light buffet supper and wine are included in the price of £6.00 for FFI members and £6.50 for non-members. Student tickets are £5.00.

Please contact Penny Rudd at the Zoo on **01244 650215**.

For further information and bookings, please ring the Events Office on 01244 650209 (Monday – Friday).

## Creating South America

**Sarah Bird, Assistant Curator of Horticulture and Botany writes about the challenge of getting the plant materials and design as authentic as possible.**

CREATING South America is not easy, here in the north west of England! The Jaguar experience starts as you approach the building and we hope you will feel you are entering a new and different land. All the plants around the entrance will be from South America. Some are familiar shrubs like Fuchsias, but look out too for economically important plants, such as potatoes, tomatoes and maize.

Jaguars live in a range of different habitats, from dense tropical rainforest to open grassland or savannah. In *Spirit of the Jaguar* there are two interior areas, each housing a pair of cats. Hard and soft landscaping produces contrasting effects in these enclosures; one represents rainforest, one savannah. Most plants are South American, but some are species from other continents with appropriate characteristics. Sourcing plants has taken around eight months, and we are still trying to find an Annatto bush.

Where possible we have dealt with local nurseries, since their stock is acclimatised to the weather here. But this has not been possible for a significant number of the larger or more unusual specimens. The big rainforest trees, for example, have come from Holland.

**Savannah** Natural savannahs are very fragile ecosystems maintained by a balance between climate, grazing animals and fires. For most of the year savannah is sparse and dry; rainfall is the main factor limiting life. The most conspicuous plants are grasses that may grow to 1.5m tall. Many plants have special adaptations to cope with low rainfall and grazing - small or narrow leaves, spines, and silver-grey foliage are examples. To create an arid effect we are using plants with these features, for

example: *Gleditsia tricanthos* - spines; *Dasylium wheeleri* - spines, narrow silvery leaves; *Miscanthus cultivars* - tall grasses, narrow leaves; *Terminalia ivorensis* - small leaves

**Rainforest** Rainforest soil is thin and poor, as most of the important chemicals/nutrients are contained within living organisms. When an animal or plant dies, its body quickly decomposes, and important chemicals are recycled into the soil. In mature rainforest, little grows on the dimly lit forest floor. In clearings where more light gets through, there is dense undergrowth. The forest trees grow fast, some soaring to 50m or more, and they are usually covered in epiphytes. Epiphytes are plants that grow in the branches of other trees and shrubs to get more light. You will see epiphytic plants like ferns and bromeliads in the rainforest enclosure. The following South American rainforest plants will be growing in *Spirit of the Jaguar*: Bromeliads, palms, chewing gum tree, rubber tree (*Hevea brasiliensis*) and mahogany tree.

Walking in rainforest, all your senses are stimulated; we hope we have created a similar experience in our 'immersion zone'. You see plants everywhere, all shapes and sizes, hundreds of shades of green, with occasional splashes of bright flowers. Vivid butterflies dance among the leaves. If you are lucky, you will glimpse an animal - maybe even the elusive Jaguar!

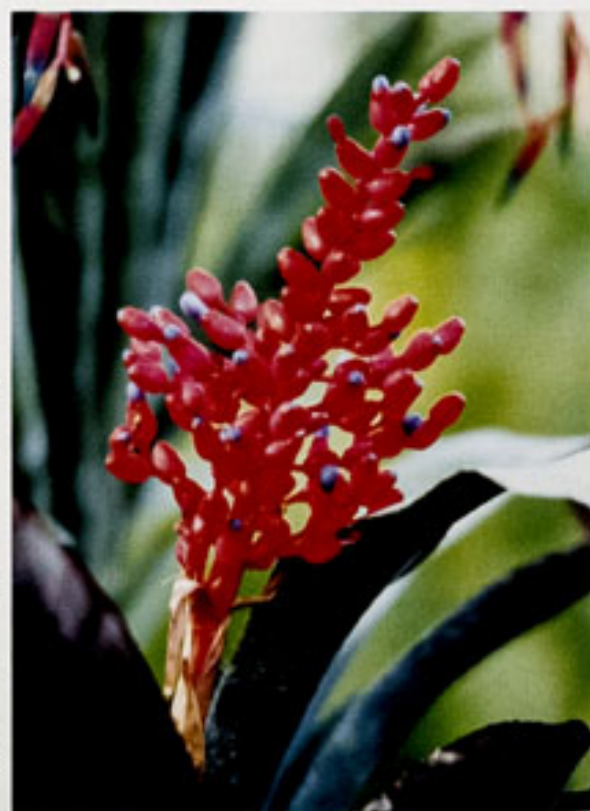
Touch the bark of the Kapok tree and you will regret it! The huge spines protect the tree from animals - even a Jaguar would not scratch on this tree trunk. There is constant noise - mostly from insects and frogs, but birds and occasional animal cries too, along with sounds of moving leaves and water. Sounds remind you that you are never alone in the forest, you are always being watched!

Your nose, too, will tell you that you are in the forest. The smell of soil and decay is strong. Here and there is the sweet scent of flowers -

## PLANTS, PUGMARKS AND PERFUMERY!

*Building Spirit of the Jaguar has been a hugely complex operation, involving almost every department of the Zoo. Horticulture and Botany, and Education have both had a major impact on the experience.*

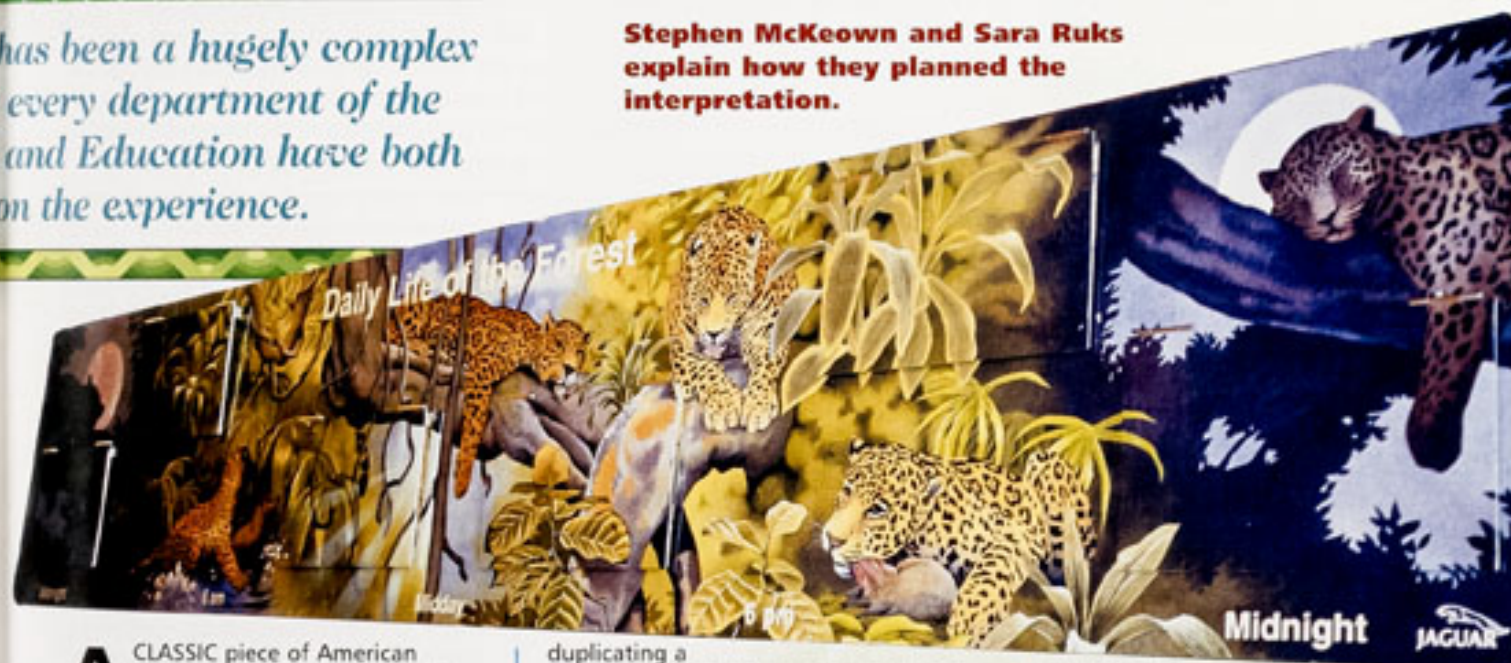
though not all are sweet. Some smell of rotting meat to attract flies for pollination. And then there are smells of animals - scent marks left by the Jaguar perhaps, or droppings of a tapir or sloth. Sometimes smells are so pungent that you almost feel you can taste the forest. Of course, if you know where to look, South American forests provide wonderful flavours too: chocolate, fruits like guava, and the orchid from which vanilla is extracted.



▲ Bromeliad flower.

## Assault on the Senses

**Stephen McKeown and Sara Ruks explain how they planned the interpretation.**



A CLASSIC piece of American research confirms that people remember around 10% of what they hear, 30% of what they read, 50% of what they see but 90% of what they do. So our approach to interpretation has a strong emphasis on interactivity - visitors have to do something to access information and this, hopefully, will make them more likely to remember it. In *Spirit of the Jaguar*, we really let our imaginations run wild. We wanted to involve visitors and, for children especially, we wanted to create an adventure.

After entering *Spirit of the Jaguar*, visitors are invited to be Jaguar trackers, looking for the same hidden signs in the jungle undergrowth that a tracker would find in the wild. Can you find pugmarks leading across the rainforest floor? What about Jaguar droppings or scratch marks on a tree? We should say that the droppings, although alarmingly realistic, have been cast in resin using Jaguar dung kindly supplied by Marwell Zoo!

Jaguars are surrounded by interesting smells in the wild and we wanted to reproduce some of these. We managed to track down a company specialising in

duplicating a huge range of smells, such as chimney smoke and, intriguingly, 'wild stag' (not very nice!). Could they, we asked, hygienically produce 'eau de Jaguar urine' for us? (to demonstrate the importance of scent marking for Jaguars.). No problem. All we had to do was provide a sample for their perfumers to work on! So, back to Marwell Zoo, who obliged us once again. The result was so good that it might well fool even a Jaguar - you will have to judge for yourself!

Because the Jaguar's natural habitat is often very dense, sound becomes an important means of communication. Throughout *Spirit of the Jaguar* there are opportunities for visitors to initiate animal sounds for themselves and, in certain places, without warning, you may well hear a randomly-generated Jaguar growl!

Only contacted for the first time in the 1950s, the Arara people still live in harmony with the forest. The interpretation shows how Jaguars play an integral part in their lives. Did you know that the Arara believe they are reincarnated as Jaguars? You can read and listen to their creation myth, find

out about their daily lives and body painting rituals as well as the problems they face from 'outside'. We are exploring ways of helping the Arara to maintain their traditional life style and rainforest home. Look out for more information in future issues of *Zoo Life*. As with most of the interpretation, the Arara signs are illustrated by Anthony Smith's stunning artwork, based on photographs taken in and around their village.

The aim is to create an exciting, enjoyable learning experience. We hope to challenge people's attitudes to the way we view and treat the natural world and, ultimately to encourage them to change their behaviours so as to have a positive impact on our environment.

One of the most poignant pieces of interpretation is the satellite imagery of rainforest destruction, kindly provided free of charge by NASA. It demonstrates the potential we have in a short period of time to destroy some of the things we should value most. We hope that visitors will be sufficiently inspired by *Spirit of the Jaguar* to realise their own potential to halt the destruction.

# Conservation@ChesterZoo

BY ALEXANDRA  
ZIMMERMANN,  
CONSERVATION OFFICER

## THE INTERNATIONAL PROGRAMME

Chester Zoo has always been a leader in terms of contributing to the conservation of threatened species, and lately our efforts have doubled and re-doubled. Over the past three years, the number of projects supported has trebled and the sum of funds directed towards conservation in the wild has increased eight-fold. In 2001, *Zoo Life* will present Chester Zoo's International Conservation Programme, beginning with this overview of our activities



▲ West African Crowned Crane.  
▼ Philippine Spotted Deer.

### The Modern Zoo

In many parts of the world, zoos have evolved from animal menageries into institutions that continuously strive to attain the best standards of welfare and contribute to the preservation of threatened species. Initially, the role of zoos in conservation consisted of breeding endangered species for eventual re-introduction. Later, the potential of zoos to act as conservation educators and host scientific research projects was recognised. Thus an ethic grew into the zoo community, that a good zoo is one that provides good conditions for its animals and contributes actively to conservation.

Today, modern zoos need to reach beyond captive breeding, research and education to call themselves conservation zoos. Wild habitats are disintegrating and re-introduction of zoo-bred animals is becoming less feasible. Over 18,000 species and subspecies are listed on the IUCN Red List of Threatened Species. **Human activity has already exterminated 816 species in the last 500 years, and species are now disappearing at a rate 50 times higher than nature's normal toll.** As habitats are disappearing, there are fewer and fewer safe places to reintroduce animals. Conservation breeding, research and the education of the general public are important

support-activities for conservation. For a zoo to be *pro-active* in conservation, there is a need to get involved with *in situ* conservation, that is, working to save species in the wild.

### Conservation through Chester Zoo

Chester is one of these "good zoos" participating in all aspects of zoo-based conservation work and *in situ* conservation. Over the last three years we have developed a significant portfolio in international conservation. This programme consists of several major initiatives plus a large number of medium to small-scale programmes or projects. Some projects focus on one species, some deal with all species in a given region, some deal with specific disciplines such as education or training. Many of the species kept in the Zoo are also supported in the wild, and Chester is currently active in over 15 countries.

### Chester's Major Outreach Programmes

**Philippine Programme**  
The Philippine Biodiversity Conservation Programme, administered by Fauna and Flora International, works throughout the Philippines to research, manage and protect many of its extremely threatened and unique species. Chester Zoo is the largest supporter of the Philippine Programme, contributing in particular to work on Philippine Spotted Deer, Hornbills and forest protection. We have, for example, adopted a wardening scheme on the Polillo Islands east of Luzon, enabling the local community to monitor and protect the forests of the small island.

**Jaguar Programme**  
Jaguars are threatened throughout Central and South America because of habitat loss, conflict with people and persecution. With the construction of our new, world-class jaguar exhibit

(sponsored by Jaguar Cars), we are now also embarking on a major support partnership for Jaguar conservation in the wild. Together with the Wildlife Conservation Society (WCS) in the USA, Chester Zoo is in the process of investigating project options. We plan to help ensure the future of safe habitats for Jaguars, such as the Cockscomb Basin Wildlife Sanctuary in Belize. This will be achieved by supporting community participation and education; biological research on wild Jaguars; supporting work on jaguar-human conflict problems; and by stirring awareness amongst zoo visitors about Jaguars and conservation issues in Latin America.

### China Programme

Chester has recently become involved with work on Giant Panda conservation in Sichuan province. Through a Memorandum of Agreement with Chengdu Zoo and Chengdu Giant Panda Breeding Base, Chester Zoo collaborates on a variety of scientific research initiatives related to captive panda management and welfare, and is looking towards supporting direct *in situ* projects. Chester also supports research on threatened Chinese birds such as Yellow-throated Laughing Thrush

### Nigeria Programme

Gashaka Gumti National Park in Nigeria is a wilderness of diverse habitats including savannah, woodland and tropical rainforest. WWF-UK and the Nigerian Conservation Foundation are active in education initiatives, park management and community-based conservation, while Chester is involved in particular with long-term conservation research. We have funded the building of a research centre and are the main supporters of long-term Chimpanzee research carried out by University College London. Chester has also assisted important studies on the park's unique fish fauna.

### Native Species Programme

Although many of the most urgent conservation priorities are concentrated in developing countries, the UK is not immune to the threats facing global biodiversity. Many British species and habitats suffer similar threats and levels of degradation, and 76 species occurring in the UK are listed in the IUCN Red List of Threatened Animals. Chester actively participates in projects - literally in its own backyard. The Zoo's land holdings extend far beyond the zoo's perimeter fence and contain fields and hedgerows for trial



▲ Jaguar

reintroduction projects. At present, Chester Zoo is supporting and co-ordinating a successful Harvest Mouse breeding programme, as well as a wider range of breeding and education programmes for Sand Lizards, Mud Snails, Tadpoles, Shrimps and Barn Owls.

### Plus Many Projects

In addition to these flagship programmes, Chester also supports many other projects and programmes, some of which are ongoing, others requiring one-off assistance. Depending on the needs of the project, we may be able to help with funding, and often also with animal husbandry expertise, scientific training or donation of equipment. Some of the current and recent conservation work supported overseas has included:

- Funding for a translocation of 20 Black Rhinos and vehicles for game guards in Tsavo National Park, Kenya
- Scientific advice and funding for *in situ* conservation and breeding

programmes for threatened Mexican Fish

- Support to the promotion of better welfare, education and conservation in Zoos in India through the Zoo Outreach Organisation
- Funding support for research and conservation of Black Crowned Cranes in West Africa
- Funding and technical support to Echo Parakeet Programme, Mauritius
- Research and financial support for Rodrigues Fruit Bats
- Support for Cheetah and other wild cat conservation (education and conflict management) through the Africat Foundation
- Technical and financial support for education outreach workshops in Zambia
- Support for Mallorcan Midwife Toad research and conservation
- Annual financial support for conservation research Studentships - sponsoring a large variety of undergraduate and graduate research projects overseas.

### WATCH THIS SPACE!

We continually receive applications and requests for assistance in conservation projects from all over the world. Selection is often difficult because conservation needs are urgent and resources scarce. We base our decisions on a variety of factors, including the direct relevance to conservation, the presence of integrated approaches, consideration for animal welfare, feasibility, partnership with local people and scientists, and linkage to species held at the Zoo. New requests are already arriving for 2001 and students will travel to many parts of the world with Chester Zoo funding to carry out important research for conservation.

Not all new projects arise out of such incoming requests. Whenever major work on our animal exhibits is planned, we consider directing funds towards conservation in the wild. Thus, while two baby Asian Elephants were born in the Zoo in 2000, our fundraising department was working hard to raise money, not only for a bigger and better enclosure here, but also for their wild relatives in Asia. With our Jaguar exhibit recently finished, our Jaguar conservation programme just established, our next big challenge will be helping Asian Elephants in the wild.

For further information on Chester Zoo's international conservation programme or if you would like to support conservation work, please contact:

conservation@chesterzoo.co.uk



# The Andean Condor

– A Symbol of power and Grace

*Continuing our series on environmental enrichment; By Dr Stephanie Wehnelt, Research Officer and Darren Langford and Carl Laven, Bird Team*

## Habitat features

THE home of the Andean condor is the inhospitable tundra of the Andes Mountains, where life is pretty tough. There are no trees due to the 'permafrost' – the permanently frozen soil that stops anything from growing deep roots. The winters can last nine months and frequent blizzards make survival extremely difficult. The huge four metre wingspan of the condors allows them to glide for hundreds of miles while searching for food with their excellent eyesight.

Chester Zoo's *Condor Cliff* aviary received a University Federation for Animal Welfare (UFAW) award in 1998. This exhibit imitates the barren landscape of the Andes with plenty of open space to fly and sparse vegetation. At the same time it offers the condors stimulation for their senses. The birds can search for food pieces, and the high trees and cliffs that overlook the Zoo offer visual stimulation. You can often see the condors swaying in the wind whilst sitting with opened wings. Their excellent eyesight is shown, for example, when they react with excited expectation to keepers who are leaving the kitchen with a bucket of food at the Children's Farm! Additional features in the aviary are nesting caves built into the cliffs and a cascading waterfall where the birds can drink and where

they often take a bath. The snow this winter gave the *Condor Cliffs* a look very similar to the wild habitat.

## Feeding habits

Rather than killing prey for themselves, Andean Condors are predominantly scavengers, which means they feed upon the remains of dead animals. From the unpredictability of their next meal and since there are other vultures and many more carnivorous species sharing their scavenging areas – once they have spotted a carcass, Andean Condors swallow as much of the food as they can. The birds have large crops for this, which they fill during the feast for later digestion. They sometimes revisit a carcass if it offers a lot of food.

In order to imitate this natural feeding pattern, we feed our breeding pair of Andean Condors only once a day, mainly with beef, rabbit and chicken, supplemented with rats and day-old chicks.

Last year, however, we started to give our condors a special treat that offers them the opportunity to use all their natural abilities while feeding and complements the high welfare standards of their zoo habitat. We offered whole carcasses of large animals such as calves and turkeys. It needs to be mentioned that the calves are actually waste products from

abattoirs, and are given to the zoo for a small amount of money. The same applies for the turkeys, where we are making good use of carcasses of old or weak animals that are not suitable to produce next year's Christmas dinner! Condors preferably feed on the internal organs such as liver, heart and kidneys, but these 'goodies' are sometimes discarded in conventional zoo diets, which mainly consists of 'mouth-sized' bites of beef or small chicks and rats. You can imagine the condors' excitement when, for the first time, we offered them a bull carcass with the organs still attached!

As in the wild, our condors have a feeding hierarchy, where the male feeds before the female. When he had spotted the carcass, he flew over and guarded it from the female (who had a go later). With his powerful and knife-sharp curved beak, he broke through the ribs of the calf and went straight for the 'soft bits', initially ignoring the muscle meat. The grisly 'favourites' were the calf's brain and tongue, where the birds demonstrated nicely how well adapted they are for this kind of feeding. Using their strong claws and beak the condors first ripped off the soft pieces of the carcass, followed by any other edible pieces. The absence of head plumage is an adaptation to their feeding habits. It allows them to poke

their heads into a carcass without becoming soiled or obstructed by head feathers (see picture, right). The featherless parts are easily cleaned by rubbing their head and neck in the grass or on rocks – a behaviour demonstrated by our condors after feeding on the carcass. After three days the condors had stripped the bones clean, leaving no meat at all, just the skeleton, similar to our artificial 'guanaco bones' in the aviary.

We still offer our birds a variety of foods and use the whole carcasses only occasionally. Sometimes we put the meat in hessian sacks fixed to a pole in the ground. This way, the birds need to use the strength of their beak and claws to break into the sack and to get the food out. The carcasses, however, are definitely their favourite meal, on which the condor will sit, guarding it against any keeper trying to take it away! Even after three days with the same carcass the birds repeatedly feed on it, ignoring any additional food such as fresh chicks or beef.

## Social aspects

Andean Condors also have high cognitive abilities, i.e. they show intelligent 'thinking' behaviour that goes well beyond simple reflexes. We see this, for example, in their social interactions with conspecifics and their interactions with other species such as humans. Keepers have to be particularly cautious when inside the aviary, since the condors develop various strategies of surprise attack. The birds are said to recognise keepers individually, even if they are not wearing uniform – and even years after they have left the Zoo! When the condors are sitting on eggs, nobody is allowed to enter the aviary, as the birds are very sensitive to noise and disturbance. Chester Zoo looks proudly back at many years of hard work to incubate and hand-rear condors successfully, at a time when most other zoos failed at breeding this amazing species. The reason why there



▲ *Carcass feeding.*

are so many condors breeding throughout Europe now is, in part due to Chester's achievements. You can imagine the cheering when the condors eventually parent-reared a chick just after they moved into their new high-standard *Condor Cliff* aviary!

You can often observe the condors' impressive courtship display, mainly

during late spring and early summer. They arch their backs, half open their wings and slowly turn from side to side while producing a guttural engine-like sound. The male's skin turns pink and swells on his neck during this display. Courtship behaviour generally strengthens the pair bond and is typical for animals that stay together in pairs for life.



▲ *Swaying in the wind.*



▲ Best in Competition, by Ed Makin.

## Photographic Competition 2000

Last year's competition attracted over 1000 entries, and gave the judges a very difficult task. But after spending several hours viewing and deliberating, they finally made their decisions on the winners.

The judges were Mr John Billington, Marrie Denham and Mrs Jill Rickitt.

### THE RESULTS ARE:

**Overall Best in Competition** - Ed Makin, of Hunts Cross, Liverpool, for his stunning portrait of a Snowy Owl. The prize is the fabulous holiday in Mauritius, courtesy Air Mauritius and Sun International Hotel Group.

### Prints

**First Prize:** Mark Little of Liverpool, for his photograph of two young elephants playing in their pool. Mark wins the Jaguar-Leica camera.  
**Second Prize:** Trevor Bryan, of Northwich, for an Orang utan picture. The prize is free film and processing every month for a year from Max Spielmann

### Slides

**First Prize:** David Tolliday, Macclesfield, for his reflective picture of Flamingos. David wins the Kodak digital camera.  
**Second Prize:** Ann Toon, of Arnside, Cumbria for a study of a group of chimps. Prize is

vouchers for £50 each from Ness Photo Laboratory and Calumet

### Gardens

**Best Print:** Barbara Ward, of Hornchurch, Essex. Prize is £100 voucher to spend at Bridgemere Garden World.

**Best Slide:** Gillian Storey, of Croxdale, Durham. Gillian - last year's winner - receives a £50 voucher from Calumet and retains the old trophy.

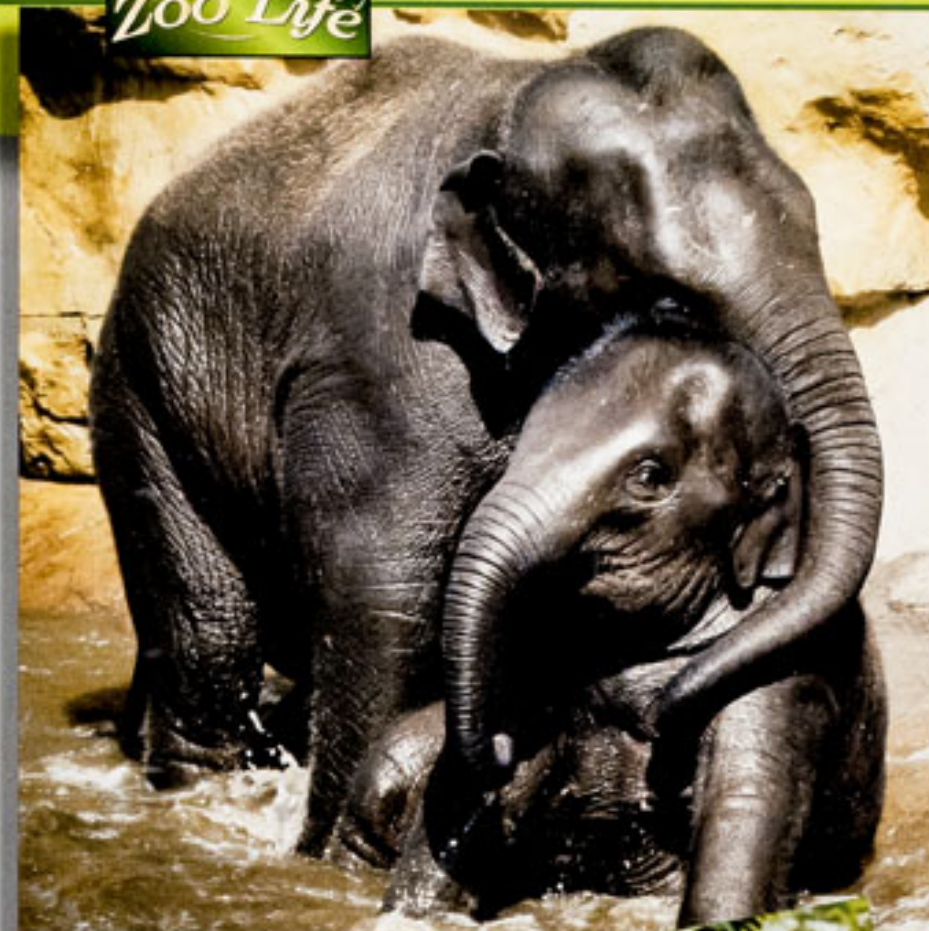
### Juniors

**First Prize:** Stuart Barber, of Middlewich, for a chimpanzee picture. Stuart's prize is a £75.00 gift voucher for Jessops.

**Second Prize:** Alastair Hills of Hough, Nr Crewe, for a profile of a crane. Alastair wins a £50 Ness Photo Lab voucher.

### Digital

**First:** Mike Reynolds, of Handbridge, Chester, for his Zebra Crossing picture. Prize is a Jessops gift voucher for £75.



▲ First Prize, Print Section, Mark Little.



Best Garden Print, Barbara Ward.



▼ Digital Award, Mike Reynolds.



◀ First Prize, Slide Section, David Tolliday.

First Prize, Juniors, Stuart Barber. ▼

Sponsored by





▲ St Lucia Parrot.



▲ Vietnamese Pheasant.



▲ Red Bird of Paradise.

## Bird Review

*Zoo Life's annual review of the Bird Collection, with words and pictures by Dr Roger Wilkinson*

**T**HE transfer of our pair of Red Birds of Paradise to *Islands in Danger* was, for me, the high point of the year. We received these birds from the Bronx Zoo in 1999. They really enjoy the natural jungle planting of their spacious enclosure, taking great delight in dismantling, petal by petal, the orchids previously gracing this exhibit. Still in immature plumage, the male has nevertheless begun displaying and calling at his chosen display site.

The two White-eared Catbirds, from Stuttgart Zoo, quickly settled down in their adjacent enclosure in the New Guinea area of *Islands in Danger*. One built a nest and laid and incubated two eggs. But as both birds are hens, and a cock cannot be found, this was clearly fruitless. A third very large community aviary in this section currently holds a Blue Crowned Pigeon, Golden Heart Pigeons, White-collared Kingfishers, Hooded Pittas, a family of Duyvenboide's Lories and Musschenbroek's Lorikeets. During the summer a pair of Stella's Lorikeets successfully reared a chick in this aviary.

A fourth enclosure houses a magnificent pair of St Lucia Parrots received from Jersey Zoo, and on loan to us from the St Lucia Government. They have settled well and, surprisingly, have hardly damaged the lush planting in their aviary. Watching them in late December, I was thrilled to see the female entering the nest after calling and displaying to her partner, wings and tail outstretched, showing off the red highlights on the upper wing and the banding pattern on the spread tail.

The range of aviaries close to *Islands*

*in Danger* hold some interesting and important birds including the threatened Blyth's Tragopan, Malay Crestless Firebacks, Edwards Pheasants and Vietnamese Pheasants. Birds successfully reared in these aviaries included a Pink Pigeon (foster-reared by White Java Doves), a Mountain Witch Dove, Violet Plantain Eaters, a Tawny Frogmouth, a Lilac breasted Roller, Azure winged Magpies and a Red-billed Blue Magpie.

One Spectacled Owl and two Barn Owls were also reared. With a change of emphasis in local Barn Owl conservation towards habitat and nest box schemes, the release scheme for Barn Owls, co-ordinated by Carole and Paul Hackney of Keele University, has dropped down a couple of gears and few birds are now released each year. We had intended to hold Barn Owls only as non-breeding birds to promote local conservation awareness. As such, we received a tame imprinted male that we were told would not be interested in our female and would remain on show in the aviary rather than retire to the roost/nest box. His behaviour changed on arrival and he not only retired out of view, but the charms of our female proved too much for him, resulting in two unexpected chicks!

The Black-necked Swans reared two cygnets on the penguin pool and Red-crested Pochard reared their own young in *Europe on the Edge*. Eggs from other waterfowl and pheasants were transferred to the incubation and rearing area, where successes included the rearing of a Hawaiian Goose, Ross's Snow Geese, Mandarin Ducks, Northern Shoveler, Laysan Teal, Ferruginous Ducks, Marbled Teal, White-headed Duck, Green Peafowl and Mountain Peacock Pheasants.

The Satyr Tragopans again reared their own chick. Several Roul roul Partridge were artificially reared, and chicks were also parent-reared in the *Tropical Realm*. It was a delight to watch the Congo Peafowl rear two broods of chicks. As noted in previous years, the first brood chicks assisted in caring for the chick of the second brood. Other successes included Lilac Breasted Roller, Nicobar Pigeon, Bali Starlings and White-rumped Shamas.

Birds breeding in the free-flight area included Speckled Pigeons, Red-whiskered Bulbul, Red-billed Leiothrix, Yellow-throated Laughing Thrush, Omei Shan Liocichlas, Asian Glossy Starlings, Grosbeak Starlings and Emerald Starlings. It was especially gratifying to breed the Omei Shan Liocichlas.

Although several private aviculturists, including the species co-ordinator Nigel Houston, have previously bred them, it is thought that Chester may be the first zoo to have success with these birds.

Parrots bred included two Blue-eyed Cockatoos, a Yellow-collared Macaw, a Blue-winged Macaw, a Golden-capped Conure, four Greater Vasa Parrots, two Slender-billed Conures and a Derbyan Parakeet. Growth measurements of the Greater Vasa chicks were taken to chart their rapid development as a contribution towards Sheffield University PhD student Jonathan Ekstrom's sociobiological studies of these parrots in Madagascar. The Blue-eyed Cockatoos were hand-reared by Anne and Paul Morris, who have made a very significant contribution for many years to our conservation breeding programmes. We were especially pleased to be able to send Anne to Mauritius for a four-month period to assist Carl Jones's team with the hand-rearing and release of chicks from wild nests of the critically endangered Echo Parakeet. The zoo provided funding for this important project.

Both pairs of Great Hornbills nested in 2000, but neither was successful. To gain a better understanding of why the nesting attempts are failing, we have installed cameras in the nest boxes of most of our hornbills. These connect to

an off-show TV monitor and video unit to allow research into their nesting behaviours. In the future we hope this coverage will be extended to allow visitors to see inside the nests of the hornbills and other hole nesting birds. The Wrinkled Hornbills that successfully reared chicks in 1999 nested twice in 2000 but no chicks hatched. The female emerged after her second nesting attempt with what first showed as an eye infection. Despite immediate veterinary treatment she failed to recover from what later proved to be a more general fungal infection.

Three West African Black Crowned Cranes and one Red-crowned Crane were successfully reared. The females of our pairs of White-naped cranes and Wattled Cranes lay each year but despite appearing well bonded with their partners, have so far produced only infertile eggs. Although artificial insemination failed to result in fertile eggs for either species, we intend to try this technique again this year.

Our first Caribbean Flamingo chick hatched in July and the first Chilean chick in September, with hatchings continuing into October. A number of the later chicks succumbed in the deteriorating autumn weather and so the last two chicks were hand-reared. In total five Caribbean and six Chilean Flamingos were successfully reared.

Because our previous success with both Waldrapp Ibis and Humboldt's Penguins resulted in their offspring already being well represented in the managed EEP populations, we again limited the numbers bred. We feel it important not to restrict breeding behaviour completely, as breeding one

or two each year helps retain the ability to increase production of young birds if and when necessary.

Much emphasis has been placed on building links between zoos and field conservation. This was especially relevant for the bird collection and bird staff in 2000. We have many years of experience in hand-rearing Humboldt's Penguins at Chester. As reported in the last issue of *Zoo Life*, these skills were put to great use when we were able to send our most experienced penguin keeper, Karen Davies, to South Africa to join the international rescue team following a major oil spill disaster which threatened thousands of endangered African penguins. Karen played a most important role in directing and assisting with the hand-rearing of many thousands of oil-damaged penguin chicks.

Other bird conservation and research programmes, projects and organisations that received Chester Zoo's support in 2000 included *Birdlife International* and *Fauna and Flora International* through sponsorship of Philippine Hornbills conservation and *Wetlands International* through joint funding of their Black Crowned Crane programmes. Manchester Metropolitan University received support for research on Blue-winged Macaws in Brazil and through the Roland Wirth's conservation organization, ZGAPS, together with Leeds Castle Aviaries, we were able to provide funds for research on Yellow-throated Laughing Thrushes in China. We very much hope these links between Chester Zoo and other conservation organisations can be sustained and developed in 2001 and beyond.



▲ Lilac Breasted Roller.



▲ Omei Shan Liocichla.

# THE SUPPORTING CAST

## for Spirit of the Jaguar



Butterfly Gourami. Photo by Joanne Norton © ALA.

*Elusive, enigmatic and at the very apex of its food chain, the Jaguar is well known for its ferocity and fascinating lifestyle. No less fascinating, but perhaps less familiar, are the rainforest dwellers that act as support species within the new Spirit of the Jaguar complex.*

**By Neil Spooner, Dave Shaw and Mike Crumpler**

### LEAFCUTTER ANTS

THESE are a common sight for visitors to tropical rainforests of the New World. There are many species, but the one exhibited will be *Acromyrmex octospinosus*. Famous for their trails and corridors spreading into the forest, these highways are busy with the traffic of hundreds of individuals carrying carefully selected leaves and flowers, neatly cut into manageable pieces. Back at the nest, specific worker ants chew and mash these clippings into a rich compost, providing perfect conditions for the growth of a unique fungus that is the sole constituent of the ants' diet. A truly symbiotic relationship, the

fungus is not known to exist independently of the ants.

In *Spirit of the Jaguar* the ant environment is designed to allow visitors to observe their fascinating behaviour, whilst restricting their harvesting activities to a chosen location. Although they are an important part of the forest ecosystem, they can also be a pugnacious pest in tropical plantations. Their underground nests can grow to several hundred square metres, housing millions of ants.

### POISON ARROW FROGS

Within the immense biodiversity of the tropical rainforest, a number of species

have developed very specialised methods of defence. One example is the use of toxins by various members of the Poison Arrow frog family. Numerous species secrete toxins from their skin to make them unpalatable or even dangerous. The most infamous, *Phyllobates terribilis*, is so poisonous it is unsafe even to handle. Some *Phyllobates* species are used by a small number of tribal groups as a constituent of the poisons used for hunting – hence their popular name.

Sporting wonderful warning colours, they are often described as the 'Neon Tetras' of the frog world, and these tiny creatures – though measuring only

15mm to 62mm – stand out like jewels against the forest floor. It is hoped to have a variety of species on show, including the black and yellow and the blue Poison Arrow frogs.

## CENTIPEDES

It would be easy to fill the *Spirit of the Jaguar* display with some of the more obvious fierce and potentially dangerous species – maybe piranhas, stingrays, deadly spiders, snakes, and even caiman. However, there is one fearsome inhabitant of Amazon forest, which is rarely seen, namely the giant centipede. While large species of centipede (usually 15-20cm long), are found throughout the tropics, this species is a real monster, reaching 30cm in length. A true hunting machine, it is impressive, fast, venomous and aggressive. Living on the forest floor, it spends most of its time foraging for prey, taking anything small enough - small mammals, reptiles, even birds, although a diet of locusts and crickets will suffice in captivity.

## BUTTERFLY GOODEID

The Butterfly Goodeid is found only in pools at the head of the Rio Teuchitlan in Mexico. This has become a campsite over the years, and the pools turned into a spa. This, along with the introduction of non-native species, has had a catastrophic effect on the endemic fish population. Several of this group of 'live bearers' have become extinct. But luckily, with Chester Zoo support, most are now held in captivity. Plans are underway to support and restore the streams and pools which constitute their natural environment. A number of Mexican Universities now hold substantial stocks of the threatened Goodeid species, thanks, in part, to the work of the Fish

and Aquatic Invertebrate Taxon Advisory Group (FAITAG) which is co-chaired by Professor Gordon Reid our Director, and Dr. Heather Hall, Curator of Lower Vertebrates at London Zoo.

## SPIDERS

Some of the early explorers to the Americas were prone to the odd exaggeration regarding the species they observed on their travels. Imagine stories of a spider 30cms across with 'teeth' 2cms in length, able to catch and eat birds! In this instance, the portrayal was 'truthful' – describing the largest species of spider on earth. The Goliath birdeater, found in north east Amazonia, belongs to the Mygalamorph group of spiders, better known as 'tarantulas' or 'birdeaters', though neither English name is entirely

accurate. A 'tarantula' is usually a type of wolf spider from Southern Europe, while the 'bird eating' name is a little misleading. Although physically capable of tackling a small bird, their diet mainly consists of other invertebrates.

Many myths surround these giant spiders, particularly regarding their venom. There is no evidence of any species of Mygalamorph causing a human fatality. The sheer size of the Goliath birdeater's fangs mean they can inflict a painful bite and the venom causes some pain and nausea.

It is hoped that a breeding programme can be undertaken with this species. Although not directly threatened, logging of its habitat and indiscriminate collection for the pet trade will inevitably take its toll on the wild population.

One area of the *Spirit of the Jaguar* allows visitors to enter a miniature rainforest. Finding animals to safely interact with the public is always a challenge, but hopefully the introduction of several farm bred

butterfly species will give the display another dimension. Throughout the year, the geographical range of butterflies may vary depending on conditions and breeding success. But it is hoped that one of the main species on show will be the beautiful blue *Morpho* butterfly. Several species of *Morpho* can be found in the forests of Central and South America, some with a wingspan of 20cms and many shimmering like blue metallic foil. Most *Morpho* species feed as adults on fruit, dung and even

carrion, rather than nectar. This enables them to live somewhat longer than average. It is hoped that some species can be bred on site, although pupae will also be imported from self-sustaining tropical butterfly farms in Central and South America.

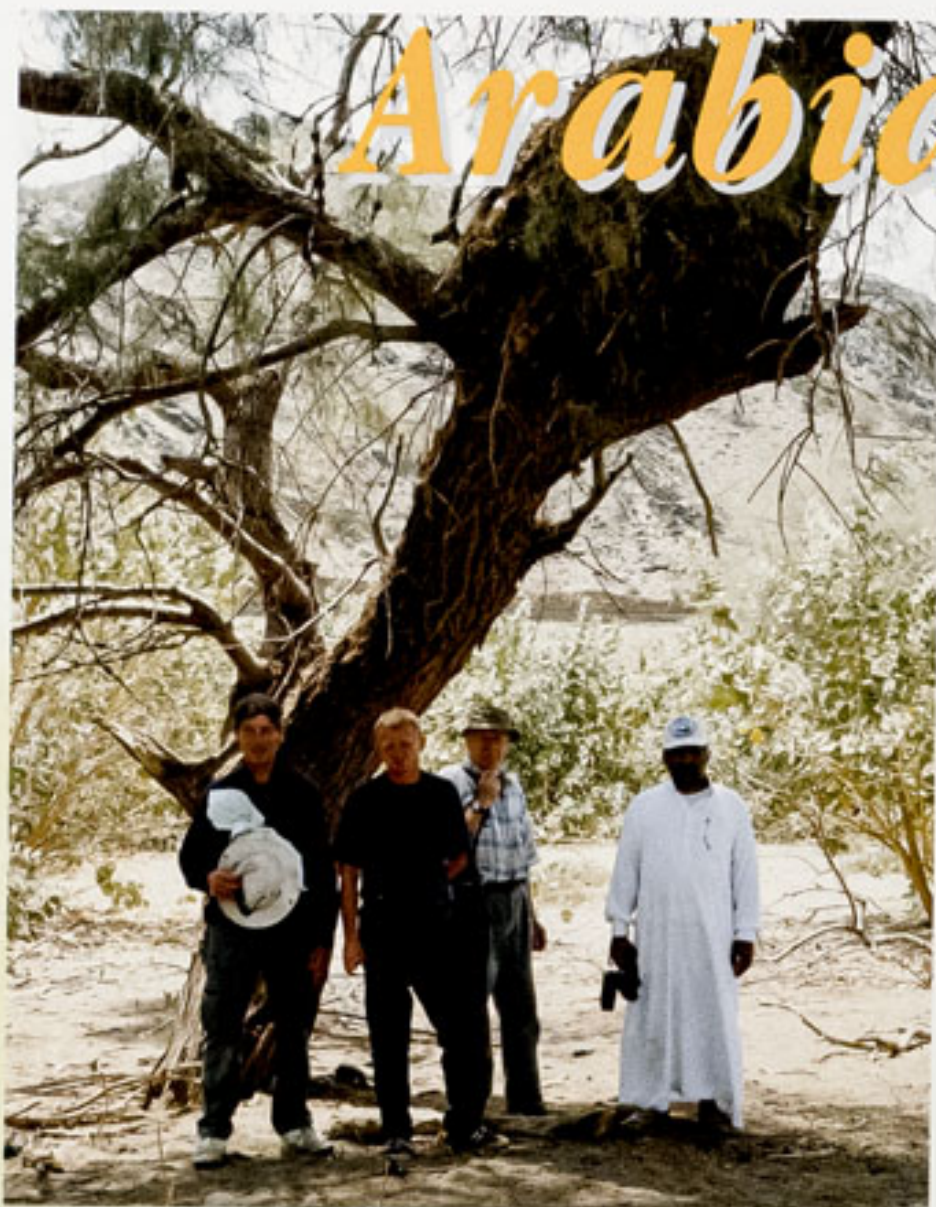


▲ *Poison Arrow Frog.*



▲ *Giant Centipede.*

# Arabian Birdlife



▲ Steve, second right, with travelling companions Bernard and Jeff with guide Abdul Khoja.



▲ Lappet-faced vulture.

*Senior Bird Keeper Steve Williams reports on a research trip to Saudi Arabia, to record the endemic birdlife of the region.*

I'll never forget leaving our air-conditioned hotel at Jeddah and experiencing the unbearable humidity and the temperature soaring into the nineties. After the long, late flight of the previous night, our first day was thankfully only a short drive to Taif.

At Taif we met Abdul M Khoja, the Administrative Director to the National Wildlife Research Centre. He appointed himself as our guide and was to take us around many reserves during our 17 day stay in Saudi. The purpose was to record the breeding biology of the endemic birdlife to South West Arabia, an area very little studied before. The trip was also to record breeding sites and information for the *Breeding Atlas to the Birds of Arabia*, currently being written by Mike Jennings.

Established in 1986, the reserve is a fenced enclosure of 650 hectares of Acacia savannah set in the Asir Mountains. Its main purpose is the captive breeding of rare or endangered Arabian wildlife, for the reintroduction to other reserves throughout the Kingdom. Species bred here include Arabian Oryx, Arabian and Sand Gazelle, Nubian Ibex, Red-necked Ostrich – which has been extinct in the wild here for 50 years – and the Houbana Bustard, whose numbers have declined dramatically due to hunting by falconers.

Much effort has gone into help for the Houbana Bustard and in some years 250 chicks are reared at the centre. The released birds are radio tagged so they are easily monitored and are already breeding again on the centre's reserves.

The enclosures at Taif are very impressive – spacious, with large herds of animals in many of them. In one, a male ostrich was sitting on six eggs only 2 metres from the fence.

After dinner, an Australian lad working for the centre brought an ice cream tub to the table. Inside was a Camel Spider, about 18cms long, trying to jump out of the container. He assured us this species is not poisonous – but could give a nasty, infectious bite! After this, we were driven on a tour of the centre's night life. We saw Scorpions, Black Hedgehogs and Geckos. A deadly mole snake crossed the track in front of our vehicle. Puff Adders and Cobra are supposedly common, but we failed to see any. With snakes so common, I was surprised to hear only one person at the centre had been bitten. People often find snakes in their living quarters.

Early next morning we drove to a fenced section of the reserve which had been left ungrazed to see how the natural vegetation would regenerate. Plant species here were much more abundant than in areas outside. Birdlife also seemed more common. There were two large rocky escarpments with Philbys and Sand Partridges running around. We also saw Rock Hyrax and a Mongoose. Eagle Owls, long legged Buzzards and

brown-necked ravens were also known to breed on the escarpments.

That afternoon we drove south through the spectacular scenery of the Asir Mountains, where large Juniper forests grew on steep mountain slopes, dropping thousands of feet below. Large troops of Baboons scavenged at roadside picnic areas and Griffon Vultures soared effortlessly around huge crags. We arrived at Tinouah late evening. The view from our hotel room just dropped thousands of feet into a huge V-shaped valley. A colony of Griffon Vultures were nesting on crags only 300 metres away. These, along with Black Kites, could be seen soaring around throughout the day.

The habitat around the hotel was mainly juniper forest with scattered Acacias, rising high into the hillside to huge rocky outcrops, from which Baboons called. Large Blue Toad-headed Agama (a lizard species) were common and could be seen basking on rocks from the early morning. Around the forest were many picnic areas where families come daily, always leaving all their rubbish.

This area is very rich in wildlife and many of the endemic species we sought were here. Abdul told us little research had been done and a study was needed. After three days, we found a high level of predation to birds' nests. The probable cause was people keeping the birds away from their nests and the scavenging ravens and baboons, attracted by the picnic remains. Early morning brought troops of baboons down the hillside to scabble through bins outside our hotel.

Further south along the Asir Mountains, which eventually run to Yemen, is the Raidah escarpment, an important reserve for Arabian endemic species. Every day violent thunder storms dropped enormous hailstones on to this 7,000 ft ridge. This whole area is covered in dense juniper forest. At the bottom of huge winding track there are deserted farming villages, where the people left long ago in search of work.

This area is very rich in bird life. There were many pairs of African Grey Hornbills; White-browed Coucals called from high trees; Tristram Grackles nested in a derelict building; Jacobin cuckoos – a species not yet recorded as breeding here – were seen perched high in the treetops; Grey-headed Kingfishers – a forest species which feeds on insects – perched on branches; Amethyst Starlings fed chicks inside an old Arabian Woodpecker nest hole. Outside our cabin that evening, Plain Nightjars could be heard in the terraced farmland many metres below.

Leaving Raidah we drove to the Thama plain, passing a huge colony of Arabian Golden Sparrows and Ruppels Weavers. The heat was unbearable, forcing a return to the air-conditioned car after only five minutes outside.

Abdul introduced us to Hadie, a Saudi teacher. He drove us to sites with African Grey hornbills; and then, close to his house, we heard a Nubian Nightjar. Looking through our field guide, Hardie said he knew of a Black Stork's nest. We told him this was unlikely as it was far outside the range. We were taken to see the nest, and found it contained three Abdims Stork chicks, a species not recorded breeding here for 20 years.

The real highlight of the trip was a visit to Mahazat-as-saya reserve. We arrived in the heat of the day and were invited into a huge tent, where we had lunch and then slept until 4pm. Refreshed, we took a fourwheel drive jeep into the desert, where we saw Oryx and Gazelle. In an acacia tree was the



▲ *Hubara Bustard.*



▲ *Toad-headed Agama.*



▲ *Philby's Partridge.*

enormous nest of a Lappet-faced Vulture, containing a huge chick. The reserve held 35 pairs of these birds. Around the nest tree were fox prints, but the sharp acacia thorns had stopped the foxes from reaching the nest.

On our return to Taif, we visited a Souk where there were many falconry stalls. We were told that on Fridays this market is full of Saudi and Yemen wildlife, caught by the locals. They sold anything they could catch, even leopards, Arabian bustards, cobras and falcons.

I learnt so much about Saudi Arabia's wildlife and customs. I was impressed at how much effort is going into the conservation and sometimes reintroduction of wild species. Education of the human population seems their most challenging problem. More reserves with restricted access would greatly help in the conservation of many species here.

# Ethiopian Study

Tourism has the potential to destroy or preserve cultural and natural heritage. Million Belay, a student from Ethiopia, received a Chester Zoo studentship to investigate the relationship between local people and tourism in the Lower Omo Valley. This lies in the transition zone between the well-watered Ethiopian highlands and the arid Kenyan lowlands, 750km south of the capital city Addis Ababa.

THE indigenous people of the Lower Omo Valley wear modern clothes and practice unique traditions. Their culture and the natural beauty of the nearby Mago and Omo National Parks attracts a small number of tourists. It is home to 277 species of mammals and 862 species of birds, which may represent 7% of mammals and 10% of birds of the world. There are 201 reptile species, 63 amphibian species and 105 species of endemic insects.

I went to study the relationship between the local people and the Mago National Park, and to discover what positive and negative effects tourism has. My project was based with the Durrell Institute of Conservation and Ecology (University of Kent) and co-funded by Chester Zoo.

I spent a month with tour operators in Addis Ababa assessing tourism activity in the region and the indigenous communities living around

the Mago. The people featured as a major attraction in the brochures. But are they benefiting from tourism, or is it destroying their culture and safety?

Omo and Mago are two of the least developed National Parks in East Africa, despite their plentiful wildlife, but the animals are shy and less visible than in the more heavily-visited parks of Kenya and Tanzania. There are 81 mammals species recorded in the park, together with 153 bird species recorded to date, including four endemics (the White winged Cliff Chat, the Black-headed Forest Oriole, the Thick-billed Raven and the Wattled Ibis).

Human diversity is extraordinary too; seven distinct groups of people border the parks. Since most of them preserve their traditional ways, hardly different from the way they lived centuries ago, they are of great interest to tourists, and demonstrate how people act as an integral part of natural ecosystems.

My study people, the Hamer and the Karo are agro-pastoralists with populations of more than 30,000 and 1,000 respectively. The main subsistence is the cultivation of sorghum, millet, vegetables and some tobacco and cotton, plus the herding of cattle, sheep and goats. They gather wild honey and are fine potters. They enjoy body decoration and wear quantities of colourful beads.

Both communities see the potential benefits of tourism and they do not yet



▲ The Hamar and Karo people enjoy body decoration and wear quantities of colourful beads.

perceive a negative impact. However, the region's political administration is not always seen as supporting conservation efforts, and frustration is evident amongst the indigenous people and the park staff, who sometimes perceive a lack of government support. A shortage of grazing land, forces the community to graze their cattle in the park. They consider the Mago Park to be an attraction to tourists, and the majority of the Hamer, and some of the Karo, also believe in the protection of the park without people. They want to benefit from tourism but are not prepared to compromise their culture for cash income.

Ethiopia holds great potential for nature and cultural tourism, but much work is needed to improve infrastructure and communication, as well as conservation policy, co-operation and the creation of economic incentives to offer the Lower Omo Valley as a sustainable tourist destination.

## A Twilight Christmas

FATHER Christmas arrived in December, for his annual reindeer training sessions. Hundreds of youngsters visited him in the atmospheric grotto in the outer cave of the *Twilight Zone*. The Zoo took on a magical radiance at night, as hundreds of fairy lights led the way from the entrance to the grotto, including illuminated penguins, elephants and reindeer. Local choirs and musicians provided seasonal entertainment in a marquee, along with craft demonstrations and activities.

A great success – due to a great deal of hard work and long hours from the Visitor Services Division!



## A Snow Covered Zoo

FOR just a couple of days between Christmas and New Year, the Zoo took on the appearance of a beautiful Christmas card scene. Roger Wilkinson captured this lovely picture of the Oakfield House and lawn.





## Glimmer of Hope for a Threatened Species

IT WAS a great honour for Chester Zoo to be invited to participate in the first ever Species Survival Plan (SSP) to protect an amphibian: the Puerto Rican Crested Toad.

I was approved and elected as institutional representative, which meant committing to a programme of population management for this species under the guidance of the species coordinator and management group, as designated by the American Zoo and Aquarium (AZA) Wildlife Conservation and Management Committee (WCMC).

The Puerto Rican Crested Toad is one of eight endemic bufonids in the West Indies and the only native species to be found in Puerto Rico and the Virgin Islands. An increase in the human population and the introduction of two serious predators, the Indian Mongoose and the Marine Toad, forced the Crested Toad into a decline by 1980.

Only two natural populations of this species still exist, one in the south, in the dry, sub-tropical forests of Guanica and one in the north at Quebradillas. In 1984, the SSP ensured that breeding programmes would be established within institutions in the USA and Puerto Rico and that captive-bred animals would be reintroduced to localities where they would be strictly monitored and regular assessments made of their progress.

*Herpetologist Isolde McGeorge writes about a new species in the Tropical Realm – a very rare and endangered amphibian.*



The Puerto Rican Crested Toad is an unusual-looking animal. Called the *sapo concho* (which translates as 'ridged head' in its native country - hence the derivative name 'Crested'), it has a peculiar upturned nose and heavy ridging over the eyes giving a hooded appearance. The females, when full-grown, may measure up to 12cm, against the male's lesser stature of approximately 6.5cm.

In the breeding season they are sexually differentiated by colour, the

males being much more yellow than the females. Males also possess very prominent nuptial pads on the first and second digits of the front feet. These are hardened areas of skin used to grip and hold the female while in amplexus.

Native country, Crested Toads are found in very dry, rocky areas at 200m elevations. The climate is extremely harsh for an amphibian to survive in, with daytime temperatures up to 40°C and surface temperatures upwards of 50°C. During the day the toads seek out deep crevices in the rocks to escape the punishing heat and venture out only at night when the temperature has dropped to a more comfortable level.

Rainfall is prevalent at only one time in the year. The toads emerge to spawn in the temporary pools created by the limited rainfall and because the pools may dry up, egg development is rapid. The tadpoles hatch within twenty four hours and metamorphosis occurs twenty-one days later. Now designated a threatened species by the U.S Department of the Interior Fish and Wildlife Services, studies in field and captive research are being undertaken to support the survival of this declining amphibian. With the zoo-bred animals we recently received via the Toronto and Toledo Zoos we too hope to contribute to the protection of this declining species.

## GROWING CONCERNS

**T**HE question every gardener in the UK was asking last Autumn - *When it is EVER going to stop raining?* Large areas of the zoo were flooded and the ground was absolutely saturated. Being on a heavy clay soil does not help. Many plants are showing signs of stress, particularly the seasonal bedding, so I think we are in for a poor flowering display this spring. Add to this the snow and freezing temperatures experienced in January, and it seems that Nature is reminding

us that we cannot take the mild winters of recent years for granted. Despite the weather, work in the garden goes on, although some tasks, like tree planting have been delayed. We have given some shrubs a winter pruning, leaving the spring-flowering ones until after they have flowered. We have tidied up some of the indoor planting areas, such as *Tropical Realm*. You will notice we have created a new naturalistic planting feature in the waterfall pool, using orchids, bromeliads, ferns and climbing

*This is the first of a new regular feature for Zoo Life. Each quarter, Mark Sparrow, Curator of Horticulture and Botany, and his Deputy, Sarah Bird, will be covering some of the division's projects and plans - and growing pains!*

plants, attached to some large intertwining tree trunks.

Our current major project is *Spirit of the Jaguar*. As I write this, in mid January, it looks like a muddy battlefield outside the building. It will be quite a challenge to transform this into a lush green garden by the spring! There's more detail on how we planned the garden areas for this stunning new exhibit on page 8.

## PLANT OF THE MONTH

*As a regular feature on the Growing Concerns page, we will suggest a plant to look out for each month in the zoo. It might be something in flower, something with interesting leaf colour or seeds; it may be outside or in one of the houses. More fascinating facts will be given on a Plant of the Month sign by the plant. Don't forget there are interesting plants at Chester Zoo as well as the amazing animals!*

**MARCH:** *Forsythia x intermedia*: Golden Bell Bush

**Look out for:** Masses of golden yellow flowers, each with four petals, on leafless branches. This familiar shrub is one of the first to flower in spring. There are several specimens in the border opposite the Lion enclosure between the *Floral Clock* and *Glorious Grasses*.



▲ *Forsythia*.

**APRIL:** *Camellia japonica* varieties: Camellias

**Look out for:** Evergreen shrubs with stunning red, pink or white flowers, and glossy dark green leaves. Our Camellia

bed is between the Sealion pool and the European Birds aviary. These beautiful plants were thought to be too tender for gardens in the UK when they were first introduced from China and Japan. Flowers can be damaged by frost followed by hot morning sun - hopefully this will not have happened before your visit.



▲ *Camellia*.

**MAY:** *Davidia involucreta*: Handkerchief tree, Dove tree, Ghost tree  
**Look out for:** A flowering tree with conspicuous white bracts around the flowers. The tree is in one of the beds

round the Oakfield lawn. This tree is most striking in May when the bracts of the flowers hang down and flutter in the breeze giving rise to the common names given below. *Davidia* comes from China and was discovered by, and named for the French missionary Armand David - who also gave his name to Père David's Deer.



▲ *Davidia*.

# 2001 – a South American Odyssey



## at Chester Zoo

**W**E'VE done Africa, we've island-hopped around the world and now the Education Division is planning to take you on a South American Odyssey. This huge continent is home to the largest rainforest in the world, with the greatest range of species to be found on Earth (much of it undiscovered). This is your invitation to join us as we explore every aspect of this fascinating land, from its parrots to its people, its cuisine to its conservation.

Our week will start on Monday 13th August. We're still planning, but here's what we've got in store. . .

**Monday 13th August** - We've enlisted the help of Dave and Sue Shaw's Rainforest Roadshow to kick off this week in spectacular style. Dave and Sue have travelled extensively in South America and have brought back loads of interesting artefacts and animals. Today will introduce the continent and the week.

**Tuesday 14th August** - From Angelfish to Yellow-striped Poison Arrow Frogs, South America is home to a dazzling number of animals . . . and so are we. Today we'll be visiting and learning about some of the Zoo's own South American inhabitants - how many of them do you know?

**Wednesday 15th August** - Dave and Sue join us again to investigate some of the people of the Amazon forest. How do people survive in the forest? What do they do all day? Could YOU survive? Find out in today's exciting workshops.

**Thursday 16th August** - Have you ever sat down at home with a hot chocolate drink and a ginger nut biscuit? Maybe you love vanilla ice-cream? What about chips? All of these foods use ingredients from plants that originally come from South America. Plants are so vitally important to life in South America, they get a day to themselves.

**Friday 17th August** - Once again, we finish with a bang! We are hoping to have a South American group of musicians to conduct a workshop with us, using panpipes, flutes and other genuine instruments. Discover the rhythm of South America!

The days start at 10am and end at 4pm, with children supervised throughout. Every day, especially Tuesday, involves visiting the Zoo's animal collection, so bring suitable footwear and clothing. We always ensure that our days are as action-packed as possible, with plenty of crafts and activities for children to do. As usual, snacks and drinks at break-times are included, but lunch isn't - please bring one. The cost per day is £20. For more details and a booking form, please call the Education Division on 01244 650205 or email at [education@chesterzoo.co.uk](mailto:education@chesterzoo.co.uk). We look forward to seeing you.



### CONSERVATION CORNER

Conservation is the zoo's most important mission. But we recognise that conservation of animals

is not enough - saving animals is pointless if there is no habitat for them. This is where plants come in. We are becoming more directly involved in

plant conservation and hope to become as well known for conserving plants as we are for conserving animals.

*Our first steps include:*

- Constructing a computerised database of all the most important plants in the zoo.
- Increasing the botanical significance of the collection. This has started with the acquisition of some rare and endangered orchids. Mr Steve Manning, the UK National Collection holder for the family *Pleurothallidinae*, has kindly donated the plants. An area of one of

the greenhouses has been specially adapted to grow them. We now have over 150 species and plan to have some on public display in the future.

- Looking at locally endangered species to see whether we can help in their protection.



Orchid



## Zoo Life

# JUNIOR MEMBERS



## Meetings and Field Trips

### Saturday 24 March 2001 – Tracks and Signs

Juniors love the opportunity to be on the 'other side of the fence' looking around inside the animal enclosures to find footprints from which to make your own plaster casts. March usually proves to be a muddy-enough month to make this a successful but messy event so make sure you wear really old clothes and wellies.

Over eights are invited to join us, starting at 11.00 am when we will meet outside the Oakfield.

### Saturday 21 April 2001 – Knowsley Safari Park

It has been a few years since we last visited Knowsley Safari Park and things have changed a lot since then. We hope to have a guided tour around the park which will make this a special event.

Over eights are invited to join us and we will leave the staff entrance at 10.30 am, returning to the Zoo at 4.30 pm. You will need a picnic.

### Saturday 19 May 2001 – The Middlewood Way

This is a new event for Juniors, when we will be travelling to Macclesfield and walking a few miles of the well known *Middlewood Way* which was once a railway line and which is now a nature reserve. We will be accompanied by a Ranger who will point out some of the special sights along the way.

Over eights are welcome to join us, bringing a picnic, when we leave the staff car park at 9.30 am. We should be back at the Zoo around 5.30 pm.

### Saturday 23 June 2001 – The Chestnut Centre

Always one of our most enjoyable events, we look forward to visiting the lovely *Chestnut Centre*, which is an Otter and Owl Conservation park in Derbyshire. We will have a tour around this beautiful location and admire the work being done there for Otters and Birds of Prey.

The bus will leave the staff car park at 9.30 am, returning at 5.00 pm. Over eights are invited to come along. Remember to bring a picnic.

### Wednesday 25 July 2001 – Day With a Keeper

Undoubtedly the most popular day in the Juniors' calendar, when you are given the opportunity to spend a day working alongside a Zoo Keeper. The work can be strenuous and we have to strictly limit this event to Juniors of twelve or over. We do try to accommodate Juniors' areas of special interest but obviously places are very limited so this cannot be guaranteed. Please come prepared to work hard, wearing wellies and with a good picnic.

We will meet outside the Oakfield at 10.30 am and the day will finish for Juniors at 4.00 pm. Please note that bookings will not be taken before Wednesday 11th July 2001 from 8.30 am.

### Friday 17 August 2001 – Summer Barbeque

A regular meeting point during the summer holidays when Juniors can get together for an evening in the Zoo after all the visitors have left. Apart from your barbequed supper, there will be a 'surprise' speaker to entertain Juniors.

Over eights are invited to come along for this relaxing evening which starts at 7.00 pm when you should arrive at the Staff Entrance and walk over to the *Ark Restaurant*. Parents are requested to collect Juniors from there at 9.45 pm.

### Saturday 22 September 2001 – The Green Wood Centre

Another new event for this year will be our trip to the *Green Wood Centre* in Snowdonia. This Forest Heritage and Adventure Park offers the chance to learn about ancient and modern forests and how conservation and production can go hand in hand.

Lots of interactive exhibits, and involvement in traditional forest crafts and walking the woodland trails will ensure that this will be a great day out.

Over eights are welcome to join us leaving the staff car park at 9.00 am, returning at 5.00 pm. Bring a picnic.



## Saturday 20 October 2001 – Lower Moss Wood Reserve and Wildlife Hospital

We will spend the day being guided around this small but very interesting reserve near Knutsford in Cheshire, which also serves as a rescue centre for injured British wildlife. This will be a chance to see hedgehogs, foxes, lots of birds and probably some surprises too.

The bus will leave the staff car park at 10.30am and return at 4.00pm. Over eights are invited along with a picnic.

*Bookings must be made for all events. Please ring Penny Rudd at the Zoo on 01244 650215, not more than two weeks before the event you would like to attend. Places are offered on a 'first-come-first served' basis and may be limited.*

*This list is provisional, and in exceptional circumstances we may have to alter dates and venues.*

## Saturday 17 November 2001 – Electric Mountain and the Welsh Slate Museum

Our third new venue this year will be a visit to the *Electric Mountain* and *Welsh Slate Museum* in Llanberis, Snowdonia. This will be a chance to find out more about how electricity is generated and about geology and should be a good day out. The bus will leave the staff car park at 9.30am and will return at 5.00pm. Suitable for over eights. Remember to bring a picnic with you.

*You will be informed of any such changes in Zoo Life – not by individual letter – so please keep up-to-date by reading the Junior Page in each issue.*

*A small charge will be made to cover the cost of those events which involve transport, materials or the provision of food and you will be informed of this at the time of booking.*

# Junior Puzzle Page?

A WORD square to make you concentrate! The animals, plants and countries listed are all connected with South America. But the word search contains only 24 of the 25 listed. Which is the missing one?

R	E	D	I	P	S	G	N	I	T	A	E	D	R	I	B
O	H	S	P	U	N	I	B	R	N	T	F	Q	O	R	U
D	B	E	L	A	J	A	G	U	A	R	P	M	A	D	T
N	Y	X	A	P	G	N	A	W	R	O	O	Z	K	H	T
O	G	I	N	B	U	T	A	U	E	E	I	A	P	Y	E
C	O	A	T	I	L	C	C	B	T	L	S	R	A	A	R
M	O	W	A	N	A	E	H	F	T	D	O	J	I	R	F
C	D	E	I	M	W	N	I	X	U	H	N	A	U	G	L
L	A	Z	N	S	P	T	L	Y	C	I	F	G	A	N	Y
B	R	W	N	J	A	I	E	M	F	S	R	P	R	I	G
U	O	G	F	V	W	P	E	L	A	T	O	M	A	T	O
S	W	E	E	T	P	E	P	P	E	R	G	M	B	S	O
H	A	K	Y	I	A	D	Z	I	L	E	A	I	Y	A	D
D	N	E	C	Q	W	E	N	K	B	I	X	A	P	H	E
O	A	Y	A	O	I	A	N	A	C	O	N	D	A	D	I
G	E	E	R	T	E	T	A	L	O	C	O	H	C	Z	D

Write this word on a postcard and send to Junior Puzzle, Marketing Office, Chester Zoo, Upton-by-Chester, Cheshire, CH2 1LH. There's a £10 voucher for the Zoo gift shops for the first correct entry opened on the closing date – 31 March.

The 'Spot the Difference' competition in the December issue was won by Caitlin McHugh of Gayton, Wirral.

**Anaconda**  
**Arowana**  
**Bird Eating Spider**  
**Bixa**  
**Brazil**  
**Bushdog**  
**Butterfly Goodeid**  
**Capybara**  
**Chile**  
**Chocolate Tree**  
**Coati**  
**Condor**  
**Giant Centipede**  
**Jaguar**

**Leaf Cutter Ant**  
**Macaw**  
**Mara**  
**Pawpaw**  
**Piranha**  
**Plantain**  
**Poison Frog**  
**Rhea**  
**Stingray**  
**Sweet Pepper**  
**Tomato**



# Arrivals, Births and Hatchings

November, December 2000 & January 2001

## MAMMALS

*Sable Antelope	<i>Hippotragus niger</i>	0.1.0	Arrival
*Arabian Gazelle	<i>Gazella gazella arabica</i>	1.0.0	Arrival
*Rodrigues Fruit Bat	<i>Pteropus rodricensis</i>	0.0.4	Birth
Seba's Short-tailed Bat	<i>Carollia perspicillata</i>	0.0.28	Birth
*Cotton-top Tamarin	<i>Saguinus oedipus</i>	0.0.2	Birth
*Chimpanzee	<i>Pan troglodytes</i>	0.1.0	Birth
*Maned Wolf	<i>Chrysocyon brachyurus</i>	0.0.4	Birth
*South American Tapir	<i>Tapirus terrestris</i>	1.0.0	Birth
*Burmese Brow-Antlered Deer	<i>Cervus eldi thamin</i>	1.0.0	Birth
*Lowland Anoa	<i>Bubalus depressicornis</i>	1.0.0	Birth
*Sitatunga	<i>Tragelaphus spekei</i>	1.0.0	Birth

## BIRDS

*Griffon Vulture	<i>Gyps fulvus</i>	0.1.0	Arrival
*Mauritius Kestrel	<i>Falco punctatus</i>	1.0.0	Arrival
Crowned Lapwing	<i>Vanellus coronatus</i>	1.1.0	Arrival
Green-winged Dove	<i>Chalcophaps indica</i>	1.0.0	Arrival
*Mauritius Pink Pigeon	<i>Columba mayeri</i>	1.0.0	Arrival
*Yellow-backed Chattering Lory	<i>Lorius garrulus flavopalliatu</i>	1.1.0	Arrival
Blue-eyed Cockatoo	<i>Cacatua ophthalmica</i>	2.1.0	Arrival
*Kea	<i>Nestor notabilis</i>	1.0.0	Arrival
*Red-tailed Amazon	<i>Amazona brasiliensis</i>	1.1.0	Arrival
*Hyacinth Macaw	<i>Anodorhynchus hyacinthinus</i>	0.0.1	Arrival
*Fischer's Turaco	<i>Tauraco fischeri</i>	1.1.0	Arrival
Barn Owl	<i>Tyto alba</i>	0.1.0	Arrival
Tawny Frogmouth	<i>Podargus strigoides</i>	1.0.0	Arrival
*Wrinkled Hornbill	<i>Aceros corrugatus</i>	0.1.0	Arrival
*Gouldian Finch	<i>Chloebia gouldiae</i>	1.2.0	Arrival
*Diamond Firetail Finch	<i>Emblema guttata</i>	1.0.0	Arrival
*Blue-faced Parrot Finch	<i>Erythrura trichroa</i>	1.2.0	Arrival
*Star Finch	<i>Neochmia ruficauda</i>	0.0.1	Arrival
*Mountain Peacock Pheasant	<i>Polyplectron inopinatum</i>	0.0.1	Hatched
Speckled Pigeon	<i>Columba guinea</i>	0.0.1	Hatched

## REPTILES

*Philippine Sail-fin Lizard	<i>Hydrosaurus pustulatus</i>	1.3.1	Arrival
*Timor Monitor	<i>Varanus timorensis</i>	1.1.0	Arrival
*Lace Monitor	<i>Varanus varius</i>	0.0.2	Arrival
Honduran Milksnake	<i>Lampropeltis triangulum honduriensis</i>	0.0.1	Bred

## AMPHIBIANS

*Puerto Rican Crested Toad	<i>Peltophryne lemur</i>	0.0.30	Arrival
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## FISH

NIL

## INVERTEBRATES

NIL