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COLOPHON

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Editorial Board Chair EAZA Bert de Boer **Executive Director ad interim** Bart Hiddinga

Chair Membership & Ethics Committee Lars Lunding Andersen **Managing Editor** Jeannette van Benthem

(jeannette.van.benthem@eaza.net) **Editorial Staff** Bart Hiddinga, Catherine King, Danny de Man

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Alastair Macdonald, University of Edinburgh · Jacques Kaandorp, Safaripark Beekse Bergen (Hilvarenbeek) · Henk Hiddingh, Emmen Zoo

FROM THE EDITORS

Just before this magazine went to press we were pleased to receive the news that Lesley Dickie will start as the new EAZA Executive Director on 1 August 2008, thereby succeeding Harry Schram in this position. Lesley Dickie has already been involved with various EAZA activities and played a major role in the EAZA Madagascar Campaign 2006/7. People who do not yet know Lesley may have a chance to meet her at the EAZA Annual Conference in Antwerp in September.

Lesley will of course also be involved in the production of our magazine in her new position, and an exclusive interview with Lesley will appear in the following issue of EAZA News, so that the EAZA membership and EAZA partners can become even better acquainted with her.

As earlier announced, the following EAZA News will be a special issue devoted to collection planning. We have already received many articles for that issue and we feel confident that it will be a very interesting edition.

Thanks to all who have sent their contributions!

For more information on EAZA News and on how to contribute, please visit the 'Magazine' section on the EAZA website.

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EAZA EXECUTIVE OFFICE

c/o Amsterdam Zoo, PO Box 20164, 1000 HD Amsterdam, The Netherlands Website: www.eaza.net e-mail: info@eaza.net



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PHOTO ZOO LANDAU



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PHOTO THOMAS JERMANN/BASEL ZOO



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PHOTO ODENSE ZOO



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COVER *Heloderma horridum*
PHOTO KLAUS DRAEBY



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Viola lactea
PHOTO MARWELL ZOO

03

FROM THE EAZA OFFICE

First Spring General Meeting

For many years the EAZA Annual General Meeting (AGM) has been held in the autumn, as part of the EAZA Annual Conference. This is because EAZA's financial year runs from 1 July to 30 June, meaning that the AGM needs to approve several documents such as financial reports and budgets in the early autumn. However, holding the AGM during the annual conference, already overloaded with so many meetings of TAGs, various committees, working groups and other groups, usually means that there is little time to discuss aspects of zoo management, politics, or developments in the zoo world with the chief executives of EAZA member institutions.



In order to find a possible solution to this problem EAZA organised a General Meeting (GM) in conjunction with this year's Spring Council Meeting hosted by Lisbon Zoo, Portugal. Approximately forty executive directors usually come to the Spring Council Meeting as national representatives, thus it was believed that a GM to be held the day prior to this meeting could attract a considerable number of other chief executives as well.

This turned out to be true: almost ninety directors gathered for the icebreaker at Lisbon Zoo on the evening of 18 April. The GM was held the following day, with interesting presentations and lively discussions on topics centred on the business aspects of running and developing zoos and aquariums, but ranging from international cooperation to the meaning of 'profit' in a zoo context. The day ended with a tour of Lisbon Zoo and a night cruise on the Tagus River.

All the presentations will be made available to the EAZA membership in due time and we are grateful to all the speakers and contributors for an entertaining and thought-provoking day.

During the EAZA Council Meeting on 20 April it was agreed that the GM of the previous day had been very inspiring and successful, and that next year (when the Spring Council Meeting will be held in Dvur Kralove, Czech Republic) a GM should be organised again, and the programme further developed.

GM

Four new members

Four new EAZA Members were approved by the EAZA Council in Lisbon, Portugal on 20 April 2008. As of this date EAZA has 309 members in 35 countries. Please refer to the 'Welcome' section on the next page for more information on these newly approved members.

Goodbye to Harry Schram



Harry Schram has left the services of EAZA on 30 June. During his time as EAZA Executive Director, Harry put much emphasis on several topics that have recently attracted more attention in our community, including visitor studies and sustainability. His work, including several thought-provoking presentations during meetings and conferences, helped stimulate this development. EAZA will surely continue to integrate these topics into its activities. As a true zoo enthusiast, Harry is keen to continue working with and for the European zoo community, and EAZA wishes him much success in his further career.

EAZA European Carnivore Campaign 2008/9

During the EAZA Council meeting in Warsaw, 2007 it was decided to launch a European-themed conservation campaign for 2008/9, with a focus on European carnivores. Angela Glatston (Rotterdam Zoo) was appointed chair of the campaign planning group and so far, this group has met two times to work out the campaign details.

Twelve target species have been selected, including large species such as the wolf, bear, wolverine and lynx, as well as smaller species such as the otter and arctic fox. Obviously, campaign participants will be able to focus on all other European carnivores if desired. Several funding proposals from conservation projects focussing on the target species were received and the planning group is now in the process of selecting the best ones to fund. Furthermore, a number of activities is being developed that can be carried out simultaneously in all European zoos (reserve 21 June 2009 for a European Carnivore event!).



Instead of a hardcopy campaign info pack it was decided to develop an extensive campaign website for the general public, including an area where EAZA member institutions can download all campaign materials. Furthermore, a leaflet and information CD-ROM will be made available to help promote the campaign within EAZA as well as to other organisations.

Submit your videos!

For an attractive multi-media section of the website, the planning group is interested in receiving short videos (YouTube etc.) of European carnivores in zoos and in the wild. Please contact Stewart Muir (stewart.muir@newquayzoo.org.uk) if your zoo has video footage available that might be suitable for this purpose.

We welcome new members and look forward to a fruitful cooperation. We are convinced that our new members will benefit from the membership services which EAZA offers as a strong pan-European zoo and aquarium organisation. At the same time, we would like to introduce the new members to the readers of EAZA News by providing some general information.

Conservation des Espèces et des Populations Animales - CEPA

Mr. Jean-Marc Lernould
17 Rue de l'étang
68440 Schlierbach
France

Tel/Fax: +33 389814838
E-mail: lernould@association-cepa.org
Website: www.association-cepa.org
EAZA shortname: ORG-CEPA



Founded: 1997
President: Jean-Marc Lernould
Organisational type: conservation organisation

ASSOCIATE MEMBER (conservation based)

CEPA was launched by ten French founder zoos to actively contribute to *in situ* conservation and research activities for highly endangered species that for diverse reasons do not benefit from international funding. French overseas territories are considered as high priority, as well as French-speaking tropical countries. The association counted 22 institutional members and 119 individual members in 2007. Future plans include increasing the volume of financial support to conservation activities, especially for the programmes with increasing long-term needs, by involving more partners such as other European zoos and foundations.

Institute for Breeding Rare and Endangered African Mammals - IBREAM

Dr. Monique Paris, Ph.D.
University of Utrecht
Department of Equine Sciences
Faculty of Veterinary Medicine
Building (Rm 1.140)
PO Box 80153
3508 TD, Utrecht
The Netherlands

Tel: +31 302531331/50
Fax: +31 302537970
E-mail: m.paris@uu.nl
Website: www.ibream.org
EAZA shortname: ORG-IBREAM



Date of opening: 2006
Directors: Robert Millar and John Hanks
Organisational type: UK based charity

ASSOCIATE MEMBER (conservation based)

IBREAM is a virtual institute developed by contributing international institutions, such as the University of Edinburgh and Edinburgh Zoo, the University of Utrecht, the University of Pretoria and Lapalala Wilderness (South Africa) and the Tai Forest (Ivory Coast). IBREAM aims to contribute to the conservation of rare and threatened African mammal species through applied and fundamental research in reproductive biology, integration of these initiatives with other conservation endeavours and through education, outreach and capacity building.

Snow Leopard Trust - SLT

Mrs. Jennifer Snell Rullman
4649 Sunnyside Ave. N.
Suite 325
Seattle, WA 98103
USA

Tel: +206 6322421
Fax: +206 6323967
E-mail: jennifer@snowleopard.org
Website: www.snowleopard.org
EAZA shortname: ORG-SLT



Founded: 1981
Organisational type: non-profit organisation

ASSOCIATE MEMBER (conservation based)

The Snow Leopard Trust (SLT) focuses on the local protection of the snow leopard and its mountain ecosystem through a balanced approach that addresses the needs of the local people and the environment. Organisations such as the David Shepherd Wildlife Foundation, the Worldwide Fund for Nature, the Turner Foundation and the Wildlife Conservation Society as well as over 55 zoos worldwide collaborate with the SLT to implement research, conservation and education in snow leopard regions. Currently there are successful community-based conservation programmes in China, India, Kyrgyzstan, Mongolia and Pakistan. Recently the SLT received a four-star rating for its organisational efficiency and sustainable programmes from Charity Navigator, the highest rating ever given by America's largest independent evaluator of charities.

Parque Oasys - Parque Tematico del Desierto de Tabernas

Mrs. Kira Salvia
De Tabernas
Ctra. Nacional 340 - Km. 464
04200 Tabernas, Almería
Spain

Tel: +34 950365236/2931
Fax: +34 950362884/2930
E-mail: info.dezoos@gmail.com
Website: www.playasenator.com
EAZA shortname: TABERNAS



Founded: 1996
Size: 30 ha (20 ha with animals)
Staff: 89
Number of species: 151 (63 mammal, 49 bird, 27 reptile, 9 amphibian)
Paid attendance: 209,228 (2007)
Organisational type: private

TEMPORARY MEMBER (for two years)

Parque Oasys is located in the Tabernas Desert in Almería. This site was initially developed as a film set for Western movies in the 1960s. The set became a Western theme park in 1970 and a zoo was added in 1996. Initially the zoo was solely commercial, but in 2000 a new philosophy was adopted that is more in line with EAZA's philosophies. Currently, Parque Oasys seeks to enhance the understanding of the fragility of the desert's ecosystem and to increase public awareness on the importance of wildlife and nature preservation.

Corporate membership of EAZA can be awarded to commercial entities that supply or service zoos and aquariums. The following corporate member was approved in March 2008:

Rasbach Architekten

Rasbach Architekten
CORPORATE MEMBER

Website: www.rasbacharchitekten.de (under construction)

Rasbach Architekten is a multidisciplinary team of architects, landscape architects and engineers that provides complete services for zoos from master planning to exhibit design.



Quentin Bloxam

Hobbies Wildlife photography, scuba diving, watching rugby and cricket, drinking red wine and meeting EAZA friends at the EAZA Annual Conference **Last book read** Mammals of Madagascar by Nick Garbutt **Last movie seen** Casino Royal **Favourite celebrity** Previously Gerald Durrell, now David Attenborough **Favourite colour** Blue **Last trip made abroad** Madagascar

Please describe your career path. I have spent the majority of my working life with the Durrell Wildlife Conservation Trust, since joining in 1965 as a bird keeper. I progressed to section head of outside mammals and since then I have held the position of curator of mammals, curator of herpetology, and general curator. I have held my current position as director of conservation management since 1996. This position entails overseeing the management of the many threatened species being studied at the Trust, and working with the director of conservation science to ensure they are fully integrated into our conservation strategy and are providing maximum support to the work being carried out in the wild.

What other activities do you have within the zoo world? I am a current member (and past chair) of the IUCN Specialist Group for Madagascar Reptiles and Amphibians. Furthermore, I am a member of the IUCN Tortoise and Fresh Water Specialist Group and the IUCN Iguana Specialist Group. I have been involved in fieldwork on a number of the Caribbean islands and have carried out annual fieldwork for 12 years in Madagascar. I now also lead Durrell travel tours to Madagascar, as well as to Ecuador and the Galapagos Islands. Furthermore, I am chair of the EAZA Amphibian Campaign Planning Group.

What is your special connection with the Caribbean? In particular Montserrat. I was lucky to visit this island in the early 1980's, a long time before the volcano erupted. It was great to see Durrell and its partners carry out a whole biodiversity study on the Centre Hills forest and have it declared a protected area. As a past herpetologist I have a special interest in the endangered mountain chicken frog (*Leptodactylus fallax*) that inhabits the forest.

Furthermore, I am interested in the present iguanas, the Grand Cayman blue iguana (*Cyclura lewisi*) in particular. This spectacular species was just saved from extinction by one individual working in the island. Durrell has been providing support for this project and now we are involved with the Little Cayman iguana (*Cyclura nubila caymanensis*) as well. The St. Lucia whiptail lizard (*Cnemidophorus vanzoi*) is another island species of which nothing was known until we started field studies on the species. I was fortunate to be involved in clearing rats from one of the offshore islands and the subsequent translocation of a population of these lizards onto the island. Now Durrell is about to translocate whiptails to a further two islands.

"I looked a bit like a dried prune!"

During all the field work you have done, what was your most awkward or funny moment? Most awkward was getting lost in dry forest scrub in Grand Cayman. I was without water for nearly thirty hours in intense heat before I was found. I looked a bit like a dried prune by then! One of the funniest moments was seeing an affluent friend of mine being attacked by a semi-habituated wombat in Australia, proving that money cannot buy you out of everything...

How do you feel about the running of the EAZA Amphibian Campaign so far? It was daunting, particularly as previous campaigns had been so successful. I could never have coped without the enormous assistance from the campaign planning group. The campaign must reach its goal. It is a very real crisis, one where zoos can play a major conservation role in saving species from extinction. It will not reflect well on the zoo community if we do not fully support this campaign.

What is your favourite species and why? I suppose it might be the Madagascar flat-tailed tortoise (*Pyxis planicauda*), as I spent a huge amount of effort attempting to carry out status surveys on it in the western dry forests of Madagascar, as well as managing and breeding them at Durrell.

"Zoos need to increase their support and involvement with conservation within countries where the animals naturally occur"

How do you see conservation in zoos evolving in the future? Given the diminishing resources of our planet due to an ever increasing human population, climate change, human conflict and disease factors in wild animal populations it is hard to imagine that the world is not going to experience some kind of global catastrophe in the foreseeable future. When this might be is impossible to predict, but it does seem inevitable unless there is a dramatic change in the politician's leadership throughout the world and in human behaviour. It may well be that zoos will have an increasing responsibility to provide reservoirs for critically endangered species - the amphibian crisis is already dictating this - however zoos need to increase by some margin their support and involvement with conservation within countries where the animals naturally occur.

What do you enjoy most about your job? Seeing so many of our animal staff involved in Durrell's overseas projects has always been a great source of pleasure. I also really enjoy visiting these overseas projects and leading the Durrell wildlife tours. Walking around the zoo grounds watching the animals remains a highlight of the day. ●

PLUNGE WEEKEND

Mirko Marseille, Dutch Zoo Association (NVD),
Amsterdam, The Netherlands

In The Netherlands 16 different amphibian species are known, with the green frog (*Rana esculenta*) being the most common and therefore the best-known species. Under the umbrella of the EAZA Year of the Frog Campaign, members of the Dutch Zoo Association have already organised several activities to raise awareness on the status of amphibians. As of January 2008 the zoos started with the sales of a CD-single 'de Paddentrek' (The toad migration) produced by Dutch musician Harry Sacksioni. A substantial part of the CD-single profit will be donated to the campaign. Other activities include the sales of cuddly frogs and frog pancakes, the organisation of excursions, frog spawn quests and a 'frog-cross' (marathon).

During the course of the campaign the Dutch Zoo Association is closely cooperating with Foundation RAVON, an organisation dedicated to research on Dutch species of reptiles, amphibians and fish. Zoo visitors have been able to join several RAVON amphibian field excursions and RAVON organised a 'Plunge weekend' on 24 and 25 May 2008. Interested people were invited to explore the level of frog activity in their surroundings, e.g. their garden pond or a ditch or a water jump in their neighbourhood, during that weekend.

Participants in the 'Plunge weekend' were asked to measure frog activity by counting the number of frog plunges and/or actual frog sightings per recognised species. They could register their observations online or via e-mailing their datasheet to RAVON. Instructions on how to count amphibians successfully were available from the website

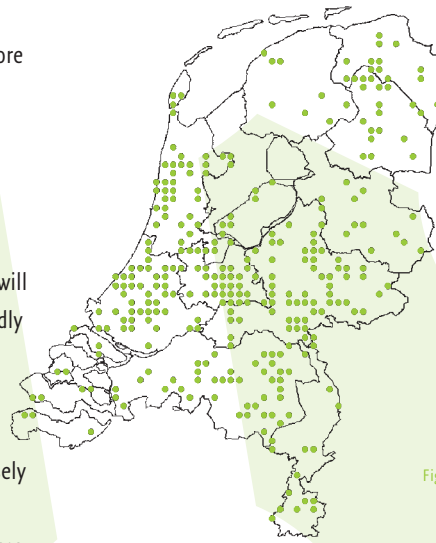


Figure 1 Locations amphibian countings
SOURCE RAVON



www.plonzenweekeinde.nl. This website also provides information about amphibian ecology and on how people can support amphibian conservation, for example by constructing their own 'frog-friendly' garden ponds.

Finally, around thousand people participated, thereby counting approximately 15,000 amphibians in more than 530 different locations (see Figure 1). The green frog, counted 6,000 times, remains the undisputed number one amphibian species. Plunge weekend received significant media attention, thereby also conveying the message to the general public and not only to frog enthusiasts and herpetologists.

FROGS & CO

Wilhelm Moller, Zoo Augsburg, Germany

At Augsburg Zoo the emphasis during the amphibian campaign is placed upon education and information via the theme 'Frogs & Co'. The education department designed posters covering both native and exotic amphibians and informing visitors about their current status, threats and future perspectives. The posters are displayed near two new terrariums

containing a number of interesting species of frogs. In addition to this, there are two other locations in the zoo where tropical frogs are displayed in terrariums. The exhibitions resonate well with the visitors, and crowds of people standing around them are no rarity. One of the zoo's main goals is to inform children about native

amphibians. Consequently, a triangle of about 350 m², more or less positioned in the centre of the zoo, has been designated for the construction of a natural swamp biotope and will be completed in the near future. Unfenced, it will provide the possibility to easily observe the full lifecycle of frogs, toads, dragonflies and other small water creatures. This new exhibit

will become a permanent feature of the zoo and will be ideal for educating school children. Special events in connection with the amphibian campaign started off with a day during which children were taught to 'origami' frogs from coloured paper. This was great fun, not only for the children, but also for their parents and the zoo instructors.

AMPHIBIAN ACTIVITIES AT ZOO BRNO

Michaela Rysava, Zoo Brno, Czech Republic

In Zoo Brno the campaign started in February 2008, when schools were invited to participate in amphibian competitions (painting, story-writing and poetry). In addition, a new education programme about amphibians was made for schools.

People are informed on the campaign and threats to the survival of amphibians in many places throughout the zoo, in the city centre and during various activities in the zoo. For example a competitive amphibian trail was set out for the public on Earth Day (19 April 2008). People learned

much about the animal kingdom, in particular about frogs and animals featured in previous EAZA Conservation Campaigns. They could also buy amphibian merchandise (t-shirts, toys etc.), create chalk drawings and other paintings or get their face painted like frogs. Many schools (36) from Brno and its surroundings participated in creative and literary competitions. The drawing competition was especially popular: the zoo received 527 drawings. Winners received a diploma and a watch, campaign T-shirt or another 'frog-themed' item.

EAZA AMPHIBIAN CAMPAIGN

AMPHIBIAN REINTRODUCTION PROJECT

Martin Wehrle, Tierpark Goldau, Switzerland

Tierpark Goldau developed a special 'Frog-house' in the frame of the Year of the Frog Campaign. This Froghouse is a wooden shelter adjacent to a greenhouse in the park. From this shelter visitors can watch tree frogs and yellow-bellied toads (*Bombina variegata*) in a 'natural habitat' in the greenhouse. Information panels on the walls of the shelter provide details about



the amphibian species in Switzerland, the amphibian crisis and a European tree frog (*Hyla arborea*) reintroduction project in a protected

area at the lake of Lauerz, which is located close to the zoo. The reintroduction project is a cooperation between Tierpark Goldau and the Lake of Lauerz Foundation. Tierpark Goldau is responsible for the quarantine procedure, the raising of the larvae and research. Froghouse visitors can also sign the Amphibian Ark petition and an artificial frog collects money for the

PHOTOS TIERPARK GOLDAU



campaign. Animal keepers and rangers are organising workshops, meetings and guided tours at the zoo and near the Lake of Lauerz.

WELCOME TO THE FROG ZOO!

Tomas Rus, Zoo Decin, Czech Republic

PHOTO ZOO DECIN

At Zoo Decin the first amphibian campaign event was the thematic day 'Welcome to the Frog Zoo!' in April 2008. The most important event during this day was the opening of the educational exhibition, with panels informing visitors about amphibians in general and posters on local amphibians. The exhibition also includes an

explanation on how amphibians are being caught and re-placed in the wild to minimise traffic mortality, including a model of the fence and buckets with which the amphibians are caught. Furthermore, children's paintings are exhibited and visitors can observe terrariums with four native Czech species and three tropical frog species.

Frog competitions were also organised on the thematic day: children could try to shoot a fly with a 'frog tongue' (a hack-sack on an elastic waist-band), play leapfrog and participate in a 'Miss Frog' competition. Some students and teachers from a catering school made tasteful 'frog cocktails': non-alcoholic

drinks with frog-like features. Another thematic day was organised in May. This was a 'frog carnival' and all visitors with a frog mask received a 50% discount on their entrance ticket.



A LONG-TERM COMMITMENT

Claes Andrén and Lena Linden, Nordens Ark, Sweden

PHOTO TOM SVENSSON

On 13 June 2008 Her Royal Highness and Patron of Nordens Ark, Crown Princess Victoria, celebrated the Year of the Frog Campaign 2008 and opened an 'amphibian ark' in Nordens Ark. An important focus on this group of animals with many species on the brink of extinction has become reality: the amphibian ark is a unique breeding facility with outdoor enclosures and ponds for endangered amphibian and reptile species.

A two-floor amphibian house was built in connection to this breeding facility. The upper floor demonstrates non-European amphibian conservation projects and a dazzling diversity of exotic amphibians kept in beautiful mini-landscapes similar to their natural habitats. The ground floor is devoted to European (mainly Swedish) amphibian conservation projects, and the zoo's work with longicorn beetles (Cerambycidae), isolated northern Wels catfish (*Silurus glanis*) populations, and the European pond turtle (*Emys orbicularis*). The zoo shares its breeding and rearing work with the general public by means of cameras placed in the non-public rearing facilities, which are connected to large screens in the public hall of the amphibian house. Nordens Ark is largely dependent on economic support from the general public and private companies to run its conservation projects. This is a way to show what enthusiasm and hard work can achieve.

In 2007, the Nordens Arks research workshop was the kick-off for the amphibian campaign, with a focus on conservation biology and the amphibian crisis. Twenty invited PhD students were privileged to be



taught by thirty highly qualified teachers from eight different countries. A PHVA workshop for the green toad (*Bufo viridis*), the most endangered amphibian species in Sweden, was organised at Nordens Ark in late autumn 2007 (see EAZA News 61/2008, p.6). Nordens Ark participated in the world-wide leapfrog event on New Years Eve, the start of the Year of the Frog 2008. A zoo employee took part in the Amphibian Conservation Husbandry Course at Durrell Wildlife Conservation Trust on Jersey, Channel Islands in March 2008.

A new research workshop is planned for late autumn 2008 and the coming winter the zoo intends to arrange a scientific seminar with a focus on rearing amphibians in captivity in accordance with the EAZA Amphibian Ark, and to discuss guidelines on restoration of habitats and reintroduction. Nordens Ark is prepared for a long-term commitment to save endangered Swedish and exotic amphibians.

THE EAZA AMPHIBIAN ARK; AN UPDATE

Henk Zwartepoorte, Rotterdam Zoo, The Netherlands and Gerardo Garcia, Durrell Wildlife Conservation Trust, Jersey, Channel Islands

There are more than thirty threatened species of amphibians that need immediate conservation action in Europe alone. To prevent disease getting into captive or wild populations the EAZA Amphibian Ark (AArk) was organised to coordinate the establishment of dedicated amphibian breeding units and other amphibian-related actions within EAZA and its institutions. Below an update of the EAZA AArk activities can be found.

Regional Collection Plan

A Regional Collection Plan (RCP) has been finalised, which currently includes 34 frog, toad, salamander and newt species from the European region, for which eight species have an AArk management level. For the Madagascar region 58 species are listed, including nine species with an AArk management level, among them the golden Mantella (*Mantella aurantiaca*) for which husbandry guidelines have been developed and published.

Conservation

Furthermore, the 'Conservation Strategy for the Amphibians of Madagascar (ACSAM)' has been developed by Franco Andreone (Museo Regionale di Scienze Naturali in Torino, Italy) in cooperation with more than hundred biologists and major conservation and governmental agencies. Communication between Franco Andreone and the Malagasy government is proceeding and proposals for collaboration between Madagascar and the EAZA AArk is under discussion.

Several EAZA institutions have started conservation programmes for their local species: Riga Zoo in Latvia and Copenhagen Zoo in Denmark have joined forces in the conservation of the fire-bellied toad (*Bombina orientalis*) while Fuengirola Zoo in Spain and Durrell Wildlife Conservation Trust in Jersey focus on the Betic midwife toad (*Alytes dickhilleni*). Others maintain a long-term commitment, such as Nordens Ark in Sweden with the green toad (*Bufo viridis*, see previous page) and Barcelona Zoo, Spain and Durrell Wildlife Conservation Trust with the Mallorcan midwife toad (*Alytes muletensis*). Durrell is also working with the locally threatened species of amphibians in the island, the European toad (*Bufo bufo*) and the Agile frog (*Rana dalmatina*).

Amphibian management courses

The first training course on amphibian husbandry and management was organised at the Durrell Wildlife Conservation Trust, sponsored by the North of England Zoological Society, Chester in the United Kingdom. A total of 21 participants from ten EAZA institutions participated this course in February and March 2008. The course was facilitated by the International Training Centre and staff of the Durrell herpetological department, with additional lectures given by external experts in fields such as aquatic life support system management, veterinary care and bio security.

More than £4000 worth of equipment relevant to the design, management and marking of amphibians was donated by various companies, all

of which was used during the practical activities. These companies also provided staff that gave lectures on some of the equipment available. The now-trained participants will develop a course on national and regional levels and will plan amphibian husbandry courses for this year or early next year. Ten courses throughout Europe are now already in the pipe-line (Denmark, France, Germany, Israel, Latvia/Russia, The Netherlands/Belgium, Portugal, Spain, Sweden and the United Kingdom).

PHOTO GERARDO GARCIA

**Breeding and breeding units**

In Belgium, the Royal Zoological Society of Antwerp is now closely cooperating with the EAZA AArk. Researcher Dr. Robert Browne has been appointed to develop an amphibian research and breeding programme. As an official AArk cooperator, Robert Browne attended a workshop at Johannesburg Zoo, South Africa, on AArk activities and the *ex situ* African frog breeding programmes in particular.

The EAZA AArk participating institutions and the AArk steering committee still need to decide which 'bio-secure' units are best suitable to manage and breed amphibians. For example, one can use portable cabins, shipping containers, green houses and modified rooms. The units need to be linked with the role of the species programme and institutions need to be provided with guidelines on how to develop and/or build these units. Furthermore, the costs of the unit is also dependent on the design and vice versa.

Chester Zoo and Durrell Wildlife Conservation Trust are using a shipping container received from Australia which is already operational as breeding unit. Durrell Wildlife Conservation Trust build a second one in Jersey for the head starting programme of the local population of the Jersey agile frogs (*Rana dalmatina*).

Chytrid fungus

Only a few institutions (about six) have so far tested their amphibian collections for presence of the chytrid fungus. Results of these tests differ, however there are some positive chytrid colonies. More research is being carried out to improve the knowledge on the activity of fungus in the captive colonies. Regular testing of the collections is recommended and more guidelines on the testing process will be presented in September, during the EAZA Annual Conference in Antwerp, Belgium. •

An update on the cooperation between EAZA and ALPZA



EAZA Executive Office, Amsterdam, The Netherlands

EAZA and its membership have been aware that Latin-America is a region of strong development, and that its zoos and governmental institutions have staff willing to develop serious and professional work for the conservation of global biodiversity. Therefore, EAZA has officially been supporting ALPZA the last few years, in accordance with a Memorandum of Understanding (MoU), signed at the EAZA Annual Conference 2005 in Bristol, the United Kingdom.

Since the signing of the MoU for a period of five years, EAZA has become an ALPZA Associate Member and vice versa. As both parties have agreed to share all relevant information, several documents produced in the frameworks of the associations have been exchanged and regular contact is being kept. Furthermore, EAZA publishes articles on ALPZA and Latin-American zoos in EAZA News.

Cooperation in *in situ* conservation

EAZA agreed to encourage its members to cooperate with ALPZA members on their local *in situ* conservation projects, in order to improve coordination of the efforts of the two regions at all levels (e.g. conservation, education, research, fieldwork). Several EAZA member institutions have in the meantime developed their own *in situ* conservation programmes in Latin-America in cooperation with ALPZA members and/or have become close partners in already existing local conservation programmes.

EAZA *in situ* Conservation Database

EAZA is currently working on globalising the EAZA *in situ* Conservation Database, after which it will be available to ALPZA for use in the Latin-American region. To keep ALPZA informed on the involvement of EAZA institutions in Latin-American conservation programmes and to promote participation in these conservation programmes, ALPZA is continuously provided with updates of the information that is uploaded to the database by EAZA members.

Sharing experience and support training

To share experience and build up a cooperative network, EAZA and ALPZA have sent their representatives to each other's annual meetings and other relevant events such as the EAZA Conservation Forum 2006 in Angers. Several EAZA representatives attended the ALPZA Annual Meeting in Quito (Ecuador) in May 2008. This year's theme was 'Responding to the challenge of conservation' and there was a special focus on the 'Year of the frog' campaign. With presentations in the morning and mini-courses in the afternoon, ALPZA offered its participants an extensive programme. Several EAZA representatives gave presentations as well.

As in previous years, EAZA is providing travel grants for ALPZA representatives to attend the EAZA Annual Conference in Antwerp in September. Here ALPZA representatives will provide EAZA members with an update on activities in Latin America.

ALPZA Conference 2008



Travel grants will also be provided for two ALPZA representatives to attend the International Zoo Educators (IZE) Conference in Adelaide (Australia) in October 2008.

EAZA supports the ALPZA Training Programme and encourages EAZA members to offer training opportunities to colleagues from the ALPZA region. Since the signing of the MoU the ALPZA Executive Director received training at the EAZA Executive Office in 2005 and several ALPZA representatives attended the EAZA Breeding Programme Management Course in November 2007 and the European Zoo Nutrition Conference in January 2008. Furthermore, a training course for ten newly appointed ALPZA studbook keepers was organised by EAZA and ISIS in Panama City (Panama) last February.

Support by EAZA Committees

As stated in the MoU, several EAZA Committees have been supporting ALPZA. The EAZA Executive Committee has defined a cooperation policy and has been providing financial support. Furthermore, the EEP Committee has supported the development of breeding programmes and studbooks in Latin-America and has developed a procedure for TAG and EEP/ESB cooperation with ALPZA. EAZA has furthermore supported ALPZA in the development of their action plan. EAZA will continue to support and provide advice during its implementation.

After 2.5 years, the results of the MoU already seem to be quite a success. Much has been accomplished, and in the upcoming years much more can be done cooperatively to improve global conservation efforts. EAZA and ALPZA hope that their cooperation will be an inspiration for other regions to start working in the same direction. ●

EAZA institutions interested in becoming an ALPZA Associate Member, please contact: direccion.alpza@gmail.com

Sulawesi crested black macaques; saving a fascinating species



Antje Engelhardt, German Primate Centre, Gottingen, Germany and Dyah Perwitasari-Farajallah, Bogor Agricultural University, Indonesia

The seven species of Sulawesi macaques (*Macaca nigra*, *Macaca nigrescens* or *Macaca nigra nigrescens*, *Macaca heckii*, *Macaca tonkeana*, *Macaca maura* or *maurus*, *Macaca brunnescens* and *Macaca ochreata* or *Macaca brunnescens ochreata*) are not only a group of particular importance for the understanding of primate evolution, they are also endemic to an island within one of the world's biodiversity hotspots: Wallacea.

The Macaca Nigra Project, a collaboration between the German Primate Centre, the Bogor Agricultural University, Java and the University Sam Ratulangi, Manado, North Sulawesi, was established in 2006 in the Tangkoko-Batuangus Nature Reserve, North Sulawesi, Indonesia. The project has built up a conservation programme based on research and education and works closely with local universities, villagers and governmental officials to investigate aspects of primate evolution on the species and to promote conservation of the last remaining populations of Sulawesi crested black macaques within their original habitat.

Sulawesi crested black macaques (*Macaca nigra*) have a limited distribution range, restricted to the outermost tip of the northern peninsula of Sulawesi. Why macaques on Sulawesi radiated in such an unusual way, showing almost no overlap in distribution, still remains largely unknown and may go back to the exceptional geological history of the island. The original habitat of Sulawesi crested black macaques is now rapidly shrinking due to legal and illegal logging, and the monkeys themselves are hunted for food.

Studying reproductive biology

Despite their interest to both scientists and conservationists, Sulawesi crested black macaques have rarely been studied in the wild and almost nothing is known about their reproduction and ecological flexibility, how they cope with the increasing impact of humans on the environment and the demographic changes within their populations due to hunting. The Macaca Nigra Project currently focuses on the reproductive biology of the macaques in order to characterise the species' natural parameters of reproduction. Deviations from these parameters will then in the future

indicate changes in reproduction rates caused by environmental stressors, demographic changes and/or effects of inbreeding. Knowledge of basic reproductive parameters will in addition provide an important database for zoo personnel managing captive colonies.

Mixed research teams

Research teams in the Macaca Nigra Project usually represent a mix of Indonesian and foreign students. This is to ensure that Indonesians are fully integrated into the project while also giving foreign students the opportunity to study this fascinating species. This concept will hopefully increase recognition of the species and its threats within Indonesia as well as worldwide. Mixed team compositions also facilitate cultural exchange and scientific transfer to Indonesia, both of which are important for the development of the country. Teams work in close collaboration with local universities and conservation officers and provide education programmes to villagers. The final goal is a sustainable conservation plan built cooperatively by all stakeholders.

Tangkoko is more than macaques

The biggest remaining population of Sulawesi crested black macaques is found in the Tangkoko-Batuangus Nature Reserve, where the Macaca Nigra Project is based. Ecotourism within the area forms some income to the villagers, but is also a threat to the intactness of the reserve – a conflict that needs sensitive balancing. Conservation of the original macaque habitat will not only ensure the survival of these monkeys, it also means survival of many more species endemic to Wallacea. Tangkoko also houses one of the last wild populations of Maleo, a megapode bird that uses the volcanic ground for geothermal incubation of its eggs, and the spectral tarsier, one of the smallest primates in the world, and the Sulawesi bear cuscus and the Sulawesi dwarf cuscus, the two only native marsupials on Sulawesi. It is one of the few areas worldwide in which one can see marsupials and placentals at the same time. By contributing to the protection of the forest around Tangkoko, the Macaca Nigra Project thus helps the plight of several other of Sulawesi's threatened wildlife species. •

PHOTOS ANTJE ENGELHARDT



The Sulawesi crested macaque EEP included 79,114.5 individuals in 28 institutions in December 2006. The EEP is coordinated by Vicky Melfi, Paignton Zoo, United Kingdom.

The Persian onager EEP; current situation and future plans

Stephan Hering-Hagenbeck, coordinator Persian onager EEP and Adriane Prah, Tierpark Hagenbeck, Hamburg, Germany

PHOTO GERTRUD AND HELMUT DENZAU



Tierpark Hagenbeck has a historic close connection with the Persian wild ass, or onager (*Equus hemionus onager*). With the intention of introducing the unknown Persian wild ass into western zoos, the zoo organised an expedition to Persia in 1954. Eleven adult onagers and nine foals were captured. These animals were transported to Hamburg and have basically been the founders of the current captive onager population.

Tierpark Hagenbeck officially took over coordination of the Onager EEP in 2003. The international studbook, kept by Tierpark Berlin, Germany, listed 139 (58.81) captive onagers in 2006. Early this year, the Onager EEP consisted of 64 (27.37) individuals kept by 17 EAZA member institutions. Although there are some well-working breeding groups – 5.3 foals were born in 2007 – this small captive population is very vulnerable. Two serious incidents have drastically affected the size of the captive onager population: in 2005 six animals had to be euthanized due to a tuberculosis outbreak and in 2006 three animals died during severe flooding in southern France.

Surplus males

Another problem with the captive population has been the placement of surplus males. Male offspring begin having severe troubles with the dominant stallion when they are two to three years of age and cannot remain in the family group. Consequently, the EEP has set up bachelor herds (e.g. at Safari Beekse Bergen, The Netherlands and Ebeltoft Safari, Denmark). These bachelor groups seem to function well and can serve as a genetic reservoir for the European population.

Status in the wild

The Persian onager is listed by IUCN as 'Critically Endangered'. According to Tatin *et al.* (2003) the biology and conservation requirements of wild onagers are poorly documented. To gather more information on the status of wild onagers in Iran and to discuss possible cooperation between the EEP and the Iranian environment department, Tierpark Hagenbeck staff

met with a delegation of Iranian wildlife specialists (four delegates from both the environment department and the University of Tehran) at the end of 2007.

According to these Iranian specialists, in contrast to Denzau and Denzau (1999), only two small and geographically isolated populations seem to remain in the wild: 283 onagers in the Bahram-e-Goor Reserve southeast of Shiraz in the Fars Province, and 395 onagers in the Touran Protected Area at the eastern edge of the Semnan Province. Walzer (*pers. com.*, 2008) estimates that there are probably less than 400 individuals left in the wild, but proper surveys are needed to clarify the situation.

Threats

The wild population is surely at high risk, both demographically and genetically. The main threats to the remaining free-ranging onagers are the competition with humans and their domestic animals (for space, food and water) and poaching. The Iranian wildlife specialists described the onager breeding centre in the Province of Yazd, housing about 32 animals. Due to management problems, especially with the stallions, there seems to be regular mortality. The centre staff would like to introduce new animals from the wild population, but the Onager EEP representatives pointed out that the loss of animals seems to be mainly due to inadequate management tools, such as the possibility to separate stallions or to anesthetize animals. As a practical first step towards international cooperation, the EEP has offered its support and advise to improve possibilities.

Future research

Another important focus of the EEP is the evaluation of the genetic status of the different subspecies of Asian wild asses. The taxonomy is still in debate (Schreiber *et al.*, 2000) and additional information is needed to clarify the subspecies' classification, particularly regarding the onager and the kulan (*Equus hemionus kulan*). It seems likely that both subspecies invaded the region of the Touran Protected Area from the Turkmenistan side. Based on DNA analyses Oakenfull *et al.* (2001) concluded that these two diverged recently, and that it may not be correct to classify them as separate subspecies. Furthermore, it is necessary to compare and interpret the genetic and morphological data of both the wild and captive (EEP) population (Nielsen *et al.*, 2007). •

PHOTO TIERPARK HAGENBECK

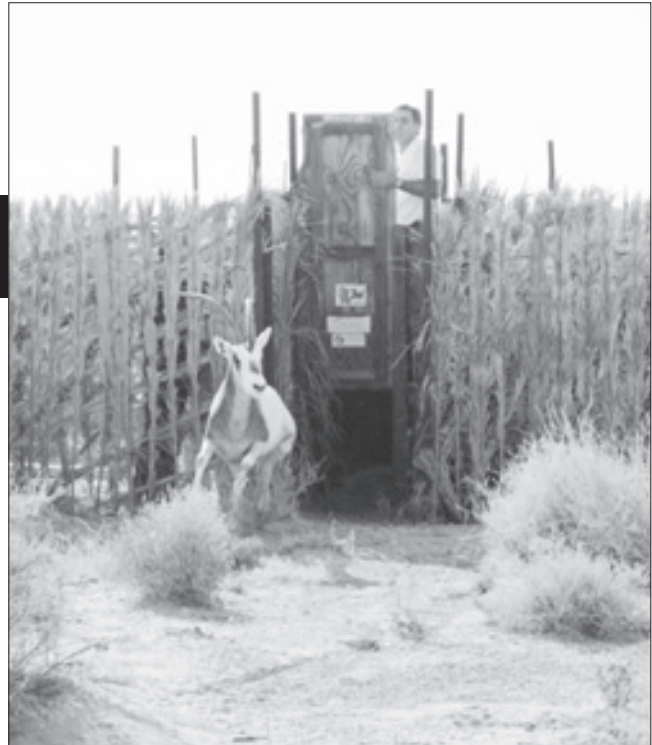


PHOTO MARWELL ZOO

Marwell Conservation in short

Tim Woodfine and Tanya Langenhorst, Marwell Zoological Park, United Kingdom

Marwell Conservation seeks to address causes of extinction such as habitat loss and the over-exploitation of biological resources, and to manage vulnerable populations of threatened species to ensure their survival. This is achieved through a range of species and habitat conservation programmes locally in southern England and internationally, in particular in Africa. The main focus is on capacity building and biodiversity monitoring. Since Marwell Conservation holds the international studbooks and coordinates the Grevy's and Hartmann's mountain zebra EEPs and the Scimitar-horned oryx EEP, these species play a key role in several of the projects.



British wildlife

Through the British wildlife programme, Marwell Conservation tries to make a significant contribution to the conservation of biodiversity on its doorstep in southern England. Habitat and species restoration projects are undertaken, as well as biological surveys and monitoring to evaluate the impacts of land management. Work is done within formally protected areas, for example Eelmoor Marsh, a 'Site of Special Scientific Interest' and 'Special Protection Area', is managed through the use of large grazers, such as Highland cattle and Przewalski's horses. Local biodiversity has improved here considerably over the last decade and many plants, insects and birds which are otherwise rare in southern England are now a common sight at Eelmoor.

Kenya

The flagship for conservation work in northern Kenya is the Grevy's zebra (*Equus grevyi*). From an estimated 15,000 Grevy's zebra in the late 1970s, there are now only around 2,000 animals left, living in small, fragmented populations in northern Kenya and some parts of Ethiopia. They are threatened by competition with domestic livestock for water and grazing resources, habitat degradation and, in some areas, poaching. A broad-scale approach to biodiversity conservation takes into account the needs of people and wildlife alike. Marwell Conservation is supporting the development and implementation of Kenya's national strategy for Grevy's zebra conservation, for example by taking part in the planning and executing the first national survey in eight years, and working with communities to help them achieve their conservation goals through financial and logistical support for biodiversity surveys. Marwell Conservation provides IT equipment and solar panels, as well as the training to use them. A Kenya programme manager has been committed to live in Kenya specifically for this work. Furthermore, a research centre in the Lewa Wildlife Conservancy was built, which provides a base for national biologists within the Grevy's range and offers training and bursaries for Kenyan nationals to acquire university degrees in ecology and conservation.

The Sahara

With its wide variety of habitats, the Sahara gives rise to a diversity of arid-adapted species, and the region is far richer in wildlife than often is expected. While a number of Sahara species are at high risk of extinction due to habitat degradation and over-exploitation, the scimitar-horned oryx (*Oryx dammah*) is already thought to be extinct in the wild.

The long-term aim of Marwell Conservation is to help reintroduce the species across its former habitat in the periphery of the Sahara. This also includes addressing the reasons for its disappearance and the ongoing decline of other desert wildlife. It is hoped to achieve this goal by working with like-minded organisations and playing an active role in establishing and developing the Sahara Conservation Fund, an international non-governmental organisation dedicated to this cause.

Zimbabwe

In southern Africa commitment to the conservation of biological resources is made through ongoing support of the Marwell Zimbabwe Trust (MZT), one of a small number of non-governmental organisations that works with the Parks and Wildlife Management Authority on an agreed plan for the conservation of the country's rhino populations. The trust has a mandate to determine population size and distribution of cheetah and to reduce human-predator conflict; and it undertakes research to improve understanding of little known and elusive species of small antelope.

An increasingly important function of the MZT is to provide opportunities for the training and development of local conservation professionals whose contributions to the management of their country's biological resources will be critical in the coming years. This includes provision of training for personnel working in Zimbabwe's national parks, work placement and research opportunities for local undergraduates and postgraduates studying wildlife and other natural resource management. •

CONSERVATION

Wildlife detector dogs; a somewhat different conservation project

Harald Schwammer, Vienna Zoo, Austria

PHOTO VIENNA ZOO



Vienna Zoo intensively supported the training of two 'species conservation dogs' owned by the Austrian customs agency. After six months of training, these dogs took up their job at Vienna airport in May 2008. Their task: to detect smuggled reptiles in the luggage of incoming travellers.

Despite new and strict animal protection laws, reptiles continue to top the shopping list of people keeping exotic pets. In recent years, both the official pet trade and illegal animal trade have increased considerably. This prompted the Austrian government responsible for customs matters to take action and to train two search dogs for species protection operations.

Basic and specific training

The head dog trainer of the Austrian customs agency, with his team currently responsible for 22 sniffer dogs, contacted Vienna Zoo for their experience with exotic animals. Furthermore, Harald Schwammer, zoologist and the zoo's deputy director, is experienced in animal training and dog training in particular. The zoo provided the customs agents with instructions on how to handle reptiles, spiders and scorpions, and a canine training programme was developed.

The dogs first completed a basic obedience training, after which they were trained to detect very specific scents. For this purpose, the zoo curator responsible for the reptiles provided the dog trainers with pieces of textile which had been placed in terrariums of various reptile species for several days. After learning to identify the different reptile scents, the dogs received extensive training using live reptiles. The dogs were soon able to accurately detect reptile scents in travellers' suitcases that had been trial-rigged. Unlike drug-sniffing dogs, the wildlife detector dogs have been taught to make a positive identification without actually touching their find. However, just in case, a first-aid kit is available to treat dogs that might accidentally touch something noxious, such as poisonous spider hairs.

In the future

Vienna Zoo plans to fund the purchase of two additional wildlife protection dogs and to offer training courses for wildlife detector dogs on an international basis. Various other agencies have expressed their interest, including colleagues from South Africa. The programme can also be expanded to the detection of other animals or animal products, for example parrots or ivory. ●

EDUCATION

Education 'across the border' at Zoo Landau

Zoo Landau, Germany

The school at Landau Zoo, founded in 1992, is run in collaboration with the institute for pedagogic and adolescent education of the University of Koblenz-Landau. More than 15,000 children attend the school each year. The school stresses learning through playing, acting and experiencing topics like environmental protection, conservation of species and animal welfare. Besides these classical subjects, today global and cross-cultural education seem of increased importance.

Developing a Nature Trail at Colchester Zoo

Rebecca Perry, Colchester Zoo, United Kingdom

Zoos have become increasingly engaged in native species conservation programmes: directly through captive breeding and reintroduction programmes and indirectly through education and awareness-raising. In recent years, Colchester Zoo and its charitable arm 'Action for the wild' have provided financial and technical support to a multitude of global projects, but are equally concerned about local conservation issues.

Essex County, the county in which Colchester Zoo is located, has a wealth of natural resources and contributes significantly to national and international biodiversity. Three years ago, Colchester Zoo purchased 1.2 ha of low-lying land on the bank of the Roman River, adjacent to the zoo's southern boundary. Though it encompasses an array of habitats, the land is primarily riverside marsh, which is becoming unusual in this area. Colchester Zoo aims to manage this riverside site to protect, conserve and enhance the variety of flora and fauna species on this area and to educate zoo visitors about British wildlife conservation. By developing this nature area,

To face the challenges of living in the 21st century, the zoo school encourages cross-border communication on conservation issues. Being close to the French border and in times of increasing cooperation within the European Union, the zoo school wants to contribute to the coalescence with close neighbours. Under the slogan "we can only really save wildlife and our environment by all working together" the students that work as educators at the zoo school are familiarised with cross-national nature and species conservation actions.

Foreign-language lessons

The Landau Zoo school has been offering special foreign-language lessons for five years now. These lessons basically focus on getting familiar with the zoo animals and on improving knowledge of the foreign language concerned. Currently, twenty different zoo school programmes can be booked either in German, English or French. An increasing number of French schools from the nearby Alsace region book lessons in French and/or English.

The programme 'integrated work with foreign languages' focuses on children of elementary schools. Lessons are principally provided in German but

supplemented with sequences in English or French. During one lesson, the children become more familiar with two animal species that can be found in the zoo and they learn five new words. Already familiar words and phrases are playfully reinforced using tools such as hand puppets.

Foreign signage

The foreign-language concept of Zoo Landau is complemented by well-attended guided zoo tours provided in French or English twice a year and by zoo signs that also display English and French species' names and information. ●

PHOTO ZOO LANDAU



Colchester Zoo will develop an integrated approach to conservation, to encourage conservation participation of zoo visitors and to promote awareness of the importance of biodiversity through effective conservation education.

Local significance

This wetland site at Colchester Zoo could have the potential to be locally significant. The Roman River is designated a 'Site of Special Scientific Interest', primarily identifying the area worthy of preservation. The site is within 10 km of Abberton Reservoir, the largest body of freshwater in Essex and one of the most important reservoirs in Britain for wildfowl. Located close to other important wildlife areas as well, when managed to its full conservation potential this nature area could serve as a stopover point for foraging birds on route to other local conservation areas.

Determining site use

Initially the site was overgrown with nettles, although there were two areas of standing water at the western and eastern boundaries. The margins of the wetland areas contain a varied, marshy habitat with species such as the celery-leaved buttercup (*Ranunculus sceleratus*), bog stitchwort (*Stellaria uliginosa*) and yellow flag (*Iris pseudacorus*). A survey conducted after initial meetings with conservationists indicated that the habitat is suitable for water voles. It is likely to be used by foraging bats and also provides habitat for the locally rare beautiful demoiselle damselfly (*Calopteryx virgo*) and two species from the Birds of Conservation Concern Red List: the turtle dove (*Streptopelia turtus*) and song thrush (*Turdus philomelos*).

PHOTO COLCHESTER ZOO



Designing the trail

Following the survey, the local Essex Biodiversity Project designed a nature trail layout to maximise the potential of the area as a visitor experience without comprising the site for native species. The design for the trail was successful in gaining planning permission at the end of November 2007 and preliminary work started in February 2008 to link the original areas of standing water with shallow ponds and connecting ditches. Water flows onto the nature area site from the main lakes in the zoo, which then previously flowed directly into the Roman River. With the development of shallow ponds, the water is now redirected through the nature area site, before re-entering the Roman River a few hundred metres later.

On the boardwalk

Embedding of wooden piles to stabilize a boardwalk that will take zoo visitors around the site began in March 2008. This work was completed in May and native plant species have already started to recolonise. Early May, Colchester Zoo's head gardener met the project coordinator of the Essex Biodiversity Project to work on a flora species list and discuss the planting of locally-sourced native species in addition to those that colonise the pond areas naturally.

Education and interpretation

Now that work on the piles has been completed, zoo maintenance staff will commence work on the boardwalk and also create two bird hides and a pond-dipping platform for educational visits. Hopefully these structures will be completed by the summer of 2009. Education and interpretation will play a major role in the development of the nature area, to raise awareness of local indigenous species. It is hoped that by implementing a formal and informal education programme, zoo visitors will be empowered to participate in local conservation projects to protect and conserve local biodiversity. ●

A nicely integrated elephant exhibit at Copenhagen Zoo



Lars Lunding Andersen, Copenhagen Zoo, Denmark

A master plan for the upcoming years was published when Copenhagen Zoo celebrated its 140th anniversary in 1999. As part of the plan, the entire northern part of the zoo was reserved for a new enclosure for the Asian elephants (*Elephas maximus*). In 2001 the Realdania Foundation announced that it was willing to donate funds for the enclosure design. Now the questions were how to start with the project and which architect to choose...

The idea for the design of the new elephant enclosure was based on a visit to the British Museum in London in 2001. Here Foster + Partners had just completed an impressive project, covering the Great Court (a covered square in the centre of the museum) with glass, transforming it into a large and light hall. As their project gallery holds several other interesting projects involving glass domes (e.g. the big green house in the National Botanical Garden in Wales and the subway station Canary Wharf in London) it was decided to ask them to design the new elephant house. A meeting was set up with the Danish artist Per Arnoldi, as he has participated in several of Foster's projects. He agreed to act as the zoo's envoy and met with Foster + Partners to talk about the project. A week later Norman Foster indicated that he would be honoured to carry out the project.

Why so ambitious?

Copenhagen Zoo could have built a simple barn for the elephants, but the zoo does not have much space to nicely integrate such a basic

building to 'hide' it from the zoo visitors. Within its limited area the zoo needed to ensure that the new enclosure constitutes a nice experience to the visitors without compromising animal welfare and the security of the staff.

Copenhagen Zoo is not only working towards nature conservation, it is also a cultural institution providing an experience, recreation and reflection.

A long tradition

Copenhagen Zoo feels that good architecture adds much value to the visitors' experience of the animals, just like a well-designed museum adds value to the museum's collection. The zoo has a long tradition of hiring prominent architects to leave their mark on the zoo, and without diminishing the work of former architects, it is obvious that the new elephant house will lift the zoo into the architectural top league. It will attract focus and add value to the zoo's group of Asian elephants, the exhibition and nature conservation.

The most dangerous animal

Zoo architecture must of course adapt to considerations concerning animal welfare. Zoo history includes numerous examples when this did not occur, leading zoo colleagues to say that the architect is 'the most dangerous animal' in the zoo. As building an elephant house and outdoor enclosure is very complicated, zoo staff spent six months in 2002 writing a detailed programme describing all requirements. Factors such as the necessary space for the elephants, needed strength of walls and gates, transport of the elephants, safety issues and the desired visitor experience were included. This detailed programme formed the important basis for the work of the architects and engineers.

The initial project

The initial project was presented to the press in November 2003. Two self-sustaining glass domes would provide much daylight in the elephant stables, leaving the visitor areas in relative darkness.

PHOTOS COPENHAGEN ZOO

A ramp would lead the visitors through the house into an exhibition area, while visitors heard the story of the elephants. The necessary keeper service areas and three extra elephant boxes would be established in the periphery of the house below ground level, out of sight of the visitors.

The romantic park enters the zoo

In 1999, the Danish Palaces and Properties Agency and the zoo agreed to open the border between the royal park 'Frederiksberg Gardens' and the zoo. A first step was made ten years ago with a new zoo entrance including open fences. A few years ago the park celebrated its 200th anniversary and landscape architect Stig L. Andersson wanted to integrate the new elephants' outdoor enclosure with the romantic park. All of the zoos' closed fences facing Frederiksberg Gardens were removed, and replaced with a more natural ground, resembling a valley moving its way into the zoo. This valley was to form the new outdoor elephant enclosure and was to be shaped as a dry river bed with mud holes and lakes that serve as barriers. There had to be a view to the enclosure from the park side, with the old 'elephant temple' in the background: with its characteristic colonnade the elephant house from 1914 perfectly fits into the romantic environment of the Frederiksberg Gardens.



The final project

The new elephant house opened to the public in June 2008. The main principles of the initial project have been maintained but during the detailed planning the house has become more 'green': today the house appears as two green hills topped with glass domes. For the wellbeing of the elephants the hard concrete floors of the

herd stable have been filled with half a metre of soft sand. The engine rooms and the indoor visitor and exhibition area have significantly been enlarged and a number of training boxes have been added backstage to allow keepers and veterinarians to be able to examine and treat the elephants. This enables a protected contact form of elephant management. ●





Burgers' Rimba, a southeast-Asian display in Arnhem

Joep Wensing, Burgers' Zoo, Arnhem, The Netherlands



Large and biologically complex exhibits in which visitors are submersed into very realistic representations of exotic biotopes have been the hallmark of Burgers' Zoo since the opening of Burgers' Bush in 1988.

Two years ago it was decided to celebrate the zoo's 95th anniversary in 2008 with the opening of a new large-scale project.

To allow visitors to have close encounters with most of the animals in the large exhibits at Burgers' Zoo, and because available space is limited, large animals are excluded from these displays, barring some in confined areas. To compensate for this omission, Burgers' Zoo decided that some large animals from the rainforest ecosystem should be displayed elsewhere in the park in an outside, spacious environment that could develop into a jungle-type biotope. The decision was made to focus on southeast Asia and to name the exhibit 'Burgers' Rimba', after a Malayan word for forest.

Under construction

The available construction time was less than one and a half years, and several old-fashioned enclosures had to be removed to create the spacious new environment. As a result, some familiar species disappeared from the animal collection, such as *Camelus bactrianus*, *Canis lupus*, *Macaca fuscata*, *Bison bison*. In return however, some carnivores (*Panthera tigris sumatrae*, *Helarctos malayanus*, *Arctictis binturong*), primates (*Macaca nemestrina*, *Nomascus gabriellae*, *Trachypithecus obscurus*), bovids (*Bos javanicus*, *Muntiacus reevesi*, *Cervus eldii*, *Axis porcinus*) and large reptiles (*Varanus salvator*, *Python reticulatus*) could be added to the collection. Some animals already present in the zoo, such as *Panthera pardus kotiya* and *Symphalangus syndactylus*, could be

integrated in Burgers' Rimba. Certain characteristic and charismatic animals such as the elephant, rhino and orang utan were not included because of insufficient space. For some people it will be a surprise to see *Canis aureus* in the Rimba, as this species traditionally is associated with Africa, India and the Mediterranean region. However, it is also found in southeast Asian forests!

Efficient use of space

To make a more efficient use of the available 2 ha, for enrichment reasons and for a more naturalistic presentation, several species have been combined in mixed exhibits, such as sunbears with binturongs, muntjacs with bantengs, eld's deer, hog deer, siamangs and pig-tailed macaques and dusky leaf monkey with yellow-cheeked gibbons. During winter the sunbears, binturongs and the primates are also visible in their inside enclosures.

The two earlier mentioned reptile species are displayed in an underground 'grotto' which also functions as a tunnel, to prevent visitors seeing many other visitors, and as a heated accommodation for winter visitors. The reptiles were acquired as juveniles and are now housed in temporary terrariums. These enclosures will be enlarged in the future into two areas between 20 and 30 m².

Official opening

Burgers' Rimba was opened by Her Royal

Highness Princess Margriet on 14 May 2008.

As with many zoo projects, the last weeks before opening were rather exhausting for all fieldworkers and staff. Time is still needed for 'finishing touches' but the most time will be needed to grow the jungle-like vegetation. Because of the season and very 'plant-hostile' weather during the last weeks before the official opening, it was not possible to plant the hundreds of young trees selected as look-alikes and exotic elements. A follow-up planting of shrubs, bamboos, hardy bananas, palms, gingers and a host of exotic perennials had to take place after the opening. It will probably take several years for the Rimba to achieve its desired appearance, but even now visitors are impressed by the landscape as they follow the one-directional trail winding through a hilly landscape. Several artificial mud puddles along this trail are constructed with tracks of 'Rimba animals'. Although elephants are not present in Burgers' Rimba, their tracks will tell the visitors that they also belong to the ecosystem.

Burgers' Rimba is the first of a series of ecological units (such as the Bush, Desert, Ocean and Safari) which are connected to a to-be-constructed central, circular main route, from which future visitors will be able to easily find their favorite ecosystem. This will facilitate orientation and prevent a feeling something has been missed. ●

PHOTO THOMAS JERMANN/BASEL ZOO



Biodiversity at Basel Zoo



Bruno Baur, translated and adapted by Beatrice Steck, Basel Zoo, Switzerland

Visitors can learn much about exotic animals at Basel Zoo, but a three-year study showed that a large diversity of local animal and plant species is found in the green areas between the animal exhibits as well.

A team of 48 zoologists and botanists carried out a three-year study to make an inventory of the biodiversity found between the animal exhibits at Basel Zoo, to improve the knowledge of these rather inconspicuous organisms of an unknown number of species. This resulted in the confirmed presence of 3,110 species of plants, fungi and animals. Among other species, 134 mosses, 91 lichens, 15 earthworms, 45 springtails, three hundred beetles, 147 butterflies and 96 birds were detected between the zoo exhibits.

Swiss biodiversity

The entire biodiversity of Switzerland is estimated at 70,000 species. According to the current state of knowledge, 6-8% of all the species present in Switzerland live at the 11.6 ha of Basel Zoo. It is hardly possible to compare this diversity with that of other city parks or zoological gardens, because such comprehensive studies are rarely performed. The respective information exists only for plants and certain animal taxa.

Organic gardening

Various factors appear to contribute to the extraordinary diversity of species. One part of the zoo is rather woody – the remains of a woodland similar to an alluvial forest that was already present when the zoo was founded in 1874. As the green areas are managed organically – herbicides and insecticides have not been used for many years – several forest species have been able to survive. The banks of the stream 'Birsig' still enable animal species to enter or leave the zoo grounds, and the embankment of the French railway provides a link to open, dry habitats. This mosaic of different substrates, structures and biotic conditions allows numerous species to live side by side on a small area. Furthermore, whenever new exhibits are constructed, new habitats for pioneering species are created at the same time.

Rare and threatened species

Thirty-one of the 3,110 species were detected in Switzerland for the first

time. These new species are mainly representatives of taxa that so far have been insufficiently studied in Switzerland, such as springtails or aphids. Interestingly, the zoo is also the home of various endangered native species: 113 species figure on the national red lists. This illustrates the zoo's high value for nature conservation. Unintentional introductions of plant parasites along with exotic ornamental plants were documented in only three cases.

Lack of experts

This pioneering study is remarkable on a global scale and could only be carried out thanks to the close cooperation of scientists from the Basel University, the Entomological Society of Basel, the Basel Natural History Museum and Basel Zoo. With the help of external experts, further taxa were identified but by far not all. For certain taxa, no specialists could be found. This results from the fact that Swiss and foreign universities rarely offer in-depth training in taxonomy and biological systematics. With a view to the worldwide protection of biodiversity and its sustainable use, as well as progressing climate change, profound knowledge of systematics and taxonomy is however of decisive importance. It was assumed that the actual biodiversity in Basel Zoo was considerably higher than the 3,110 detected species and it was estimated at at least 5,500 'free-roaming' animal and plant species'.

Missions

In the frame of the World Zoo and Aquarium Conservation Strategy, Basel Zoo's main missions consist of enabling research, supporting conservation and providing education as well as recreation. The findings of this unique study are an important tool for Basel Zoo to preserve the valuable habitats and endangered native species on its grounds whenever possible. Moreover, the results will also be used to turn the visitors' attention to the fascinating indigenous species living in the zoo and to raise their awareness of the native biodiversity and the need to protect it. •

COLLECTION PLANNING

A change for the better; ten years of 'elephant-planning'

Ton Dorresteyjn, EAZA Elephant TAG, Rotterdam Zoo, The Netherlands



When the Asian- and African elephant EEPs formulated the joint management strategy 'Forward planning and EEP management for elephants in EAZA institutions' in 1998 the situation regarding both species was, to say the least, not optimal. However, as stated in the special elephant issue of EAZA News (47/2004), many things have changed for the better.

The two EEPs formed the EAZA Elephant TAG in 2002. The specific problems identified in the management strategy were addressed at various EAZA Elephant TAG meetings, and a first evaluation of what had and had not been realised during the previous decade was carried out during the TAG meeting in Kronberg in 2004.

Looking back

Clearly a few goals had been realised and progress had been made in several areas. However, the general conclusion was that zoos were still far from where they should be regarding population- and husbandry management. The amount of protests by animal welfare organisations and private elephant groups had decreased, but had not stopped. Furthermore, the zoo community was in an ongoing debate about the best or preferred elephant management system, the advised birth protocol and the dissemination of essential information available on anything related to veterinary, behavioural and management issues. Since the Kronberg meeting these and other elephant-related issues have been discussed during meetings at least once a year. This year, a two-day TAG meeting was organised in February in Hannover, Germany. Results of this meeting will of course be presented and discussed during the upcoming EAZA Annual Conference in Antwerp, but to spread relevant information among the elephant-keeping zoos in Europe as soon as possible, most of the conclusions will be summarized below.

Status of breeding herds

The number of breeding herds has almost tripled during the last decade: at present there are 23 EAZA institutions keeping a breeding herd of Asian elephants (*Elephas maximus*) and 16 keeping a breeding herd of African elephants (*Loxodonta africana*). Almost all (adult) potential breeding females and males of both species are currently in a possible breeding situation. Many elephants have been transferred according to EEP recommendations in this time period.

A first splitting of large family herds has occurred, resulting in remarkable transfers of groups of female elephants and their offspring from one zoo to another. From a population management point of view this is an excellent action, but it takes a lot of courage for any zoo director to send away a large part of the – by far – biggest visitor attraction.

Management conditions

The completely understandable complaints by several animal welfare

organisations and the Elephant TAG itself about several elephant enclosures and their management-conditions have been taken very seriously by Elephant TAG members. Consequently, several elephant facilities have been renovated and rebuilt according to the existing husbandry guidelines and/or advice of the EEP coordinators. Many new elephant houses/enclosures have been built or are currently under construction. All these facilities are being based on the preferred (not obliged) protected contact management system.

Furthermore, a birth-protocol has been established which most elephant keeping institutions practice: the actual birthing now occurs within the free-moving family or group with all or most members present. Unfortunately not enough progress has yet been made with respect to a number of veterinary problems, such as herpes and tuberculosis. However, a successful vaccine against herpes is expected to be developed in the near future.

Elephant workshops

A series of workshops for elephant keepers (and curators) has been organised in various regions of Europe since 2002. The purposes of these (practical) workshops are to share available elephant management information and to discuss and practice various management methods. Workshops have so far been organised in France, Germany, the Czech Republic and Denmark, and they are considered to be very useful and helpful. Consequently, the Elephant TAG will continue to promote these workshops.

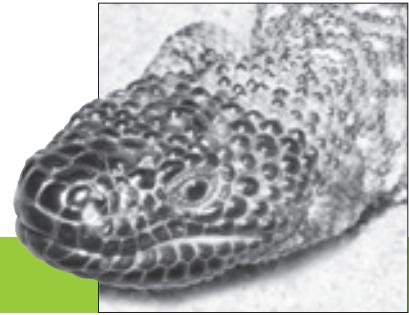
Without exaggeration, it can be stated that due to the excellent cooperation of all elephant-keeping zoos and a well-functioning EAZA Elephant TAG, the future of self-sustainable, well-managed populations of Asian and African elephants in European zoos looks rather sunny. ●

PHOTOS ROB DOOLAARD (IZP)/ROTTERDAM ZOO



Wanted: New holders for the Beaded lizard EEP

Klaus Draeby, coordinator Beaded lizard EEP, Terrarium Vissenbjerg, Denmark



The beaded lizard (*Heloderma horridum*) is found in Mexico and Guatemala. Its scientific name means 'horrible studded lizard' and is based on the structure of its skin, which has small beads called ostioderms. Each bead contains a tiny piece of bone that provides almost an armour-plated skin. But in contrast to its name, this is a magnificent species.

The beaded lizard was first described by Wiegmann in 1829 and was one of the first New World reptiles encountered by Europeans during the Spanish colonisation of Mexico. The species is listed as 'Vulnerable' on the IUCN Red List (2001). Wild population numbers are unknown, but in undisturbed habitats a population density of 18 individuals per km² is probably not uncommon. There are four subspecies, *Heloderma horridum horridum* and *Heloderma horridum exasperatum*, both included in the Beaded lizard EEP, and *Heloderma horridum alvarezii* and *Heloderma horridum charlesbogerti*, not known to be present in European collections.

Studbook

Currently, there are 47 beaded lizards in 17 EAZA member institutions. The beaded lizard studbook is however in need of new holders. Breeding institutions are producing surplus offspring and the programme is facing a 'do not breed' recommendation. The programme is not subspecies specific, as the main goal is to ensure a genetically healthy European population. Furthermore, it is very difficult to distinguish subspecies without DNA examination.

Caution: venomous

The beaded lizard and its close cousin, the gila monster (*Heloderma suspectum*), are the only two venomous lizards known in the world. Instead of fangs, the beaded lizard has grooves in its teeth through which the venom will flow when biting its prey. Keeping venomous reptiles might scare off some zoos, but accidents with venomous reptiles in zoos are extremely rare. A bite from a beaded lizard can be a painful experience, but is far from dangerous under normal circumstances. With proper care taken, the lizards are as easy to handle as any other reptiles of the same size.

So why keep this lizard?

Although this magnificent creature is venomous, the beaded lizard is docile and quite easy to keep and manage. It needs to be fed once a week (once a fortnight for adults) and it hibernates two to three months a year. It does not need a very large enclosure and is mostly active during the

day-time. It will spend a lot of time under ground if given the opportunity, coming out of its den to regulate its temperature and eat. Specific husbandry requirements can be found in the EAZA Husbandry Guidelines that are available for download from the EAZA website.

The beaded lizard is a wonderful display species because it is a large, distinct reptile. Adults can grow up to about 90 cm in length, which is substantially larger than the gila monster (about 40 cm). By displaying the beaded lizard, one can also raise awareness on the status of subspecies like *Heloderma horridum charlesbogerti*, which may be one of the rarest lizards in the world. It was first discovered in 1984 and it is endemic to a small dry tropical forest habitat, having been isolated by mountains and deep rainforest valleys for thousands of years. With only enough suitable habitat for about two hundred animals left, this could serve as a basis for a good conservation story and maybe one can even raise funds for an ongoing conservation project.

So, in case you are looking for a fancy new reptile species for your collection, the Beaded lizard EEP is desperately looking for new participants, to prevent being forced to recommend 'no breeding' for this impressive reptile. Wouldn't that be a shame?

For more information, please contact klaus@terrariet.dk •

PHOTOS KLAUS DRAEBY

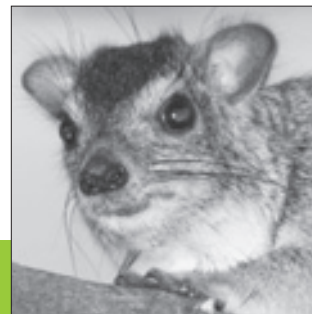


To expand or not to expand, that's the question!

Are you updating your institutional collection plan or seeking to add more EEP or ESB species to your collection? Many programmes are in need of additional participating institutions. There are also several EEP and ESB programmes that specifically wish not to expand. Please refer to the member area of the EAZA website (TAG section) for an up to date overview of these wishes per breeding programme.

The status of hyraxes in EAZA institutions

Ute Magiera, Zoo Osnabruck, Germany



A hyrax is any of four species of fairly small, herbivorous mammals in the order Hyracoidea. It lives in Africa and the Middle East. Two species, the rock hyrax (*Procavia capensis*) and the bush hyrax (*Heterohyrax brucei*) are kept in EAZA institutions. These species are categorized on the IUCN Red List as 'Least Concern', which means that they are widespread and abundant in the wild. To analyse the status of the captive European hyrax population, surveys were carried out in 2005 and 2007.

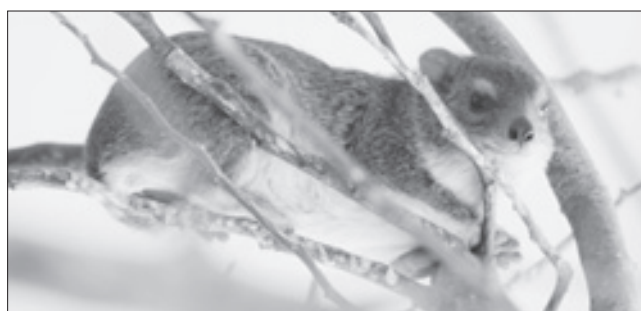
The rock hyrax primarily lives on rocky outcrops in savannahs as well as in dry scrublands and deserts throughout Africa and Arabia. The bush hyrax prefers wooded areas on river banks, escarpments and also rock outcrops. This species has a wide distribution in southern, eastern and north-eastern Africa and Sinai. Remarkable is the close association between these genera in their habitat. Where their distributions overlap, rock hyraxes and bush hyraxes share the same rocks, sleeping holes and latrines and offspring play together.

Subspecies of rock hyrax

Currently, the rock hyrax is kept by 29 EAZA institutions. Nine of these institutions identified which subspecies they keep (*Procavia capensis capensis*, *Procavia capensis jayakari*, *Procavia capensis syriaca*), however, taxonomy at subspecies level is not unequivocally established. Wilson and Reeder (2005) did not recognize different subspecies in 'Mammal species of the world', but Olds and Shoshani (1982) have determined 17 subspecies. Consequently, it is unclear how many and which subspecies are present within EAZA collections.

Samples needed for genetic analysis

In addition to the problem with undefined subspecies many of the hyraxes currently living in EAZA institutions are wild born and their capture or birth locations are not reliably known. Through genetic study subspecies of captive hyraxes can be determined or verified. Moreover it will show how valid and different the subspecies are. Geographic ranges and boundaries of different subspecies can be defined more precisely by DNA sequences from animals with known point of origin.



Dr. Carlos Fernandes from the Biodiversity and Ecological Processes Group of the Cardiff University in the United Kingdom and the Centre of Environmental Biology of the Lisbon University in Portugal, is analysing hair samples from hyraxes from Zoo d'Amneville, France and the Breeding Centre for Endangered Wildlife in Sharjah, United Arab Emirates, with the aim to create a phylogenetic tree. However, more samples are needed for this study and a request for support was sent to all hyrax keeping institutions in December 2007. Since then Stuttgart Zoo and Osnabruck Zoo in Germany have sent hair samples. Hopefully more institutions will follow.

Self-sustaining population?

The survey in 2005 indicated that the *ex situ* population of rock hyraxes was not self-sustaining. The majority of the institutions imported animals from the wild or were keeping direct descendants from these wild-born animals. Furthermore, a high mortality was recorded. The stock of only two institutions consisted of captive born animals. A further survey was done in 2007 and the data was entered into SPARKS to get a better overview. At the end of 2007 in total 203 (66.70.67) individuals were kept in EAZA institutions, 43 individuals were born in 2007 and 21 had died of unknown causes. The population has increased during the past two years and seems to be self-sustaining, but more genetic and demographic analyses are required to determine this.

Bush hyrax rarely kept

The bush hyrax is very rare in the European region. In 2005 one EAZA institution, Opel Zoo Kronberg in Germany, and two non-EAZA institutions (in Cottbus and Berneburg, Germany) kept 12 (6.6) individuals in total. All animals were wild-born. Randers Zoo in Denmark and Tierpark Berlin and Osnabruck Zoo in Germany started keeping this species in 2006 and 2008 respectively.

The latter two institutions received captive born animals from non-EAZA institutions. Currently, four EAZA institutions keep 11 (5.6) individuals.

Both hyrax species are very valuable for education purposes from an evolutionary point of view, and are moreover very attractive. Up to now, no institution has dared to house rock and bush hyraxes together in one

enclosure, mimicking their sharing of habitats in the wild. The most important matter however, is to gain more knowledge of the different subspecies in the European rock hyrax population to prevent mixing subspecies and the importation of wild animals. The EAZA Small Mammal TAG is currently reviewing the management category, expecting to propose an ESB for hyraxes in the near future. •

EAZA Bird TAGs meet in Jerusalem



William van Lint, EAZE Executive Office, Amsterdam, The Netherlands

Around 35 people attended the EAZA Bird TAGs meeting kindly hosted by Jerusalem Zoo, Israel, from 27 to 29 March 2008. Several colleagues from different zoos in Israel also participated, as this was a nice opportunity for them to catch up on bird matters.

Besides some general discussions during the three-day meeting, there were eight different midyear Bird TAG meetings. The biggest challenge for most of the TAGs currently is to update the Regional Collection Plan, due to the consequences of the bird import ban. The EAZA Toucan and Turaco TAG and Passeriformes TAG for example are really confronted with the import ban, which heavily influences the collection planning process and species selection.

To make everybody, especially the decision makers, aware of these problems within the 'bird world', a network of national bird ambassadors has been established. Fifteen colleagues in different regions/countries within the EAZA region have promised to spread 'the message' to all relevant people. For this purpose, a PowerPoint presentation explaining the problems has been produced and distributed.

All efforts now have to focus and all levels of zoo staff need to be involved. This means that zoos really need to work according to the Regional Collection Plans produced by the different TAGs, that more space (partly off show) is needed to properly breed with the concerning birds and that bird keepers need to have sufficient knowledge and need to be very dedicated.

During the general TAG meetings a working group was established that will work on acquisition policies and cooperation with private breeders. The first result is a draft statement on the import of wild caught birds and eggs. When both the chairs of the Bird TAGs and the EEP Committee approve this statement, it will be distributed amongst the EAZA membership.

The EAZA Bird TAGs meeting was the first official EAZA meeting in Israel. Thanks goes to Jerusalem Zoo for their perfect organisation and hospitality. •



PROGRAMME UPDATES

As approved by the EEP Committee

CHANGES TO EXISTING TAGs

EAZA Fish and Aquatic Invertebrate TAG

Joao Falcato (vice-chair), Lisboa-Ocea
Paul van den Sande (vice-chair), EUAC
7 March 2008

EAZA Terrestrial Invertebrate TAG

Warren Spencer (chair), Bristol
11 April 2008

EAZA Great Ape TAG

Maria Teresa Abello (vice-chair), Barcelona-Zoo
8 May 2008

CHANGES TO EXISTING EEPs

Clouded leopard EEP

(*Neofelis nebulosa*)
Ben Warren, Howlett's Wild Animal Park
5 June 2008

Vicuna EEP

(*Vicugna vicugna*)
Christian Schmidt, Zurich
10 June 2008

DIRECTORY UPDATES

PERSONALIA

Dr. Lesley Dickie is the new **EAZA Executive Director** as per 1 August 2008. She replaces Mr. Harry Schram.

Mrs. Laura Aguera is the new director of **Parc Zoologic de Barcelona**, Spain, as per April 2008. She replaces Mrs. Carmen Mate Garcia.

ADDRESSES AND TELEPHONE/FAX NUMBERS

The new name of Haus des Meeres - Vivarium Wien, Austria, is **Haus des Meeres - Aqua Terra Zoo**. The new EAZA shortname is: WIEN-AQUA.

The new name of Association National des Parcs Zoologiques (ANPZ), France, is **Association Francaises des Parcs Zoologiques (AFPZ)**.

The new address of **Marineland Mallorca**, Spain is: C/Garcilaso de la Vega no. 9, Palma de Mallorca, 07181 Calvia, Spain.

The new address of **Slasky Ogród Zoologiczny**, Poland, is: 41-501 Chorzow, Poland. The new EAZA shortname is: CHORZOW.

Savannah exhibits; developing a new formula

Catherine King, chair EAZA Ciconiiformes and Phoenicopteriformes TAG, Fuengirola, Spain

Savannah exhibits continue to be popular, and the number of savannah exhibits in European zoos is still growing - some were completed in the last year and several more are in progress. As many savannah exhibits do not really justice the birds kept in the enclosure, maybe it is time for a new formula.

Generally, savannah exhibits constitute large, fairly open and flat enclosures, sometimes with a few hills or cliffs. Vegetation usually consists of acacia and/or similar trees, and closely cropped grass if the grass has a chance to grow at all, given the intensity of its use. The larger fauna often includes white rhinos, eland antelopes, springboks, wildebeests, blesboks, impalas, zebras and ostriches. Cranes (often grey crowned cranes), storks (usually marabou and/or white storks) and guinea fowl almost always serve as accent pieces or 'fillers'. Other 'flying' avian species (non-ratites) that regularly end up in savannah exhibits include flamingos, pelicans, geese and ducks. Termite mounds frequently appear in the landscape as well. The educational graphics generally refer to the incredible numbers of migrating mammals that appear on the savannah during the wet season when vegetation is bountiful, leaving again when the dry season commences and their food sources wither away.

No justice to the birds

This is the formula, sometimes with twists. Obviously it is seen as a successful formula, as it has been replicated so frequently over time. The reality however is that most savannah enclosures just do not do justice to the birds, which are usually seen at a distance. If visitors notice them consciously at all, they do not get the chance to appreciate the uniqueness of the mighty marabou or to glimpse the true character of a crowned crane. This can only happen when the birds are seen close up, in surroundings more similar to what they really have in their natural environment. Picture a group of marabous or crowned cranes foraging, loafing and interacting with each other in prey-rich, long grass that is not eaten by hoofstock; probing in, bathing in and nesting near a wetland not trampled by hoofstock; roosting in trees not hot-wired to keep hoofstock at bay.

Some of my most prized photos are a sequence showing a saddlebill stork capturing and eating a snake in its marsh-like enclosure that were taken by a fellow visitor at the Kansas City Zoo (USA) as we stood just a couple of meters away. Such an intimate experience is unlikely to happen near a savannah exhibit. I have now seen full-flighted marabous in several large aviaries, and watching these great birds perching above me, then using their immense wings to make a short flight or glide to the ground, is certainly awing. Zoo visitors and other zoo professionals must have the same reaction, given the current popularity of marabous as show birds in zoos.

PHOTO SPAYCIFIC' ZOO



Serious injuries...

Furthermore, savannah enclosures are usually not suitable to breeding birds or in many cases even keeping them alive. Zoo managers tend to view deaths of birds at the hands (or rather heads and feet) of large mammals and ostriches as exceptions: "the bird was new to the enclosure, the bird got between the mother and its young, the bird was defending its nest...". The problem is that these exceptions add up to substantial numbers. Seven of 44 non-chick marabou deaths in 2006 and 2007 combined were known to be caused by hoofstock while another eight more traumatic deaths could have been, but the incident was not seen. Several other serious but non-fatal injuries caused by hoofstock and ostriches also occurred. Another six marabous died of predation in open (usually savannah) enclosures, thereby bringing the number of enclosure-related deaths up to 21 (47.7%) of all non-chick deaths. While there are no data for cranes or other large flying birds in similar situations, it seems likely that they suffer the same problems to the same degree.

PHOTO SELWO AVENTURA



Birds have become more valuable

As time passes, and birds have become more valuable, both monetarily and conservation-wise, the variety of avian species exhibited on savannas has declined – rarely do you see wattled or blue cranes among the antelope nowadays. But even those common, large species such as marabous and grey crowned cranes are becoming more valuable, in light of the EU bird ban that will make acquiring them from the wild much more difficult. Furthermore, some of the species that we assume are common in the wild may not be so in the future or even now- during a recent African Crane Trade Project trade mitigation planning workshop it was concluded that grey crowned cranes have suffered serious declines in recent decades, and that reevaluation of their conservation status is urgently needed.

Changing the formula

So perhaps it is now time to change the existing formula and to take the ‘flying’ birds out of the savannah. You are probably thinking that then the exhibit would not look as natural, or so full and that the visitors would not like it as well. But picture it – visitors gazing out at a birdless savannah. Would their reactions really be “it would be fantastic exhibit if only it had a crowned crane” or “where are all those storks I see on the documentaries?” Is it instead possible that the mega vertebrates which so clearly dominate the landscape, the vegetation and the non-living accent pieces, wisely and creatively used, can be enough for the visitors to absorb?

The ideal world

In the ideal world, and most certainly the ideal zoo, marabous and all the other birds now kept in hoofstock enclosures would be kept in covered enclosures. This has several other indisputable benefits in addition to removing the important sources of mortality listed above. Only in such surroundings are the birds able to carry out a reasonable representation of their behavioural repertoires, including being able to roost in trees in the case of crowned cranes and marabous. An aviary serves to allow aggressive species such as marabous a chance to space themselves vertically as well as horizontally. This possibility is known to be important in primate social systems, and could help reduce intraspecific killings of marabous, which constituted 14 (32%) of the 44 non-chick deaths in 2006 and 2007. Covering the enclosure makes it possible to keep a variety of other birds in it as well, creating an even more interesting and diverse exhibit. An increasingly important consideration is that covered enclosures can be built to offer protection from avian influenza and other diseases if necessary. Use of covered enclosures means that pinioning is not necessary, avoiding all the ethical issues and legal problems now surfacing regarding this practice.

Designing covered enclosures

Covered enclosures are often viewed as expensive, and unsightly. While there are many different ways to build a covered enclosure, and these come in different price categories, now each zoo must research the options themselves, which costs much time and duplication of effort. Therefore the EAZA Ciconiiformes and Phoenicopteriformes TAG will be working with BIAZA to make a compilation of different covered enclosure designs, materials, costs and other relevant information. Likewise, compilations of appropriate substrates for various circumstances, as well as methods and materials for creating water areas will also be undertaken.

Review your savannah

So possibly it is time to review your current savannah or future savannah plans, and see whether presentation of large birds could not be considerably improved by developing a new formula: one savannah megavertebrate enclosure plus one savannah ‘flying’ bird enclosure is far greater than one mixed savannah enclosure. And of course, the same can be applied to other mixed-species enclosures. As time goes on, other problems may be signaled. For example, while ostriches may be fine with many hoofstock, they can be ‘pronged’ by others. Hopefully the recently formed EAZA Ratite TAG will be able to shed some light on the severity of this problem, and how it can be overcome if it is a problem.

PHOTO PAULO FIGUEIRAS



This paper was stimulated by discussion carried out during the Ciconiiformes and Phoenicopteriformes meeting at the EAZA Bird TAGs meeting in March 2008 in Jerusalem. Participants are thanked for their input.

BIRTHS AND HATCHINGS

Rotterdam THE NETHERLANDS

SOURCE
ANGELA GLATSTON

Six March 2008 was a memorable day for Rotterdam Zoo as it saw the birth of the zoo's fortieth **okapi** (*Okapia johnstoni*). Kabibi, African for 'Little Lady', was born around five in the morning to 16-year-old father 'Tom' and ten-year-old mother 'Kamina'.

Kamina was born at Rotterdam Zoo and Kabibi is her third calf (and second daughter). Her first young was female 'Kabinda' (now at Stuttgart Zoo, Germany) born September 2002, and her second was male 'Kimdu' (now at Leipzig Zoo, Germany), born in May 2005. Kabibi's father Tom was born in Antwerp Zoo, Belgium and arrived at Rotterdam Zoo in 1998. He returned to Antwerp in 2000 and came back to Rotterdam Zoo in 2002. Tom has been a successful breeding male: during his eight-year presence at Rotterdam Zoo he has fathered seven young (4.3) with three different dams. All his offspring, save one, have survived to adulthood.

Rotterdam's history with okapis dates back to 1957 when two okapis, 'Mambuti' and 'Dinota' were imported from the Democratic Republic of Congo. These two animals made a compatible breeding pair and produced their first young, a female, less than three years after their arrival at the zoo. Unfortunately, the young only survived 18 months. Their second young, a male, born two years later, survived to adulthood. Mambuti and Dinota went on to produce five more offspring before Dinota died in 1971. Today, there are eight living descendants of this pair included in the Okapi EEP. Mambuti went on to produce two further offspring with 'Atabu', a wild-caught male on loan from Antwerp Zoo. Both these young failed to survive. Mambuti died in Rotterdam in 1985 at the old age of more than 31 years. Twenty eight (15.13) of the 40 (22.17.1) okapis born at Rotterdam Zoo



PHOTO ROB DOOLAARD (IZP)/ROTTERDAM ZOO

have survived to adulthood. Of the 12 that died, six were stillborn or died at/on the day of birth and a further five failed to survive their first year.

Kabibi's arrival is an important addition to the EEP population which has struggled to maintain numbers over the last few years and currently has more young males than young females. The current EEP population numbers 53 okapis (28.25) in 18 EAZA institutions.

Stuttgart GERMANY

SOURCE
ULRIKE RADEMACHER

Stuttgart Zoo has kept **okapis** since 1981 and presently houses three breeding females, two breeding males and two sub-adults. The latest offspring, a male named 'Kitabu', was born in March 2008. His mother 'Epena' was born in 1998 at Frankfurt Zoo, Germany, and came to Stuttgart Zoo in April 2000. Kitabu is her third offspring. Father 'Xano' was born in 1996 in Antwerp Zoo, Belgium and came to Stuttgart Zoo in July 1998.

PHOTO STUTTART ZOO



Stuttgart Zoo started breeding okapis in 1989. The first years trying to breed okapis were everything but successful. 'Jindi', the first breeding female, arrived at the zoo in 1984 at the age of two years. The breeding male at that time was 'Kalume' from Rotterdam Zoo, The Netherlands. Jindi had several stillbirths and only one of her calves survived; female 'Stina'. The cause for the stillbirths was unknown.

The tide turned after the zoo made a fresh start in 2000: all indoor and outdoor enclosures were enlarged and the zoo had acquired two new bulls, Xano and 'Vitu', as well as Epena (daughter of Stina) from Frankfurt Zoo. A second female 'Ibina' from Berlin Zoo, Germany joined the group in 2003, followed by female 'Kabinda' from Rotterdam Zoo in 2004. Six calves have been born since 2003, of which five have survived. A female calf died in 2007 because her small and large intestine started growing together, prohibiting proper digestion.

Besides the small number of individuals, the okapi population has been declining in recent years due to a low birth rate and a high mortality in reproductive age classes. Research is being undertaken to determine probable causes for these problems.

BIRTHS AND HATCHINGS

Marwell UNITED KINGDOM

SOURCE
HELEN JEFFREYS

With less than 35 remaining in the wild, **Amur leopards** (*Panthera pardus orientalis*) are among the rarest big cats in the world. Like most big cats, Amur leopards have suffered due to poachers killing them for their fur and bones for the wildlife trade (leopard bones can be passed off as tiger bones for use in Chinese medicine). Other major reasons for their decline include loss of habitat and depletion of their prey species due to competition with humans.

Marwell Zoological Park celebrated the birth of female cub 'Kiska' in November 2007, as her birth raises some hope for this endangered species. Kiska is the second cub of Marwell's resident adults, 16-year-old mother 'Ascha', who arrived from Cotswold Wildlife Park in 2004, and seven-year-old father 'Akin' who arrived from Olomouc Zoo, Czech Republic in 2002. Being an experienced mother, Ascha is raising Kiska without any problems. At approximately 12 weeks of age Kiska had her first vaccinations and weighed a healthy 6.5 kg. After about four months of suckling milk from her mother, Kiska is now eating meat. Kiska will stay with her mother for at least one or two years.

Marwell's resident research programme manager, Heidi Mitchell, is doing research to better understand big cat reproduction in captivity and explains that the extremely small wild population size makes the species vulnerable for two reasons: "Such a small wild population means that the species is extremely vulnerable to 'catastrophes' such as fire or disease.

Secondly, inbreeding also threatens their viability as this can lead to genetic problems, including reduced fertility. Because of these risks to the current wild leopards, planning is under way for an ambitious project to reintroduce these big cats to the wild to form a second population in an area that was formerly part of their natural range."

Sarah Christie of the Zoological Society of London and coordinator of the Amur leopard EEP adds: "As well as breeding for reintroduction, zoos in Europe and America are funding vital anti-poaching, fire-fighting, education and survey work. There is no question that without zoo support, the Amur leopard would be a lot worse off than it is today."

PHOTO MARWELL ZOO



Vienna Zoo AUSTRIA

SOURCE
HARALD SCHWAMMER

The Vienna Zoo has been successful in breeding **polar bears** (*Ursus maritimus*) regularly since 1960. The polar bears from Vienna Zoo are very valuable to the Polar bear EEP, because they have all been mother-reared. Most recently, 15-year-old polar bear 'Olinka' gave birth to twins on 28 November 2007. The two cubs, both males, spent their first months with their mother in a separate 'nesting cave', an approximately 40 m² room inside the polar bear enclosure. This totally secluded, quiet and darkened room contains a freely accessible wooden box in which the cubs have been born. Only a small selection of animal keepers is allowed access to the bear facility during the rearing phase.

PHOTO JUTTA KIRCHNER



Olinka came from Cologne Zoo, Germany, and has been living at Vienna Zoo since 1994. She is an experienced mother, with twins reared in 2000 and a single cub in 2004. Male 'Eric' was born in 1993 at Tierpark Berlin, Germany, and also arrived at Vienna Zoo in 1994. So far he has been responsible for the birth of seven cubs. In October last year, 18-year-old female 'Halensia' from Stuttgart Zoo, Germany was temporarily transferred to Vienna Zoo. She was hand-raised and has exhibited behavioural disorders. After several months of acclimatisation in Vienna, she seems to have adapted somewhat, and has been observed mating with male Eric several times. Time will tell whether the mating was successful.

As a scientifically operated zoo, Vienna Zoo aims to contribute to the knowledge about polar bears by conducting behavioural studies on the zoo's animals. Furthermore, the zoo tries to channel the current polar bear media hype to focus media interest on scientific and nature conservation aspects. Following the birth of the polar bear twin in 2007, the Society of the Friends of Vienna Zoo set up the project 'Polar bears help polar bears'. This project aims to save wild polar bears in Canada (e.g. Hudson Bay), Alaska and in the Beaufort Sea. Climate change posing a threat to polar bears is prompting American scientists to study their migration routes, so individual bears are being satellite-tagged within the framework of the project. The Society sponsored one of these tag collars and the 'Viennese' polar bear can be tracked via Internet (see www.polarbearsinternational.org/beartracker/beaufortsea/).

Good veterinary practice regarding infectious diseases; a political issue?

Jacques Kaandorp, chair EAZA Veterinary Committee, Safaripark Beekse Bergen, Hilvarenbeek, The Netherlands

Tuberculosis, blue tongue, avian influenza, African and classical swine fever, African horse sickness, the West Nile virus and foot and mouth disease are some of the infectious diseases that not only threaten the live stock industry, but also the health of zoo animals. Endangered species programmes such as EEPs are difficult to run when a disease outbreak occurs, as an outbreak can result in transport blockages and import and export bans. This negatively influences animal exchange, which is vital to maintain genetically sound breeding programmes and to prevent the culling of animals for genetic reasons such as inbreeding.

Often curators or registrars deal with the paperwork involved in transports and exchanges of animals between institutions. They need to keep the zoo veterinarian informed about incoming and departing animals, so the necessary veterinary protocols can be carried out on time. Good Veterinary Practice (GVP) demands thorough preventative medicine protocols and diagnostic testing of infectious diseases in order to prevent serious outbreaks and spreading of diseases. However, the influence of both zoo directors and curators – being employers and judges of the veterinarian's performance – may be underestimated. Some of them still live by the philosophy "If you do not look for it, you do not have it."

PHOTO SAFARI BEEKSE BERGEN



Who decides?

It is questionable who decides to participate in testing and thus conforms to the recommendations of coordinators of endangered species programmes to exchange animals. Veterinarians should be the ones to decide whether it is practically feasible to comply with veterinary recommendations given. EAZA and the European Association of Zoo and Wildlife Veterinarians (EAZWV), through their Memorandum of Understanding (MoU), should proactively address zoological institutions to let their veterinarians conduct GVP without restrictions.

Veterinary advisors

EAZWV provides the academic background, e.g. through the Infectious Diseases Working Group (IDWG), and EAZA fulfils a political role through the EAZA Veterinary Committee. The EEPs should have veterinary guidelines available and should have a veterinary advisor for the species involved.

TAGs and ESBs should also make use of a veterinary advisor. Within IDWG for example a tuberculosis sub-group of specialists could be established, and if necessary other groups of specialists could be formed when other emerging diseases threaten collections.

“ Zoo veterinarians in general are taking their responsibility, but do zoo managers take theirs?”

Lobbying in Brussels on behalf of EAZA and EAZWV only makes sense if zoo veterinarians work according to GVP. It is believed that zoo veterinarians are reliable and can be trusted to work according GVP, based on the positive contact with Brussels over the past few years. But are they? Zoo veterinarians in general take their responsibility, but do zoo managers take theirs? Zoo veterinarians should convince their directors and curators that GVP and complying with the relevant guidelines and protocols help the entire zoo community avoid medical disasters, or at least to be in time to deal with them through early diagnoses.

“ Lobbying in Brussels on behalf of EAZA and EAZWV only makes sense if zoo veterinarians work according to GVP.”

The MoU between EAZA and EAZWV, the production of the Transmissible Diseases Handbook and the fact that Brussels is proactively consulting EAZA and EAZWV are very valuable instruments which should not be jeopardised by bad examples and inappropriate decisions taken by others than veterinarians. We no longer live in nations alone, but rather in a European community, and even a global world. ●

Opinion? We hope that through sharing opinions on modern zoo-related topics in EAZA News, we can stimulate thought and communication about these topics and eventually evoke discussions among zoo colleagues. Those people who would like to respond to the article above can write an e-mail to jeannette.van.benthem@eaza.net. Responses will be published in the next issue of EAZA News and/or on the EAZA website.

Useful facts about ARKS

Sander Cozijn, ISIS European Branch Office, Amsterdam, The Netherlands

Increasingly more institutions are joining ISIS and are preparing for the upcoming ZIMS programme. Many people are working hard to get their data to the highest quality levels, for when the time comes to incorporate these data into ZIMS. Therefore this is a good time to highlight some of the best features within the current generation of ISIS software. Below the re-index, backup and data submission procedure – the most basic features of ARKS – will be explained.

Re-index

The re-index function in ARKS will check your dataset for any errors in the programme database structure, assisting ARKS in keeping the computer files ordered correctly. It is strongly advised to do a re-index before creating a backup or before data submission.

Note that if you share a network, all other users must be logged out of ARKS before doing a re-index.

Start the re-index by going to:
Utilities -> Database maintenance -> Re-index all data tables

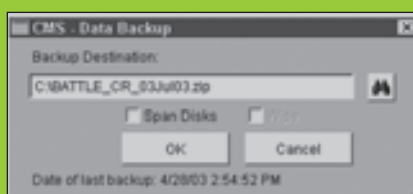
Normally a re-index should be successful, but in case it fails, please contact ISIS support.

Backup

One of the most basic, but very important, features of ARKS is the ability to backup your animal record data. This is not to be confused with submitting your data to the ISIS global database. Backing up your data is a local method of safeguarding your ARKS data. It will save a lot of time and effort in case anything goes wrong with your computer or network.

Create a backup by going to:
Utilities -> Backup/restore -> Backup

Select the destination for where you want to save your backup, uncheck the 'Span Disks' option and click 'OK' (see image).



It usually takes two to five minutes to create the backup. This small amount of time might save you months of work! Once a backup zip-file is created it can easily be e-mailed as an attachment or put on a USB stick, CD-rom, DVD or on your network.

Backups should be stored preferably on a different location than the installed ARKS programme, to prevent the loss of both the animal record data in ARKS and the backups, should a hard-drive crash occur. It is strongly advised not to save your backup on a floppy disk, as these can cause problems due to their short lifespan.

Data submission

A data submission is different from a backup, but just as important. While creating a backup will safeguard your data locally, the data submission will send your local ARKS data to the ISIS global database.

EAZA member institutions are required to regularly submit their data to the ISIS global database. The data submissions function as a secondary backup of your ARKS data. Should your ARKS data as well as the local backups be lost, ISIS can extract the data that was submitted by your institution to restore your ARKS data set. It may seem unlikely to happen, but ISIS receives a request for restoring data at least once a month.

Submit data by going to:
Communications -> ISIS submission -> Disk

Very similar to the backup procedure, ARKS will ask you where to save the data submission file. A data submission file can always be recognised by the long number that is in the filename by default. This number represents the date and time, up to the second.

After creating the data submission file, the file needs to be sent to the ISIS global database to complete the submission process. To submit the file, create a new e-mail message in your own e-mail programme and send the data submission file as an attachment to **data@isis.org**. Submitting data will also take less than five minutes of your time. •

For a visual overview of all of the above and for more information, please check the ISIS support website:

- ARKS:** <http://support.isis.org/ARKS.htm>
- Re-index:** <http://support.isis.org/reindex.htm>
- Backup:** <http://support.isis.org/backup.htm>
- Data submission:** <http://support.isis.org/submission.htm>

You can contact ISIS via:

ISIS European Branch Office	ISIS Main Office
European Technical Support	Technical support
Phone: +31 20 5200756	Phone: +1 651 209 9250
Fax: +31 20 5200752	Fax: +1 651 209 9279
E-mail: support@isis.org	E-mail: support@isis.org

ANIMAL MANAGEMENT

Implementing a behaviour management programme at Odense Zoo

Kirstin Anderson Hansen, Odense Zoo, Denmark

We are all aware of the benefits of having an animal behaviour management programme, but the process of implementing one is another story, due to the politics and ethics involved. Between 2004 and 2007 Odense Zoo went through this process with the aim of producing an Animal Training Mission and Guidelines Statement and developing a Trainer Education Programme.

Anyone working with animals on a daily basis is well aware of their ability to think, act and react (Griffin, 1984). Though Breland and Breland began testing operant conditioning and the power of positive reinforcement on a farm in Minnesota back in the 1940's, zoos have only started to learn and utilize these training techniques in the past ten to twenty years. A reason for this could be the political and ethical issues involved in setting up behaviour management programmes. In Odense Zoo most of the concerned discussions took place among the zookeeper staff.

The role of zoo keepers

One of the reasons for this could be the history and role of zookeepers. In the 1920's, keepers were admired for their power to 'tame' or desensitize their animals; they got to cuddle with the most dangerous ones. Their role was very active and subjective and anthropomorphism played a major role. In the 1960's however, their role shifted, as the general thinking changed and zoos were expected to show 'wild' animals. This resulted in hands-off management, meaning a more inactive role for the keepers. Since the 1990's there has been another shift, as the focus is now on trying to preserve the animal's natural behaviour. Keepers have a more active role again, as it is their job to provide the right stimulation needed to encourage natural animal behaviour. This back and forth shift of their role may help explain why the keepers at Odense Zoo objected to implementing yet another strategy.

Primary reasons for training

At Odense Zoo, training was primarily implemented for daily handling, husbandry, behaviour management, enrichment and public education. Daily

handling and husbandry procedures (e.g. shifting, basic medical treatments and transport) can be negative and sometimes dangerous, resulting in increased stress for all involved. Over time, this can also result in increased aggression towards the keepers and towards other exhibit mates. With operant conditioning, at Odense Zoo these procedures have become cooperative, consistent and positive for both the animals and zookeepers, resulting in less stress and time required to perform these procedures. Considering behaviour management, zoos have to make sure that their animals are in safe, stimulating environments and healthy social groups. This however does not always guarantee healthy behaviour. With operant conditioning, zoos have the ability to encourage, capture and/or teach correct and proper behaviour in a positive manner, while preventing behaviour such as severe aggression and stereotypic behaviour.

Training versus stress

When considering stress and reducing stress with training, one is considering reducing excessive stress (e.g. caused by negative social situations and interactions) and unnatural stress (e.g. caused by daily handling or health care procedures). Desportes *et al.* (2001) conducted a study to assess stress during capturing and handling methods. Since adrenal corticosteroids are considered as indicators for stress in mammals, cortisol levels in 13 harbour porpoises (*Phocoena phocoena*) have been monitored when drawing blood from animals before they had been trained and after they were trained for this procedure. Results showed that cortisol levels from voluntary blood sampling decreased threefold compared to the levels of involuntarily blood sampling. Even though this process of catching and restraining was kept consistent and routine

BOOKS

In EAZA News announcements are published of books that have relevance to zoo staff and other people with a professional interest in zoos.



TOPOS – THE INTERNATIONAL REVIEW OF LANDSCAPE ARCHITECTURE AND URBAN DESIGN (2008)

Issue 62: Botanical Gardens and Zoos

Creating species-appropriate habitats in what usually are confined spaces offers a special challenge to landscape architects. Topos presents examples of zoo enclosure designs from Europe, America, Asia and Australia conforming to the latest scientific knowledge and educational requirements. Both renovations and new facilities for animal exhibits are covered.

Pages: 112 ISBN-978-3-7667-1762-7 (pb) Price: €33,-
To be ordered from: Topos (www.topos.de)



ANIMAL KEEPERS' FORUM (2007)

Special dedicated to crisis management in zoos

This special issue of the Animal Keeper's Forum aims to provide support and to stimulate practical forward thinking when planning for an eventual crisis in the zoo. The compilation of articles can assist in updating a zoo's emergency plans.

Pages: 139 ISBN: - (pb) Price: US\$50,-
(for non-AAZK members)

To be ordered from: AAZK (www.aazk.org)

PHOTO ODENSE ZOO



over a three-year period and the porpoises' behaviour appeared calmer and more relaxed during the catches, the cortisol levels indicated zero decrease in stress over the period that blood was taken without training.

Does training provide enrichment?

Enrichment is defined as something that provides mental stimulation and physical exercise and that stimulates proper natural behaviour. Training provides valuable mental and physical stimulation and is an important and highly adaptable form of exercise and behavioural enrichment, both being important for health and wellbeing (Samansky, 2002). Training includes communication and learning, both forms of stimulation and stimulation increases activity, which also increases motivation. Increased motivation decreases stereotypical behaviour while increasing natural behaviour. Consequently, training is an important form of enrichment and a valuable technique for behavioural management that does not 'train the wild out of the animal' but in fact increases natural behaviour through proper stimulation and motivation.

Public education

So training is an important tool for daily handling, husbandry, behaviour management and enrichment, but what about education? Can we train zoo animals for educational purposes? It is important to have an understanding of how zoo visitors perceive training, and how an educational message is presented, so Odense Zoo conducted a visitor study in 2005 (Hansen *et al.*, 2005). This survey demonstrated that visitors recognise animal training as an advantage for both the animals and the keepers and that they feel it is both entertaining and educational; they can observe animal enrichment, view part of the keeper's daily job and leave the zoo with a stronger feeling towards the animals.

This article has been abridged and the references were left out due to space limitations. For the original full version of the article including reference details, please refer to the 'Magazine' section of the EAZA website.

This provides an important opportunity for Odense Zoo to improve its educational message and communicate about the purpose of zoos and aquariums. It may be necessary to have a stronger educational message during a sea lion presentation, with its history of being a 'show' animal, or during a red panda training session, which guests immediately perceive as cute and cuddly. It is certainly not negative that the visitors are being entertained, as long as they leave the zoo understanding the importance and purpose of training and gained knowledge on the animal and conservation.

Prioritise training objectives

Although there is a definite advantage in training a 400 kg sea lion or a 200 kg Siberian tiger to give blood, the time needed to train this is not necessarily advantageous for a coati or a squirrel monkey. So, after considering all advantages, prioritising the training objectives for all keepers and animal groups was necessary, along with setting up a realistic time budget for the implementation of the training programme. Therefore, it was important that all zoo staff concerned was aware of the goals and intentions of the programme.

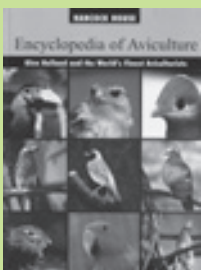
When starting a behavioural management programme a zoo should have a solid education trainer programme in place, which provides strong theoretical background, practical experience and constructive feedback. Keepers need to be properly educated before starting a training programme with naive animals and initial training goals should be basic and easy and show quick and positive results (e.g. as with shifting and transport training).

Time and money can be saved

Once the programme is in place and keeper and animal understand the concepts and methods, time can be saved. Husbandry procedures that have previously required a great deal of time and extra staff are now easy, cooperative and less time and staff-consuming, resulting in a more preventive approach to health care, and for some facilities can result in a lower veterinary budget.

As in training, starting a programme requires time, patience, energy and motivation but the results can be just as enriching for the keepers and the visitors as it is for the animals under our care. Ultimately the goals of zoos is to have a mentally and physically healthy animal population, a safe and motivating environment for staff, and an exciting and learning experience for visitors. One should be proud being able to provide such a place. ●

On the EAZA website more information can be found on these books, as well as on the publishers.



G. HOLLAND (EDS.; 2007)

Encyclopedia of aviculture

Recognised avicultural experts worldwide have contributed to make this a truly international avicultural handbook. A wide variety of valuable species are held outside of managed species programmes and it is essential that we maximize the breeding potential of these species to ensure they contribute to long-term self-sustainable populations. This book provides the aviculturist with proven, practical methods for the successful management and propagation of most of the families of birds in the world. Vital, practical components for avicultural success that are universally applicable to a wide range of species, such as diets, compatibility with other species, habitat requirements, incubation, and hand-raising techniques are included.

Pages: 832 ISBN-10 0-88839-460-8 (hb) Price: US\$100,-
To be ordered from: Hancock House Publishers (www.hancockhouse.com)

IN MEMORIAM

Wim Mager

On 23 March of this year Wim Mager, the creator of Apenheul Primate Park in Apeldoorn, The Netherlands, died unexpectedly of complications following a stroke. Wim developed the concept of Apenheul, built the park and was the driving force behind its operation from the opening in 1971 until he moved to France in 1997. With his Apenheul, Wim introduced a revolutionary new concept of keeping and presenting primates. Although many of his ideas have since been incorporated into the husbandry guidelines of a large number of primate species and although the 'Apenheul way' has helped raise the standards of primate husbandry in zoos worldwide, the total concept of Apenheul was never fully copied. It was too unique and too strongly focused on free ranging primates. Only Wim himself repeated the trick: he moved to France to advise on the development of La Vallee des Singes near Romagne, which indeed is a close copy of Apenheul.

IN MEMORIAM

Dick van Dam

On 8 July 2008, Ir. Dick van Dam died at the age of 84. Dick van Dam was the director of Rotterdam Zoo, The Netherlands, from 1971 until his retirement in 1989. During the second half of the 1970s he became one of the strongest proponents of the idea that zoos should work together on the conservation of endangered species. He defended this new role for zoos within IUDZG (now called WAZA), of which he was a council member and president in the 1980s. One of his greatest achievements was his successful lobby, together with a number of other leading zoo directors from Europe, to get the European breeding programmes and a European zoo organisation off the ground. As EAZA (previously ECAZA) was established only shortly before he retired, Dick was unable to become a part of the EAZA community. However, it can safely be stated that without his powerful support, EAZA would never have been able to develop as early and as rapidly as it did.

AVAILABLE DURING THE EAZA ANNUAL CONFERENCE 2008:

ANIMALS OF MY LIFE

BY VLADISLAV JIROUSEK

DURING THE EAZA ANNUAL CONFERENCE IN ANTWERP, BELGIUM (16- 20 SEPTEMBER 2008) INTERESTED PARTICIPANTS CAN PURCHASE A COPY OF 'ANIMALS OF MY LIFE' FOR A SPECIAL PRICE OF €30,-.

This book by Vladislav Jirousek, director of Jihlava Zoo and president of the Union of Czech and Slovak Zoological Gardens (UCSZ), contains 217 beautiful animal photos from 250 zoos world-wide. Information on zoogeographic areas of individual species is also provided. All text is presented in both English and Czech, and the photo captions also provide the scientific names of animals depicted and the name of the zoo where the photo was taken.

People can already indicate their interest by contacting Vladislav Jirousek at president.ucsz@zoo.cz

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For this reason we decided to unite our interests into one organisation, The European Zoo Food Group (EZFG).

Together we aim to set up programmes on the following topics:

- promotion and improvement of R&D on food products,
- quality assurance for the production and supply of zoo food, combination of logistic resources to reduce transportation costs, risk reduction,
- improving our position towards European Commissions,
- how to operate in Europe with open veterinarian borders.

The companies who started the organisation in 2001 are:

- | | |
|----------------------|-----------|
| HKI bv | - Holland |
| KIEZEBRINK PUTTEN bv | - Holland |
| MICHAEL HASSEL GmbH | - Germany |
| M.H. ANIMAL FOOD | - UK |
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WHO

The International Species Information System (ISIS) is the global database for the zoological community. ISIS maintains computer-based information systems used by the worldwide zoological community and shares software and technical support. Since 1989, ISIS has been incorporated as a non-profit entity under an international board of trustees elected by subscribing member institutions. ISIS membership has grown every year for 34 years. Currently 735 zoos and aquariums in 72 countries use ISIS software. Most of the ISIS members are found in the EAZA region. Fourteen languages now are spoken in the ISIS office. While the home office is in Egan (USA), ISIS also has staff and representatives in Amsterdam (The Netherlands) and Sydney (Australia), and is developing similar arrangements in Japan, Latin America and India.

WHAT

ISIS collects the medical, genetic and behavioral data on 10,000 species held in 735 zoos and aquariums around the world, entered by thousands of colleagues who are working to optimally manage animals in zoos. ISIS members use the basic biological information (e.g. age, sex, parentage, place of birth, circumstance of death) collected in the ISIS system for genetic and demographic programmes. ISIS is the nexus of information exchange for the global zoological community, and joining ISIS is way of adopting world standard 'best practices'.

WHY

Conservation is a global effort. The zoo and aquarium business is a global business and in that landscape, information is a critical tool. ISIS is all about information: ISIS members have much more access to background information on animal history and pedigree than non-members. The ISIS software allows the user to see a species holding report from which animals in zoos worldwide can be located. ISIS software lets the user create instant specimen reports and pedigree reports on any of two million animals now registered with ISIS.

HOW

ISIS is developing new software, called Zoological Information Management System (ZIMS). ZIMS is web-based, which means the information in it can be accessed instantly from anywhere in the world by users with appropriate access. ZIMS will be a collaborative workspace for everyone in the zoo and aquarium profession. ZIMS has been funded by 143 zoos and aquariums in the ISIS community.

WHERE

ISIS Main Office | 2600 Eagan Woods Rd, Suite 50 | Eagan, Minnesota, USA 55121-1170
Phone: +651 2099240 | Fax: +651 2099279 | E-mail: Jaime Meyer jmeyer@isis.org | Website: www.isis.org

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