EAZA NEWS

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Contents SUMMER 2009

EAZA News

EAZA News is the quarterly magazine of the European Association of Zoos and Aquaria (EAZA).

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From the Director's Chair

As the economic crisis continues throughout Europe and around the world this could be a time of concern for zoos and aquariums. From talking with many of you there seems to be a mixed response to the crisis from your public and partners. Many zoos are reporting that they are seeing much increased visitor numbers and in some cases even record breaking starts to the year. Anecdotally this seems to be resulting from the general public staying closer to home, forgoing an expensive foreign holiday in exchange for more local trips, thereby supporting their local zoos and aquariums. This is an unexpected positive outcome for EAZA members and will help many of you fulfil project goals this year. Unfortunately there are always 'swings and roundabouts' and the downside is that large capital projects are at risk as potential sponsors from external companies decide to postpone or withdraw from large donations.

This current crisis highlights the need for zoos and aquariums to be able to demonstrate a positive economic impact on their local communities. This economic impact derives from the provision of jobs, the resourcing of materials and products, and the ability to attract large numbers of people to a local area, visitors who will spend money not only in the zoo or aquarium itself, but in the local shops, hotels, petrol stations and many other facilities. Demonstrating this economic impact to decision makers in the EU will be part of the jigsaw in developing a more beneficial relationship between the EU and the EAZA community. Here at the EAZA Executive Office we would like to hear from member zoos and aquariums which have carried out economic impact studies and where possible we would like to receive the reports in order to collate such information. Ideally we would in time wish to be able to demonstrate the economic impact of the entire EAZA community.

When combined with the social, research and conservation impacts that zoos and aquariums can demonstrate, our community has never been more important. Socially, zoos and aquariums provide a place of formal and informal education about the natural history of our planet, detailing in an accessible manner the pressing conservation needs and also newer threats such as climate change, that will impact all our lives. Zoos and aquariums cater for a far wider spectrum of the European population than science centres or museums, representing a democratisation of knowledge about our world. The provision of volunteering opportunities allows European citizens to participate in meaningful activities, providing mental and physical health benefits for the volunteers as well as helping the institution meet its goals.

Research and conservation efforts in EAZA institutions continue to increase in variety and overall output. Many of you have recently replied to our 2009 Research Survey, allowing us to further measure our research outputs. Please do send information if you have not done so to date. Equally, post details of your conservation projects on the EAZA in situ Conservation Database. EAZA is currently in discussion with WAZA and other regional associations to make this a global database in the future. However such a database will only be as good as the entries – the ability to say in detail how many projects are undertaken, in what countries, at what costs and with what results will be an invaluable tool when promoting the role of zoos and aquariums in conservation. Our external conservation partners, press and media, potential sponsors, and local and regional governments want to know these details and therefore we appreciate your help in collating such information. In this edition of *EAZA News* we are delighted to have an article by Dr Simon Stuart, Chair of the IUCN Species Survival Commission, detailing the IUCN conservation priorities, priorities which EAZA members can contribute expert knowledge or other resources towards fulfilling. Dr Stuart has kindly agreed to be one of our keynote speakers at Annual Conference in Copenhagen. You can also read about the new Red List logo and graphics on the back page.

EAZA continues to develop in 2009 and at the recent EAZA Council meeting in May, kindly hosted by Dvur Kralove, the EAZA Strategy and Action Plan 2009-2012 was formally approved. It is available for download on the EAZA website and was also sent to all members as a PDF. Please take time to read this important document and consider how your institution and staff can assist in implementing our joint community strategy. We are also very pleased to welcome our new Communication and Membership Manager, Eoghan O'Sullivan, who started work at the EAZA Office in early June. You can read an interview with Eoghan later in this issue and hopefully many of you will get the chance to meet with him over the next few months and at our conference in Copenhagen. Also in this issue there is an article about the very successful EAZA Zoo Educators conference, generously hosted by Cologne Zoo. At this meeting we started developing the new EAZA Conservation Education Strategy and we will report on this initiative later in the year.

I wish you all much success for the summer season.

The New EAZA Communications and Fundraising Committee

The Council of EAZA has approved the formation of a new specialist committee for Communications and Fundraising. This committee will have a dual role in that it will provide guidance on these topics across the wider membership and act as an expert board for the EAZA Executive Office and specifically the Executive Director and the Manager of Communications and Membership. To develop this Committee there is a need to find an enthusiastic and talented Committee Chair from an EAZA member institution. We would therefore like to hear from EAZA members with expertise in these fields who can commit the time and energy required to develop this new committee. If you would like to get involved (either as the Chair of the Committee or as a supporting member of the committee) please write to the Executive Director, Dr Lesley Dickie (lesley.dickie@eaza.net) detailing your experience in either Communications or Fundraising.

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Specialist Committee Chairs as observers in Council
Alastair MacDonald, University of Edinburgh
Jacques Kaandorp, Safari Beekse Bergen (Hivarenbeek)
Theo Pagel, Koln Zoo

BIRTHS AND HATCHINGS

FIRST BABY RHINO AT MADRID ZOO

THE WORLD'S THIRD RHINO conceived by artificial insemination (AI) was born at Madrid Zoo on 29 April, a great success for an extensive breeding programme that has been focusing on assisted reproduction technologies (ART).

It was back in 2006 that Parques Reunidos (Madrid Zoo and Selwo in Malaga) started their ART breeding programme for rhino in order to improve the future management of the white rhino population in Parques Reunidos. The group had six individuals at the time, located in three different facilities throughout Spain and, initially, a reproductive assessment of all six animals (3.3) was conducted, following which two animals were relocated into two facilities to try natural breeding. Due to the lack of natural mating, a 12 year-old wild caught female was artificially inseminated in December 2007 with fresh sperm from a Madrid Zoo wild caught male who is over 45 years old. After 509 days of gestation a male rhino calf was safely delivered. The first-time mother rhino took care of the baby immediately and has proved an excellent mother.

ART are tools that if properly used and researched could be used in future for saving some of the critically endangered rhino species. It could also benefit the Spanish population of white rhinos. Of the 26 individuals in 11 facilities throughout the country, natural breeding has occurred very rarely.

LIONS AND LIZARDS AT ZURICH

FINE NEWS IN FROM ZURICH ZOO earlier this year, where their six year-old Asiatic lion Joy gave birth to three cubs on 3 February. Although she ignored her first born cub (which was very weak and did not survive), she paid great attention to the other two, and they're both doing very well. The cubs' father is the 3½ year-old male Radja, and this is the first litter for both parents.

Another Zurich success came when three beaded lizards hatched during December 2008 after an incubation time of 198-210 days at 29°C, *writes curator Dr Samuel Furrer*. The weight ranged between 33 and 38g. After being raised for some weeks behind the scenes, they are now on display within the adult's enclosure. IR- and UV-lighting is provided to simulate natural conditions. The mothers hatched in Zoo Zurich in 1996 and 1998. We are happy to contribute again to the EEP of this beautiful lizard.

Furthermore, after an incubation of 135 days at 28°C, were proud to welcome three Fiji iguanas. This is the second successful hatching since 2007 in Zurich. The adults are kept outside during the warm period (June-September). Having a surplus of young males, there will surely be options to start changing the animals within the herp collections within EAZA institutions.

BREEDING PROGRAMME MANAGEMENT COURSES AT EAZA ACADEMY

DURING WINTER 2008/2009 three breeding progamme management courses took place in the EAZA Executive Office in Amsterdam. They included two basic courses and one advanced course.

The basic course is primarily meant for newly approved EEP Coordinators and/or ESB Studbook keepers or those who are in the process of taking over a new programme. A wide range of topics was taught including SPARKS, genetics, all about EAZA and its structures, working procedures and how to produce a studbook.

The following 16 participants successfully completed the EAZA Academy: Basic Breeding Programme Management Course held at the EAZA Executive Office (EEO) in Amsterdam, from 1-5 December 2008:

Esmeralda dols	Epe	Brush-tailed bettong EEP
Caterina Spiezio	Busselengo	Ring tailed maki ESB
Lisbeth Hogh	Bandholm	Black and white ruffed lemur EEP
Herwig Pucher	Vienna	Japanese serow ESB
Roslin Talbot	Edinburgh	King penguin ESB
Mark Pilgrim	Chester	Ecuadorian amazon EEP, Jaguar ESB, Black rhino EEP
Benoit Quintard	Besancon	Assist Lesser Antilles Hercules beetle ESB
Eulalia Moreno	Almeria	Cuviers' gazelle EEP
Tony Durkin	Torquay	Inca tern ESB
Martin Krug	Bratislava	Nubian ibex ESB
Jiri Hruby	Dvur Kralove	Greater kudu ESB
Pavel Moucha	Dvur Kralove	Lesser kudu ESB
Martin Smrcek	Dvur Kralove	Hoopoe ESB
Jill Vermeiren	Cambron-Casteau	Assist Hyacinth macaw EEP
Terri Hill	-	Plain zebra research
Julia Gottschlich	-	European black vulture research

Another 16 participants successfully completed the EAZA Academy: Basic Breeding Programme Management Course during the week of 23-27 March 2009:

Adriane Prahl	Hamburg	Assist North Chinese leopard EEP
Andre Stadler	Wuppertal	Black-footed cat EEP
Dean Tugade	Alwabra	King bird of paradise ESB
Jamie Graham	Whipsnade	Chestnut-backed thrush ESB
Adrian Walls	London	Pied and Black hornbill ESBs
Mirko Marseille	Dutch Zoo Association	N/A
Konstantin Ruske	Leipzig	In the process of taking over the White-naped crane ESB
Mikkel Stelvig	Copenhagen	Assist Muskox EEP
Colin Oulton	Edinburgh	Thick-billed parrot ESB
Christina Schubert	Landau	Assist Philippine spotted deer ISB
Susana Nolasco	Lisboa	Lowland nyala ESB
Telma Araújo	Lisboa	In the process of taking over an ESB
Geraldine Pothet	Paris	Allen's swamp monkey ESB, Agile mangabey ESB, White-cheeked mangabey ESB and Gaur EEP
Virginie Dechmann	Lisieux	Assist Sri Lanka leopard EEP
Dawny Greenwood	Linton	Mongoose lemur EEP
Kim Simmons	Linton	Mongoose lemur EEP

We would like to thank Kristin Leus (EPMAG) and Tanya Langenhorst (Marwell) for their valuable contribution to all three courses.

Those who are interested in participating in a future course please get in touch with William van Lint (william.van.lint@eaza.net).

In January 2009 the third Advanced Breeding Programme Management Course took place in the EAZA Executive Office in Amsterdam. The first two courses were especially meant for expanding the core group of EPMAG members. This course however was open for all the EEP Coordinators. The only restriction was that participants should have completed the Basic Breeding Programme Management Course.

Topics that were discussed during the course were the necessary preparations of a studbook for analysis in PM2000 and the demographic and genetic background when working with PM2000. There was time for the participants to work with their own studbooks, too.

Twelve colleagues successfully completed the advanced course.

Milada Petru	Decin	Fishing cat EEP
Peter Galbusera	Antwerpen	Golden-headed lion tamarin EEP
Lars Versteege	Hilvarenbeek	Vice chair EAZA Rhino TAG, Sloth bear EEP, White rhino EEP, Eurasian lynx ESB
Pierre de Wit	Emmen	Humboldt penguin EEP
Raymond van der Meer	Amersfoort	Vice chair EAZA Canid TAG, Green-cheeked amazon EEP, Geoffroy's cat EEP, Hyena ESBs
Jo Elliott	Edinburgh	European otter EEP
Graham Catlow	Edinburgh	Diana monkey EEP, L'Hoest's monkey EEP, Owl-faced monkey EEP
Malcolm Fitzpatrick	London	Tiger EEP
Janos Szantho	Amsterdam	Black-footed penguin EEP, Lesser Malayan mousedeer EEP and Polar bear EEP
Danny de Man	EAZA	African buffalo EEP (in preparation)
Stefan Stadler	Frankfurt	Socorro dove EEP, Sunbittern ESB
Jean-Luc Berthier	Paris	Chair EAZA Sheep and Goat TAG, Blue sheep ESB

LEMUR TIMES THREE

GERMANY'S ALLWETTERZOO IN MUNSTER has been looking after a breeding group of ring-tailed lemurs since 1986, and in March this year a notable first took place when the lemurs' first triplets were born. Triplet births are not often recorded, either in zoos or in the wild.

The four-year-old lemur mother responded to this special challenge really well – she carried and suckled all her three young without any problems. After five days the eleven-year-old 'grandmother' of the triplets gave birth herself to a further youngster. For the first few days each mother paid attention to their own young, but by 6 April both mothers were carrying two young each and suckling them as well. This so-called reciprocal nursing is known for ring-tailed lemurs in the wild, but as far as we know it usually only takes place for young animals from their fourth week of life onwards. At Munster, since their fourth week of life the little lemurs were actively rotating between both mothers.

Meanwhile there's been further good news from the Zoo's yellow-throated marten enclosure, where a litter has been born and hopes are high that the young will make a great addition to the growing collection.

Allwetterzoo's pair of martens first had offspring in 2006, but only a few days after birth the young disappeared. Because the animals seemed to be restless in their well visited enclosure, the zoo decided to keep them behind the scenes during the next breeding season.

Then, in 2007, the mother gave birth to three young in a hammock made of sackcloth, but two young died during the first weeks. The third, a female, was successfully raised, and she's now on display in the company of a new male partner from Moscow Zoo. In 2008 the marten couple had offspring again. This time the zoo offered several hollow tree-trunks as litter dens. The two young females have also grown well and healthily.

CAMPAIGNS

CARNIVORE CAMPAIGN – AN UPDATE

EAZA's Carnivore Campaign is currently in full swing and some exciting new additions will join the 'Dirty Dozen' when the campaign is relaunched during the Annual Conference in Copenhagen in September. As of the end of June, the campaign had 155 participating institutions including 117 EAZA members. The total fundraising goal for the first year is €518,666 and funds are already coming in, including some dontations via the PayPal button on the website (www.carnivorecampaign.eu).

ACTIVITIES

Visitors to the website can also learn about campaign activities such as the Teddy Bears' Picnic that took place across a number of EAZA members in mid-June. The questionnaire, 'What do you know about carnivores?', is a popular element of the website and is throwing up some interesting results regarding the most popular carnivore species in Europe. Visit the site to find the latest favourites.

Of course you can also download a full range of factsheets including a set designed especially for children, all of which are available in a number of language translations. Social networkers might even want to look up the 'Help the European Carnivores' Facebook group.

We're regularly updating the site with carnivore-related news, links and videos – feel free to contribute some ideas and suggestions. All carnivore correspondence should be directed to info@carnivorecampaign.eu

GUNNAR RIES AMPHIBOL

Educating the Educators

Lothar Philips, Cologne Zoo

This year's Zoo Educators Conference that was held in Cologne marked a significant step forward in educational thinking and practice

EAZA's Zoo Educators Conference attracted more than 140 delegates in February for its five-day course at Cologne Zoo – a course that nearly didn't happen at all!

The original plan was to hold the conference at Barcelona Aquarium, and present the new EAZA Education and Design Committee structure. Back at the Antwerp conference, EAZA Director Dr Lesley Dickie had launched plans for a new education strategy in her speech Rewilding Childhood, from which the message was clear. It was time for educators across Europe to get active.

When Barcelona discovered that they were not able to host the conference, however, it was clear that a replacement had to be quickly found: this was, after all, an important strategy that we needed to start working on straightaway. Fortunately, Cologne Zoo was able to jump into the breach, with just one question on our minds: can we organise it in time? The answer was simple: yes we can!

Kicking off in early in November the Education Committee Conference Planning Group met in Cologne. We decided to combine the three key issues:

1. To make the Education and Exhibit Design Committee visible for the zoo educators
2. to involve more educators in EAZA's work and
3. to develop a draft EAZA-Education-Strategy for Conservation Education.

This was quite an ambitious programme, so to make it work we set up a rigorous time schedule: keynote speeches and 10 minutes speeches on best practice as input, related working groups for discussions and mechanisms 'to bring it all together'.

During the first day of the conference the overview was presented by EAZA Director Lesley Dickie: 'Why a conservation education strategy?' and Henk Hiddingh (chair of the Education and Exhibit Design Committee) 'How the Education & Exhibit Design Committee works'.

Later the heads of the working groups started to flesh out the details: Renaud Fulconis spoke on conservation: 'Conservation, Education and Development, or how should they be linked to improve our goals in the field', Morten Smetana on 'Climate change / sustainability', and Lothar Philips on: 'Regional collection plans (RCPs)'.

In the afternoon three working groups on conservation and three on sustainability developed basics for a draft EAZA-Education-Conservation strategy.

The working group on RCPs tried to find out what are 'educational reasons' to include special species in an RCP.

The second day was opened by Constance Melicharek with a keynote speech on 'visitor studies' followed by Erik van Vliet

on 'exhibit design'. These keynote speeches were completed by 10 minute speeches on best practice. The specific working groups met after this and discussed issues for a draft Education Conservation Strategy.

In the afternoon we have tested a new method of evaluation: the 'photomatrix' – a way to evaluate an institution (see http://www.vzp.de/photomatrix/photomatrix.html).

The hardest thing was to bring all the ideas and results of the different working groups together, so many thanks to the EAZA Office, especially Lesley Dickie and Sietske Veenman, for collating the results and preparing a report.

This report helped the heads of the working groups and the Education and Exhibit Design Committee to create statements for a draft Education Conservation Strategy. As a result we ended up with seven statements which were ranked by all participants:

1. Ensure that conservation education and nature conservation messages are embedded in exhibit design.
2. Increase involvement of EAZA members in conservation education (*ex* and *in situ*). Linking conservation education programmes in zoos to the wild, support conservation education in substandard zoos.

3. Establish an EAZA Visitor Studies Training Course. Standards and guidelines for implementation of evaluation of visitor studies established and disseminated to EAZA members.
4. Improve communication between EAZA Educators on conservation education and additionally ensure that EAZA educators are better embedded in existing EAZA wide communication tools.
5. Increase effectiveness of climate change and sustainability communication/education in EAZA members.
6. Improve the quality of conservation education in EAZA member institutions see: communication.
7. Ensure that conservation education is incorporated in Regional Collection Plans/TAGs/EEPs Criteria development.

These statements are the basis of a paper, written by the EAZA Education and Exhibit Design Committee and EAZA Office, 'EAZA CONSERVATION EDUCATION ACTION PLAN 2009-2012, Strategic and operational aims'.

At the end I would like to thank EAZA and Cologne Zoo for their support, all organisers and participants for coming, and for making this not only the greatest zoo educators conference ever but also a very successful one.

If you would like to read the presentations from the conference you can find them at http://www.vzp.de/EZE2009.

IMAGES, CLOCKWISE FROM FAR LEFT TOP: MARTIN BECKER, GABY SCHWAMMER, RUTH DIECKMANN (RIGHT), LOTHAR PHILIPS, PETER HAASE (LEFT); THE PARTICIPANTS CELEBRATE; LOTHAR PHILIPS (WHO SAID ORGANISING WAS EASY!); LESLEY + SIETSKE

Okapis become ambassadors

Kristin Leus (Okapi EEP coordinator) and Steve Shurter (Gilman International Conservation)

EAZA zoos housing okapis are contributing to the management of a World Heritage Site in one of the planet's most biologically diverse regions

First, lets start with the background. In 1952 the Ministry for Agriculture and Forestry of the then Belgian Congo constructed an okapi capture, rearing and research station near the village of Epulu, managed by Jean de Médina. The station offered schooling and medical assistance for the local people and operated as a research centre and a transit point from where wild caught animals, especially okapis, could be sent to zoos around the world, often via the port and zoo of Antwerp.

The station was largely destroyed during the uprisings in 1964. Thereafter the then 'Institut Zairois pour la Conservation de la Nature' (IZCN) continued to curate the station and to house okapis, but it lacked knowhow and resources. In 1987 Gilman International Conservation (GIC) entered into a formal partnership with the IZCN and the Okapi Conservation Project was born. The GIC Foundation supports wildlife conservation and research programmes around the world and supports the White Oak Conservation Centre, an AZA accredited, non-public, breeding center for endangered animals, located at White Oak Plantation (Yulee Florida). In 1992 the 13,726 km² Okapi Wildlife Reserve (OWR) in the Ituri forest (the heartland of okapi distribution) was created. In 1996, the OWR became a UNESCO World Heritage Site and in 1997 it was inscribed on the List of World Heritage in Danger. The OWR is managed by the now 'Institut Congolais pour la Conservation de la Nature' (ICCN), with crucial financial and technical support by the GIC and the Wildlife Conservation Society. All EEP and SSP zoos currently housing okapis are encouraged to, whenever possible, contribute at least about US$5,000 per year to the Okapi Conservation Project. Together the zoo support represents an annual contribution of about 20% of the total budget of the project.

MUCH MORE THAN A 'PAPER RESERVE'

The support of the zoos has been, and continues to be, crucial to the success of the OWR in being much more than a reserve on paper. The okapi breeding and research station at Epulu still houses 14 okapis, a number of which are the parents of offspring that provided badly needed genetic supplementation to the SSP and EEP captive population but even more importantly, it currently functions as the OWR headquarters for the ICCN and as a base of operations for the GIC staff. The OWR protects a large section of the Ituri lowland rainforest of the Congo River basin. It is currently estimated to contain about 5,000 okapis, 4,000 elephants, 2,000 leopards, 13 primate species (among which chimpanzees, red colobus, Eastern black and white colobus and Angolan black and white colobus), blue duikers, red duikers, yellow-backed duikers, bongos, sitatunga, forest buffalo, water chevrotains, forest hogs and red river hogs as well as three species of crocodile and a wide variety of birds and insects. It is considered one of the most important sites for bird conservation in mainland Africa.

GIC's focus with the ICCN is the capacity building and support of the warden and ranger teams for the reserve. The currently 69 field rangers are on patrol 50-80% of their time and the GIC salary bonus and health care provide essential support to the rangers and their families. The project also provides uniforms and technical equipment for the rangers and supports their training and that of other ICCN staff in matters such as information gathering, computer skills, GIS mapping and ethics training. With the World Heritage support from UNESCO, an aerial survey of the OWR could be conducted in April 2008. This provides essential information on activities outside and inside the reserve, so that ICCN rangers can then be deployed to these specific areas (e.g. sites of illegal logging, mining and poaching camps and agricultural expansion into the reserve). The encounter frequency and location of the main mammal and bird species is recorded. The GIC Okapi Conservation Project is also collaborating with the Virunga Park team and the Zoological Society of London to organise the study of the okapi living in a remnant population along the Semliki river in the northern sector of the Virunga National Park.

GIC runs a very elaborate conservation education programme with as its primary goal the transfer of skills and knowledge that empower the communities with the ability to conserve. This is done by identifying the needs of the community members and educating all age groups on solutions that sustain a good quality of life and adjust resource use to a sustainable level. Because one of the greatest challenges facing the management of the OWR is the loss of rainforest habitat through predominantly slash and burn agriculture, an agro-forestry programme has been initiated that educates people about organic gardening principles, new more productive varieties of food crops and reclaiming fallow land, thus achieving a higher production of crops and reducing the amount of land needed for cultivation. Currently in full development is an attempt to set up cane rat farms as alternatives to bushmeat hunting. More detailed information on all of the above activities, and more, can be found on the GIC website http://www.giconline.org/okapi.asp and on the okapi blog http://www.wildlifedirect.org/blogAdmin/okapi.

ALWAYS ROOM FOR MORE

Now you have heard of the amazing work that the GIC and its staff and partners are carrying out in and around the OWR, partly funded through EEP and SSP zoos with okapis, you will probably find it doubly sad that we are not managing to get the EEP okapi population to grow faster. We'll keep trying hard of course, but why wait for okapis? Why not think about joining up with the project using one of the many other charismatic fauna species as a link? Even non-threatened species like Red River Hogs could be successful ambassadors for this unique and diverse corner of the world. Do give it some thought. GIC will be happy to investigate possibilities with you. It's a brilliant opportunity to help preserve an incredible amount of biodiversity and to sustainably improve the quality of life of the people living in this wonderful ecosystem.

The bald facts

The 'Proyecto Eremita' is a study of different releasing techniques of Northern Bald Ibis (Geronticus eremita) in the region of La Janda (Cádiz, South-Western Spain) starting in 2003.

Written by Miguel A Quevedo and Iñigo Sánchez, ZooBotánico Jerez, Spain

The northern bald ibis, hermit ibis, or waldrapp, a bird widespread in the Mediterranean Region in historical times, is now globally categorised as 'Critically Endangered', (IUCN 2008) with an estimated wild population of about 420. Just over 100 breeding pairs now remain at two sites in Morocco whilst two further wild pairs remain in Syria. There is also a small semicaptive population in Turkey.

Outside the breeding season the Moroccan population concentrate at one site with upwards of 300 individuals (75% of the wild population) roosting on one small section of the sea cliff. On the other hand, a large captive population persist in zoos, which have a Moroccan founder population. At present the estimated EEP (European Endangered species Programme) population size is about 900 birds.

In 1999 an international advisory group for the northern bald ibis (IAGNBI) was created during the workshop held in Agadir (Morocco) in order to coordinate efforts, provide scientific advice and bring together the teams working on the wild birds with those in the zoo community. One of the conclusions of the meeting noted that it was time to conduct studies on releasing techniques to attain a non-migratory and viable population of this species in another area.

PROYECTO EREMITA

Due to appropriate habitat and climate conditions in the south of Spain and the willingness of Zoobotánico Jerez in performing studies of releasing techniques this project was presented to our regional environmental administration (Junta de Andalucía). 'Proyecto Eremita' started in 2003, as a joint project between Zoobotánico de Jerez and Consejería de Medio Ambiente de la Junta de Andalucía with the scientific advisor of Estación Biológica de Doñana, the main institution for the study of vertebrates in Spain. An area in Cádiz province, South-Western Spain was chosen, with conditions quite similar to those found in the current Moroccan distribution: good climate with mild winters and hot, dry summers, abundant foraging areas of pastures and agriculture fields allowing the birds to feed all the year around and coastal cliffs within a protected area (Parque Natural Pinar de la Breña y Acantilados de Barbate).

The first year was devoted to the habitat assessment, food availability and potential hazard studies to know if the selected area was able to hold a self-sustaining population. At the meeting of the IAGNBI held in Innsbruck (Austria) in July 2003 the project was presented along with the preliminary results of the field study. The planned release methodology was revised in view of the outcome of the meeting. One constraint in

FAR LEFT: CHARACTERISED FOSTER PARENTS WITH HAND-REARED BIRDS

ABOVE LEFT: RELEASE SITE

LEFT: AVIARY AT THE RELEASE SITE

TOP: FIRST NEST IN A NEARBY COASTAL CLIFF, MAY 2008

ABOVE: FIRST WILD CHICK ('TRAFALGAR') REARED BY PARENTS

A group of hand-reared chicks was raised by foster parents wearing ibis helmets

the release plan was the proximity of southern Spain to the Moroccan population. The recommendation was to enclose the juveniles in the aviary during the dispersal period (August to November).

At the beginning of 2004 an aviary was built at Sierra del Retín, a military area where the access is restricted giving some level of protection to the birds. This enclosure is divided into several parts, not only for release but also to maintain a captive breeding colony as an additional attraction to the free-flying group. During this year an educational program was developed and directed to different collectives of the release area to raise public awareness on the species. Basic information on the biology and conservation status of the species was provided to schools, NGOs, hunters and farmers associations and the general public. In the summer of 2004 we started to release birds and it was planned to continue until 2008. Birds used in this study come from the EEP, mainly from ZooBotanico Jerez. Other EEP institutions that have kindly collaborated with the project providing birds for release and breeding are: Amersfoort, Budapest, Chester, Doue, Innsbruck and Jersey.

RELEASE TECHNIQUES USED

- Group of hand-reared chicks raised by characterised foster parents wearing black shirts and ibis-shaped helmets. The chicks follow and approach only these 'parents' and can be handled and caught whereas they avoid contact with other humans (74 birds).
- Group of hand-reared ibis together with cattle egrets, a common species in the area with similar habitat and food needs (17 birds, only in 2004 and 2005).
- Group of parent-reared chicks incorporated into the hand-reared group when the birds are kept in the aviary during the dispersal period. Those birds are released in November. (12 birds in 2004, 2005 and 2006).
- Group of adults, previously kept in the aviary for at least 2 years and incorporated with the hand-reared chicks before the November release (6 birds in 2006).

All the birds are individually marked

CAUSE of MORTALITY	Nº	COMMENTS
Electrocution	6	Perching on badly isolated electric poles
Predators	19	10 Eagle owl, 3 Bonelli´s eagle, 6 other (probably foxes)
Perforative peritonitis	4	Foreign bodies ingestion (pieces of wires) in the first year. Another 9 birds recovered after successful surgery.
Trauma	15	3 power lines, 2 hit by car, 1 windmill, 3 badly broken beak and euthanasia, 6 unknown.
Gunshot	1	Flew away from release area into an unprotected zone.
Aspiration pneumonia	1	During the hand rearing process
Asphyxia	1	Juvenile. Nest material ingested, accumulated in stomach in large amount, regurgitated as large pellet pressing trachea.
Drowning	1	Probably exhausted fell into the sea.
Unknown cause	7	Only the corpse or the transmitter was found. No possible post-mortem study.
TOTAL	**55**	

using standard aluminium and plastic colour rings with an alphanumeric code. Also terrestrial radio-transmitters are set to monitor the movement of the birds. The veterinary procedures are based on the Veterinary Protocol in the Reintroduction of Northern Bald Ibis. In case of mortality a thorough post-mortem study is performed.

PRELIMINARY RESULTS

During these four years of study (2004 – 2007) a total of 109 birds (103 juveniles + 6 adults) have been released. There has been a high juvenile mortality rate (minimum 52 out of 103) and probably most of the strayed birds could have died. At present the free-flying group is formed by 18 birds: 3 hand-reared from 2004, 1 hand-reared from 2005, 2 from 2006 (1 parent-reared and 1 adult) and 12 hand-reared from 2007. In 2008 the estimated number of birds to be released would be: 20 hand-reared juveniles (half kept in during the dispersal period and half outside of the aviary), 28 parent-reared juveniles (from Jerez, Amersfoort and Doue) and one adult. Up to this point we have had better success using the hand-reared technique; 16 out of the 18 remaining birds, than with parent-reared chicks: 1 out of 18 or adults: 1 out of 18.

Of the109 released, 55 died (see table) and 36 went missing from the release site. Of those missing birds little or scarce information has been received. Two birds were observed in Morocco (Afennourir Lake in 2005 and Larache 2007) and two birds were observed in Western Spain (2007). We assume that most of them may have died as no further observation occurred. The causes of mortality have been natural or accidental but the surviving birds are well adapted to the area and they have enough food all year around. There is a public awareness about the species with the local people finding the birds and the experiment interesting.

In May 2008 the first breeding pair succeeded in building a nest in a nearby coastal cliff and reared a chick. The cliff was located 5 km from the release site. This breeding pair was formed by birds hatched at Jerez Zoo in 2004 and hand-reared by characterised foster parents. The female laid three eggs although only one chick fledged and joined the free-flying group.

THE FUTURE

Although originally the project was planned to finish by 2008, an extension till 2010 was suggested in the last IAGNBI meeting organised in 2006 in Vejer, Spain, close to the release area.

At the end of 2008 a total of 157 EEP birds will have been set free, a good number to achieve a preliminary conclusion of this experimental study in southern Spain. If the project continues until 2010 the number of released birds will increase as well as the potential breeding pairs, thus creating a probably non-migratory, self-sustaining population at the release site. This methodology could then be used for future reintroduction programmes (between a 5 and 7 year period) in those regions where the sedentary population has become extinct.

From a conservation point of view, considering the former widespread distribution of the species around the Mediterranean, and the recent demonstration of the historic presence of this species in Spain, the reintroduction in the area could be considered as another option.

For further information, please visit Tecnicos.zoo@aytojerez.es

If the project continues until 2010 the number of released birds will increase

Eoghan O'Sullivan

Position: EAZA Communication and Membership Manager
Hobbies: Music – listening, performing, song-writing;
Sports – playing football and watching all kinds of sports
Last book read: Just finished *The White Tiger* by Aravind Adiga;
just started *The Rest Is Noise* by Alex Ross
Last Movie seen: Frost/Nixon
Last concert attended: Ben Folds, in Berlin
Last trip made abroad: I've just moved to Amsterdam from Geneva, so there were plenty of visits from there to here before that. Other than that I was Best Man at a wedding in Donegal, Ireland recently.

QUESTIONS:

First of all, Eoghan, I think you had better start by telling us all how to pronounce your name correctly?
Difficult to spell, easy to pronounce! It's 'Owen'. It's the Gaelic version of the name Eugene.

Can you describe your career path to date?
I completed a BA in Communication Studies and an MSc in Science Communication, both at Dublin City University. My first professional job was with the Irish national broadcaster, RTE, where I worked for about three years as a Production Coordinator with a new national classical music radio station. In 2002 I decided to take some time out to travel, so I hit the road with my guitar and spent some time in Paris, around Scandinavia, and driving from coast to coast in the USA. I met Nadine, now my fiancée, at that time in Paris, so it was definitely a good move! On my return I did some freelance work in Dublin, including organising the annual conference of the DVB Project. This led to me moving to Geneva to take up a fulltime position managing communications for DVB, an international industry association that develops technical standards for digital TV. I stayed with DVB for five years before deciding I wanted a new challenge in a new city. *Et voila!*

What is the most memorable or fascinating event in your career so far?
I think I've been fortunate to have always worked in 'interesting' environments. Work has rarely felt like work for me, whether because I was working in the media with RTE, or working with DVB, an organisation with global reach and with so many really remarkable people contributing. Having said that, I am always looking forward – I've certainly had many memorable moments in the past, but I hope to have many more in the future.

You are moving from a different kind of membership organisation. What attracted you to this job in EAZA?
When I decided the time was right to move on from DVB, I had two aims: to move to a different European city and to bring my skills as a communications professional to a completely different sector, ideally one connected in some way with sustainability, biodiversity, conservation, etc. I spotted the advertisement for this position with EAZA in January and decided to apply straight away. I'm glad I did, as I only discovered later that the deadline was the following day. I've definitely attained both of my goals. Amsterdam was already a favourite city of mine and the world of zoos and aquariums is certainly a change from the digital TV sector.

You have only just arrived in the zoo and aquarium community but what are your first impressions?
I can tell straight away that, in working at the EAZA Executive Office, I'll be at the crossroads of a far-reaching network of dedicated and hardworking people. My new colleagues in the office have made me feel very welcome and I'm looking forward to getting to know more of the key people that contribute so much to making this organisation work. My friends back in Geneva and at home in Ireland are also very jealous of the fact that I'm working in the zoo!

What do you need from the EAZA members in terms of communication for this community?
EAZA is a membership association, and the Executive Office exists to serve the needs of our members. I think it's safe to say that communication is central to everything an organisation like EAZA does. We need to ensure that we are providing the members with relevant information in a useful format and in an efficient manner. Of course this information doesn't just emerge out of thin air – communication is a two-way process and we need to make sure that we're engaging with our members to keep the information flowing. I want to hear from you, our members. What information is relevant? What formats are useful? I'm new to this organisation so I really want to hear your stories.

What are you most looking forward to in this job?
It's clear to me that EAZA is an organisation with lots of potential to grow and develop. The conservation message at the heart of what we do resonates strongly with so many of the bigger challenges facing the world today. There are firm foundations in place in terms of a wide membership and good structures. I believe we can build on those foundations to create a vibrant organisation where clear communications serve to ensure that the members can carry out their activities efficiently and effectively. Oh, and I'm definitely looking forward to learning more about those very creatures and habitats we're trying to conserve. I don't think I could be in a better place to do so!

Province of the Snow Cat

Gary Batters, Senior Animal Manager, Banham Zoo

Bringing the Himalayas to Norfolk, Banham Zoo has created a striking new habitat for our young pair of snow leopards, replacing on the same 'footprint' the original enclosure built in 1985.

The new enclosure provides an attractively landscaped outside area reflecting aspects of the animals' natural habitat. Height and panoramic views have been created by the enclosure boundary being constructed with a fine, stainless steel mesh, supported on straining wires and held aloft on 17 tensioned, sculpted and curved vertical supports on the perimeter and two central masts (8.6m and 11.5m tall). Should the need arise provision has been made to divide the enclosure with a stainless steel mesh curtain. Three large glass viewing panels and the extension of the ground substrates to outside the enclosure boundary increase the visitor involvement in the habitat. The total outside area is approximately 700 square metres.

Well over 200 tons of granite and York stone have helped create the rock faces, including the vital nooks, crannies and ledges. Several tons of stone, sand and gravel create the varied ground surfaces, with a meandering alpine-like stream running through the exhibit. A selection of grasses and shrubs has been added to soften the hard landscaping.

The indoor housing comprises two 'show' dens and one 'off show' den with a cubbing box equipped with infra red cameras for remote viewing. Two dens are connected by a crush cage restraint system. The house is 10m x 7m in size.

Interpretation includes a flat television screen running a video from the Snow Leopard Trust, an interactive audio point quiz and information boards. The total cost of the enclosure is £300,000.

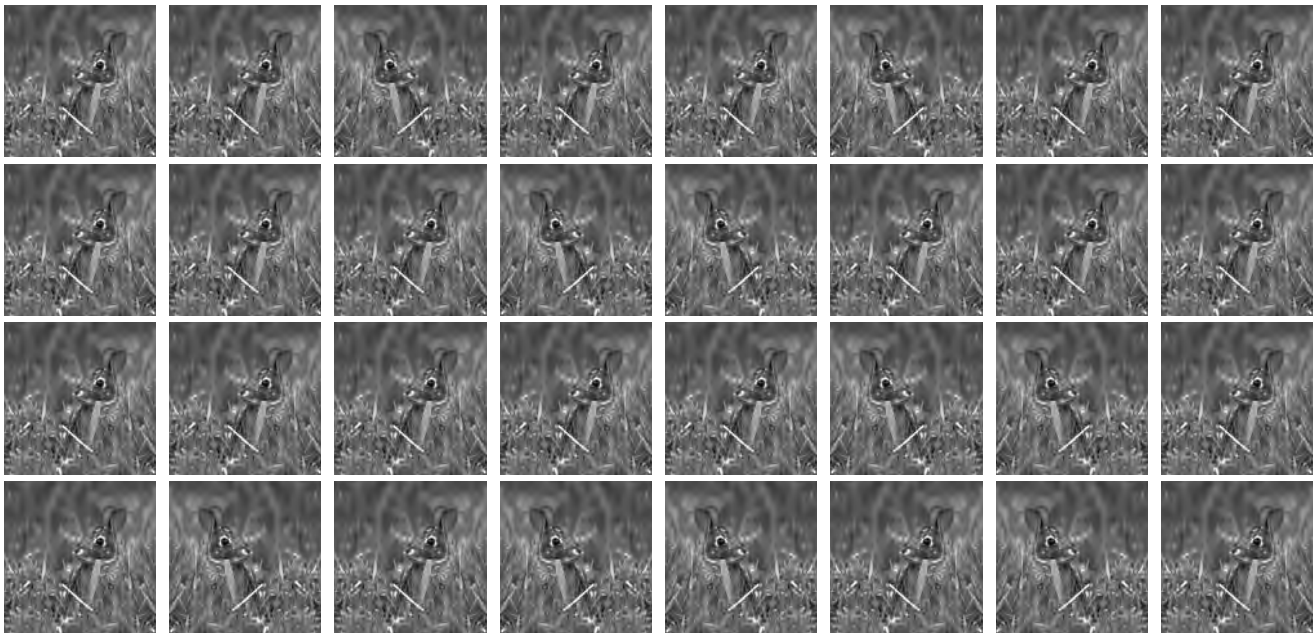
Banham Zoo has participated in the international snow leopard breeding programme since 1985, and our first pair produced six cubs to support the programme. We received a new pair in 2006. The female arrived from Tama Zoo, Tokyo and the male came from the Santago Rare Leopard Project in Hertfordshire.

The Friends of Banham Zoo (FOBZ) have not only provided essential funds to support the construction of this new habitat helping *ex situ* conservation, but they also continue to support the vital *in situ* work that the Snow Leopard Trust is carrying out. FOBZ have donated £3,000 already this year to help the work of the trust in creating tailored, community-based conservation programmes to ensure communities are able to support a future for these beautiful animals.

Relative values

Kristin Leus, EAZA Population Management Advisor

How two species populations with similar population analysis results can have radically different Regional Collection Planning goals



It may feel counterintuitive, but two populations with fairly similar population analysis results may end up being assigned radically different goals in Regional Collection Plans. Because EPMAG has been, and will be, carrying out more and more 'rapid population assessments' of EEP and ESB populations to help TAGs prepare for Regional Collection Planning (RCP) exercises, we thought it prudent to draw a bit of attention to this issue of 'relativity' to help catch misconceptions or erroneously preconceived ideas.

Imagine two populations each with about 50 living individuals derived from about 12 founders with little or no opportunity to import further founders or unrelated captive born individuals. From a demographic point of view, the rapid assessment of each of these populations will point out that populations that are that small are very vulnerable to extinction purely based on random demographic events. Genetically speaking the rapid assessments will point out that with this relatively small founder base, only a relatively small percentage of the genetic diversity present in the wild population can be retained in captivity – even if the population is allowed to grow larger. Curiously enough, in some cases these types of populations may well end up being one of the most important populations in the RCP, and in other cases a TAG may well decide to phase out this taxon. This is of course logical if you consider that the genetic and demographic state of a population is only one of the many things a TAG will take into consideration when formulating the goals for a particular taxon.

Imagine for example that one of the two populations above contains the last individuals of this taxon on the planet. In that case, this population would probably be the most important population in the RCP and the TAG would ideally set aside quite a lot of space for this species and assign the most intensive management category, so that you can try to get the best out of what you have. The same could be true in less dramatic circumstances. If this is a taxon that is very important to the zoo world in other ways, for example it is of high educational or exhibit value, a TAG might again assign an intensive management category and try to keep a larger population of the species. Another aspect to take into consideration are the plans for the taxon in other regions. A taxon that is important might be assigned a low priority in the RCP of a particular region if there is already a viable population in another region. Does this then mean that if populations like the ones described above have no particularly large value for conservation or for the zoo world, that TAGs will, or should, always chose to phase out these taxa? Again, everything is 'relative'. If there is no big competition for cage space with more important taxa then a TAG might decide to assign a low intensity management category and a small target population size to the species, thereby agreeing to run a higher risk of 'bad stuff' happening to the population. This would be a case of 'it doesn't hurt to have the population and it wouldn't hurt to lose it if we run into bad demographic or genetic luck'. If on the other hand space competition with more important taxa is a real issue, a TAG might decide to recommend phasing out the taxon, because the 'cost' of maintaining it in the RCP becomes too large.

In conclusion, assigning a management category and target population size to a taxon in a sense comes down to the fairly inexact 'science' of balancing 1) the importance you assign to the taxon (to conservation or the zoo world), 2) the potential cost you are willing to pay to maintain the taxon (in terms of space (space is limited; a less important taxon might occupy space that is needed for more 'worthy' taxa) and other resources) and 3) the potential risk for extinction, reduction in evolutionary potential, and/or reduction in individual fitness you are willing to accept. EPMAG rapid population assessments can help inform this balancing act, but will not automatically tip the balance in one direction or another.

The Polar Bear Diaries

In November 2007, Brno Zoo recorded successful births of polar bears. Based on their previous experiences, how did they then proceed to care for them? The answers make up this special feature

Jiří Vítek, Operation Zoologist, Brno Zoo

BACKGROUND STORY

Polar bear births at Brno Zoo had not made for happy reading. The inexperienced mother, Cora, had previously struggled with the idea of having young, and killed her early cubs almost as soon as she'd given birth to them. The following year – 2006 – she and her partner Umca had had young again, but they were once again unable to care for them, and the cubs soon died.

By 2007, staff at Brno Zoo knew that they had to take the matter into their own hands. Knowing when copulation had taken place, we knew that the delivery could occur between 13 November and 12 December 2007. As work was underway to modify the bears' breeding facility, we therefore set a completion date of 5 November. Then we set to work.

We painted white and disinfected all parts of the den, we lubricated the lowering doors and installed a stronger light. We rectified all technical shortcomings in the run-out; we repaired the drain in the pool and the crumbled concrete around the overflow of the pool. We then moved the male to the former Syrian bear enclosure on 19 November.

We decided that if the mother started nursing after giving birth, we would assign one permanent breeder to it. The three days after delivery are the most critical. It is necessary to have a sound

record and consult with a vet to find out whether the mother really feeds the young (in the previous year's birth, for example, loud crying was wrongly interpreted as an expression of the young bears' satisfaction).

We also needed to consider at what point the young bears might have to be taken away from their mother and bred artificially. We bought a quality incubator with various accessories: nonwoven textile Perlan, cellulose wadding, baby bottles, dummies, a microwave oven, a boiling kettle, disinfection means, a record log, a scale, wiping cloths, children napkins to lay under the animal, a desk (situated in the sterile perimeter at the incubator), a cover on the table made of Perlan, disinfection for the floor, and spare clothes for the breeder and masks. We also bought a feeding mixture consisting of Tatra milk, cream, yolk, horse native serum and vitamins A, B, C and D3. This alternative milk with the fat content of 30.5–35% is applied warmed to 36.5–37 °C.

In the event, on 27 November 2007 Cora gave birth to twins. The young spent the first three months (to be precise, 108 days) with their mother in the den. A web camera which was of great importance helped us to monitor their development: the female could fully take care of her young without being disturbed by anyone.

The whole process was very exciting, and for the benefit of future breeders, we reproduce the key points of the next few months' worth of care on this and the following pages.

6 November 07
The male Umca could not stay with the pregnant female who needed some peace. We moved him to the former Syrian bear exhibit. Cora received a common feeding dose in a standard module; we also maintained the periods of hunger.

10 November 07
From 1.00 am. Cora was kept in the delivery box, and on the following days she stayed and lay in front of the internal sliding gate, the temperature in the box fluctuating in the range of approximately 11 to 13°C. Air humidity was about 65-73%. We added apples to the feed. Cora ate less, which is physiologically standard for highly pregnant polar bears – the quantity of food accepted decreases as delivery approaches. Approximately two weeks before delivery we ensured plant constituents were her main food item, as they helped with 'cleaning' of the gastrointestinal tract thanks to their fibre content. Cora prepared for a long starvation which may last in nature for 10 – 14 weeks.

21 November 07
Cora stopped accepting food.

23 November 07
Cora delivered the young at about noon (between 11 – 12 am).

15 December 07
We moved the male Umca to Prague Zoo.

Pre-Christmas season
There were concerns about the coming New Year's celebrations, which are of course traditionally followed by loud firework explosions fireworks. To prepare for this, we silenced the delivery box with a polystyrene barrier fixed to the outside door of the lodging.

25 January 08
The female bear was still alone with the young; she did not get any food.

A quick note on how EAZA helped us here: initially, when Cora became hungry signs of panic appeared among the breeders. There is certainly much knowledge of and varying opinions on the feeding of lactating females in captivity, and we knew we had to do our research. After familiarising ourselves with professional literature we adopted a 'Russian' variant of feeding which simulates the procedure of breeding in nature. Zoos in Russia and some other former USSR states have the most experience in breeding young polar bears. However, only a few people know that in the 1950s there was an international study of ethology and physiology of polar bears in the area of the Barents basin. Thanks to Brno Zoo's membership of EAZA, the documents and analysis of this research were made available to us. In my opinion it is the most thorough information obtained from nature that relates to breeding polar bears in captivity.

31 January 08
The young have actively moved around the entire delivery box.

1 February 08
We entered the lodging, where the delivery box with the female and her young was situated for the first time after the pre-delivery modifications. We were worried about excrement but the box was clean. The neighbouring box was spread with hay and the entry to it was open. The female guarded the entrance, while the young were quiet, curled up in the corner and showing no signs of activity. The mother did not react to the first photographs taken with a flash either.

18 February 08
The difference in the size of the young was quite obvious.

21 February 08
Cora got food for the first time: two cooked carrots, two boiled apples, 100g of the cooked horse meat. Feeding was very peacable and the young also took away pieces of meat.

In nature lactating females set off to hunt for food two or three months after delivery for the first time, depending on the weather. They hunt for young seals, lemmings and Arctic hares near their dens; they browse remains of grass, small branches, pieces of wood and bark. The first dose served to Cora was in compliance with her needs. We had to bear in mind the great energy reserves of the female. The loss of her weight may reach 40% of the original weight in this period.

22 February 08
We fed again: at the same time and quantity as yesterday but this time the female was restless.

23 February 08
Today's feed ration was 500g of the cooked horse meat, apples and carrots as the last time, also cooked.

Cora did not get up from attending her young.

Now that feeding was underway, we gradually increased the amount of meat from this day on while maintaining the same proportion of the plant constituent.

There is no clear guideline how to feed. We have to balance time, composition and quantity with the results of monitoring the behaviour of the mother and her young – we observe the duration of lactation, the interval between suctions, how the young change nipples and what their overall behaviour is.

We think vocal expressions at suction (loudness, modulation and so on) are a good guide.

Cooked food is easy for them to digest and in addition it eliminates the occurrence of alimentary toxics.

Her mother's instincts won through and Cora was now faultlessly nursing

25 February 08
A cooked mackerel was added to the feed ration. Cora actively demanded to be let out from the den for the first time.

The weather did not help us; it was getting warmer for the time of year and the hours of sunlight also increased (a poet would say the air was scented with spring).

The female bear sensitively perceived all these changes, while her activity increased, which also stimulated the young. However, her mother's instincts won through and Cora, despite her nervousness, was still faultlessly nursing.

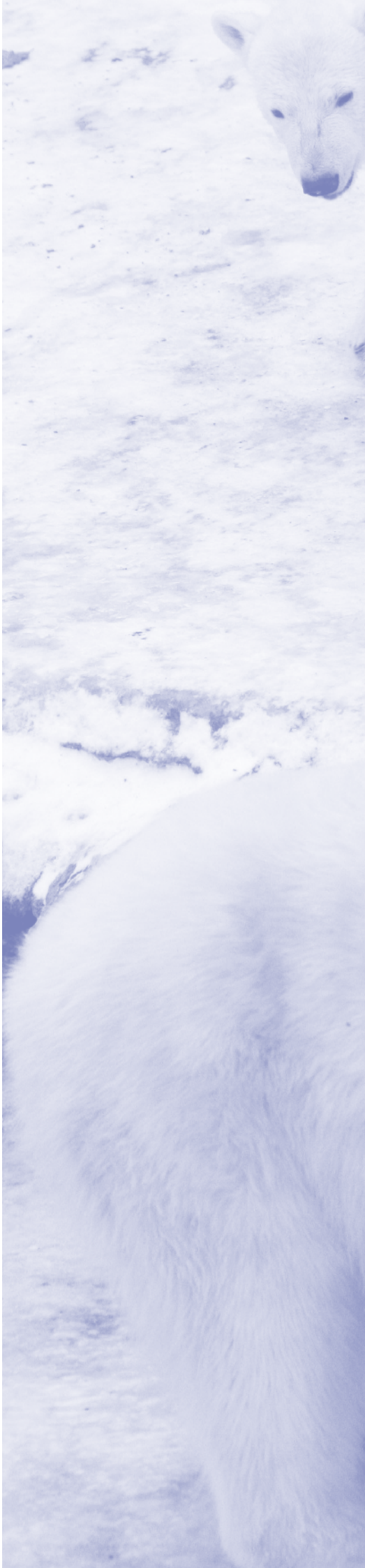
26 February 08
Mackerel was substituted by cooked herrings. The young first consumed the fish and since this day they have independently eaten, taking the food from under the mother's paws, which she has tolerated.
4 March 08
The feed ration has gradually grown to 800g of meat (beef), four herrings, four carrots and four apples (all cooked.
5 March 08
From today we have started serving 1,000g of horse meat. Cora attacked the outside sliding gate, she wanted to go out and we could hear strong banging. Attacks were repeated several times a day.

It would be impossible soon to keep the family in the den. In the wild the young would spend at least another 4 – 5 weeks in the den. Their mother would leave them for a short time to bring her kill (the biggest part of the food range – 27% – young Arctic foxes, followed by lemmings and Arctic hares). If there was good weather and the female felt safe, she would make a path out for the young bears to acquaint them with sunlight.

11 March 08
A ceremonial day: we opened the exit to the outer run-out for the female and her young at 11.00 am. Cora ran out and immediately jumped into the pool and in five minutes the young were out as well. All of them went together for a walk around the run-out; the mother familiarised them with the terrain. She jumped to the pool again and firmly drove the young from the edge.
13 March 08
Meat (beef) in the feed ration was increased to 3kg, the amount of herrings and vegetables remained unchanged. We still served everything cooked and added a spoon of fish fat per head per day.
21 March 08
The first contact of a young with water in the pool. After it fell into the pool its mother immediately rescued it by lifting the affected young by her paw to the bank.

On the following days the female continued to drive the young from the water, but later she let them play in the shallow end, where she taught them to dive and make their first swimming movements under supervision. One cub was more active in the water, the other usually watched it from the bank.

22 March 08
We increased the food dose to 1kg of meat, all cooked. The young fought for nipples and their mother sometimes prevented them from drinking. Breeders consider such behaviour the expression of hunger, which I rejected. Nursing probably caused pain to Cora.
24 March 08
We divided the food dose served once a day until now into two parts. The young actively took food and did not leave any remains. The female quickly got to the original weight. The bears got 8kg of beef, sixteen herrings and vegetables, all cooked, every day.
1 April 08
The first cleaning of the outside run-out after letting the bears from the den. Cora and her young withstood the isolation in the den well. Food contained fresh meat (1.5kg) for the first time. The young familiarised themselves with the meat and



before they ate it they played with it for a long time.

3 April 08

A new feeding dose: 11kg of meat (beef), of which 1.5kg of fresh heart (a clean muscle), three cooked carrots, sixteen cooked herrings, a half a spoon of fish fat per head.

10 April 08

We increased the proportion of fresh meat in the feeding dose to 2.5kg. After feeding there were remains of vegetables.

11 April 08

One of the young swam across the entire pool.

13 April 08

The second young also undertook a deeper end of the pool and the siblings started playing in the water.

14 April 08

The amount of the cooked meat was decreased to 10kg. We micro-chipped the young after their separation from their mother, vaccinated them (Biocan L, Biocan DHPPi), weighed (13 and 19 kg), determined their sex (both small bears are males) and dewormed them. The contact with their mother, who also was dewormed, was peaceful. Ten minutes after the procedure the group of bears jumped to the pool. The view of the playful beasts confirmed that the procedure we had selected in caring for the expectant mother and later her young was correct. The young were in very good condition, they were compact, well built and with well developed motor activity.

15 April 08

Unfinished food from the afternoon feeding appeared.

20 April 08

We started one afternoon starvation per week.

5 May 08

Revaccination. The young knew what was awaiting them and started to behave like beasts – they did not allow themselves to be weighed. Approximate estimate: 19 and 25kg. We decreased the weight of meat in the feeding dose to 8kg and started two afternoon starvations per week.

24 May 08

The christening of the six-month old cub in the presence of city and regional dignitaries, journalists, sponsors and many visitors. The cubs (Bill and Tom) remained without food in the morning. At noon we served 15kg of horse meat in ice cubes and 16 herrings as bait to the upper terrace in order to get them as close as possible to the participants of the ceremony. This time we did not serve cooked meat.

Seal of approval?

F Vercammen, L Bauwens, Royal Zoological Society of Antwerp, Centre for Research and Conservation, Belgium. J Degraeve, J Feersma-Hoekstra, Agriton, Belgium and The Netherlands

In the first of our new series of articles that explore the technical side of zoo management, we reveal the results of testing for effective microorganisms in a seal basin

Many zoos are continuously searching for environmentally friendly housing facilities. Our seal basin at Antwerp Zoo was chosen in May 2008 for a trial with effective microorganisms, which have been developed and used during the last decades for many different applications.

MATERIALS AND METHODS

There were eight common seals (*Phoca vitulina*) in a basin which contained 175,000 litres of water without any kind of filtration. Every week the basin was cleaned and filled with running water. On alternative weeks 175 litres of Effective Microorganisms-Active (EM-A) (Agriton-Belgium) were added. The water parameters were analysed daily during a six week follow-up and compared between the weeks with and without EM-A.

The physical parameters were determined with the WTW Inolab Multi Level 1. The chemical parameters were analysed with the MERCK Spectroquant and Thermo Spectronic AQUAMATE. For determining the biological oxygen demand we used the WTW OxiTop method.

A lactose triphenyltetrazolium chloride agar was used for the detection of *Escherichia coli* and the plate count agar for counting the total number of bacteria. A 'De Man, Rogosa and Sharpe' agar detected the lactobacilli in the MERCK Anaerocult C.

RESULTS

Organoleptic examination revealed a brown colouration of the water after adding the EM-A, due to the presence of molasses, which feeds the germs in the EM-A. Furthermore a distinct foul smell (like a sewer) was noticed during the last two days.

Several parameters were not significantly different, eg temperature, oxygen, dry residue, ammonium, nitrite, nitrate, total nitrogen, Kjeldahl nitrogen, orthophosphate, total phosphorus and faecal coliforms.

Significantly different parameters were pH ($P<0.001$), total dissolved solids TDS ($P<0.05$), conductivity Ecw ($P<0.05$), chemical oxygen demand COD ($P<0.001$), biological oxygen demand BOD ($P<0.001$) and total bacterial count ($P<0.05$).

CONCLUSION

By weekly alternating the addition of the EM-A the influence of the water temperature on the mean figures decreases. The ideal temperature for the EM-A was set to be at least 15°C, but this was reached only in the third week.

The aim for using EM-A is improving the water quality. The mixture of bacteria, fungi and yeasts is supposed to counteract the polluting germs and algae. The study by the Van Hall Institute (Theunissen *et al*, 2005) showed some influence of the EM-A in a biological filter system. The Zoo of Honolulu mentions good results in their hippopotamus pool, but they do not provide any water quality parameters (Higashino T. and Nago H). Therefore, we conducted a study in the seal pool analysing important water parameters.

The brown colouration and distinct sewer smell are two negative observations. Using another white sugar substrate for the EM-A should resolve the change in colour. On the other hand, the sewer smell can not be solved easily as the pollution increases. The decrease of pH (from a mean of 8.0 to a mean of 7.5) is due to the low pH of the EM-A (pH = 3 – 4), which is necessary for the growth of the lactobacilli and yeasts (Saccharomyces). This pH of 7.5 is too high to promote growth of lactobacilli, which disappeared rapidly. The oxygen demand increases maybe by the bacterial growth. Ammonium, nitrite, nitrate, total nitrogen, Kjeldahl nitrogen keep on increasing, but orthophosphate and total phosphorus increase at a slower rate.

In conclusion, the water quality of the seal basin did not improve in this trial. More research during longer observation periods and in higher water temperatures (15°C) is needed.

For further information, contact Francis Vercammen at francis.vercammen@kmda.org

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PER HARALD OLSEN

How to brand conservation

Julia Trillmich. Curator for Conservation, Magdeburg Zoo, Germany

Magdeburg Zoo's focus on a cross-disciplinary conservation strategy under a single brand is bearing fruit

The World Zoo and Aquarium Conservation Strategy (http://www.waza.org/conservation/wzacs.php) clearly states the important role of zoos and aquariums in the global fight against the loss of biodiversity. Many zoos across the world have taken on this challenge by promoting conservation through education and by supporting various *in situ* and *ex situ* conservation projects with amazing results. However, there is no doubt that conservation efforts and results could be significantly intensified if more zoo staff and funds were specifically directed at conservation tasks.

In this regard, Magdeburg Zoo, Germany, took an exemplary approach by creating and fully financing the position of 'curator of conservation' in August 2007. At the time it was only the second position of its kind in a German zoo – and it still is! The decision to dedicate additional resources to conservation has greatly helped to place Magdeburg Zoo on an international level when it comes to the impact of zoos in conservation.

In the beginning of 2008 the we launched the long-term conservation strategy of Magdeburg Zoo, the so called 'Aktion Naturschutz' (roughly translated as 'Mission Conservation'). The 'Aktion Naturschutz' includes three major goals:

- By enforcing sustainable practices we are aiming at developing the zoo as an environmentally friendly role model for our visitors.
- We are improving and expanding our efforts to educate zoo visitors about environmental challenges.
- We have partnered with three conservation organisations to support their efforts in saving endangered species.

NAMING THE CHILD

What has helped us greatly from the start is that our conservation strategy was set up professionally in terms of marketing aspects. Rather than implementing one single project, making a donation, carrying out an event or adding one exhibition item at a time, we gave the child one name, one logo and one motto from the beginning.

This enabled us to implement the various activities always under the common umbrella of the 'Aktion Naturschutz' and to consistently brand those activities with the campaign's logo and motto. Additionally, we delegated Stefan Kretzschmar, a VIP sportsman from Magdeburg, as our chairman of the campaign. As a result, the repetitive mentioning of 'Aktion Naturschutz' in informational and promotional material, press releases and on signboards has greatly improved the popularity of this movement.

Furthermore, naming the child proved to be very helpful when it came to the successful acquisition of donors, sponsors and funds. The achievements we were able to make within the first year of the 'Aktion Naturschutz' are considerable. Understandably, becoming a partner in a campaign which is clearly branded and aims at long-term impact appears more reassuring and attractive for partners than supporting single activities or projects.

Finally, we partly attribute our encouraging results to the use of marketing tools. Therefore, we would like to encourage other zoos to take into consideration our positive experiences when setting up their future conservation campaigns.

Darwin Zoo-hundred

The anniversaries of Charles Darwin this year have provided great potential for zoos aiming to pull in and educate more visitors

Becky Coe, Zoological Society of London (ZSL), London Zoo, UK

At the beginning of 2009 Darwin-mania hit the UK – and London in particular. Darwin was on TV and radio, and in museums, Darwin resources were sent out to schools, stamps were issued and his wife's recipe book was published! All this was to mark the great scientist's 200th birthday. The Natural History Museum took the lead establishing 'Darwin200' to provide a central website and brand for the celebrations. Not wishing to miss out on the fun, many zoos organised events. At ZSL London Zoo we are celebrating the achievements of our most famous former Fellow and letting the animals bring evolution to life.

As a self-confessed Darwin geek, I jumped at the chance to be involved in ZSL's events. Darwin was an inspirational figure to me as a student and the more I learn about him, the more enchanted I become. Not only did he come up with one of the most important scientific theories of all time but he made major contributions to geology, taxonomy, botany – and found time to be a family man. What comes across from his writing is a sense of glee gained from the natural world and a curiosity which should be at the heart of all scientific investigation.

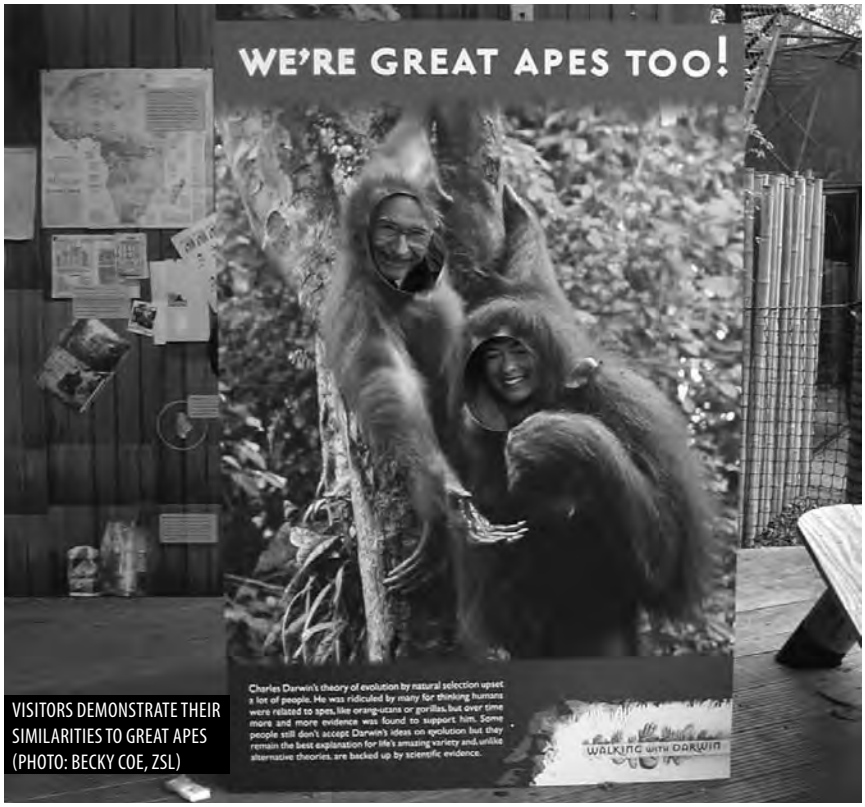
This is conveyed to 11 to 14 year olds in our ongoing School Education session, 'Darwin's Zoo'. Students are encouraged to think like Darwin by tackling problems that Darwin tried to solve. For example, iguanas on the Galapagos Islands will not jump into the water when threatened, yet Darwin was sure he had seen them swim. How could he test whether they could in fact swim? Simple: throw the reticent reptiles in (repeating several times to make it a fair test!). The session shows how Darwin's great idea of evolution by natural selection did not occur to him in a flash but was a simple, jigsaw-like accumulation of ideas that continues to provide insight into biology today. The elegant simplicity of natural selection is demonstrated by a rowdy game in which two students wear bird hand puppets – one with a small beak, one with a large beak – and compete for a resource of 'seeds'. Inevitably, the small-beaked bird struggles to pick up any 'seeds' and so dies out without passing his genes on to the next generation.

For the general Zoo visitor, the Discovery and Learning department produced a range of activities. A series of branded signs invited visitors to see the Zoo through Darwin's eyes, and spot the evidence for evolution by natural selection. For example, by taking a long, hard look at our African hunting dogs, visitors could see for themselves the individual variation within a species. The overwhelming similarities between us and gorillas help demonstrate our common ancestry. A playful (and hugely popular) take on this allowed visitors to put their own faces in the place of two orang-utans'! Visitors could also discover Darwin's links with the Zoo – how he observed Jenny the orang throwing a tantrum, just like a child and how ZSL Bird Curator, John Gould, crucially spotted the significance of the now-famous Galapagos finches. The trail also highlighted some of Darwin's lesser known work on coral reefs, alongside an aquarium touch table.

ME AND MY HERO (PHOTO: TOM SEARS, ZSL)

During the February school holiday, visitors could also take a walk with the great man himself. Colin Uttley from Spectrum Drama played the part of an 1860s-Darwin, who had just published *On the Origin of Species* but hadn't yet grown his impressive beard. He told an attentive audience how he nearly never made it aboard the HMS Beagle because of the shape of his nose, but how it turned out to be a trip which would influence his thoughts and work for the rest of his life. The use of a character actor like this was a new departure for ZSL and a very popular one among visitors (an evaluation survey found that 96% agreed or strongly agreed that they enjoyed the actor tour), especially those who visited the Zoo regularly. Several participants commented that it was engaging for young and old, and conveyed some educational points without feeling at all like a lesson. It made Darwin seem more of a real person – many visitors recalled details of his home life, like his children sliding down stairs on a tea tray while he tried to study.

In addition, Zoo visitors could find out more about Darwin's ideas through



VISITORS DEMONSTRATE THEIR SIMILARITIES TO GREAT APES (PHOTO: BECKY COE, ZSL)

DARWIN200

We are celebrating Darwin's achievements while animals bring evolution to life

touch tables and specially adapted displays and talks. A scientific meeting followed the fate of significant players in the evolution of Darwin's thoughts, from the 'kidnapped' Fuegians to the Floreana Mockingbird, a bird which set Darwin thinking that species could change over time in response to environmental challenges. There was also the opportunity to see Darwin-related artefacts in the ZSL library.

In-house evaluation sought to find out more about the Zoo public's understanding and attitude towards Darwin and the theory of evolution, as well as the success of the events. Encouragingly, visitors were generally very positive: all of those interviewed who participated on the actor tour felt that Darwin was important to science, as did 93% of the general visitors. A large majority of visitors (94%) also rated themselves as having a good knowledge of evolution. Zoo visitors were less confident of their knowledge of Darwin himself and, interestingly, those who did not participate in the actor tour professed a greater pre-existing knowledge than those who did (70% of general visitors agreed or strongly agreed that they already knew lots about Darwin compared to 56% on the actor tour). The tour seemed a very effective way of increasing public awareness and knowledge levels as 81% of participants knew more about Darwin afterwards and 59% knew more about evolution. A further 22% of visitors who did not take part in the tour had noticed the Darwin character in the Zoo.

Being part of the 'Darwin 200' programme had many benefits. It provided opportunities to share ideas and enthusiasm with other institutions like Kew, the Wellcome Trust and the Natural History Museum. ZSL events were also advertised for free on a central 'Darwin 200' website. The organisation of 'Darwin 200' assisted members but allowed for flexibility. There was a ready-made brand identity that could be incorporated into signs, leaflets and so on but no specific commitment was required, making it easy to get involved at any level.

The diversity of organisations involved permitted a celebration that went beyond science and embraced culture more broadly, for example several galleries displayed artworks inspired by Darwin's ideas. A similar collaboration is proposed to co-ordinate events for 'The International Year of Biodiversity' which will no doubt be advantageous for participating organisations, including zoos.

'Darwin 200' provided a great opportunity to celebrate the life and works of a brilliant scientist, and to collaborate with major institutions who share our aspirations.

Feline good!

France's Le Parc des Félins has had great breeding success in recent months, as these wonderful pictures show

Grégory Breton & Sébastien Verdin, Le Parc des Félins, Nesles

JAGUARUNDI BORN IN FRANCE (NESLES) COPYRIGHT: CATHERINE PATRON AND PHILIPPE LICHTFOUSE

Since 1998, Le Parc des Félins has successfully bred many cat species, from the smallest species (rusty-spotted cats, margays, fishing cats) to the biggest (snow leopards, Amur and Sumatran tigers).

2008 will also remain a memorable year as the park celebrated the birth of 1.1 jaguarundis and 0.1 Asiatic golden cat, two species never bred before at the park and the first ever in France!

In brief, it was the arrival of 2.1 jaguarundis from São Paulo – in particular the male named 'Scofield' – which stimulated the 4-year old female 'Catty'. She came into oestrus and several acts of mating were observed between 6 and 12 May, exactly 13 days after the male was introduced. The 2 kittens 'Iguacu' and 'Guaroni' were born 22 July 2008. The gestation period consequently ranges from 72 to 78 days; a few days longer than the 70 days always mentioned in literature.

For a successful introduction, 'Scofield' and 'Catty' were placed in two adjacent enclosures linked by a tunnel which can be opened or closed when needed by the keepers in charge of the species. After introduction and for 13 days they stayed apart, but when the female was in heat they were observed to be constantly together. At the end of the female's oestrus, the breeding pair was permanently separated.

'Catty' appeared to be a very protective mother despite the fact that this was her first litter: The two kittens were not allowed to do whatever they wanted and they took their first steps outside the breeding den under strong surveillance. Visitors were not able to observe the kittens for a month. Today, the offspring have almost reached their adult size and will leave the park very soon.

THE FIRST ASIATIC GOLDEN CAT EVER BORN IN FRANCE (NESLES), 'SWA FAI' AT 33 DAYS (LEFT), 55 DAYS (CENTRE), AND 100 DAYS (RIGHT).

But the most important birth of 2008 was surely that of 'Swa Fai', a female Asiatic golden cat. About 70 days after mating with the male named 'Yang', the female 'Markit' gave birth on 4 July to a single kitten.

The Asian golden cat is well known for its nocturnal habits and the possible aggressive behaviour of males towards females in captivity. Therefore, many zoos choose to separate each pair every evening, record their behaviour at night and watch the tape the next morning to detect any signs of oestrus in the female. This method has proved its worth since it has resulted in several births, but because we were not able to use this method at Nesles, the curator and keeper in charge of this species decided, after noticing a slight change in the female's behaviour (calls and rapprochement), to let the pair stay together late in the evening before separating them at 21:30. This was a good decision as not long afterwards the keeper heard a mewing sound in the mother's den!

Silence and caution were strictly followed to let the mother raise her kitten peacefully. The birth was announced a month and a half later and access to the outside enclosure was opened in September. 'Swa Fai' was allowed to take her first steps out by her mother, who looked after her very preciously. A magical moment for the staff and the French visitors who discovered a kitten of this fascinating species for the first time.

It appears that 2009 is continuing in this good form, with the births of a margay on 12 February, and a new Asiatic golden cat on 7 March from the same parents with the same method! This new birth proves there is another valuable and successful approach to breeding this discreet and complicated species.

NEW MARGAY BORN IN FRANCE (NESLES), AT 27 DAYS. COPYRIGHT: SÉBASTIEN VERDIN

COPYRIGHT: GRÉGORY BRETON, LEFT AND CENTRE, AND JOËLLE CAMUS, RIGHT

A Vision of the World's Species

As the number of species on the Red List continues to increase, we know where many of the problems lie... but are we doing enough about them? Asks Simon N Stuart, Chair, IUCN Species Survival Commission

Since 2000, the Species Survival Commission and the IUCN Species Programme have transformed biodiversity assessments through the IUCN Red List. The number of species included in the list has risen from around 18,000 to nearly 45,000 in 2008. More importantly, the amount of data on each species has increased massively, with distribution maps now available for over 15,000 species. I have personally reviewed over 12,000 species accounts, and this leaves me with two overriding impressions. First, we are not yet succeeding in the global challenge to ensure the survival of species. There are some impressive successes, but these are still the exceptions. Extinction rates are rising, most species' populations are decreasing, and the potential for species to provide sustainable benefits to human communities is being eroded.

The data in the IUCN Red List highlight three particular extinction crises that are ongoing at the moment:

- Amphibians. As is now widely known, almost one-third of amphibians are now threatened with extinction, and there have probably been many extinctions in the last few decades, especially due to the fungal disease, chytridiomycosis.
- Corals. Catastrophic declines in coral abundance are associated with bleaching and diseases driven by elevated sea surface temperatures. The situation has deteriorated dramatically since the mid 1990s
- Asian large animals. There have been massive decreases in wildlife population in the last two decades, especially in Southeast Asia and China, due to hunting, wildlife trade and habitat loss.

My second overriding impression, as a result of reviewing thousands of SSC's species assessments, is that we have a much more accurate understanding of how to address this species crisis effectively. Our data provide specific guidance in terms of the exact places to conserve, threats to combat, species to prioritize, and policies to pursue. Unlike the situation eight years ago, we now know what needs to be done to halt the deteriorating trend in several groups of species.

In summary, things are getting worse. In many cases we know what to do to combat this downward trend - but we are not yet doing it.

To make real headway in the face of such challenges, the SSC must work with a much broader set of partners than ever before to communicate the conservation needs, design effective programmes, build the political will, and increase the financial and human resources needed for conservation. It must also bring to bear the real power of its volunteer network. As the newly elected SSC Chair, I plan to pursue these objectives at global, regional and national levels, in partnership with IUCN Offices, Commissions and Members. Specifically, I am giving priority to the following eight activities:

1. Putting the SSC's Red List species assessment work on to a sustainable footing. We are planning to consolidate and strengthen the Red List Partnership, expand the number of institutions in it that support our work, and explore new options for more stable funding.

2. Making the SSC's biodiversity

NICK HOBGOOD

We know what needs to be done to halt the deteriorating trend in several groups of species

dataset much more broadly representative of the world's biomes and species. We shall prioritize the completion of major assessments of marine, freshwater and dryland species, and plants, as soon as possible.

3. Running a series of regional and national consultations, building up to a global gathering at the proposed IUCN Species Congress at which we shall present a worldwide agenda to address the Species Crisis. This agenda will be built through a bottom-up process from the regions and countries, and will be underpinned by SSC's data and knowledge.

4 and 5. Reporting on whether or not the 2010 Biodiversity Target has been achieved, through the second edition of the Global Species Assessment. We shall also expand the delivery of the IUCN Red List Index as an indicator for the achievement of Millennium Development Goal 7 (on environmental sustainability).

6. Exploring the factors that lead to conservation success on the ground or in the water, as a basis for developing practical guidance, linking to the ongoing work of the SSC Species Conservation Planning Task Force.

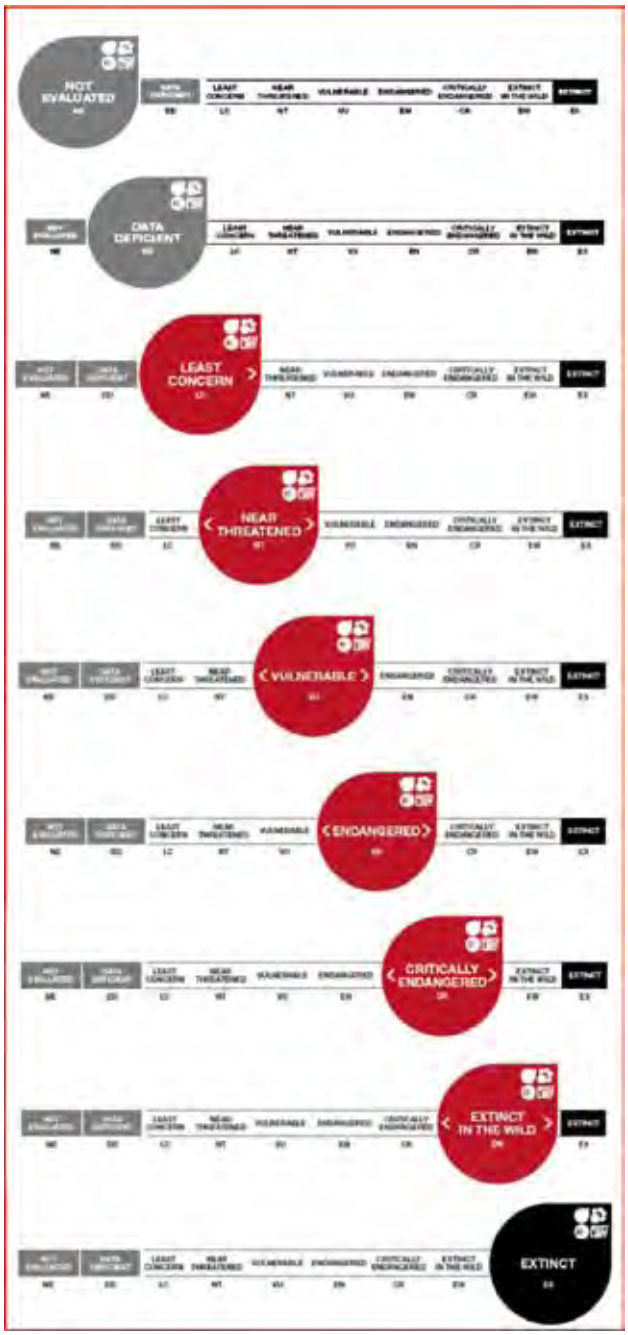
7. Investigating the importance of species for human livelihoods, and factors that determine whether or not use is sustainable. Given the importance of broader ecological and social factors in achieving sustainable use, we shall explore the possibility of a joint specialist group with the IUCN Commission on Environmental, Economic and Social Policy.

8. Focusing on newly emerging threats for which we have no immediate remedies, such as climate change, emerging infectious diseases (including amphibian chytridiomycosis), and ocean acidification, and producing advice on mitigation. On this, the collaboration with the zoo community is particularly important. For example, we shall remain dependent on *ex situ* conservation to secure the survival of many amphibian species until solutions to the management of chytridiomycosis in the wild are found.

The above is an ambitious agenda, and it cannot all be implemented in one IUCN quadrennium. But we can make a start. Zoos are playing an increasing important role in the global conservation agenda, not only through the more target use of *ex situ* techniques to the species that need it most, but also through the rapidly increasing number of *in situ* conservation projects being run by zoos. Furthermore, zoos are playing a critical role in public education, and we strongly encourage all zoos to make full use of IUCN's new branding of the Red List in all your displays of species (both threatened and non-threatened). I look forward to working with the world's zoos and regional zoo organisations over the coming four years, as we seek to achieve the SSC's goal: The extinction crisis and massive loss of biodiversity will be universally adopted as a shared responsibility and addressed by concerted actions throughout the world.

Would you like to reply to this article, or indeed any of the other features in this issue of EAZA News*? If so, please send your letters to the editor at malcolm.tait@eaza.net*

THE IUCN RED LIST OF THREATENED SPECIES™ THREAT CATEGORIES SCALE



What is The IUCN Red List of Threatened Species™?

The IUCN Red List of Threatened Species™ (or the IUCN Red List) has a long established history as the world's most comprehensive information source on the global conservation status of plant and animal species. It is based on an objective system of assessing the risk of extinction for a species. Species listed as Critically Endangered, Endangered or Vulnerable are collectively described as 'Threatened'.

What are the Threat Category Scales?

The threat category scales are an easy to use graphic element that clearly identifies the threat category of a species. There are alternative versions of the scale depending on usage.

Where can the Threat Category Scales be used?

The scales can be used on signage, posters, in publications etc. They can only be used in relation to a species that has been assessed on The IUCN Red List. The scale must always be placed next to the name of the species.

Who can use the Threat Category Scales?

The IUCN Red List logo and scale can only be used with prior permission of the IUCN Species Programme. If you are interested in using the threat category scales or buttons on signage, posters or in a publication, please contact iucnredlist.logo@iucn.org.