

QUARTERLY PUBLICATION OF THE EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA

ZOOQUARIA

SPRING 2017

ISSUE 96

PARROT REPORT

THE URGENT MEASURES
BEING TAKEN TO SAVE
THESE ENDANGERED BIRDS



Go wild in the Netherlands
EMMEN'S EXCITING NEW ADVENTURE PARK



Make it count
HOW TO ORGANISE A BIOBLITZ

EXPAND YOUR
OPERATING
HOURS AND
**INCREASE
PROFITABILITY!**

*"Stunning spectacle, worthy of
artistic appreciation."*

Tampa's Lowry Park Zoo
The Tampa Bay Times

*"The Festival of Light was
spectacular! Brilliant quality and
much loved by our guests."*

Longleat Safari Park
Ceawlin Thynn, Viscount of Weymouth,
Chairman of the Board Longleat Enterprises

ATTRACT NEW AUDIENCES WITH **THE WORLD'S #1**

CHINESE LANTERN festival



DDM Entertainment & Events Inc.

No upfront investment required

www.ddmevent.com





4 From the Director's chair

Our Director reflects on a turbulent year but has hopes for a bright future

5 Noticeboard

News from the world of conservation

6 Births & hatchings

Secretary birds, mangabeys and a baby aye-aye join the EAZA population

8 EAZA Strategy

We reveal EAZA's new three-year Strategy and learn how Members' input will be crucial to its success

10 Campaigns

How BioBlitzes can engage zoo visitors in the campaign to raise biodiversity awareness

12 Welfare

The latest research on pinioning helps to clarify its status throughout the EAZA community

15 Resources

A groundbreaking website is offering free access to a huge range of scientific research

16 TAG update

We report on the many initiatives being taken in parrot conservation and how EAZA Members can get involved

20 Conservation

In Finland, urgent measures are being taken to halt a decline in the population of the forest reindeer

22 Habitat protection

The new Foundation for Conservation Zoo Karlsruhe has begun its work with a project to protect and restore the Ecuadorian rainforest

24 Exhibit design

The ambitious new WILDLANDS Adventure Zoo offers exciting immersive adventures for its visitors

26 Accreditation

How EAZA's screening programme help to maintain standards and effect positive changes

27 Nutrition

The Ninth European Zoo Nutrition Conference combined cutting-edge research with practical nutrition advice

29 Zoo design

A landscape architect explains how a zoo must be designed with the zoo team rather than for them

30 Training

The Zooquaria Academy continues its work, training zoo professionals from across the globe while expanding its reach and range

Zooquaria

EDITORIAL BOARD:

Executive Director Myfanwy Griffith (Myfanwy.Griffith@eaza.net)

Managing Editor David Williams-Mitchell (David.Williams-Mitchell@eaza.net)

Editor Joanna Swinnerton

Editorial Staff Danny de Man, William van Lint

Designer Louise Tait

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



EAZA Executive Office, PO Box 20164, 1000 HD Amsterdam, The Netherlands.

Email: info@eaza.net ISSN 2210-3392

Cover image: Yellow Headed Amazon © Simon Bruslund

For information on print subscriptions to Zooquaria visit: <http://tinyurl.com/zooquaria>.

The views expressed in this magazine are not necessarily those of EAZA.

The paper used for printing is FSC quality (sustainable). Organic inks are used.

Plates for printing are free of chemicals. All waste is disposed of in an environmentally friendly manner. Printed by Euro Mail BV.



FROM THE DIRECTOR'S CHAIR

If we all look back on 2016, I doubt that many of us would have predicted the vast number of changes that took place during that turbulent year. Many of these changes might leave us uncertain and concerned about what the future might bring, but many also bring us hope and excitement for the opportunities that lie ahead. There is no doubt that the impact of Brexit, the US elections and the various European elections to come in 2017 will be felt by many. How much our zoo and aquarium community will be affected is hard to say at this point.

What I do believe is that change is a necessary part of development; it gives us a different perspective on our lives, both professional and personal. In order to successfully negotiate changes and emerge stronger, we need to be guided by our morals and values. This is true on both a professional and personal level. EAZA has a strong set of values (Sustainability, Solidarity, Stewardship, Professionalism and Transparency) established through consultation with our Members. These values and the development of our Strategy 2017–2020 show a clear way forwards for EAZA. This will help us to deal with the challenges that lie ahead, but only if there is shared ownership and a recognition that we must all unite to work towards this better future together. You can find out more about the Strategy on page 8. The logframe will be available on the EAZA Member Area, and our Committees and Members will be working through the objectives and providing updates on progress.

One of the other changes we saw in 2016 was the election of our new Chairman, Thomas Kauffels, as well as the (re)election of existing and new Council Members. Our Chairman, Executive Committee and Council are your elected decision-makers. It is great to see that they consist of a mix of experienced re-elected people and new candidates, all keen to represent EAZA Members from their countries and help contribute to the continued progress of the Association. I encourage all EAZA Members to familiarise themselves with their respective Council Member and to use that Member to answer any questions they have about changes for EAZA.

In 2016 we also published a special issue of *Zooquaria* celebrating 30 years of our breeding programmes. This provided an excellent summary of the great work that has been carried out to date, as well as hinting at an exciting opportunity that lies ahead. Our EEP Committee, TAG Chairs and programme managers have been working collaboratively to investigate a new way of structuring and running our programmes. This is a great example of considered change involving all stakeholders. As part of the last strategy, the EEP Committee was tasked with reviewing the existing EEP structure to see if it is best suited to the

expanding and varied nature of species managed in our care. Extensive consultations and communications have taken place over a number of years and I am delighted to see that we are now at a stage where this change is nearing reality. More on this will follow in future *Zooquaria* issues.

Two other areas of change from 2016 that will continue into 2017 are the EU Invasive Alien Species (IAS) Regulation and the EU Zoos Directive evaluation/REFIT process. Discussions continue about how the IAS Regulation will impact, and already is impacting, on the species that we care for. Different Member States seem to be enforcing the Regulation in different ways, and the risk assessment process for deciding which species are on the list could be improved. All of this provides us with positive lobbying opportunities for change that can be carried out by individual Members and via our National Associations and EAZA EU Policy Manager. Many of you have also already contributed to the EU Zoos Directive REFIT questionnaires. In May this year there will be a stakeholder consultation meeting to which EAZA and a number of our Members have been invited. This will be our chance to comment on the first results of the REFIT; yet another opportunity for us to influence positive change affecting the legislation concerning many of our Members.

I am sharing this information about some of the changes affecting our community in 2017 and beyond because involving people in the change process and communication about where we are going and why is one of the strongest predictors of success. In this way I hope you are all interested, invested and keen to be involved in maintaining the values of EAZA and working together towards a bright future for zoos and aquariums.

Myfanwy Griffith
Executive Director, EAZA

NOTICEBOARD

IN MEMORIAM

NATHALIE EVANS, co-founder of Twycross Zoo in the UK, passed away in September last year, aged 98. Beginning as a merger of two pet shops in Sutton Coldfield, Twycross Zoo was established in 1962 and became a leading collection in the UK over the following decades thanks to the efforts of Miss Evans and her partner Molly Badham. Miss Evans was a founder member of the National Federation of Zoological Gardens of Great Britain and Ireland, a member of the International Union of Directors of Zoological Gardens and co-author of two well-received books outlining the extraordinary story of the birth and development of the zoo.

HENK ZWARTEPOORTE, former curator of reptiles and amphibians at Blijdorp Zoo, Rotterdam, the Netherlands, and EAZA Reptile TAG Vice-Chair, passed away at the age of 67 in October. Mr Zwartepoorte was a key figure in the conservation of reptiles and amphibians in the Netherlands and across the EAZA network, and served as Chair of the European Studbook Foundation, Chair of the Turtle Survival Alliance in Europe and President of the Dutch-Belgian Turtle Association.

CHANGES AT THE WORLD ASSOCIATION OF ZOOS AND AQUARIUMS

Dr Gerald Dick, Executive Director of WAZA, retired in December after eight years in the post. EAZA joins WAZA and the whole zoo community in thanking Gerald for his contribution over his tenure. Dr Stephanie Sanderson, who is also the Executive Director of the European Association of Zoo and Wildlife Veterinarians, was appointed as interim cover until the appointment of Doug Cress in April as the new CEO of WAZA. Dr Markus Gusset, Chief Conservation Officer at WAZA, also left in December to take up a new post at the Swiss Federal Office for Agriculture.

CONFERENCES AND MEETINGS

The 23rd **International Zoo Educators Conference** took place in October, hosted by Fundación Temaikèn in Buenos Aires, Argentina. With the theme of 'Crafting Effective Narratives', the meeting aimed to showcase a diverse range of educational interventions to promote attitudes, behaviours and knowledge that promote environmental care and conservation. One hundred and thirty delegates from more than 30 countries worked over four days in workshops, presentations and poster sessions to explore the power of storytelling both traditional and modern. EAZA and its Members were well represented at the meeting, and several Members ran workshops.

The next meeting will take place in 2018 at EAZA Member Al Ain Zoo. Membership of IZE costs from €47 a year,

and offers a range of resources and discussion forums to help educators contribute and stay up to date with the latest developments in zoo education. For more details of how to join, contact IZEA's Europe and Middle East board member Sarah Thomas, sarah.thomas@zsl.org.

Registration for the 2017 **EAZA Annual Conference** to be held at Emmen, the Netherlands, is now open. Register before 1 June to take advantage of early booking rates for EAZA's flagship event. Emmen is a small city in the east of the Netherlands, and accommodation will be primarily at holiday bungalows near to the city – organisers have set up a Facebook page to assist registrants to book shared accommodation. Visit the event website www.eaza2017.com for details of how to book – and please book as early as possible to ensure that you get the accommodation that is suitable for you and your institution.

The **EAZA Nutrition Conference** took place in Liberec, Czech Republic in January; a full report of the event can be found on page 27.

Upcoming events also include: **Future Directions in Conservation Science** (25–26 April, Chester, UK), the **Zoo and Wildlife Health Conference** (24–27 May, Berlin, Germany, hosted by EAZWV and IZW) and the **EAZA Zoo Horticulture Conference** (16–19 May, Rome, Italy). For a full view of these events and more, visit www.eaza.net/events.



AB Aqua Medic GmbH	www.aqua-medic.de
Aqua-Teknik A/S	www.aqua-technik.com
Beresford	www.beresford.fr
Billings Productions, Inc	www.billingsproductions.com
Brogaarden ApS	www.brogaarden.eu
Carl Stahl GmbH	www.carlstahl.com
Clax Italia srl.	www.claxitalia.com
Dowman Soft Touch	www.dowman.com
EKIPA	www.ekipa.nl
Fachjan	www.fachjan.nl
HMJ Design	www.hmj-design.dk
iCEAU	
Kiezebrink International	www.kiezebrink.eu
Marine Nutrition	www.marinenutrition.com
Mazuri	www.mazuri.eu
Nieuwkoop	www.nieuwkoop-europe.com
Pangea rocks A/S	www.pangea.dk
PJA Architects	www.pjarchitects.com
Pricetag BV	www.pricetag.nl
Ralf Imagen y Comunicacion S.L.	www.ralfnature.com
Rasbach Architekten	www.rasbacharchitekten.de
Ravensden Plc	www.ravensden.co.uk
Ray Hole Architects	www.rayhole-architects.com
Rocas & Design	www.rocas-design.com
Saint Laurent S.A.	www.st-laurent.fr
Wildtex	www.wildtex.nl
Zoological Adviser	www.zoologicaladviser.com
Zoologistics	www.zoologistics.nl
Zooprofis	www.zooprofessionals.de
A.Hartrodt	www.hartrodt.com
Lamartine Construction	www.lamartine-construction.com
KaGo&Hammerschmidt	www.felsen.de
TAA Group GmbH Co. KG	www.taa-group.com
Deerns Nederland BV	www.deerns.com
Arie Blok Animal Nutrition	www.arielok.nl
TVKZoodesign	www.tvkzoodesign.nl

THOIRY ZOO LOSES RHINO TO POACHERS

Thoiry Zoo in France was the victim of a shocking attack on the night of 6 March. A gang broke into the zoo's indoor enclosure for white rhino and shot dead a four-year-old male rhino, removing its large horn with a chainsaw. The other horn was partially cut, which suggested that the gang had fled the scene, perhaps after being disturbed. Two other rhinos in the enclosure were unharmed.

As security measures are stepped up at zoos across the globe, we urge all EAZA Members to test their security systems to ensure they are up to date and fully functional. Rhino holders have been contacted by the relevant TAG with recommendations for security measures; if you are a holder and have questions, please contact the TAG Chair Friederike von Houwald.

NEW ARRIVALS



FIRST AYE-AYE BIRTH FOR ZSL LONDON ZOO

2016 WAS AN EXCITING and historical year for ZSL London Zoo, writes *Christina Stender*, Senior Keeper at ZSL London Zoo. Rainforest Life is home to a variety of small mammals and primates, and embraces both diurnal and nocturnal species, including the incredible aye-aye (*Daubentonia madagascariensis*).

Aye-ayes have been housed at ZSL London Zoo since 1999. Since then, the team has made several successive adjustments to the aye-ayes' environment as we have learned more about the species and its habits. After several attempts to breed this

magnificent species, we can now announce our first success, with the birth of a young male. This rare infant has been named Malcolm, in posthumous tribute to one of ZSL's long-term supporters.

Malcolm was born on 29 June and spent the first two months in a nest box, where it was difficult to see or hear what was going on inside. Although camera traps were set up and recording, they at first only revealed Malcolm's mum, Salem, nest-building and eating.

The animal team at ZSL London Zoo had some concerns in the beginning, as there were no signs of the baby wanting

to come out of his nest box. But we were reassured by the fact that Salem spent all her time in the box with the infant, attending to his needs and demonstrating good parenting.

During this early period Salem would on occasion move the baby between the various nest boxes in the exhibit. This is natural behaviour for the female aye-aye, but the team had no visual evidence of the baby being moved. This made it difficult to determine how he was doing, as we decided not to examine any of the nest boxes, to ensure their environment remained undisturbed. This was not Salem's first infant, but for the team here at ZSL it was our first experience of an aye-aye birth, which meant that anticipation and excitement within the team was high. All we could do was wait.

On 9 September we were delighted to see the baby aye-aye finally venture out of his nesting box and were able to confirm that he was healthy and in good condition.

Since then it has been incredible to witness his daily development as he grows into a playful nocturnal primate. He is highly curious, investigating everything around him, and as he explores the enclosure, his confidence grows daily. He observes his mum closely to learn how to make the best use of his oversized ears and his elongated middle digit. Every day he practises chewing and locating larvae by tapping and listening closely for any movements and hollow spaces inside the branches of his enclosure. He has developed into a perfect miniature of his parents and is a delight to both the animal teams and the visitors who see him at ZSL London Zoo.

SECOND SUCCESSFUL BREEDING OF SECRETARY BIRDS AT WILD ANIMAL PARK PLANCK

IN PLANCKENDAEL IN 2008 a secretary bird (*Sagittarius serpentarius*) was born and parent-reared for the first time. Unfortunately the breeding female died shortly after this first breeding success, so we had to start all over again. In 2009 we acquired a new male, who was born in Walsrode in 2007. We put him together with our parent-reared female from 2008.

Both birds were triggered by nesting material offered by the keepers and each

bird was observed separately on the nest, but no pair-bonding behaviours were observed until early 2016. Then we started to notice a lot of interaction between the two birds; they were together on the nest and showed lots of courtship behaviour, including the typical snoring sounds. The first egg laying (1 May) consisted of two infertile eggs, but from the second clutch (20 July) one egg was fertilised. The egg was removed four

days before hatching when we noticed the female displaying less breeding behaviour, and the nest was abandoned frequently because of the heat. When the egg pipped in the incubator on 29 August, it was returned to the nest and the parents helped the chick out of the eggshell.

We monitored parents and chick very closely for the first few days to see whether the chick was fed. All went well;



THREE WHITE-NAPED MANGABEYS BORN AT BARCELONA ZOO



RACKY, A MALE WHITE-NAPED MANGABEY living at Barcelona Zoo, was born in Accra Zoo in 2004 and arrived in Barcelona in 2014. His adaptation to the new groups has been really successful, and during 2016 he sired three infants: one born in July, another in August and the third last October. The first two offspring were male and female respectively, and we are waiting to find out about the third one.

The white-naped mangabey (*Cercocebus lunulatus*) is found in Burkina Faso, Côte d'Ivoire and Ghana. This species has a restricted range, patchy distribution and is not known to be abundant anywhere, and the population is decreasing fast. It inhabits primary and secondary forests, gallery forest and swamp forest, including mangrove and mosaic habitats in the Guinean Forest Zone. It is largely terrestrial but will also use the forest canopy, and is known to raid farms. It is tolerant of a wide range of

habitats and of some degree of habitat degradation in the absence of hunting.

The wild population has been drastically reduced by about 50 per cent over the last 30 years as a result of habitat destruction, chiefly deforestation for timber and firewood. The mangabey is locally hunted for meat and in retaliation for crop raiding – it is known to raid farms – and this is an increasingly important threat, along with ongoing forest fragmentation. Classified as Endangered (2008) on the Red List and listed on Appendix II of CITES, it was considered to be one of the 25th most endangered primates in the world in the last decade (2004–2006 IUCN).

The ESB for this species began in 1994 and was upgraded to an EEP in 2000. In 2001 the population comprised 44 specimens (23 males, 21 females) in 12 institutions, three of which were non-EAZA, and four of which were keeping a

lone specimen. Breeding in general was very poor and most of the group were in a highly inbred situation. Many transfers took place over the following years and a considerable number of institutions joined the programme.

At the end of 2015 the White-naped mangabey EEP had a population of 90 specimens, comprising 36 males and 54 females in 13 EAZA institutions, one non-EAZA institution – which is keeping two adult neutered males together – and Accra Zoo in Ghana.

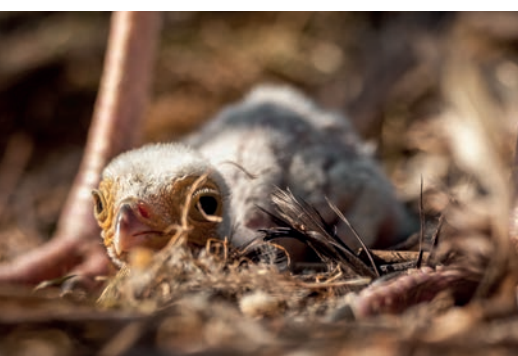
The productive collaboration with Accra Zoo was established in 2004 thanks to WAPCA, a local NGO (supported by some EAZA zoos) working in Ghana and Côte d'Ivoire to preserve and protect the endangered primates of West Africa through community empowerment and education. Its main goal is to effectively preserve primate species in the West African Upper Guinean Rainforest and it mainly focuses on two species of primates: the white-naped mangabey and the Diana rolaway (*Cercopithecus diana rolaway*).

During the last few years, a number of recommendations were made for sending animals from Europe to Accra and vice versa, resulting in a demographical and genetic improvement of the EEP population that also reduced its inbreeding coefficient from 0,085 to 0,0249.

At the moment Accra Zoo is keeping the biggest population in the EEP (n=16), and there is a chance of reinforcing the wild population.

We hope to continue increasing this population, and we would be delighted to find more institutions willing to participate in the programme. This species is kept in human care only in Europe and deserves our best efforts.

ENDAEL



the chick grew fast and we expected it to fledge around 1 November. It was eating independently at that time. In the first cold days of November the parents left the chick alone on the nest during the freezing nights, so we decided to move it inside with the parents, where it was put on a big nest platform. During the first days we observed the father sometimes on the nest with the chick, but after that neither parent showed any further care

for the chick. The chick stopped eating and dropped in weight, so we decided to start forced feeding. At the time of writing, the chick has finally fledged. To achieve this, the keepers had to carry out walking exercises in order to strengthen the chick's muscles. This also had a positive effect on his appetite. The young bird is still very weak on his legs, but he is lively and is now starting to walk around with his parents.

Forward thinking

EAZA HAS COMPLETED ITS STRATEGY FOR THE NEXT THREE YEARS – AND MEMBERS' INVOLVEMENT WILL BE CRUCIAL TO ITS SUCCESS

Thomas Kauffels, EAZA Chairman, and Myfanwy Griffith, EAZA Executive Director

The EAZA Strategy 2013–2016 was wide-ranging, forward-thinking and ambitious, comprising 96 objectives and seven different strategic aims. It is a testament to the focus and dedication of our Committees, TAGs, EEPs, Members and Executive Office staff that 80 per cent of these objectives have been achieved – which we can all agree is a great success. A small number of items were left outstanding at the end of the strategic period due to difficulties in securing sufficient resources or (more often) a change in priorities that rendered the objective irrelevant.

Strategies are living documents; so while it is unrealistic to expect every objective to be fulfilled, at the same time new priorities and activities have been added over the course of the last four years. Prime examples of this during the 2013–2016 period were the need to strengthen and expand our joint activities with IUCN and the need for increased lobbying of our connections at the EU. What is clear is that an extraordinary amount of positive forward progress was made through fulfilment of the Strategy 2013–2016, and that EAZA Members want the Association to keep on this path for the next EAZA Strategy.

DEVELOPING OUR EAZA STRATEGY 2017–2020

Throughout 2015 and 2016 there were many opportunities for Members to provide input into the Strategy. At the Directors' Day meeting in 2015 we started looking at the 'big picture' with sessions entitled *What should EAZA's core values be in the next 10 years?* and *Zoos in the next 10 years – Strengths, Weaknesses, Opportunities, Threats*. We also reviewed our mission statement and discussed our ambitions as an Association in an increasingly competitive and commercial world. In early 2016 all EAZA Committees were asked to review the focal areas of the Strategy 2013–2016. They were asked to consider:



- Is there anything missing for the future and/or new areas they felt EAZA should be involved in?
- Is there anything that is no longer a strategic priority?
- Are there any key strategic points that need to be adjusted in the new Strategy 2017–2020?

The feedback was collated and shared with participants at the 2016 Directors' Day meeting, who then had the challenging task of narrowing this down to four focal areas for 2017–2020. There was thoughtful debate as to whether to reduce or increase the number of focal areas; however, the Directors agreed that a total of four areas will allow us to summarise the full spectrum of EAZA's work while providing clarity on our priorities to Members and other stakeholders alike. Once the focal areas were agreed, participants were then asked to propose, cluster and prioritise ideas for objectives relating to each one – cue a flurry of flipcharts and Post-it notes!

The focal areas and proposed objectives were then shared with our Committees, who spent the summer developing logframe action plans. Then followed the daunting task of combining these with additional input from Members, Memorandum of Understanding partners and thought leaders at various conferences. Of course, the Strategy also needs to be aligned with other key documents such as the WAZA Strategies, IUCN

Strategy, Convention on Biological Diversity Aichi Targets and UN Sustainability Development Goals (SDGs). This final draft was delivered to the EAZA Council and formally approved in Belfast.

The four focal areas of the EAZA Strategy 2017–2020 are:

- Maximising the conservation impact of EAZA and our Members
- Leading in zoo and aquarium animal management and care by maintaining healthy populations and individuals with positive animal welfare
- Representing the EAZA community at the EU and with appropriate stakeholders to influence relevant policy and good practice
- Communicating the values and scientific work of progressive zoos and aquariums both internally and externally

The narrative version of the EAZA Strategy 2017–2020 is available on the EAZA website, and the detailed logframe of objectives, responsibilities and performance indicators is available in the Member Area. We urge you to read these documents in detail and familiarise yourself with objectives relating to activities by Members. The success of this EAZA Strategy depends on the willingness of every EAZA Member to become actively involved in achieving these objectives. What follows is a brief overview of the focal areas and key developments that you will find in the new EAZA Strategy.

MAXIMISING THE CONSERVATION IMPACT OF EAZA AND OUR MEMBERS

EAZA zoos and aquariums are amongst the world leaders in holistic conservation practices. We support *ex* and *in situ* conservation activities and strive to be a significant contributor to and driving force for both native and

global conservation. Our conservation activities help to build the capacity, skills and resources needed to prevent species extinction. We are able to evidence this through your use of the conservation database, where there are hundreds of projects listed; and as part of the Strategy 2017–2020 we urge everyone to use and contribute to the database to reflect the full range of their efforts.

Our aim is to promote an increase in these conservation activities and develop mechanisms to support conservation activities and measure their impact. We will also develop a range of resources to help Members meet the new Conservation Education Standards by effective measurement. All of this combined feedback on our varied conservation activities will be used to promote our work both here in Europe and globally.

LEADING IN ZOO AND AQUARIUM ANIMAL MANAGEMENT AND CARE BY MAINTAINING HEALTHY POPULATIONS AND INDIVIDUALS WITH POSITIVE ANIMAL WELFARE

By their very nature, zoos and aquariums are defined by the animals in our care. We recognise that as progressive zoo and aquarium leaders we must balance the twin needs of providing positive animal welfare for individuals whilst also maintaining healthy populations of species. Our programme managers and TAGs are at the heart of EAZA; without their tireless dedication and institutional support to carry out their work, we would not have the species we have in our collections today.

However, the threats to wildlife change constantly and with them the decisions we need to make on which programmes to run and how to make them as effective as possible. Objectives under this focal area relate to engaging *everyone* in making our programmes effective; supporting the people that manage them; expanding our population management guidance; encouraging individual collection integration as part of Regional Collection Plans; and assisting improvement of zoos through our Candidate for Membership programme. All of these activities will continue to be underpinned by scientific principles of animal health

and welfare, population management and husbandry.

REPRESENTING THE EAZA COMMUNITY AT THE EU AND WITH APPROPRIATE STAKEHOLDERS TO INFLUENCE RELEVANT POLICY AND GOOD PRACTICE

No organisation works in isolation. However good our conservation and education work is, and however well we manage to maintain healthy populations and individuals with positive animal welfare, we will always be subject to outside factors that could influence our work. Legislation at the national, EU or global level impacts us in many ways. We need to build capacity at *all* levels to be able to influence policy proactively and move away from a reactive approach. This will involve allocating time and resources to understanding advocacy processes and raising the profile of EAZA so that relevant bodies are aware of our existence and consider it necessary and useful to consult with us.

As a group of progressive zoos and aquariums, we also have significant skills and expertise to offer other biodiversity stakeholders, and we aim to strengthen our existing partnerships with IUCN and other partners as well as develop new links with organisations from welfare organisations to private breeders. We know we are leaders with a unique set of knowledge and skills; it's about time that others saw this too, so that we can use our expertise to the benefit of all.

COMMUNICATING THE VALUES AND SCIENTIFIC WORK OF PROGRESSIVE ZOOS AND AQUARIUMS BOTH INTERNALLY AND EXTERNALLY

If the time that has passed since the last Strategy has taught us anything it is that communication is crucial, and we need to do it more and better, whether this means internally to increase the transparency of processes and 'buy in' on decisions and documents, or externally so that the wider world understands our decisions and working practices. Most of the foundation of this work has already been initiated. Our new public website and Member Area are live and will be utilised heavily for internal and external communications



alongside our existing communications tools such as eNews, *Zooquaria* and Facebook. If you have not already accessed these platforms, we encourage you to do so. We recognise the power of the media to influence opinion and will be supporting Members to engage proactively to ensure balanced reporting and a reflection of the good, scientifically based work that we do.

CONCLUSION

We hear many different thoughts on who EAZA really is and who will be responsible for implementing the EAZA Strategy 2017–2020. Our response is always that EAZA is each and every Member, from its forward-thinking Directors to the dedicated staff in every role from keepers to educators to horticulturalists (and all those in between we don't have space to list). Our Strategy has been developed with input from all, and we need the support of all to achieve it. Our Executive Committee is leading the way by working on the composition of the committees, aiming for the best possible representation of and transparency for all Members.

We encourage everyone to read the EAZA Strategy 2017–2020 and identify which parts they can help with, so that EAZA continues to achieve its vision to be the most dynamic, innovative and effective zoo and aquarium membership organisation in Europe and the Middle East.

How to hold a BioBlitz



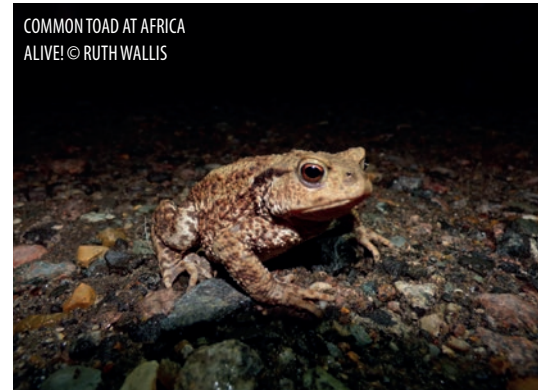
A BIOBLITZ IS AN EXCELLENT WAY TO INVOLVE ZOO VISITORS IN THE ONGOING CAMPAIGN TO RAISE BIODIVERSITY AWARENESS



BANK VOLE AT GAIAZOO
© R. HAVIK



DIPPING FOR SNAILS
AT GAIAZOO



COMMON TOAD AT AFRICA
ALIVE! © RUTH WALLIS

Seeing and interacting with local species is one of the most active ways in which people can learn about native biodiversity. This is what the Let It Grow campaign has largely been about – raising awareness and engaging the public – and over the last year, several of the Let It Grow participants have found creative ways to expose their guests to as much local wildlife as possible.

On 22 May, the International Day for Biological Diversity offers a great opportunity to promote biodiversity by organising special activities for visitors. This year we want to go big! We'd like to ask you to make plans for a biodiversity event at your institution on 22 May, or the weekend of 20–21 May. This can be whatever suits your institution, but one suggestion is that you hold a BioBlitz. This is where expert naturalists and members of the public work together to do a rapid survey of all forms of life in a natural space. It's a great outdoor event that's

particularly enjoyable for families, but, of course, any visitors can take part.

Below, two zoo educators share their stories of successful BioBlitzes that were held at three different institutions. We would like to encourage you to read about their fantastic experiences and take their advice in order to host your own BioBlitz in the coming year. After all, it is a great way to Let It Grow!

Catching the BioBlitz Bug!

Sara Goatcher, Education Coordinator
Zoological Society of East Anglia
Africa Alive! & Banham Zoo

As well as the African animals that live in Africa Alive!, I was well aware that a large amount of native wildlife called the park home. I was lucky enough to live in the park for a number of years and had seen a huge array of wildlife there, including waterfowl, invertebrates, amphibians and mammals, but none of these

species had been recorded officially. This was my original reason for holding a BioBlitz. However, as we began planning the event, our aims quickly expanded! It was the perfect opportunity to engage guests with native wildlife through a number of hands-on activities; it was also a perfect way to forge new links with local wildlife groups and to engage staff from a number of departments with biodiversity.

The first event took place in June 2014 and ran over a weekend; the 24-hour count took place from lunchtime on the Saturday. The wildlife surveyors included local wildlife groups, county recorders and volunteers. During opening hours we also had wildlife

stations for our guests around the park offering activities such as pond-dipping, bug-house making and ‘What lives under the log?’ quizzes.

As night fell and our guests left the park, we were joined by our second wave of experts – the nocturnal variety! Using specialist equipment such as bat detectors and moth traps, we were able to survey the nocturnal wildlife around the park. The information collected by the recorders over the 24 hours was added to a national database, managed by the Suffolk Biological Information Service.

The final figure of species recorded at our first event was 406, which included some local rarities such as the mining bee (*Andrena fulvago*). However, the biggest success, which made us determined to repeat the event, was its popularity with both our guests and our staff, and the opportunities it gave us to promote local biodiversity. We have now held three BioBlitzes in Africa Alive! and the species total is growing and growing.

In September 2016 we held our first BioBlitz at Banham Zoo. This was a huge success, with a current species total of over 550, and more records coming in regularly. We are now looking forward to 2017 and are busy coming up with new plans for our ‘Let It Grow’ events.

These are my top tips for a successful BioBlitz:

1. Start planning early, even if it’s just the date, as recorders and local wildlife groups need lots of notice for these events.
2. Use I-spot (ispotnature.org). It’s a great way for guests and staff to get involved with the recording.
3. Involve as many staff and volunteers as possible, and not just from the animal or education departments. Ours brought a wealth of enthusiasm and in some cases untapped knowledge of native species!

BioBlitz in GaiaZOO

Hanneke de Boer, Education & Conservation, GaiaZOO

GaiaZOO values biodiversity and species conservation very highly, not only in countries far away, but also in our own surroundings. For example, GaiaZOO has been breeding and

releasing the locally extinct common hamster (*Cricetus cricetus*) for over 10 years, and since 2015 we have been providing shelter to the last Dutch common fire salamanders (*Salamandra salamandra*) to protect them from extinction. The EAZA, BGCI and Ecsite Let It Grow campaign perfectly fits GaiaZOO’s philosophy. To involve our visitors in local biodiversity, we decided to organise a BioBlitz over the weekend of 10–11 September.

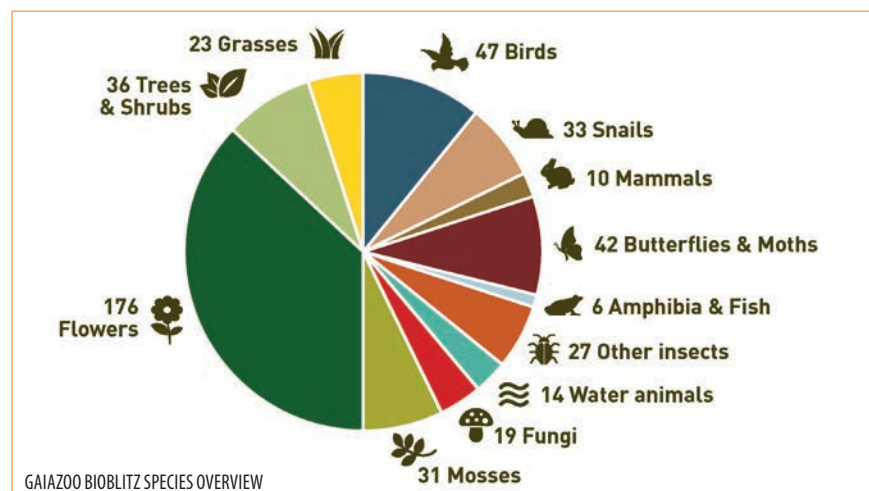
During the two months before the BioBlitz, we contacted local experts as well as national organisations (which is also one of the goals of Let It Grow). They were all very excited about the concept as none of them had ever monitored in a zoo before. In total, 60 external experts from 16 different organisations attended the BioBlitz. They monitored every part of GaiaZOO to find every species of plant, bird, moss, fungus, snail, water creature, bug, amphibian, dragonfly and butterfly that lives here. The experts wore orange safety vests so that they could be recognised by visitors and employees alike. After all, we don’t see men and women sweeping insect nets, shaking trees or lying flat between the vegetation with a magnifying glass on a daily basis.

Many of these experts also guided visitor activities; for example, children were provided with special equipment so that they could search for slugs or go on a creepy-crawly hunt. Thanks

to many GaiaZOO volunteers, we were able to provide information booths on biodiversity and a craft stall where children could make their own bird feeders and insect homes. In our education centre, the experts invited visitors to research mushrooms, owl pellets and slugs. Through a live chat on Facebook and Twitter, even visitors that were not able to come to GaiaZOO were inundated with BioBlitz facts.

Since animals don’t stick to the opening hours of GaiaZOO, the experts continued monitoring far beyond sunset. Visitors could subscribe for a special night expedition, including a ‘meet and greet’ with the experts at work in the darkness. For many of them, it was a once in a lifetime experience to see the expert emptying the live traps for mice, to hear bats calling through a bat detector, or to see the 30 different moth species that were attracted to the light trap.

After 24 hours of monitoring, 454 different species had been counted. If we had been able to monitor all the mosquitoes, spiders, beetles and lichen, we could easily have reached a thousand species. The number of birds, butterflies and flowering plants would also be higher if the BioBlitz were held in late spring. In GaiaZOO we can’t wait to repeat this great biodiversity awareness weekend and we advise every zoo to try it for themselves!



GaiaZOO BIOBLITZ SPECIES OVERVIEW

Expert tips for increasing biodiversity in GaiaZOO

GaiaZOO has a very green and natural set-up. The BioBlitz experts had some extra tips to give native species more chances to flourish:

1. Less weeding for mushrooms and insects
2. Leaving dead trees and trunks for mushrooms, snails, insects and birds
3. Sowing native flowers for insects and birds

Pinioning: here to stay?

RECENT RESEARCH HAS HELPED TO CLARIFY THE STATUS AND PRACTICE OF PINIONING ACROSS THE EAZA COMMUNITY AND TO ASSESS ITS BENEFITS AND ITS FUTURE USE

William van Lint, EAZA Executive Office, Liaison Bird TAGs and EEP Committee

Pinioning is an irreversible flight restraint method, where part of the metacarpal bone and the phalanges of one wing are removed. This is in contrast to wing-clipping, which is only temporary. In wing-clipping only the primary feathers are cut and they grow again over time. Even though it is not unequivocal whether birds should be kept pinioned or in netted enclosures or aviaries, EAZA prefers wherever possible to keep fully winged birds in netted enclosures or aviaries, as is stated in the EAZA Standards (see box below).

The Standards give a clear direction; however, if a 'net welfare benefit' can be argued, there might be room for scenarios where pinioning could be an acceptable option – for example, where space might take preference over ability to fly. However, more research is needed to determine best welfare conditions.

There is also a legislative context – that is, whether or not pinioning is legally allowed in different countries – and the assumption is that this will become even more relevant in the future. Consequently this can impact on the sustainability of certain bird populations that were or are commonly kept pinioned. Species commonly kept pinioned mostly fall under the remit of the Ciconiiformes and Phoenicopteriformes TAG, Gruiformes TAG and Waterfowl and Pelecaniformes TAG.

The aim of this research is to achieve clarity on these two aspects (legal status and sustainability) on behalf of the EEP Committee. To this end, the National Associations were approached to get a better insight into the legislative status of pinioning in different countries. At the same time all EAZA Full Members were approached and asked to complete a survey. With the assistance of Jacob Dekker (student Van Hall-Larenstein) the results were collected and summarised in a report entitled 'Future

prospects of commonly kept pinioned bird species at EAZA zoos'.

RESEARCH RESULTS

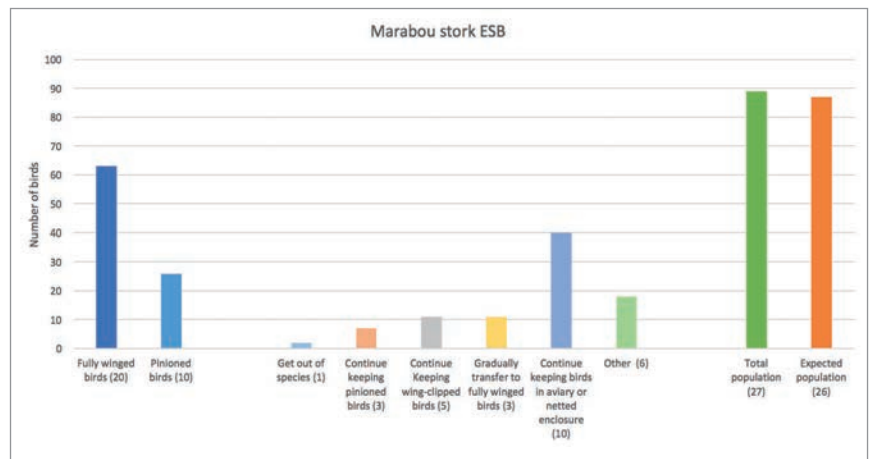
Based on the feedback from the National Zoo Associations and the responses of the Full Members of EAZA, we received information about the legislation on pinioning in 25 countries. The results show that the practice of pinioning is legal in 18 of the 25 countries at the moment. The results are based on quoting the respondents and not the respective laws, as the different languages and national legal context made it impossible to do this as part of the project. In six of the countries, namely Austria, Croatia, Germany, Italy, Poland and Slovakia, pinioning is not allowed. In Denmark it is legal to pinion birds, but only if it is done by a veterinarian within the first few days of a bird's life. However, the Danish Union of Veterinarians has banned the practice of pinioning, so in effect you

cannot get a veterinarian to perform the action, as is legally required.

In the Netherlands pinioning will become illegal on 1 January 2018 and representatives of Luxembourg and Israel stated that pinioning could become an illegal practice in the future (probably within five years).

In Switzerland the practice of pinioning is not allowed, but there is an exemption for zoos.

We achieved a 30 per cent response rate for this research (89 out of 296 Full Members). The further results are based on the 78 responses we received from Full Members that are keeping birds in their collection. The results showed that 29 of these 78 institutions (37 per cent), are currently performing the practice of pinioning, meaning that the other 49 EAZA zoos (63 per cent) do not, or no longer, pinion their birds. Older birds that have been pinioned earlier are, of course, still kept in more institutions. As pinioning is irreversible, these birds will remain

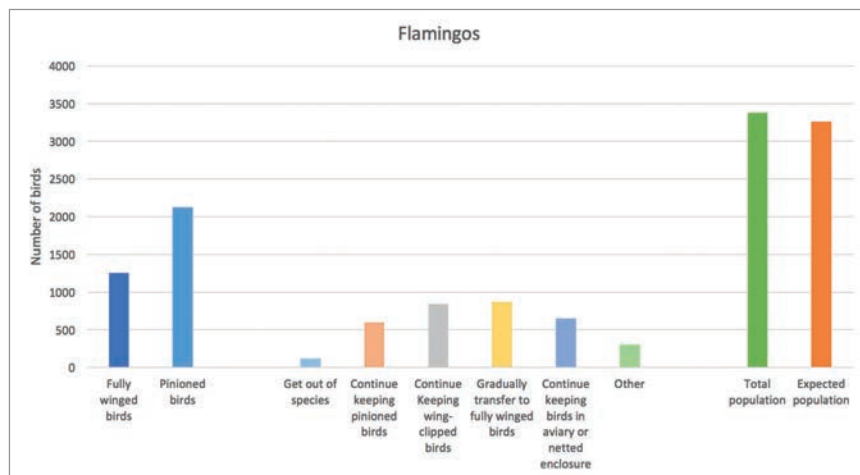


EAZA Standards for the Accommodation and Care of Animals in Zoos and Aquaria (2014):

"Mutilation of any animal for cosmetic purposes, or to change the physical appearance of the animal, is not acceptable. There should be a net welfare benefit to the individual animal and/or its conspecifics before accepting mutilation for educational or management reasons. This also includes pinioning of birds. Closed aviaries of appropriate size are thus preferred to open enclosures where pinioning is the only efficient method of restraint."

LEGISLATION ON PINIONING IN THE RELEVANT COUNTRIES

Legal status of pinioning (based on the responses)	Countries
Not allowed	Austria, Croatia, Germany, Italy, Poland and Slovakia
Allowed but not practised	Denmark
Not allowed, but exemption for zoos	Switzerland
Allowed	Belgium, Czech Republic, Finland, France, Greece, Hungary, Ireland, Israel, Latvia, Luxembourg, Norway, Portugal, Russia, Spain, Sweden, The Netherlands (until 1 January 2018), and United Kingdom
Unknown	Estonia, Slovenia, Turkey, United Arabian Emirates



in the bird collections, even though an institution has decided to no longer pinion or is no longer allowed to pinion.

Twenty-five of these institutions that do not pinion their birds are located in countries where the practice of pinioning is legal. These 25 institutions have, in line with the EAZA Standards, decided to no longer pinion, regardless of the legal position.

PROGRAMME SPECIES

In order to maintain healthy populations of the relevant EEP and ESB programmes, it is necessary to find out what the future prospects are for the relevant managed EEP and ESB bird species, but also for the non-programme bird species that are commonly kept pinioned such as flamingos, pelicans, ducks and storks. A survey was sent out to all 296 EAZA Full Member zoos. Institutions were asked about the legal status of pinioning in their country, their institutional policies, the species impacted and the future plans (in the next five to 10 years) for these species, including getting out of the species, continuing to keep pinioned or wing-



clipped birds, gradually transferring to fully winged birds or continuing to keep birds in aviaries or netted enclosures.

Based on the results, 55 to 95 per cent of the populations of 15 EEP and ESB species, under the umbrella of the Ciconiiformes and Phoenicopteriformes TAG, Gruiformes TAG and Waterfowl and Pelecaniformes TAG, are already kept fully winged either in aviaries or netted enclosures or as wing-clipped birds in open aviaries (see the Marabou stork ESB as an example). Only for both pelican programmes (Dalmatian pelican EEP and Pink-backed pelican ESB) and the Scaly-sided merganser ESB are most of the birds pinioned. For the managed EEP/ESB species, only a small number of the replying institutions stated that they will stop keeping a certain programme species.

The non-programme species, in contrast, are currently more often held pinioned, although for some of the non-programme species, such as flamingos and pelicans, only a small number of the replying institutions said that they will stop keeping a certain programme species. However, for the waterfowl (ducks, geese and swans) populations that are not managed by EAZA, the future looks more worrisome. Based on the current responses, 20 per cent of all the non-programme duck species will be lost and probably even more since there are some institutions that state they will have to stop keeping certain waterfowl species, without specifying which species.

Furthermore, a species such as the grey-crowned crane could be in peril; there is an expected loss of 42 per cent of this species, since institutions decided to stop keeping them due to the legislation on pinioning.

Many EAZA institutions have fully winged birds or will work towards that in the future. Legislation has some impact but not a lot (proving that our zoos lead the field on animal welfare) and, based on the responses, it can be assumed that the impact on our breeding programmes is limited, unless the species were already not sustainable for other reasons. The exceptions to this are the pelicans and non-managed species.

However, at the same time it is clear that even more institutional commitment will be required to



maintain healthy populations of all the prioritised species. EAZA should continue encouraging institutions to invest in aviaries or netted enclosures and gradually to transfer to fully winged birds. It is up to the TAGs to give clear guidance on the priority species, certainly for the Waterfowl and Pelecaniformes TAG, to make sure the limited aviary spaces available are used for the priority species.

It is also good to realise that the impact of pinioning is, of course, not the only aspect that is important for the future of healthy populations. Already in the current situation some of the programmes are suffering due to low numbers, poor breeding results and/or lack of interest (Oriental white stork, saddle-billed stork, hooded crane, scaly-sided merganser). The rule of thumb that 100 individuals are the minimum required for a demographically more stable population is, for these programmes, already hard to achieve. The impact of pinioning and potential loss of interested holders will have an even greater impact on these smaller, more vulnerable populations.

IN CONCLUSION

With a response rate of 30 per cent, the results have to be read with some caution, of course, as the overview is not complete, and it is possible that the results reflect a selective sample. Institutions more actively working on this or impacted by this might be

more willing to respond. On the other hand, among the institutions that did reply were those with important bird collections, both in number of species, number of individuals and historical and present involvement within our community.

The final results have been circulated to all Bird TAG chairs to follow up on as far as is relevant for the taxa under their remit. The Bird TAG chairs are encouraged to implement the conclusions of the report, when relevant, in their Regional Collection Plan and future work. Certainly for waterfowl some clear guidance would be required to make sure the limited aviary spaces are used for the priority species as Meller's duck, Baer's pochard, white-winged woodduck and/or other conservation-dependent species where zoos have an important role to play. The Waterfowl and Pelecaniformes TAG is currently discussing the implications. The report has also been forwarded to the National Association Committee so they are aware of the importance of this topic for the bird and EAZA community.

I would like to thank all the respondents for their feedback. If you are interested in the full report, please get in touch with william.van.lint@eaza.net.

REFERENCES

EAZA, (2014). EAZA Standards for the Accommodation and Care of Animals in Zoos and Aquaria. European Association of Zoos and Aquaria.

Zoo science for all

A GROUNDBREAKING WEBSITE OFFERS FREE ACCESS TO THE LATEST SCIENTIFIC RESEARCH FOR ZOOKEEPERS AND AQUARISTS

Dr Gavan Cooke, EAZA Animal Welfare Working Group Special Advisor

Science is a complicated thing; it requires a great deal of education, time and resources when these are in short supply, and lastly the terrifying task of writing to an academic standard, knowing that anonymous reviewers may rip your work to shreds. It's no wonder that many keepers and aquarists are put off using their amazing experiences and ideas in research.

On the other side of the coin, scientists are under huge pressure to publish paradigm-shattering research that maximises the taxpayer's generous input whilst flitting from one temporary role to another until they bag that coveted permanent position. In short, this means that scientists tend to do what will get noticed rather than what needs to be done for animal welfare.

The relatively few published papers that deal with improving the welfare of zoo and aquarium animals in a practical day-to-day, applied-science sort of way are then hidden behind paywalls owned by the publishing houses. Few zoos or aquariums have access via expensive subscriptions to the papers they need the most. This leads to a real disconnect between the scientists and the people who need the information most of all – the keepers and aquarists. Although a few journals are open access (such as EAZA's *Journal of Zoo and Aquarium Research*, *PLOS1* and a few more) it can take a while before papers are accessible to those without subscription, often long after people forget they were ever published. It's a real shame that the papers that deal with improving animal welfare via specific evidence-based interventions cannot even be read by those who would implement them. The result, we suspect, is that many zoo keepers and aquarists, after years of frustration, have long forgotten how to search for papers or given up altogether. This frustration cycles back to the scientists, who feel their work may not be implemented even if they do design useful welfare research. The danger is that we will end up with few scientists

doing applied welfare research, who are read by no keepers or aquarists!

Every generation of undergraduates, keepers and aquarists brings an unbounded enthusiasm to make a real difference to the welfare of animals in human care. Many great projects are arranged between university supervisors, collections and the students themselves. These projects may not be *Nature* papers; many may not even be publishable in the rightly strict peer-review publishing process. But they do need to see the light of day. There are many good reasons for this: to avoid continually reinventing the wheel; to be the basis for more thorough or rigorous research; to inspire others to have a go at improving animal welfare; and to show the young undergraduate, keeper or aquarist that if they do something, someone will see it and may use it.

In an effort to improve this situation, I joined forces with Belinda Tonkins (International Animal Welfare MSc student at the University of Edinburgh) and Joe Chapman (Aquarium Technician University of St Andrews) to create a blog that collates those papers that are directly useful to the people who make a difference on a day-to-day basis. We called this blog 'Zoo Science for Keepers and Aquarists' and it can be found at www.zoosci.com.

Our goal is to bridge the disconnect between the scientists and the keepers and aquarists. We also desperately want to feature unpublished research by those who work with animals or who wish to become keepers or aquarists. We have many sections, including each month's new papers all together in one easy-to-find place. We also feature past papers; there is a vast number of studies that may have passed us by, so we feel it is worth highlighting these, too. But where do you begin?! We thought that if eminent zoo professionals highlighted their favourite papers, it might encourage keepers and aquarists to delve into the past. We are very lucky to have Dr Geoff Hosey's suggestions

for papers he thinks all zoo or aquarium staff should read (www.zoosci.com/2017/02/11/geoff-hosey-shares-some-papers).

We are also very fortunate that Dr Deborah Cracknel of the National Marine Aquarium (Plymouth, UK) has shared a list of projects completed over the last 10 years (www.zoosci.com/2017/02/11/national-marine-aquarium-uk-research). This is so important, as budding welfare scientists can see what has or hasn't been done, and get information that's already available without having to start from scratch. It also allows experts not already involved with zoos and aquariums to see if they can help.

Do you have papers that you think others should read, or research that you want to share? If so, please get in touch!

So far, the blog has been a huge success. We get 400–500 visitors each month from all over the world, and we've had staff and students asking for help finding papers they need to improve the lives of the animals they look after. But we need more unpublished work to show off the magnificent work that is being done but which has so far gone under the radar.

As always, useful ideas are arrived at by other people convergently. Conservation Evidence (www.conservationevidence.com) is a great site, which not only collates conservation interventions but also collates evidence for specific taxa.

The importance of an evidence-based approach is increasingly being recognised and incorporated into our practices and guidelines. The TAGs and EEPs do a fantastic job, and more sharing of welfare information can only be a good thing! Where you get your information doesn't matter; what matters is that you can access and implement it. Science is vital for helping the animals in our care not just simply to survive, but also to thrive. Dr Gavan Cooke is a lecturer in *Animal Behaviour and Welfare* at Anglia Ruskin University, UK.



Project parrot

A VARIETY OF INITIATIVES CREATED BY THE PARROT TAG OFFER NUMEROUS OPPORTUNITIES FOR MEMBERS TO DO THEIR BIT FOR GLOBAL PARROT CONSERVATION

Sandra Molloy, Research & Conservation Coordinator, Dublin Zoo and Parrot TAG Vice-Chair, and Simon Brusland, Parrot TAG Chair

Parrots are one of the most threatened bird orders. Twenty-eight per cent of species are listed as threatened by BirdLife International, and 56 per cent of all parrot species are in decline (Olah *et al.*, 2016). Currently there are approximately 16,000 parrots in more than 200 EAZA institutions. However, less than a quarter of the taxa in EAZA are listed as threatened (Fig. 1, page 18). Although EAZA institutions are already playing an important role in parrot conservation for many species, there is great potential to do more and the Parrot TAG wants to strengthen this

conservation role. The roles of the Parrot TAG have been summarised in a mission statement (see below) and are reflected in the updated Regional Collection Plan, which has recently been published and is available on the Parrot TAG page in the Member Area.

Some of the parrot taxa that are kept in EAZA zoos are on the verge of extinction in the wild and desperately need conservation measures, which include an *ex situ* component. It is up to all of us to make this possible. Here we summarise the many measures that are being taken, and the opportunities that exist for Members to get involved.

Parrot TAG mission statement

'EAZA Parrot TAG's mission is to facilitate and enhance cooperation on parrot conservation within the European zoo and aquarium community. The aims include maintaining sustainable *ex situ* populations, educating the public, encouraging contributions to scientific research and supporting *in situ* conservation of parrots. It will achieve these aims by providing the community with information and structures to assist and improve population management, husbandry methods and conservation project review and also by evaluating and sharing calls for cooperation from outside the community.'



THE YELLOW-HEADED AMAZON (*AMAZONA ORATRIX*) IS LISTED AS ENDANGERED AND THE NORTHERN SUBSPECIES IN PARTICULAR IS SEVERELY THREATENED. A WELL-MANAGED *EX SITU* POPULATION IS URGENTLY NEEDED, BUT DEVELOPING A PROGRAMME IS CHALLENGED BY THE FACT THAT SEVERAL OF THE SUBSPECIES ARE KEPT IN EAZA ZOOS. FINDING A SPECIES CHAMPION WHO FEELS UP TO THE CHALLENGE IS CRUCIAL.

SELECTION OF CURRENT VACANCIES FOR PARROT PROGRAMMES

Scientific name	English name	IUCN	Category	Role of programme
<i>Amazona oratrix</i>	Yellow-headed Amazon	EN	EEP	Conservation (direct role)
<i>Melopsittacus undulatus</i>	Budgerigar	LC	MON-P	Welfare, space use, research
<i>Agapornis nigrigenis</i>	Black-cheeked lovebird	VU	MON-P	Welfare, space use, research
<i>Eclectus r. roratus</i>	Ceram Eclectus parrot	NE	MON-P	Conservation, research
<i>Cacatua sulphurea</i>	Yellow-crested cockatoo	CR	EEP	Conservation (direct role)
<i>Amazona a. auropalliata</i>	Yellow-naped Amazon	VU	REC MON	Recruitment (future programme)
<i>Pyrrhura perlata</i>	Crimson-bellied parakeet	VU	REC MON	Recruitment (future programme)
<i>Eos histrio</i>	Red-and-blue lory	EN	REC MON	Recruitment (future programme)
<i>Psittacula eupatria siamensis</i>	Siamese Alexandrine parakeet	NE	REC MON	Recruitment (future programme)
<i>Psittacara holochlorus brevipes</i>	Socorro green parakeet	NE	CONS MON	Liaison to <i>in situ</i> project
<i>Neophema chrysogaster</i>	Orange-bellied parrot	CR	CONS MON	Liaison to <i>in situ</i> project
<i>Eclectus roratus cornelia</i>	Sumba Eclectus parrot	NE	CONS MON	Liaison to <i>in situ</i> project

REGIONAL COLLECTION PLAN (RCP)

The RCP has recently been updated and seeks to address the aims of the Parrot TAG as described by the mission statement. In total 581 taxa (species and subspecies) were reviewed and management programmes have been recommended for 78 taxa, 56 of which are classified as threatened by BirdLife International (see Figure 2, page 18).

Roles and targets have been identified for each programme in the RCP, including developing specific roles for MON programmes. Some of these roles are very different from the traditional population monitoring, but all aim to actively investigate the needs or potential for coordinated efforts for specific taxa.

A new role called CONS MON (conservation monitoring) has been

Calling all zoos – your help is needed

If your institution would like to work with threatened Amazon parrots, please contact the programme managers listed on the Parrot TAG workspace. Amazon parrots are attractive and active birds and are not difficult to breed. Non-breeding birds can also be placed in mixed aviaries. If you already hold Amazon parrots which are not threatened with extinction, please consider housing a threatened species instead or at least limit their breeding and further distribution in EAZA institutions. In particular, non-recommended Amazons include Orange-winged Amazon (*Amazona amazonica*) and Blue-fronted Amazons (*Amazona aestiva*).

developed for taxa that are threatened but where no birds from these taxa are currently living within EAZA institutions. The EAZA Parrot TAG hopes to be able to contribute towards *in situ* efforts as there is currently no IUCN SSC for parrots who would otherwise cover this role. This is not considered a management category and these taxa are

not considered recommended species in this RCP.

There are a number of vacancies for parrot programmes, so if you are interested in managing a programme and becoming part of the Parrot TAG team, please get in touch. The full list of vacancies is on the Parrot TAG workspace of the EAZA website, but an overview of selected vacancies is shown in the table above.

PARROT TAG TEAM

The Parrot TAG team is chaired by Simon Bruslund (Heidelberg), and Sandra Molloy (Dublin) is the vice-chair. All programme managers (EEPs, ESBs and MONs) are also part of the Parrot TAG. The Parrot TAG is also fortunate to have a number of advisors as detailed here (see table, left).

AMAZON PARROT SPACE CAMPAIGN

There are almost 900 Amazon parrots in EAZA zoos, but only half of these spaces are for threatened Amazon species. The current Amazon parrots EEPs – Ecuadorian Amazon (*Amazona*

PARROT TAG EXPERT ADVISORS

Role	Name	Institution
Nutrition	Maja Damjanović	Zoo Zagreb, Croatia
Behaviour	Barbara Heidenreich	GoodBird Inc., USA
EAZA Animal Training Committee liaison	Graeme Dick	Longleat, United Kingdom
Veterinary	Dr Andrew Greenwood	International Zoo Veterinary Group, United Kingdom
Veterinary and reproduction	Dr Michael Lierz	Giessen University, Germany
Genetics and populations	Kristine Schad	EAZA Office, the Netherlands
Research	Dr Stuart Marsden	Manchester University, United Kingdom
Conservation	René Wüst	ZGAP (Zoological Society for the Conservation of Species and Populations), Germany
AZA Parrot TAG	Joe Barkowski	Tulsa, USA



THE GREEN-CHEEKED AMAZON EEP IS ONE OF THE BREEDING PROGRAMMES IN NEED OF MORE SPACE © 3268ZAUBER CC

ECUADORIAN AMAZON ENCLOSURE AT CHESTER ZOO © CHESTER ZOO

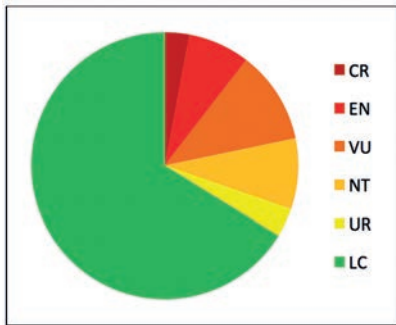


Figure 1: IUCN criteria of parrot taxa currently kept in EAZA

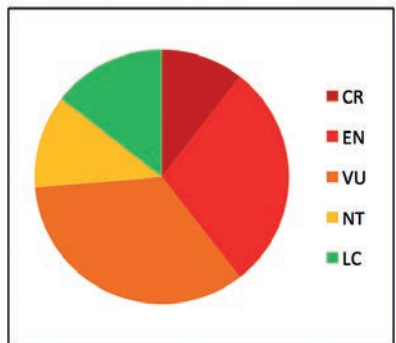


Figure 2: IUCN criteria of recommended parrot taxa in this RCP

lilacina – Endangered), Green-cheeked Amazon (*Amazona viridigenalis* – Endangered) and Red-tailed Amazon (*Amazona brasiliensis* – Vulnerable) – currently take up only 17 per cent of the space available for Amazon parrots. These three EEP populations are quite low and all have cited lack of space

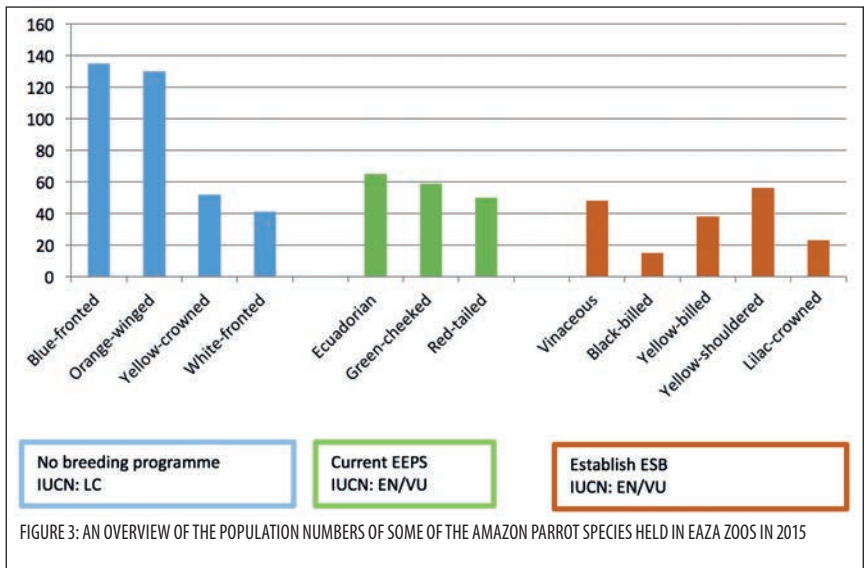


FIGURE 3: AN OVERVIEW OF THE POPULATION NUMBERS OF SOME OF THE AMAZON PARROT SPECIES HELD IN EAZA ZOOS IN 2015

as a limiting factor. In addition to this, the Parrot TAG would like to create a further five ESBs (see Figure 3 for details). Currently these five species account for 20 per cent of the available space for Amazon parrots.

In Wrocław in September 2015, the Parrot TAG held a separate workshop to address the lack of space for threatened Amazon parrots in EAZA. The workshop was attended by 16 people and a group discussion took place on how to address the issue. Suggestions included the creation of large single-sex (mixed) flocks, increased cooperation with non-EAZA institutions, rescue centres and private

aviculturists, liaising specifically with EAZA institutions keeping non-threatened Amazon parrots and generating more interest in threatened Amazon species. Specific tasks to address the space issue were allocated and attendees also highlighted this issue with national zoo associations in France, Germany and the UK.

BEST PRACTICE GUIDELINES FOR ECUADORIAN AMAZONS

In July 2016, Mark Pilgrim and Becca Biddle of Chester Zoo produced very high-quality best practice guidelines for Ecuadorian Amazons. These guidelines can be downloaded from the



CACATUA SULPHUREA
CITRINOCRISTATA ON
SUMBA. © THOMAS
ARNDT (ZGAP)

EAZA website, and the Parrot TAG recommends that all holders of this species read this document carefully to ensure they are providing optimum care for their Amazon parrots.

IMPROVING BREEDING SUCCESS OF CACATUA SPP.

Currently there are three *Cacatua* EEPs in the Parrot TAG – Red-vented cockatoo (*Cacatua haematuropygia*), Moluccan cockatoo (*C. moluccensis*) and Citron-crested cockatoo (*C. sulphurea citrinocristata*). All three taxa are threatened with extinction, so it is important to create self-sustaining, viable zoo populations. Unfortunately, breeding has been very low in these EEPs, as only a few pairs are breeding and many adults are not reproducing at all. This is leading to declining zoo populations with uneven founder representation.

In September 2016, the Parrot TAG decided to host a *Cacatua spp.* breeding workshop at the annual conference in Belfast. The workshop commenced with a presentation by the Parrot TAG behaviour advisor, Barbara Heidenreich, on hands-on management of *Cacatua spp.* to aid breeding success. Next, the 39 attendees were split into four groups to discuss what factors institutions should consider when trying to breed *Cacatua spp.* This workshop was followed by a Skype meeting in

November, which was attended by 14 institutions in nine countries. This meeting included presentations from institutions that have had success breeding these species. Summaries of the workshop and Skype meeting will be used to produce a guidance document on breeding *Cacatua spp.*

CACATUA SULPHUREA GENETIC RESEARCH

C. sulphurea is listed as Critically Endangered and is extirpated from much of its range. The *ex situ* populations could prove to be important insurance populations for some subspecies if managed effectively. The Parrot TAG, in collaboration with Heidelberg University, would like to conduct two vital genetic research projects for *Cacatua sulphurea*:

- **Identify subspecies and hybrids of *C. sulphurea* in the *ex situ* population using genetic markers.** The subspecies of *C. sulphurea* and subspecies hybrids can often be difficult to determine using physical characteristics. This research will use genetic markers to help identify subspecies and determine if any birds are hybrids. Institutions holding *C. sulphurea* have already been contacted by William van Lint (EAZA office), who is investigating the historical records of these birds, and they will shortly be contacted by the Parrot

TAG requesting genetic samples.

- **Investigate if/how founders are related within the *C. s. citrinocristata* (Citron-crested cockatoo) EEP.** An EEP for the most distinct subspecies *C. s. citrinocristata* was established in 1992. However, many of the founders are of unknown origin and therefore only 11.5 per cent of the pedigree is known. This makes genetic management of the population very difficult. This genetic research will identify founders, thus aiding the effective management of the EEP. Funding for this project is being provided by Dublin Zoo and the World Parrot Trust. EEP participants are urged to contribute with samples of their birds.

CACATUA SPP. NUTRITION SURVEY

As highlighted above, breeding with *Cacatua spp.* in zoos is quite low. As part of the Parrot TAG's campaign to tackle this, our newly appointed nutrition advisor, Maja Damjanović (Zagreb), will be distributing a questionnaire shortly, investigating institutions' experience with *Cacatua* nutrition.

REFERENCES

Olah, G., Butchart, S.H.M., Symes, A., Guzmán, I.M., Cunningham, R., Brightsmith, D.J. and Heinsohn, R. (2016) Ecological and socio-economic factors affecting extinction risk in parrots. *Biodiversity Conservation* 25:205-223

Reindeer recovery

HOW EAZA ZOOS ARE HELPING TO REVERSE A DECLINE IN THE NUMBERS OF WILD FOREST REINDEER ACROSS FINLAND

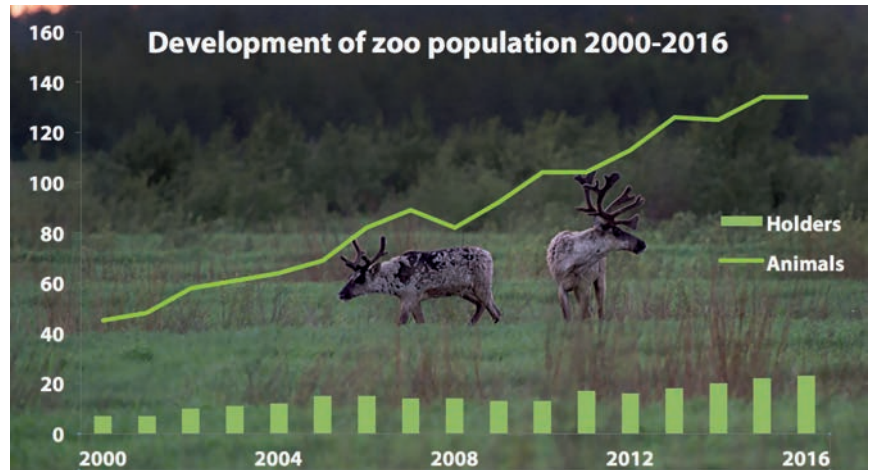
Leif Blomqvist, ESB keeper for forest reindeer, Nordens Ark, Sweden, and Sakari Mykrä, Project Coordinator, Metsähallitus Parks & Wildlife, Finland

The forest reindeer (*Rangifer tarandus fennicus*) is a protected species in Finland, the sole EU Member State that still has a wild population. Although forest reindeer gained protected status as early as 1913, the protection measures came too late as the species had already disappeared from the Finnish fauna due to over-hunting. Fortunately, the subspecies survived on the Russian side of the border, and in the 1950s animals returning from the Soviet Union could again be observed in eastern parts of Finland. Thanks to intensive conservation actions, the population began to recover slowly.

Today, three different sub-populations of forest reindeer exist in Finland: one in the eastern areas of the country (Kainuu); another in central Finland (Suomenselkä) originating from individuals successfully translocated from Kainuu 30 years ago; and lastly a small splinter population of no more than 30 to 40 heads originating from individuals released from Ähtäri Zoo between 1988 and 1993. Reliable population estimates from Russia are lacking, but it is known that the population is in steep decline and that it has disappeared from several parts of its former range in western Russia.

DECLINING POPULATION TRENDS

In contrast to the Russian population, forest reindeer have been carefully monitored in Finland through aerial counts. The eastern population expanded from 700 animals in 1992 to a peak of 1,700 in 2001, while the translocated population in the central parts of the country increased from just over 160 individuals to 800 during the same period. The positive development has, however, levelled off, particularly in Kainuu, where the population has been falling since 2003. The decline in eastern Finland has continued, and in 2016, no more than 750 reindeer



were found. The current forest reindeer stronghold, therefore, is in central Finland, where the latest monitoring indicated there were 1,300 animals.

RECOVERY PLAN

To counteract the ongoing population decline, reintroductions will be undertaken in two Finnish Natura 2000 areas in western Finland, south of the current distribution range. The reintroductions form part of a larger, seven-year EU LIFE project on forest reindeer population management. Fifteen-hectare acclimatisation enclosures will be built in both areas to house 10 to 15 animals each. Reindeer from four participating EAZA zoos will be mixed with wild individuals captured by staff from the Natural Resources Institute Finland. Calves bred in the enclosures will then be soft-released when they are between 18 months and two years old.

On-site breeding is scheduled to start in 2017 and continue until 2022. Experience from the previous reintroduction in the early 1980s will be utilised. The remaining free-ranging population in the Ähtäri-region will also be supplemented with captive-bred animals at three separate occasions using a smaller, six-hectare on-site acclimatisation enclosure following an adaptation period of three to six

months. Yet another five-hectare enclosure will be built in Ähtäri Zoo for collecting and further *ex situ* breeding of animals for the purpose of restocking. So far, 15 individuals have been selected from Ähtäri, Helsinki, Ranua and Nordens Ark and are currently maintained in Ähtäri Zoo.

As the population in human care is descended from four males and four females and the current gene diversity corresponds to only three animals randomly caught in the wild, there is an urgent need to incorporate new founders into this stock. Some of the wild-caught animals captured for the project will therefore be assimilated into this population to compensate for the gene diversity lost during 43 years in human care. The species has been jointly managed within the framework of EAZA on a studbook level since 2001, and the population has increased with a mean rate of 5.5 per cent per year since the establishment of the studbook. Today the non-wild population stands at 137 heads distributed over 23 institutions.

In addition to reintroduction and restocking attempts, which are the most spectacular part of the LIFE project, existing fences and barrier structures – originally built to prevent cross-breeding between forest- and semi-domestic reindeer in eastern

CURRENT DISTRIBUTION AND PLANNED REINTRODUCTION SITES FOR FOREST REINDEER IN FINLAND



including EAZA and Nordens Ark, provided letters of support for the project proposal before its submission.

OBJECTIVES

The reintroduction project will provide substantial conservation benefits for the unfavourable population trends of forest reindeer within the EU. Classified as NT in Finland, the forest reindeer is not a priority species, but as the population represents 100 per cent of the entire EU population, the project is expected to contribute to a significant increase in the population. The selected reintroduction sites are located in areas once inhabited by forest reindeer. If conservation and management measures are implemented properly, the new Natura 2000 areas can serve as future core areas for reindeer to reclaim their historical range in western Finland.

The main objective is to improve the species' conservation status and to expand the current distribution westwards via the planned reintroductions. It is hoped that the project will also contribute to the implementation of tourism, recreation and hunting policies. In areas of high abundance of forest reindeer, the species has already been used as a tourist attraction and we hope that the new reintroductions will increase the attractiveness of the Natura 2000 sites. As reintroductions are also being planned for Sweden, experience from the Finnish project can be a useful tool for further strategies to expand the range of forest reindeer in Europe's boreal taiga zone. EAZA zoos interested in supporting the recovery programme for forest reindeer are asked to contact the ESB keeper for further details.

Finland – will be improved. To facilitate field censuses and in order to gain a better insight into forest reindeer mortality, more than 100 GPS collars will be acquired and fitted to wild individuals. Measures to reduce road mortality and poaching will also be intensified. Finally, the existing Population Management Action Plan from 2007 will be updated.

INVOLVED PARTNERS

The total costs for the LIFE project are calculated at €5.16 million, 60 per

cent of which is funded by the EU. The remainder will be financed by the Ministry of Forestry and Agriculture and the Ministry of Environment in Finland, together with a number of project partners and the Finnish Hunters' Association. The project beneficiaries are Metsähallitus Parks & Wildlife Finland, Natural Resources Institute Finland, Finnish Wildlife Agency, Finnish Transport Agency and Reindeer Herders' Association, as well as three Finnish zoos and WWF Finland. A number of relevant bodies,



THIS PROJECT IS FUNDED IN PART BY THE EU LIFE FUND

Protecting the wilderness

THE NEWLY ESTABLISHED FOUNDATION FOR CONSERVATION ZOO KARLSRUHE HAS BEGUN ITS WORK WITH A PROJECT TO PROTECT AND EXPAND THE ECUADORIAN RAINFOREST

Dr Clemens Becker, Curator for Conservation in Zoo Karlsruhe

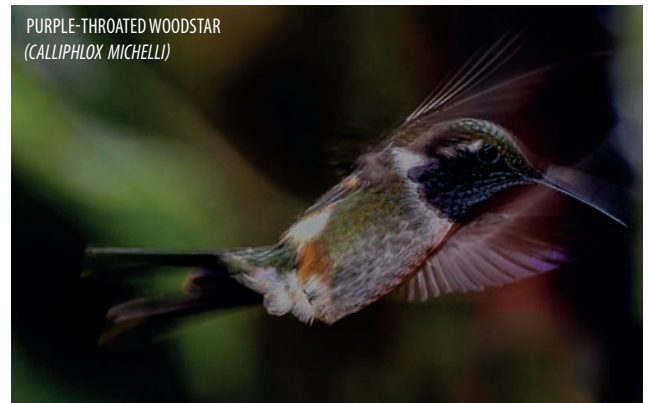
After many months of preparation, the new Foundation for Conservation Zoo Karlsruhe was launched in August 2016 to promote future projects worldwide with the purpose of conserving biodiversity. As an independent institution it directly supports Zoo Karlsruhe's conservation efforts and commitment. The executive board consists of the zoo director and the deputy zoo director, and the latter is also the new curator for conservation in Zoo Karlsruhe. The committee office is located in the administration building of the zoo and a scientific advisory council will consult with further expertise.

The foundation's first major project was the acquisition of 35 hectares of intact rainforest and grazing land in Ecuador. The goal is to protect this primary forest and to reforest the adjacent grazing land with endemic tree species. The project area is located on the western slopes of the Andes, approximately 110 road kilometres away from Quito, Ecuador's capital. The area belongs to the district of the city San Miguel de los Bancos, with which the city of Karlsruhe now also maintains close contact in the form of a municipal climate partnership. At an altitude of approximately 1400 metres, the region is one of the most species-rich in the world. A fourth of all of Ecuador's 130 hummingbird species alone live here. In fact, based on its total area, Ecuador is the most biodiverse country on the planet. More than 25,000 plant species grow there, including 5,000 orchid species. It also boasts approximately 1,600 bird, 1,400 fish, 440 frog and 4,000 butterfly species.

In terms of land use, Ecuador offers sharp contrasts; as well as paradisiacal landscapes with an immense diversity of species, it also features vast grazing areas. Often when travelling the country, you will pass countless kilometres of extended grazing land populated by herds of cows, for which pristine primary forest has had to give way in order to produce the beef required for daily consumption.

A key priority for the new foundation is not only the conservation and breeding of a few highly endangered animal species, but also the direct protection and conservation of primary rainforest (cloud forest) as a holistic biotope with all the flora and fauna within it, which will be achieved by the acquisition of land. Simultaneously, adjacent grazing grounds are being reforested with more than 30 endemic tree species to enhance the development of secondary forest that is directly connected to primary forest and thus can be populated by the endangered wildlife.

In total, approximately 20,000 to 30,000 seedlings are needed for the reforestation of our project area, and these are being grown by our project partners in local tree nurseries under organised and controlled conditions. After the seedlings have been planted, the mini-trees have to be taken care of until they can no longer be overgrown by the hard pasture grass. Located not far away from the project area and



the city of San Miguel de los Bancos is the environmental centre and reserve Mindo Lindo. It was built many years ago by our project partners, a German ornithologist and her Ecuadorian husband, who is also an acknowledged tree expert, and together they have run the centre since its establishment. Close to their home in the middle of secondary cloud forest, children and adults alike can experience 'live biology lessons' in the environmental centre. They can learn about ecological cultivation, waste separation and the importance of an intact environment today and in the future.

The foundation hopes to motivate businesses, banks, insurance companies and similar organisations as well as as many private individuals as possible to participate and donate. With a donation everyone can easily become a conservationist, either by symbolically purchasing a piece of rainforest or by having a seedling planted for reforestation. Using a scaled system, the foundation issues certificates in bronze, silver and gold as a reward for a donor's commitment. In this way – and in addition to a special fundraiser at Christmas 2016 – more than 60,000 Euros has been raised in the short period of time since the establishment of the foundation. This represents about a third of the total purchase sum.

Another project partner of the zoo's foundation is the Agency for Energy and Climate Protection Karlsruhe

(Karlsruher Energie- und Klimaschutzagentur, or KEK). This agency not only provides local counselling services concerning energy saving, but also has already reforested an area in Ecuador in 2012 with endemic tree species (forest climate project Puntos Verdes).

Seedlings from back then have now grown into trees of four to five metres in height and will soon form a reserve of secondary cloud forest. The planted trees have been certified by an environmental expert and their actual capture of CO² (1/2 to 1 ton CO² per tropical tree) has been estimated and verified, based on the planting plan and scientific studies.

Thus, the cooperation between the Foundation for Conservation Zoo Karlsruhe and the Agency for Energy and Climate Protection Karlsruhe will achieve two goals at once: the conservation and recovery of biodiversity through reforestation, and the protection of our climate through permanent capture of carbon dioxide. Using tree certificates enables Zoo Karlsruhe to become a 'green' or 'climate-neutral' zoo. Furthermore, by purchasing our tree certificates, everyone interested can help to offset the CO² emissions created by their own daily activities.

In addition to the project in Ecuador, the Foundation for Conservation Zoo Karlsruhe will, in the medium term, network with other nature and environment foundations in order to promote conservation projects worldwide on both a small and large scale. This will be reflected in the design of the zoo habitats and educational programme at Zoo Karlsruhe and could also serve as a useful model for other EAZA zoos.



PROTECTED AREAS IN THE 21ST CENTURY: ARE WE FOCUSING ON THE WRONG THINGS ? A PERSONAL VIEW FROM CASPAR BIJLEVELD, DIRECTOR, PAPILIORAMA, SWITZERLAND

When it comes to protected areas, I believe that the conservation movement has globally lost its way. It is time for EAZA to put it back on the right track.

In the late 19th century, and in Europe from the beginning of the 20th century, the movement to preserve wild natural areas and their fauna was started by a handful of visionaries who were instrumental in the creation of the planet's first national parks. Support for conservation grew rapidly after the Second World War, when the human footprint started to be noticeable on a very large scale.

Originally, conservation pertained more to landscape management, following the paradigm of setting aside areas of great natural value to balance changes caused by humans. This paradigm started to change towards the end of the last century, when many conservation organisations shifted to what was to become the 'new conservation'. This took a more holistic approach, believing that saving wilderness and species could occur only if conservation influenced all the elements of a given context, from human welfare to economics.

This change of paradigm would have been a great idea in a world that changes only slowly. However, over the past three decades, it has had adverse consequences:

- The momentum of creating new protected areas (including many neglected biomes) was lost, and today's conditions will soon not allow for the creation of new reserves. What is worse, most nature reserves created in the past now find themselves irreversibly isolated.
- 'New conservation' has diverted most if not all funds away from the most important element of conservation, namely paying the salaries of those who actually implement conservation measures in the field, protecting wilderness and animals day after day.

As James Watson discovered in 2014, 80 per cent of all protected areas in the world are underfunded, understaffed and, consequently, not protected. Actually, conservation seems to have reached a true paradox when it can boast that protected areas have shown a biodiversity loss of 'only' 18 per cent. Compounding the problem, protected areas without enough personnel on the ground are inevitably invaded by illegal activities, which will systematically result in de-reservation. This phenomenon is happening silently worldwide as you read these words.

Let's face it: humanity will never be able to implement E.O. Wilson's vision of half our Earth being dedicated to wilderness and animals. Nevertheless, the priority of conservation should shift again and focus on the one neglected priority: **saving and properly protecting at the very least what is already legally protected**. However, unless we start recognising that this takes dedicated people on the ground in need of a salary and good governance, we will lose not only our species, but also, eventually, most of our protected areas.

EAZA as a whole has the potential to play a huge role in saving the world's protected areas, but it won't happen unless we collectively start to think big. If all EAZA zoos would dedicate just 0.001 per cent of their annual income to an EAZA fund specifically designed to 'adopt' protected areas (supporting these with money, expertise and good governance), we could collectively make a huge difference.

This is just one possible solution; but let us do something, whatever that is. Because time is running out.

Wild adventures in Emmen

THE INGENUOUS AND EXCITING 'CLIMATE WORLDS' OF THE NEW WILDLANDS ADVENTURE ZOO HAVE PROVED TO BE A HUGE SUCCESS FOR ANIMALS AND VISITORS ALIKE

Wijbren Landman, Biologist; Lisette de Ruigh, Manager Park Operations & Living Collection; and Job Stumpel, Veterinarian, WILDLANDS Adventure Zoo, Emmen

The Nineties were golden years for Emmen Zoo in the Netherlands, but in the years that followed, visitor numbers began to decrease and the options to renew and innovate proved limited. As a result, the radical decision was made, as part of a large-scale town centre renewal, to remove the zoo altogether. In its place, an entirely new park with a different character arose at the Noordbargeres on the other side of the town centre.

In this new park, WILDLANDS Adventure Zoo Emmen, the emphasis was placed more on reality and entertainment, although the focus on education has not been lost. This makes WILDLANDS different from a traditional zoo: it is a theme park in which animals play an important role.

The first spade entered the ground in the summer of 2013: a very ambitious park measuring 22 hectares was being built. The construction was finished two and a half years later, and on 1 December 2016, the transfer of the animals from Emmen Zoo to WILDLANDS, as well as the acquisition of new animals, began and was completed by mid-March the

following year. On 18 March 2016, King Willem-Alexander presided over the official opening of WILDLANDS Adventure Zoo.

WILDLANDS has, of course, been built sustainably, and its daily operations are CO² neutral. It runs on renewable energy, uses different flows of purified waste water and cooperates with regional and local partners. Other sustainable aspects are the use of innovative sustainable building materials such as bio composite, building using low-energy limestone and the recycling of old real objects, such as the airplane in the jungle of Jungola and the trains in the Serenga desert.

One of the core values of WILDLANDS is 'With respect for nature'. As a result, animal welfare is high on the agenda; habitats are designed to resemble natural habitats and animals have access to large areas.

Being an Adventure Zoo, WILDLANDS works with a storyline, and everything in the park is based on this storyline. Education has evolved around this storyline, too, and always has an active component. We now have, for example, expeditions instead



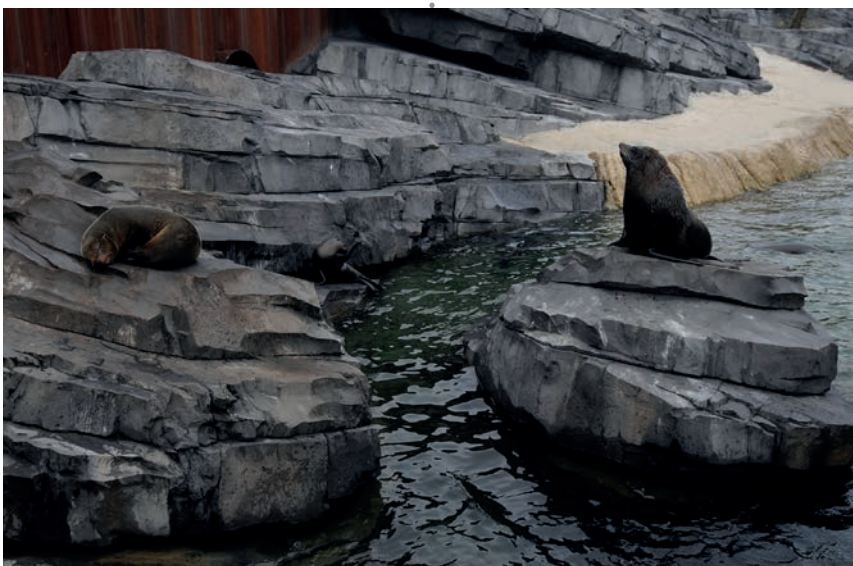
of guided tours, and survivals instead of exploration tours.

At WILDLANDS, we have created three distinct 'climate worlds', each with their own theme and their own story: the tropical Jungola, the hot and dry Serenga and the icy cold Nortica. Starting from the central Compass Square, our visitors can go on expeditions through the different worlds. Each world is populated by animals suited to the particular climate, which has determined the choice of species. As a result, not all animals from Emmen Zoo were moved along to WILDLANDS. Tigers and leopards, for example, have traded places with polar bears and lions. Nevertheless, 10 of the animal species that now live at WILDLANDS are part of an EEP programme and nine are ESB species.

JUNGOLA: COHABITING WITH NATURE

The ruin of an old temple, overgrown by the jungle, is the entrance to the tropical world of Jungola, where hundreds of butterflies fly around. In Jungola you will meet Jim, an impassioned ornithologist. Jim crashed his plane during his quest to find a mysterious bird and is now doing his best to survive in the wilderness. He is succeeding by becoming 'at one' with nature. From his base camp, Jim continues to search for the mysterious bird. He will tell you about the secrets of the jungle and take you on an exciting boat ride through Rimbula.

Rimbula is unique in this world: our large greenhouse of 17,000 m² maintains





a minimum temperature of 18°C and a relative humidity of 65–85 per cent. This is where the elephants have their inside quarters, along with a number of primate and bird species. The majority of the trees in Rimbula are originally from Costa Rica.

As you make your way by boat through the tropical jungle, you will hear the distant shrieks of rainbow lorikeets. The boat makes its way between islands, on which you might see a brown-headed spider monkey or a lar gibbon hanging from a branch, just as if you were in a real tropical rainforest. You also pass a herd of elephants, and if they happen to be cooling off in the water, you can almost touch them. The herd of elephants also has a very large habitat outside the greenhouse. What is unique about this habitat is that the animals have deep sand to rest on and to dig in, and inside and outside they have deep water areas in which they can swim. Steps have been created along the sides of the pools so that the animals have no problems getting out of the water.

SERENGA: CARING FOR NATURE

In Serenga, WILDLANDS' hot and dry world, the central theme is caring for nature. The foundations for this have been laid by Momma Dunia, an African woman who dedicated her life to caring for the animals and protecting them from poachers and other dangers. She is no longer alive, but her heritage can be felt all over Serenga.

The entry is formed by the **Sun Palace**, a building at the edge of



the desert that is home to our dwarf mongooses. Leaving the palace, you enter a Dogon village, where you will find a collection of petting farm animals. Children can approach the Anglo-Nubian goats and Cameroon sheep and carefully pet them. Further along the path you can see hippopotamuses, and if they are not on land, you can admire them underwater.

On **Lion Mountain**, the African lions are real eye-catchers on the edge of the large savannah. They like to hang out on the high rocks ('kopjes') from where they have a good view over the savannah and its inhabitants. Visitors can experience the savannah inhabitants from up close when they ride along with the truck safari. The white rhinos, impalas, Grant's zebras and especially the giraffes are not at all concerned about the truck. In fact, they often stop in the middle of the road, causing the truck safari to wait until they have passed, which is an enjoyable experience for the guests in the vehicle.

In the **Baboon Arena**, a large colony of about 130 hamadryas baboons is housed in a very special habitat: the ruins of an Ancient Roman arena. Visitors enter the arena while the baboons are in the stands, which makes it a very special experience. The habitat is equipped with 27 hides of different sizes and types. This allows the many harems of animals to safely rest and seek shelter together in this unique exhibit.

Serenga also features a **desert area**, which visitors can walk through, where they will find an abandoned train that was once stranded in the desert. The train plays a role in animal husbandry of the herds of camels and onagers (wild donkeys): it allows separation of the herds and facilitates observation.

NORTICA: RESEARCHING NATURE

In the ice-cold world of Nortica, researching nature is the overriding



theme. Researchers have built a number of barracks in the polar area, have dammed the very cold sea water using sheet piling and have built a wall of heavy bars to keep polar bears at bay.

The Nortica researchers use a very special vehicle: the Arctic-1, which is a particular attraction for many of our visitors. The current model is only a prototype, so not everything goes perfectly to plan during a journey over the polar ice. This does make the journey extra exciting for WILDLANDS' guests.

The Nortica theatre houses about 900 visitors, who can watch a show themed around researchers and sea lions. When research is performed on the soil of the polar area, all kinds of things can go wrong. Luckily, with the help of the sea lions, all problems can be solved. As well as the demonstration area, our **sea lions** and **fur seals** have a large habitat in Nortica Hafën.

In the **polar bear** area, global warming is a current theme. WILDLANDS is an EEP location housing young female bears. The three playful young polar bears feel very much at home here and are eager to show this. Guests can see the bears playing both under and above water.

Finally, while walking through the **penguin habitat**, visitors can cross paths with these birds and see them close up. Even in their first summer here, the penguins have been very busy raising their chicks.

Since it first opened, WILDLANDS has been hugely popular with the public, and visitor numbers have exceeded our highest expectations. Most guests are very positive about the new adventure zoo, and are especially appreciative of the beautiful design and the spacious exhibits, where our animals can feel at home. We look forward to you experiencing WILDLANDS for yourself during the EAZA Annual Conference.

To screen or not to screen?

THE SCREENING PROCESS CARRIED OUT BY THE EAZA ACCREDITATION PROGRAMME CAN BE CHALLENGING, BUT IT IS ESSENTIAL IF WE ARE TO MAINTAIN OUR INTEGRITY AND HIGH STANDARDS

David Field, Zoological Director, ZSL

I should set out my position from the start; I am an absolute advocate of accreditation and I believe that the EAZA accreditation system is the strongest and most powerful proof of our integrity and moral standing in the welfare and conservation world.

I have heard many times that the public perception of zoos is influenced by the very worst rather than the very best; accreditation seeks to diminish this mistaken ethos and drives forward continuous advancement and development.

As such I am very proud to be a screener for EAZA because I am participating in an extremely valuable process with laudable aims. Additionally – as with every other colleague – I am excited to be able to see behind the scenes and understand and influence other zoos. I have also benefited greatly from my experiences as a screener because it provides a superb learning opportunity – there are always things to take back to your own institution.

One of the zoos I screened was one of our leading organisations. It was a sheer pleasure to see how a zoo can really make a massive impact on conservation, exhibit design and welfare, but even here there was good advice to offer. The size and remit of this zoo was very similar to my own, so not only did I feel that I was able to offer an objective and useful screening, but also I was able to gain considerable insight into a comparable institution. We were able to identify very quickly that we faced a number of similar issues and challenges and were able to share our experiences in resolving these. Additionally we were able to address forthcoming opportunities proactively.

By far the most rewarding aspect of screening has been the positive change that one is able to effect. If it becomes clear during a screening that there may be some fundamental issues in the operations or the governance, this can be a difficult time for the screening team. However, in some cases the zoo

SCREENING TEAMS REVIEW THOROUGHLY ALL ASPECTS OF A MEMBER'S OPERATIONS



is already aware of these limitations and welcomes the practical advice – although not in all cases. The important thing to remember is that it is not the screening team that makes the decision; the screeners' responsibility is to report back to EAZA for the Membership and Ethics Committee to make a decision based on the report. The responsibility of the screening team is to diplomatically catalyse conversations in order to compile an objective report that can lead to constructive outcomes.

One particular zoo I screened did have some major issues around staffing, board engagement and mission contributions, which did result in a downgrading to Temporary Member. The follow-up screening a few years later was not something one particularly looks forward to. However, the zoo had taken on all the advice and more. It was extremely heartening to see how the zoo had transformed itself and was beginning to fulfil its potential.

Let's not also forget that screenings

are great fun! The network, and indeed friendships, that arise from within the screening teams and from working closely with the institutions involved, from curators and directors to board members, are hugely valuable and can lead to long-term relationships. Although with some of the adventures that may occur, it is best to assume that what goes on after screenings should stay within the circle of confidence!

So I would absolutely urge colleagues to put themselves forward as screeners. You have an immense amount to offer, to learn and to experience. However, do ensure that your institution has been screened first. Going through that process is extremely valuable and ensures respect for the screeners, because sometimes there can be difficult decisions to make and difficult conversations to have. But of course one must remember that this is all done in the cause of better animal welfare, more mission impact and making EAZA zoos the very, very best.

The EAZA Accreditation Programme (EAP) has had another interesting year, with 17 screenings of existing Members in 12 countries as of September. This led to three Members being downgraded to Candidate for Membership, two being downgraded to Temporary and one deferred decision. This was a slightly higher than normal change in membership for a yearly cycle, but not drastically so.

EAZA would like to thank the facilities who participated for their openness and honesty, and the long list of excellent screeners who shared their knowledge and experience.

Food for thought

AT THE NINTH EUROPEAN ZOO NUTRITION CONFERENCE, DELEGATES FROM ACROSS THE WORLD SHARED THEIR RESEARCH AND FINDINGS IN THIS INCREASINGLY IMPORTANT SUBJECT

Laura Myers, EAZA Academy Manager



THE ORGANISING COMMITTEE
FROM LIBEREC ZOO

On 26–29 January, nutrition experts from across the globe came together at Liberec Zoo to exchange knowledge and ideas at the Ninth European Zoo Nutrition Conference. Jointly organised by Liberec Zoo and members of the EAZA Nutrition Group, the conference was attended by 123 delegates from 27 different countries.

Zoo nutrition continues to be a topic of interest and scientific research, and the biennial conference brings together zoo staff, academic researchers and feed industry professionals, providing a unique opportunity for information sharing and discussion. Organising the conference is a big part of the work of the Nutrition Group, and the conference is an excellent communication tool to help promote the importance of nutrition in zoos. With such distinct and different user groups, the goal of the conference is always to balance presentations of cutting-edge nutritional research with the practicalities of how to manage feeding animals on a day-to-day basis in a zoo or aquarium, as well as providing opportunities for delegates to interact with sponsors from the commercial feed industry.

The Nutrition Group has gone from strength to strength since the first

European Zoo Nutrition Conference was held at Rotterdam Zoo in 1999, but there is still work to do to ensure that research into unanswered questions continues, and to encourage and support people wanting to specialise in this fascinating and increasingly vital field. We continue to see research highlighting the importance of good nutrition and how it impacts not just on general animal health but also on social behaviour, fertility and breeding outcomes, and many other aspects of an animal's welfare; so it is important not to lose momentum.

Once again, the conference was preceded by a very successful EAZA Academy seminar, with over 60 people registered to participate. Based on feedback from the last conference in Arnhem, the topic selected was preformulated diets. Participants enjoyed a mixture of lectures, case studies and practical activities. The seminar generated several points of discussion that were revisited during the conference, particularly to do with nutritional declarations and EU legislation on labelling.

After words of welcome from the hosts, local dignitaries and organisers, the conference began with a keynote speech from primatologist Stanislav

Lhotra. He gave a thought-provoking talk about the issue of palm oil being used in animal feeds, and how zoos should best deal with their concerns. Although the amount of palm products used in zoo animal fields is small compared to what is used in domestic feed products, it is nevertheless an important issue to consider. To reinforce the issue, delegates were reassured that all the food served at the conference would be palm oil free, and the zoo was presented with a certificate to recognise its efforts in removing palm oil from the zoo.

Invited speaker Dr Francis Cabana, Wildlife Reserves Singapore, delivered a keynote presentation on exudativores, which started a morning of presentations focused on primate nutrition. Once again, there was much discussion of the impact of fruit-free diets on primate behaviour and health. Fresh evidence was served up from a number of different institutions, as more and more zoos have started to reduce the amount of fruit in their primate diets.

Thoughts shifted more to the practical side of zoo nutrition in the afternoon, as Dr Joeke Nijboer drew on his many years of experience to speak about effective methods of pest control in zoos. There was also an update on the new Fauna software, a jealousy-inducing presentation on the new central commissary at WILDLANDS Adventure Zoo Emmen, and a thought-provoking report on the important topic of diet drift, which was based on research conducted at Paignton Zoo.

Conference delegates braved the wintry conditions for a zoo visit on Saturday morning. The tour included stops at different nutrition-themed stations, giving delegates the opportunity for discussion and to try out some practical skills. Topics included body condition scoring for elephants and big cats, the breeding and rearing of insects for use as animal



feed, bird diets and breeding birds of prey, feeding roughage and browse, and zoo visitors feeding animals.

The scientific sessions continued on Saturday afternoon with a session on herbivore nutrition. Topics covered ranged from the use of contraceptives in zoo feed to the impact of visitors feeding roughage in the zoo. The final session of the day focused on bird nutrition, and saw invited speaker Petra Wolf deliver talks on nutrition and fertility in pet birds, ratite nutrition, and nutritional disorders of birds of prey. At the close of the second day, all delegates were generously invited to the gala dinner hosted by Liberec Zoo.

On the final day, the topic for the opening session was insectivores, with presentations on Asian pangolins and giant anteaters and a keynote talk by invited speaker Dennis Ooninx, Wageningen University on the subject of insects as food for zoo animals. The final session focused on fish and amphibians, covering very diverse subjects from the nutritional requirements of European Spadefoots being reared for reintroduction to the

culturing of rotifers as a food source for fish. The conference closed with some final remarks from Geert Janssens on behalf of the Nutrition Group.

Throughout the conference participants were also encouraged to review the poster submissions. There were more than 20 posters on show covering a huge range of topics and taxa, and showcasing some very interesting research and results.

The gathering in Liberec also provided the Nutrition Group with a chance to say thank you and goodbye to Andrea Fidgett, who resigned as Nutrition Group chair in 2016. Andrea was a driving force in raising the profile of zoo nutrition throughout her tenure as chair, and although she has left a wonderful legacy for the group to build on for the future, she will be much missed. All conference delegates were invited to share their memories of Andrea before a special presentation during the gala dinner.

Once again, the Nutrition Group was very successful at attracting sponsorship for the conference. Thank you to sponsors Arie Blok, Kiezebrink,

Mazuri, Protector, St Laurent, VVS, and ZooProfis for their support and contribution to the success of the conference.

Preparations are already underway for the next European Zoo Nutrition Conference, which will take place in January 2019 and be hosted by Marwell Wildlife, UK. Watch out for future updates and make sure you don't miss out on the landmark 10th edition of the conference.

The Nutrition Group is also hard at work putting together a special edition of *Zooquaria*, which will be packed with some of the latest in nutrition research and will feature articles by some of the conference speakers. Look out for it towards the end of the year. They are also planning to relaunch the nutrition webpage on the main EAZA site, so look for updates in the coming months.

Finally, a big thank you to David Nejedlo, Petra Bolechova, Petra Suchomelová and all the staff and volunteers from Liberec Zoo for their warm welcome and their hard work, which made the conference such a huge success.

Designing with zoos

A LANDSCAPE ARCHITECT EXPLAINS WHY ZOOS MUST BE DESIGNED WITH, RATHER THAN FOR, THE CLIENT

Tom Kraak, landscape architect at TVK ZooDesign, an EAZA Corporate Member

The job of a zoo designer is to design enclosures that combine multiple wishes and requirements. A zoo designer therefore has to work very closely with the zoo team to implement their ideas while also creating a unique enclosure.

THE ROLE OF THE LANDSCAPE ARCHITECT

A landscape architect doesn't just design, but also guides the client in transforming their ideas into a design and then into reality. TVK ZooDesign encourages zoos to think about what they want from their design and to be an active part of the process. We then transform the ideas, requirements and wishes into a design and add a special ingredient to make it unique. But it is important also for us to keep in mind the landscape and history of the zoo and the local identity. A design either has to fit into its surroundings or it has to be the start of a bigger transformation of the zoo.

TVK ZooDesign works to the following key principles:

- Animal welfare is the prime principle and visitors are the guests of the animals.
- The design and enclosure have to be sustainable, natural and unique.
- The planting must be functional and beautiful (for visitors and animals).
- Buildings must be presented in an appropriate manner (in other words, buildings don't have to be hidden all the time).
- Cross viewing can be a powerful tool and has to be used in a proper way.
- An enclosure must be easy for zoo staff to operate and maintain and there has to be space for education.

The greatest challenge is to design an enclosure in which animals can behave naturally. This can be done through animal enrichment, but the landscape (height difference, water, rocks, plantings, etc.) of the exhibit must also challenge the animals. It is very important for us to work closely with everyone involved, including directors, curators, zoo keepers, gardeners, technicians and veterinarians. As a

WOLVES IN THEIR NEW WOLF VALLEY ENCLOSURE IN GAIAZOO



result, TVK ZooDesign designs *with* zoos instead of *for* zoos.

WORKING METHOD

We work in a very interactive way, using design workshops, site visits and scenarios. We can also visit other zoos with our clients to look for reference points and examples. Sharing information via e-mail, Whatsapp or Skype makes it easy and fast to communicate and add or change elements of the design.

TVK ZooDesign is involved in every stage throughout the project, from the first basic sketches until the opening of the enclosure. In the end, the design doesn't have to contain every detail. The basic and technical elements such as paths, fences, moats and ponds, buildings (indoor enclosures and separations, shelters, viewing points), planting and landscaping are defined and detailed. Visibility and the visitors' experience are also taken into account; for example, after discussion with curators and keepers, we can determine the best spots for a feeding demonstration. But things such as animal enrichment and education are best done by zoo staff, so we make sure that the right space for these tasks are included in the design.

Sometimes a project's budget is not known. In such cases, different

possibilities are explored and scenarios created, based on a basic design concept. The sketch design is always the ideal enclosure, but elements can be added or removed to suit the budget without losing the basic concept and quality of the design.

OUR WORK AT GAIAZOO

Some of our most recent work can be seen at GaiaZOO, where we were able to design some beautiful exhibits. We worked closely with the zoo team – the director, curator, engineering manager and zoo staff – assisting them with several designs. The zoo team already had some ideas for new developments, so we translated those ideas into concepts, scenarios and designs and added our own ideas to make it unique.

The first major project in GaiaZOO was Wolf Valley, which focused on invasive and returning species in the Netherlands. The exhibit included multiple enclosures for wolves, raccoons and skunks, walkthrough parakeet aviaries and owls. This was later followed by a Himalaya exhibit with red pandas, muntjacs and several birds, an African wild dog enclosure and, the latest project, the Taiga Aviary. We also worked on an exciting new area, which will open in 2017 and which we hope will be a success with visitors and animals alike.

Contact details If you are interested in what we do and would like to know more, don't hesitate to contact us at: info@tvkzoodesign.nl

Learning experience

THE EAZA ACADEMY CONTINUES TO TRAIN AND INSPIRE HUNDREDS OF CONSERVATION PROFESSIONALS FROM ACROSS THE WORLD

Laura Myers, EAZA Academy Manager

The EAZA Academy had another busy year in 2016, delivering a total of 17 courses to 415 participants, representing 31 countries and more than 160 different institutions. The majority of participants were from EAZA institutions, but the Academy has continued to succeed in its aim to extend training opportunities further; around 21 per cent of participants came from non-EAZA institutions and from places as far afield as Brazil and Taiwan.

Once again the Academy offered a broad range of training courses, with topics ranging from Funding for *in situ* Conservation Projects to Exhibit Design and Planning. Breeding programme management continues to be a key topic of interest, with a successful Advanced Breeding Programme Management course hosted by Prague Zoo and high demand for both the Basic Breeding Programme Management courses held at the EAZA Executive Office.

The Academy continued to build on its training partnerships, as 2016 once again saw recognised courses hosted by Paignton Zoo and Zoo Palic. Paignton Zoo hosted another successful edition of their Primate Nutrition Workshop. This course has now run three times, and is estimated to have impacted on the diets of more than 4000 primates in zoos across Europe. Palic Zoo delivered another veterinary themed workshop, this time focused on Anaesthesia and Monitoring of Wild and Zoo Animals.

The Fondation Segré-funded partnership with the Israeli Zoo Association also continued, with courses on visitor engagement and amphibian endoscopy. A new collaborative partnership with Crew Training started with the delivery of a visitor engagement course at Barcelona Zoo and will continue with further



“I am really happy to have partaken in this training and I feel it helped me to develop professionally. It also motivates me to keep on trying to better myself in my understanding and practice of this profession.” – *Animal Training course participant*

course offerings in 2017. The Academy also took advantage of its status as a Learn ZIMS Teaching Partner to offer its first ZIMS Medical training with support from Species360. The course was a great success, and further ZIMS Medical training courses are planned for the end of 2017. Training for other ZIMS modules is under development.

It was also a year of expansion for welfare training. Over the year, new tutors were recruited and trained in delivering introductory welfare workshops. This expansion not only extends the reach of the workshops delivered at EAZA Candidates for Membership, but also allowed Animal Welfare Training Officer Sally Binding to work on delivering a wider range of training opportunities that meet the needs of the whole EAZA community. This work is bearing fruit in 2017, with a successful welfare and training focused workshop hosted by Copenhagen Zoo, and an aquatic animal welfare workshop planned

later in the year. Welfare workshops at EAZA Candidates for Membership were supported by funds from Fondation Segré, the EAZA Technical Assistance Committee and a WAZA Training Grant. Four introductory welfare workshops were held in 2016, at Qalqilia Zoo, Kaunas Zoo, Sarajevo Zoo and Brasov Zoo.

Thank you to all of our tutors and host institutions for their time and hard work, and to all of the course participants for making 2016 another successful year.

The EAZA Academy is continually evolving to meet the training needs of EAZA Members, and regularly evaluates the training needs of the community. All readers are invited to help with this process by completing the 2017 Training Needs survey, which can be accessed at www.surveymonkey.com/r/ZQ2017. If you have questions or queries, particularly about teaching or hosting courses, please contact Laura Myers (laura.myers@eaza.net). For the latest information about courses on offer, visit the Academy Courses webpage: www.eaza.net/academy/courses/.



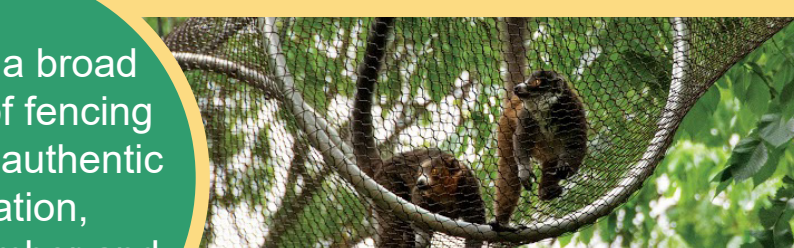

“Very intensive, but good! A very effective course, every zoo staff should do it.” – *Visitor Engagement, Strategy and Skills course participant*



WHATEVER YOUR
VISION, OUR
NETWORK OF
CRAFTSMEN
CAN REALISE IT!

HMJ Design

SUPPLIERS OF QUALITY ZOO MATERIALS FOR 20 YEARS



We offer a broad
portfolio of fencing
materials, authentic
decoration,
certified timber and
project services.

We source bespoke items directly from small family-owned and sustainably operated companies around the world, on a fair-trade basis.

Direct import assures the best prices on the market.



Corporate members of BIAZA and EAZA:





*Leading
the way*

MazuriTM
Zoo Foods

Email: info@mazurizoofoods.com Tel: +44 (0) 1376 511260 Fax: +44 (0) 1376 511247
www.mazuri.eu