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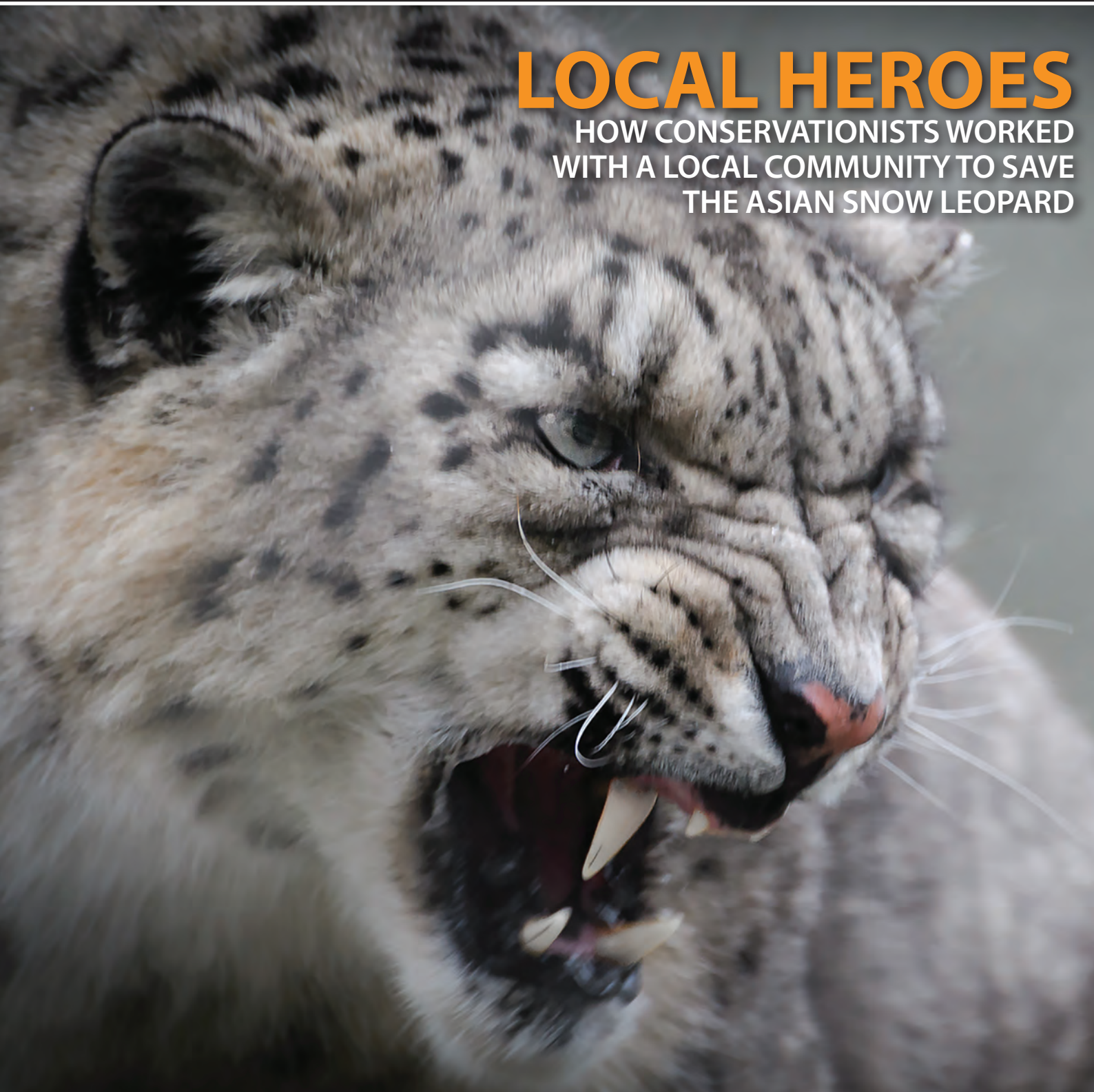
ZOOQUARIA

SPRING 2019

ISSUE 104

LOCAL HEROES

HOW CONSERVATIONISTS WORKED
WITH A LOCAL COMMUNITY TO SAVE
THE ASIAN SNOW LEOPARD



Great ape rescue

HOW THE ORANG-UTAN EEP IS TACKLING POPULATION DECLINE

Going Dutch

THE NEW EXHIBIT THAT IS HELPING TO PROTECT
OUR BIODIVERSITY



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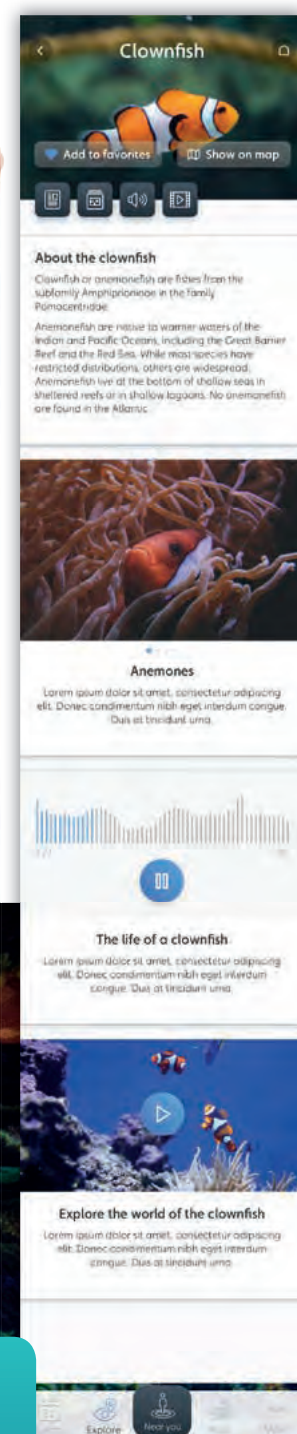
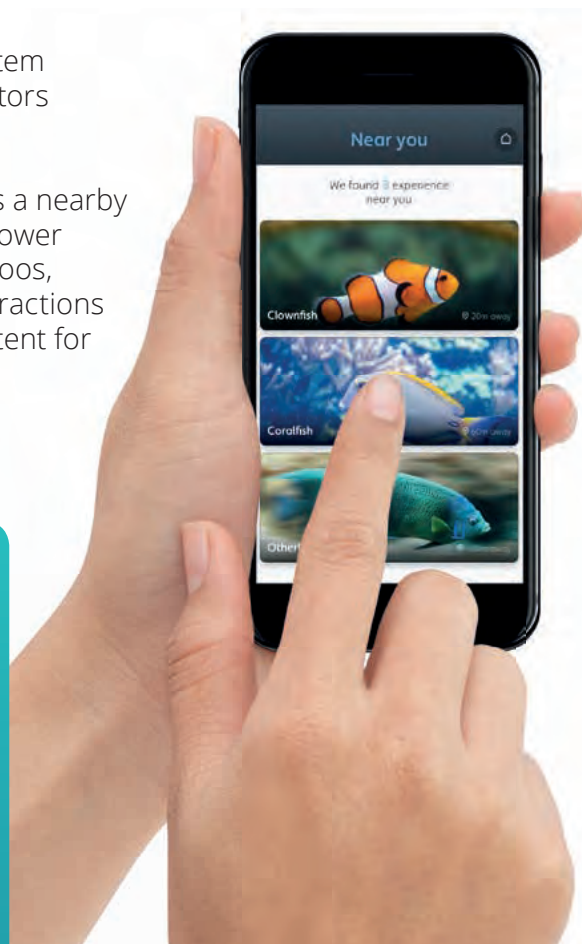
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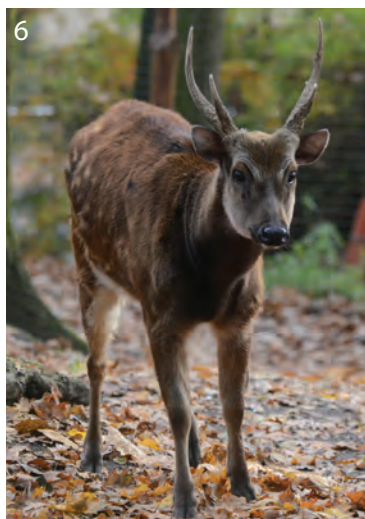


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Zooquaria

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FROM THE DIRECTOR'S CHAIR

I am sure I am not alone in thinking that each year seems to go past faster than the previous one. Already I am wondering where the first few months of 2019 went. It is in these moments that I try to pause and remember that time seems to speed by because of the amazing amount of work that is being carried out. This issue of *Zooquaria* provides you with a flavour of the diverse work that EAZA Members and our partners are involved in; from conservation, welfare and accreditation to population management activities and more! So please do take the time to pause, read and feel proud of the activities in which our community is taking the lead.

The first few months of the year have also taken on a distinctly political flavour. To name but a few, there are the discussions by the Municipal Council of Barcelona on the future of the zoo, the ongoing Brexit saga and, indeed, our own EAZA Council Elections. All of these have the potential to impact on our Association and Members in one way or another. The good news is that, in my humble opinion, EAZA is in its best position ever to address the challenges and opportunities presented. Please see the items in this and future issues of *Zooquaria* for more detailed information.

I know that I often use the opportunity that this article provides me to highlight our work in relation to the current EAZA Strategy. I am a firm believer in the positive power that a collective, integrated, ambitious strategy can have on the success of any organisation. For me this is even more important in an association such as EAZA with our diverse members and cultures. If we are truly to achieve our full potential as a progressive zoo and aquarium community, we need every Member to become involved in shaping and being part of our future strategic vision. Also, as we enter the third year of our current Strategy, it is time to look ahead to the EAZA Strategy 2021-2025. We have, and indeed still are, achieving so much, so the big question is – where do we want to go next? We have already started this consultation process with our Committees, and will be gaining more input from Directors and the whole EAZA

membership over the next few months about what our goals and aspirations for the future should be.

EAZA is not alone in the timing of its strategic period. Many other regional and global biodiversity strategies also come to a review point in 2020. The Convention on Biological Diversity (CBD) has already initiated processes to facilitate the development of a post-2020 strategy. The mid-term review of the EU Biodiversity Strategy indicates that the overall targets to be achieved by 2020 will not be met, and thus a revised and stronger plan for post-2020 is needed. The process of identifying the IUCN Quadrennium Goals for 2021-2024 will start this year. We all know that the current biodiversity crisis cannot be faced by organisations acting on their own. Only by working together and aligning our actions can we achieve all that is needed to safeguard wild animals and places. It will therefore be vital to connect our expertise and resources to the strategic aims of our partners, and to ensure that their goals are strongly represented in our own. As part of the process of creating our EAZA Strategy 2021-2025, I encourage everyone to get involved and to consider where they see EAZA in the future and how they can be a part of it.



Myfanwy Griffith
Executive Director, EAZA



EAZA

NOTICEBOARD

EAZA LENDS ITS SUPPORT TO BARCELONA ZOO

EAZA has issued an open letter to the municipal council of Barcelona, asking them to reject a proposal made by animal rights activists which will be put to a vote at the end of April. The proposal has been opposed not only by EAZA, but also by WAZA, IUCN SSC, IUCN Spain, the International Association of Amusement Parks and Attractions (IAAPA), VdZ, AFdPZ and more, illustrating the depth of opposition to the proposal from reputable global, regional and national authorities.

The letter is available in the 'Latest News' section of the EAZA website, and we would encourage all interested parties to read it closely and support the campaign to help the zoo carry out a more scientifically based renewal over the coming years.

EAZA ELECTION MANIFESTO

EAZA has produced a manifesto for the European Parliamentary Elections taking place in May. The manifesto calls for candidates to commit to making the protection of European and global biodiversity a political priority; to make the EU the global standard-setter for zoo and aquarium legislation; and to safeguard the health and welfare of animals in human care and in the wild.

By proposing to work with candidates on these issues as a partner, EAZA is reflecting the needs of wild animals in its care and beyond and offering its assistance in the education and engagement of communities across the Union.

To date, several MEPs have signed up to the manifesto, including long-time supporter of zoos MEP Pavel Poc from the Czech Republic (also Chair of the Intergroup on Climate Change, Biodiversity and Sustainable Development) and MEP Sirpa Pietikäinen from Finland, Chair of the Intergroup on the Welfare and Conservation of Animals. You can find the manifesto on the EAZA website.

PREPARING FOR BREXIT

EAZA's EU Policy Team in Brussels has produced a fact sheet on Brexit for

Members of the Association. The guidance looks at the possible scenarios (at the time of writing, the outcome of the deliberations is still unclear) and their ramifications for animal transport, animal health and zoo operations.

In view of the possibility that the UK may leave the EU without a withdrawal agreement, EAZA is also preparing to lobby to minimise any negative impacts on cooperation between Members across the new UK/EU border.

For further information as the situation develops, please contact Tomasz Rusek (Tomasz.Rusek@eaza.net) or Allan Muir (Allan.Muir@eaza.net) at the EAZA office in Brussels.

EAZA STUDY VISIT EXAMINES THE WORKINGS OF THE EU

How does the EU work? How are powers shared between Brussels and the Member States? Which EU laws affect zoos and aquariums and who creates them? What information do policymakers expect from our community? These questions were addressed in Brussels on 20–21 November 2018 during the third annual EAZA Study Visit, hosted by the EU policy team of EAZA Executive Office.

This event brought together directors, National Associations and zoo professionals from across EAZA; participants included Sébastien Laurent (Boissière du Doré), Jimmy Ebel (Maubeuge), Pierre Caillé (La Palmyre), Jackie Ossowski-Mackie (ZSL London), Cécile Erny (AFdPZ) and Kirsten Pullen and Cerian Tatchley (BIAZA).

The two days included meetings at the European Commission, European Parliament and national embassies as well as talks with other conservation organisations. The focus was on the EU Zoos Directive, CITES, funding for biodiversity, veterinary legislation, EU elections in 2019 and, inevitably, Brexit.

Besides learning about the EU and building networks, the participants promoted the role of the EAZA community in the conservation of biodiversity. As Sébastien Laurent

(Boissière du Doré) explained: 'Our full commitment to conservation is something that our zoos shouldn't be hiding behind the scenes. We need to bring it right to the foreground, especially here in Brussels – and this was also a major goal of the study visit.'

CONFERENCES UPDATE

The **10th European Zoo Nutrition Conference**, organised by the EAZA Nutrition Group (ENG), took place in mid-January, hosted by Marwell Wildlife at the Marwell Hotel near Southampton, UK. The meeting ran over three days from 18–20 January and was preceded by an EAZA Academy-recognised course in zoo animal nutrition.

The conference covered a great deal of ground, including the importance of Vitamin D, as presented by keynote speaker Dr Susan Lanham New of the University of Surrey, UK, and also featured presentations by well-known members of the zoo nutrition community, including former Chair of the ENG Dr Andrea Fidgett. The conference was a significant success, with delegates travelling from as far afield as Singapore and Australia.

The **EAZA Educators Conference** (EEC, formerly the European Zoo Educators Conference EZE) was held at Skansen, Sweden in March. An EAZA Academy course on embedding social research into daily education practice was also held on the first day, 25 March. The keynote speech was given by Diogo Verissimo of Oxford University, along with talks by Emma Nohrén, outgoing Vice President of Swedish Association SAZA, and a Green Party MP in Sweden. Topics covered included 'whole zoo' conservation education, an update on EAZA Conservation Campaigns, and sustainability in zoo education. A new topic being presented was the effect on health and wellbeing for visitors based on visits to zoos and nature sites – known in Swedish as *grön omsorg* (green care).

A full rundown of both conferences will be included in the next issue of *Zooquaria*.

NEW ARRIVALS

A MERRY CHRISTMAS FOR VISAYAN SPOTTED DEER AT DĚČÍN ZOO



THE VISAYAN SPOTTED DEER (*Rusa alfredi*) is the largest land animal in the Philippines. In the 1980s it was nearly extinct, but now there is a relatively stable population in zoological facilities worldwide – not least thanks to the breeding efforts of EAZA Members. Visayan spotted deer are categorised by the IUCN as Endangered.

The history of population management of Visayan spotted deer at EAZA Member Děčín Zoo in the

Czech Republic dates back to 2002. The first established breeding group consisted of two females from Parc Zoologique et Botanique Mulhouse (France) and one male from Tierpark Chemnitz (Germany). Děčín Zoo welcomed the first offspring in the next year, but sadly it could not be raised successfully. However in the following years Děčín Zoo managed to raise 13 young of this beautiful and rare species of deer. The latest addition to

the family arrived on 24 December 2018. Despite many previous successful breedings, the female licked this young intensively, which resulted in the appearance of bare spots on its body. Zoo staff are currently collecting information on the proper treatment for this problem. Thanks to its genetically valuable parents, the male offspring is very highly valued within the EEP.



FOUR-EYED FISH BORN FOR THE FIRST TIME IN THE CZECH REPUBLIC

THE FOUR-EYED FISH (*Anableps anableps*) is a species living in the brackish waters of Central and South America, write Dušan Šudák and Petr Šrámek. It is morphologically adapted to live at the water's surface, where it searches for food. The most striking adaptation, which its common name refers to, are horizontally split eyes enabling the fish to see clearly above and below water at the same time.

Brno Zoo has held this species since the summer of 2017, when a school of juvenile fish came from Stuttgart Zoo. Four-eyed fish are viviparous. One interesting feature is that each male is

capable of bending his mating organ, gonopodium, to one side only and similarly each female can accept gonopodium only from a 'compatible' side. This means that right-sided males can mate only with left-sided females and vice versa. Brno Zoo has only one male, which, thanks to this peculiarity, is able to mate with only half of the females.

The first little four-eyed fish was born in Brno Zoo in April 2018, followed by five more births, giving a total of 18 individuals over the rest of the year. The number of fry in one litter ranged from one to nine, yet the only viable fish were from the smaller litters.

Unlike adults, newly born four-eyes do not swim at the surface, but stay at the bottom of the tank. To prevent injuries and to enable keepers to oversee their feeding and growth, the fry were caught and placed in a different tank. All except one, that is; a young male decided to stay in the aquarium with the adults, despite numerous attempts by the zookeepers to catch it. The young male, as it turned out, is not growing as fast as its carefully supervised siblings in the 'fish nursery', but otherwise it is doing very well and, thanks to its decision to stay on display, it can be also admired by the visitors to Brno Zoo.

SANTA CRUZ GROUND-DOVE CHICKS ARRIVE AT JURONG BIRD PARK, SINGAPORE

THE GENUS *ALOPECOENAS* includes 10 species of cryptic ground-dove from the Pacific region, writes Dr Luis Carlos Neves, Director of Zoology Wildlife Reserves, Singapore. All the species are relatively poorly known, and only two species are established in the zoo community – the non-threatened white-breasted ground-dove (*Alopecoenas jobiensis*) and the near-threatened white-throated ground-dove (*Alopecoenas xanthonurus*), which are managed within AZA as part of a safety-net population.

In November 2017, Birdlife International alerted the international zoo community to a seizure of 112 Santa Cruz ground-doves from poachers by OceansWatch, an NGO based in the Solomon Islands. Trade, then, was not a recognised threat to this species, which was endemic to the Solomon Islands and listed as Endangered under the IUCN Red List; instead the key threats were thought to be habitat loss and invasive species.

Under the EAZA Pigeon and Dove TAG, a task force – comprising members of EAZA, AZA (Toledo Zoo) and relevant experts – was created to safeguard the welfare and survival of the confiscated birds, and to look into how best to help the species to thrive. One of the immediate decisions made was to create an assurance colony, and in August 2018, 35 males and 25 female Santa Cruz ground-doves were transferred to Jurong Bird Park, Singapore. These birds are to serve as a breeding flock whose offspring will eventually repopulate the Solomon Islands and, in addition, serve as conservation ambassadors for their



species and as a safety-net meta-population.

A few months post-arrival, on 31 December 2018, we welcomed the first chick, and more soon followed. Aside from increasing the population under human care, keeping and breeding these birds has provided valuable information on their breeding biology, which was largely unknown until now.

Although the future looks less dim for the species now, there is much work ahead. While we continue to focus on increasing the *ex situ* population, *in situ* assessment of the population and habitat is needed, and perhaps additional colonies may need to be created in the interim.

Testing times

FIND OUT WHAT HAPPENED WHEN EAZA'S ACCREDITATION PROCESS WAS PUT TO THE TEST

April Adams, EAZA Accreditation Manager, EAZA Executive Office, The Netherlands

Accreditation of our Members is a strategically important task for EAZA; it strengthens our community by ensuring that all EAZA Members are working in a professional manner and are using best practices. This is not only to protect the animals that are transferred between Members as part of a population management programme, but also to ensure that all Members can confidently work together on cooperative conservation projects, collaborative research and shared educational activities, knowing that their EAZA partners are using the most up-to-date standards and protocols.

The strength of EAZA is in its data-based approach to conservation population management. But what happens when we turn that sharp lens on a more subjective activity: accreditation screenings?

In 2018, EAZA asked Kimberly Sengenberger and Merlot Stolk, senior students from Van Hall-Larenstein University in the Netherlands, to assess the accreditation programme during the years 2012–2017, to determine whether the screenings were consistent across regions and between existing and new Member applicants. Their findings were collated in a report, *Consistency of EAZA's accreditation procedure: an analysis of EAZA's membership accreditation procedure*, and those findings are summarised here.

The students were given access to the major and minor concerns listed in screening reports from 2012–2017 of both new applicants and existing Members, and analysed the ratio of major and minor concerns across the types of screening (applicant vs Member) and three 'basket' regions*.

In the Screening Team Questionnaire (STQ), the facilities are assessed by simple questions that align with EAZA standards, guidelines and responsibilities. Questions are

Table 5: Major concerns in relation to application status

Criteria	Application status			
	Existing member N=80		New applicant N=30	
	Total major concerns	Mean of major concerns per institution	Total major concerns	Mean of major concern per institution
1.Details of the institution	21	0,26	35	1,17
2.Financial matters	2	0,03	1	0,03
3.Animal care	73	0,91	57	1,90
4.Zoological collection	33	0,41	9	0,30
5.Safety and security	49	0,61	37	1,23
6.Conservation	3	0,04	2	0,07
7.Education	5	0,06	5	0,17
8.Research	3	0,04	0	0,00
9.Miscellaneous	0	0,00	0	0,00
Total	189	2,36	146	4,87

The distribution of the number of major concerns in criteria 1 "Details of the institution" and 3 "Animal care" differ significantly, between new applicants and existing members (Mann-Whitney U test, $p=0,05$).

"There is a statistical significance between the number of concerns listed for new Members than for existing Members"

answered with a *yes* or *no* and then, if needed, qualified as *acceptable*, *questionable* or *unacceptable*. Any *no* responses are then pulled out of the report and highlighted in the final conclusions and qualified as *major* or *minor concerns* or *recommendations*. Major concerns are issues that are, in general, hurdles to EAZA membership and accreditation, while minor concerns are issues that must be addressed, but may not prevent EAZA accreditation. Recommendations are simply advice from the screeners to the institution.

The data showed that there is a statistical significance between the number of concerns listed for new Members and existing Members. The typical existing Member received an average of 2.36 major concerns, while new applicants received an average of 4.87 major concerns per institution.

This is to be expected, as existing EAZA Members have access to certain resources (EAZA Member area, EEO support, training, husbandry guidelines) and the community (conferences, meetings, newsletters) whereas new applicants do not. Additionally, as this was often the first time a new applicant had experienced an inspection by their peers beyond their zoo licence inspections, there was more opportunity for growth and advice. These differences were most stark in the governance and management of the institution, animal care and welfare, safety, security and education. The number of concerns across other topics were of a much smaller difference or equal across existing Members or new applicants.

While EAZA standards are, of course, biased toward EAZA Members, this result nevertheless indicates



that being an EAZA Member and participating in the community raises the facility standards to EAZA's level.

Another important question was whether the screenings are treating different countries and regions equally, accounting for cultural and norm differences. The analysis showed that across the three 'basket' regions, each 'received on average the same number of major concerns across all criteria'.

This indicates that accreditation is being applied equally across all regions, at least in the concerns that may prevent EAZA membership. There was a difference, however, in the areas of animal care and safety and security, with region 2 receiving 1 fewer minor concerns on average than region 1 and 3 in the area of animal care, and region 2 receiving .5 fewer than region 1 and 3 in the

area of safety and security. Thus, while there is a potential for exploring how EAZA can support the Members in these regions and finding more culturally fair ways to interpret the standards or provide training around these topics, the difference of only 1 to .5 fewer concerns in regions indicates that EAZA screeners are acting in a culturally fair manner across the basket regions.

Another interesting result was found in differences in the number of concerns that resulted after a change to the Screening Team Questionnaire. The analysis showed that there was not a significant difference, indicating that the new Questionnaire is not significantly more 'difficult'.

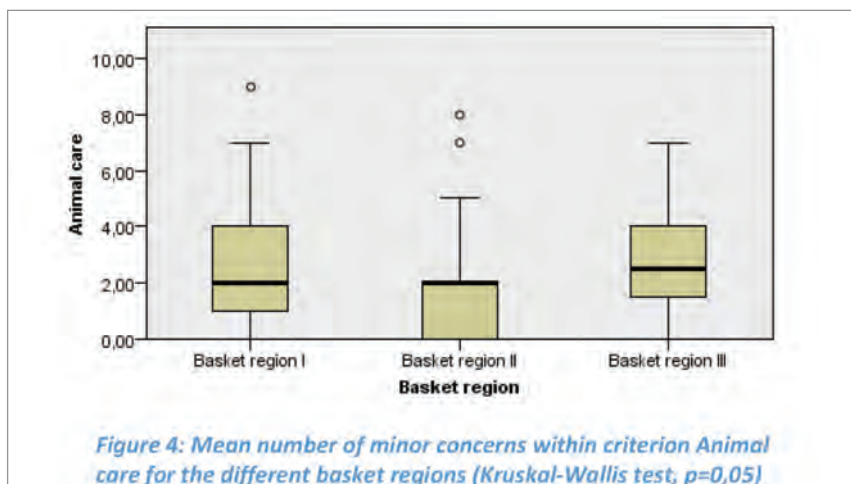
The use of this data points to a healthy and fair accreditation programme, consistently applied across regions and status of Members. This is encouraging to the Membership and Ethics Committee as the EAZA Accreditation Programme moves into the final years of its first cycle, which is on track to have 100 per cent of Members screened by 2022.

If you would like more information about the EAZA Accreditation Programme, please contact accreditation@eaza.net.

*The EAZA Member countries are divided into three Basket Regions. Basket Region I: Germany, Austria, Croatia, Czech Republic, Hungary, Poland, Russia, Slovakia, Slovenia, Switzerland and Ukraine. Basket Region II: United Kingdom, Belgium, Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Luxembourg, The Netherlands, Norway and Sweden. Basket Region III: France, Greece, Israel, Italy, Kuwait, Portugal, Qatar, Spain, Turkey and United Arab Emirates.

Table 4: Minor concerns per basket region for the criteria

Criteria	Basket region					
	Basket region I N=30		Basket region II N=48		Basket region III N=32	
	Total minor concerns	Mean of minor concerns per institution	Total minor concerns	Mean of minor concerns per institution	Total minor concerns	Mean of minor concerns per institution
1.Details of the institution	17	0,57	30	0,63	15	0,47
2.Financial matters	1	0,03	3	0,06	1	0,03
3.Animal care	79	2,63	84	1,75	89	2,78
4.Zoological collection	19	0,63	33	0,69	20	0,63
5.Safety and security	27	0,90	67	1,40	49	1,53
6.Conservation	7	0,23	10	0,21	7	0,22
7.Education	7	0,23	19	0,40	8	0,25
8.Research	2	0,07	4	0,08	3	0,09
9.Miscellaneous	0	0,00	0	0,00	1	0,03
Total	159	5,29	250	5,22	193	6,03



Reading the signs

HOW TWYXCROSS ZOO USED QUALITATIVE BEHAVIOUR ASSESSMENT TO FILL A CRUCIAL GAP IN THEIR WELFARE AUDIT

Freisha Patel, Research and Conservation Administrator, Twycross Zoo, UK

At Twycross Zoo, our Life Sciences team uses a comprehensive welfare audit to review animal welfare, focusing on environmental, health, population management and behavioural measures. One gap within the audit was the inclusion of animal-centred wellbeing assessments, and Qualitative Behaviour Assessment (QBA) was proposed as a suitable tool for this task. Animal keepers and the research team at Twycross Zoo have been working on the QBA project, along with Professor Françoise Wemelsfelder at Scotland's Rural College, to develop this tool for use within a zoo environment.

Qualitative Behaviour Assessment (QBA) is an integrated approach to welfare assessment, which incorporates subtle details of movement, posture and aspects of the context in which a behaviour occurs by not specifically looking at what an animal does, but how it does what it does. This approach requires observers to view 'animals as a whole' and score individuals on a scale, using descriptive terms such as 'calm', 'anxious', 'confident' or 'timid' to explain their expressive qualities. The QBA method has been used and validated as an agricultural animal welfare tool through correlation with quantitative behavioural and physiological measures; however, little attention has been given to the potential use of QBA in a zoological setting. Once the QBA tool is validated for use with zoo species within the zoo setting, it may support the keepers in their responsibilities for their animal's welfare and aid in evidence-based decision-making (in combination with other indicators).

The project at Twycross Zoo started with the team developing a fixed list of qualitative expressive terms for each of three species: Humboldt penguins (*Spheniscus humboldti*), siamangs (*Symphalangus syndactylus*) and chimpanzees (*Pan troglodytes*)



based on their collective knowledge of and experience with each species. Following initial paper-based trials, where good inter-rater reliability was observed, the keepers are now using a web-based application on tablets to complete the animal observations. The added advantages of using the web-based application include the fact that keepers spend less time uploading data from paper-based scoring, the time and date of each observation is recorded automatically, comments can be made to attach to each observation, and automated analysis of the scores on separate terms generates plots that show the animals 'disposition' at a specific time and can be compared to previous observations. The latter point allows real-time discussions around the animals' wellbeing and the data can also be exported for long-term review and discussions to monitor the impact of changes to the enclosure and enrichment provision.

Using the web-based application to score observations has been very well received by the keepers, enabling assessments to be made without taking further time away from other duties. The next stage for this project is to validate the QBA method for use in these species, through correlation with additional parameters. Such work

is already underway in 2019. Once validated, the QBA can be used as a regular welfare assessment tool and will hopefully facilitate evidence-based decision-making in all areas of husbandry and enclosure design.

Vicky Kirkman, Senior Ape Keeper at Twycross is one staff member to praise the system: 'The online application is easy to use, and I can quickly do the QBA assessment during my daily routine to assess the animals at a given time. Since being involved in this project from the beginning, I'm excited with how much the project has progressed and the potential beneficial outcomes this tool will have for the daily management of our animals.'

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New directions

AS AFDPZ REACHES ITS HALF-CENTURY, ITS PLANS FOR THE FUTURE INCLUDE ACTIVE PROMOTION OF THE ROLE OF ZOOS IN CONSERVATION

Cecile Erny, AFdPZ Director, Zooparc de Beauval, France and David Williams-Mitchell, EAZA Director of Communications

L'Association Française des Parcs Zoologiques (AFdPZ) is the representative body of zoos and aquariums in metropolitan France and the overseas territories of the Republic. Set up in 1969, the Association celebrated its half-century during the recent AGM held at Amiens Zoo in the north of the country. With 95 Members across the country, AFdPZ is one of the largest national associations holding federation membership of EAZA. Headquartered at Beauval Zoo in the Loire valley, the association recently increased its staff numbers with the appointment of an assistant to the Director, Cécile Erny. This expansion heralds a slight change of emphasis for AFdPZ, which has previously prioritised engagement with political and civil service structures in support of zoos.

This focus on lobbying and representation reflects the fact that while the conservation, education and research missions of zoos and aquariums are enshrined in both the EU Zoos Directive and national legislation, neither civil society nor politicians have had a high level of awareness of the responsibilities and achievements of AFdPZ Members in these core areas.

Members of the Association have always been active in providing input from the various regions of France, engaging local politicians and providing a perspective that AFdPZ represents nationally. In addition, AFdPZ helps to address specific issues such as legislation that affects zoos (such as the introduction of a contentious decree on the holding of cetaceans) and nature more widely, including involvement in actions to protect birds from glue-trapping.

While continuing with a strong culture of political engagement, AFdPZ is now also working to expand its capability in external

AFDPZ AT A GLANCE

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communications, including media relations. As part of this expansion, EAZA's Director of Communications and Membership, David Williams-Mitchell, held a workshop on crisis communications at the AFdPZ AGM – recognising that as AFdPZ Members do more to promote the role of progressive zoos in conservation, research and education, media channels will focus more scrutiny on the working practices and outcomes of the zoo community; and that such media scrutiny is international, which means that reporting on zoos anywhere in the world will generate interest in French zoos.

AFdPZ has a number of working committees, including committees for Conservation, Education, Research, Social and Human Resources, Security and Safety, Free-flying Birds, Public Zoos and, last but not least, a Welfare Committee that was inaugurated at the Amiens meeting. The Conservation Committee has been active in building relationships with NGOs and maintains a conservation fund. The fund, which has a budget of €100,000 this year, allows for 20 grants annually. The fund was inaugurated in 2013 and receives funding from Members, who are honoured by AFdPZ according to the amount that is contributed and

their status as either private or public zoos.

In 2018, these were as follows:

- Gold, Private: ZooParc de Beauval
- Gold, Public: Zoo de Maubeuge
- Silver, Private: Zoo de la Palmyre
- Silver, Public: Zoo d'Amiens
- Bronze, Private: Zoo de Bordeaux Pessac
- Bronze, Public: Réserve Zoologique de la Haute-Touche

AFdPZ Members also contribute strongly to EAZA and WAZA, providing French translations for key documents (such as the WAZA strategies), getting involved in international campaigns and implicating themselves in EU-level discussions. Several Members were present for the last EAZA-organised study visit to Brussels. In addition, AFdPZ is very active in formulating positions that reflect or expand upon the positions held by EAZA and WAZA; for example, Members worked on a statement on imported deforestation and sustainable agriculture with Marc Ancrenaz of the Hutan project in a workshop held in Amiens.

In summary, AFdPZ is a highly active and effective organisation and a key member of the EAZA National Associations caucus, helping to provide a strong cultural steer to the committee and encouraging French zoos to engage with colleagues from across the continent and beyond. We wish them another 50 years of great success!

PROJECTS THAT HAVE RECEIVED AFDPZ GRANTS INCLUDE:

- Arnaud Desbiez's ICAS giant armadillo project
- Delphine Rouillet's HelpSimus greater bamboo lemur conservation project
- Camille Coudrat's Anoulak white-cheeked gibbon project
- Jean-Christophe Bokika's Mbou-Mon-Tour bonobo project
- Inza Koné's Tanoé Forest Roloway guenon project

Training the keepers

EAZA'S PROJECT TO IMPROVE KEEPER TRAINING ACROSS THE ZOO AND AQUARIUM COMMUNITY IS PROVING TO BE BOTH EFFECTIVE AND POPULAR

Laura Myers, EAZA Academy Manager

The European Professional Zookeeper Qualification Framework (EPZQF) project grew out of a series of discussions between the EAZA Academy and some EAZA Members in the early 2010s about how to provide professional training for zookeepers. Eventually a decision was made to put together a project team of zoos, regional associations and training providers to seek funding from the European Union to work on this task. The project officially started in late 2015 after funds were secured from Erasmus+ with the aim of creating a comprehensive framework of zookeeper skills, knowledge and competencies. The first phase of the project focused on drawing up the framework, which was published in August 2017 on the project website www.zookeepers.eu.

The primary aim of the project was to support zookeepers and zoos in countries where there is no formal provision for training zookeepers, which can result in skills gaps and outdated zookeeping practices being passed on through on-the-job training. A secondary aim was to promote standardisation by creating a single framework that would allow zookeepers, zoos and training providers to make objective assessments of competence. A further benefit of this is to promote increased mobility for zookeepers, especially those aiming to move from one EU country to another. For anyone looking to switch to a different sector, the framework can also help identify transferable skills that are relevant to many job roles.

The framework has four broad areas: one is related to transversal or transferable skills while the remaining areas are focused on job-specific competencies related to animal management, environment management and the broader role of zoos. Each area is further broken down into topics and specific competencies, which are described at three cumulative levels: competent, proficient, expert. For context, the project partners considered the competent level to be what they



ZOOKEEPERS IN ACTION AT ZAGREB ZOO, CROATIA



would expect from a zookeeper who had been working for about one year, so reaching competent level is already a significant achievement.

From an EAZA perspective, the EPZQF is one more tool that can



support our Members in the fulfilment of our strategic aim to lead in zoo and aquarium animal management and care by maintaining healthy populations and individuals with positive animal welfare. Zookeepers are an essential part

of this, so supporting their continued professional development is essential if we are to position ourselves as leaders in animal management in zoos and aquariums.

WHAT HAS HAPPENED SINCE THE FRAMEWORK WAS PUBLISHED?

The second phase of the project, running from August 2017 to August 2018, was to create some examples of training modules to show how the framework could be applied to actual training for zookeepers. To meet the constraints of the funding, which meant that all outputs created by the project have to be freely available for everyone to use, the project partners focused on developing online training modules for selected topics.

Partners selected topics that have a strong knowledge focus, which would be easier to transmit using online learning, and also ones that may not be especially well covered in existing training programmes. They also selected topics that linked well with the strengths within the core project team. The three topics selected were conservation education, enclosure design and nutrition. A total of five modules were created (the education modules were split into three to cover the three different competencies), using a range of media to create an interactive online learning experience that directly targets some of the necessary competencies listed in the framework. These are all available for use on the project website www.zookeepers.eu.

Recognising that practical skills are critically important for zookeepers, the project partners also did some work on identifying methods to document and assess these practical elements. Example documents and guidance information are available through the website.

In the final year of the project, the partners also continued with planning events to promote the framework – a multiplier event to introduce the framework to non-EAZA stakeholders took place at Zagreb Zoo in April, complemented by an information session for EAZA Members at the EAZA Annual Conference in Athens.

The final task for the initial funded phase of the project was to complete the reporting process for Erasmus+ and reflect on the successes and challenges of the project.

WAS THE PROJECT A SUCCESS?

Going purely on the results of the project evaluation, the project was highly successful. The National Agency scored the project team 93/100 and awarded all of the requested funding to the partners. The evaluation was particularly complimentary about the completist approach taken, in that a package of materials was produced that cover a range of experience levels. They also praised the transferability of the methods and the clear links to the European Qualification Framework. Although this is encouraging news for the project partners, perhaps it's not the most relevant way to measure success.

Happily, there are some other strong indicators from within our sector that the project has been a success. Some training providers have already used the framework to build new programmes for zookeepers, such as Le Group Les Etablières in France. The framework has also been used by the team creating a new training programme for apprentices in the UK. There has also been interest in the project from zookeeper groups in Sweden and the UK.

Our project partners in Poland, Romania and Croatia have also been working with their respective government agencies on ways to implement the framework and create training opportunities where they don't currently exist. The framework has been translated into three further languages so far and there are enthusiastic volunteers working on other translations. The EAZA Executive Committee has also reviewed the project outputs and identified ways to integrate it further into EAZA work.

WHAT ARE THE NEXT STEPS?

Although the first funded phase is over, the project hasn't finished; we still have a lot of plans for the future and there are a lot of opportunities for new people to get involved.

One big challenge is to benchmark existing qualifications against the framework. The intention of the framework is not to replace all currently existing qualifications, but rather to make it easier to compare different options across Europe. In 2019 we took the first step towards this by conducting a mapping exercise

where we compared the Diploma in the Management of Zoo and Aquarium Animals offered by Sparsholt College to the framework competences. The results of this will be published on the website later in the year, and we plan to use this exercise to create some guidelines for other institutions planning to do the same thing.

We would also like to see the framework referenced in other sector-specific training to make it clearer to zookeepers how they can achieve different competencies. Where appropriate, we will be incorporating references to competencies covered in future EAZA Academy training courses and we would encourage other organisations offering training courses to do the same thing; these training courses can also be promoted via the project website and social media channels.

The project partners would also be very happy to receive other examples of how the framework is being used, especially from people applying it in a zoo setting. If you have experiences to share, please get in touch with the project team.

The EAZA Executive Committee is also very keen to make the framework and the modules more accessible to EAZA Members by translating them into more languages. Any interested translators are invited to reach out to the project team.

Finally, as we are coming up to the two-year mark since the framework was first published, it's almost time to start thinking about the review process. It's important to make sure that the framework remains relevant and fit for purpose, so we need your zoo expertise to make this happen. We would very much like to hear from you if you're interested in being part of the team that will undertake this review process.

If you would like to get involved, please send an email to info@zookeepers.eu or fill out the contact form on the website www.zookeepers.eu. *The European Professional Zookeeper Qualification Framework project was co-funded by the European Union under the Erasmus+ programme. The project partners involved were: EAZA, the Romanian Zoo and Aquarium Federation, Wroclaw Zoo, Chester Zoo, Kaunas Zoo, Zagreb Zoo, Sparsholt College and Aeres Groep.*

Camels, cattle and conservation

ZOOQUARIA TALKS TO TERRY HORNSEY, CHAIR OF THE CATTLE AND CAMELID TAG, ABOUT THE RECENTLY COMPLETED RCP AND THE CURRENT AND FUTURE WORK OF THE TAG

Merel Zimmermann, EAZA Animal Programmes Coordinator, and David Williams-Mitchell, EAZA Director of Communications

MZ: Terry, you and the TAG have completed your Regional Collection Plan (RCP) for the species under your remit. Can you tell us about your impressions of the RCP process?

TH: It was very interesting, and a lot of work! I'd like to give credit to you, Merel, Kristin Leus and Maaïke Voorham in the EAZA Executive Office for your help. The most challenging part was doing the groundwork for the RCP meeting – collating information, contacting stakeholders and arranging for them to attend. You have to embrace the process, though, stay positive, get the people you need and put your faith in the Executive Office, who are great at helping.

DWM: Did the meeting throw up any surprises?

TH: I think it went mostly as we expected, except for our review of the Gaur EEP. It had been ticking along, but

there hadn't really been any progress for a long time. The RCP showed that there were serious challenges to the EEP, and it became obvious that recommending the EEP be phased out was inevitable – the first EEP to be ended under the new structure. Gaur represent a very niche interest, and while the animals are impressive and can be used in themed areas, we didn't have a lot of buy-in from EAZA Members. With banteng becoming a Global Species Management Plan (GSMP) species, this put more pressure on gaur and the reason for keeping them. During the meeting we were able to compare gaur and banteng in depth and realised that, because of similarities in husbandry requirements, it made sense to phase out gaur and replace them with banteng. Because banteng is one of the first ungulate GSMPs, we felt that it had a much higher priority and potential than gaur.

MZ: It's interesting to see that the TAG is really prioritising Asian species. Why is that?

TH: It's become logical over the last few years to concentrate on Asian species, mostly because of the conservation situation, but also because there really aren't many wild cattle species from other parts of the world. The Southeast Asia campaign in 2011–2012 highlighted the conservation needs of Asian wild cattle, and the involvement in that campaign of William Robichaud in addition to the appointment of James Burton as conservation advisor, and later to vice-chair to the TAG, really pushed us towards that Southeast Asian focus.

DWM: The RCP obviously went into great depth with cattle species. Could you tell us more about the outcomes for camelids and domestic species?

TH: The RCP more or less confirmed that the EEPs for camelids were the right ones, and in a good place; but it also highlighted that there could be links between the TAG and individual Members on camelid conservation; for example, with Prague Zoo, who are exploring becoming involved with *in situ* conservation of wild Bactrian camel. For Guanaco it was confirmed that if a conservation role becomes relevant in South America, that region would actually be better equipped to develop activities towards conservation of the species. There are many domestic species of cattle and camelid in our community as well. The RCP was helpful because it actually encouraged a more in-depth discussion where they were





concerned and helped greatly with the decision to recommend linking the holding of domestic species with concrete education activities on the conservation status and efforts for (their) wild counterparts.

DWM: Readers may also be surprised that you recommended the creation of an EEP for saola, a species we are very unlikely to keep in European zoos. Is this the start of a new role for zoos, doing *ex situ* conservation offsite in range states?

TH: Yes and no! I think the saola is quite unique in that everything about it is sensitive – from the possibility of animals being brought into human care to the political sensibilities of the countries where the animal lives. Of course in some cases if we were starting an EEP today, we would probably do things differently: for example, if we go back to the very beginnings of the keeping of Amur tigers in zoos, you would see that it took a long time to get everything right, and animals (some would say inevitably) were lost in the process. With saola and other species, we have to recognise that we would not be able to afford such a loss – the animals are just too rare. So while we know that saola need *ex situ* protection, it needs to be done professionally within the range states – something that gives us the best chance of success in saving the species, and makes sure that we aren't seen as trying to exploit the situation. I think we'll see this model replicated in the future, so range state *ex situ* conservation will probably become part of the mission of zoos, where we can use our unique

expertise to give a future to some of the world's most endangered species.

DWM: Would you say that this is a particularly progressive attitude from the TAG?

TH: We're not known for our dynamism, so I wouldn't say so! No, I think that it came about entirely naturally as a result of the RCP process. If you look at the needs of species and how you might be able to contribute to their conservation, the idea of the 'range state EEP' comes very naturally.

MZ: You have another challenge with cattle species though; they are not really what people come to see in zoos, are they?

TH: I think we can talk a lot about the GSMP species, but honestly, apart from perhaps the anoa, in general, I really think that the public just sees them as cows. We know that cattle tend to need a lot of space, and as they do not really interest visitors, they tend not to be very high on the priority list for many collections. However, with good theming, and thinking outside the box a bit, it should be possible to get people interested – I think it has to do with how you present the species as an important part of their ecosystems, and as presenting ecosystems as completely as possible seems to be where zoos are going, this may work in some of the cattle species' favour in future.

MZ: There are some good conservation stories around zoos and cattle though – is this also a

good way to interest people? I am thinking of European bison for example.

TH: Well, European bison have been in zoos for a long time, and although they are impressive animals to look at, I think that the history that surrounds them, whilst interesting and very important, is really the only angle you have.

DWM: Talking about theming, Asian cattle species are quite emblematic. If you see a water buffalo, it makes you think of Southeast Asia immediately. Could you do the same with, for example, banteng?

TH: Definitely. I think that the GSMP itself is an interesting story to tell, but then you can also include them in Asian mixed exhibits and make banteng an iconic Indonesian species – shorthand for 'now we are in Indonesia'. I think this is really the way to go.

DWM: Given the challenges, I am interested to hear how you developed a passion for cattle species!

TH: Well, I started out with hoofstock when I first joined London Zoo at the start of my career and have worked with them ever since, which amounts to 40 years! I can't really explain why I like them so much – they are very impressive beasts, but unfortunately, I think it's only zoo folk and biologists who get so excited by cattle, and this makes it difficult to get them to appeal to visitors in the same way. We just have to think about presenting them differently to get people interested.

MZ: So now you've completed the RCP, do you have any thoughts on what happens now or advice for other TAGs?

TH: Don't do it! No, definitely do it, it's very helpful. The good thing is that having invested so much time and energy into doing the groundwork for this first RCP, we are set up for the next five years at least. It means that the next time we do the RCP it will be an update, rather than a whole new creation. For the first RCP though, I'd say, get the widest possible base of expertise, make sure you have all the information you need and work closely with the EAZA Executive Office. I think that way you should be able to do a good job and minimise the task for the next time.



How to save the rhino

THE NEW RHINOCEROS TAG HOPES TO COORDINATE CONSERVATION EFFORTS ACROSS THE WORLD TO IMPROVE THE PROSPECTS FOR THE MOST THREATENED RHINO SPECIES

Friederike von Houwald, curator and veterinarian at Zoo Basel, Switzerland and Rhinoceros TAG chair, and Lars Versteeg, curator at Safaripark Beekse Bergen, The Netherlands and Rhinoceros TAG vice-chair

Within EAZA, the rhinoceros is a well-known and well-liked species that receives quite a lot of attention. The EAZA Rhinoceros TAG is a good example of the benefits of the One Plan approach to conservation, with its connections to the IUCN SSC African/Asian Specialist Groups and conservation NGOs such as Save the Rhino and International Rhino Foundation. All of these have fed into the EAZA Rhinoceros TAG Regional Collection Plan, which was published in January 2019 and is available on the EAZA Member Area. The three existing population management programmes are well established – so what new things can a new Regional Collection Plan bring?

BLACK RHINOCEROS

This is an excellent example of a population with a direct conservation role. Through a Memorandum of Understanding between EAZA, the Rwanda Development Board (RDB) and the Akagera Management Company (AMC), individuals from the EAZA population are going to be supplementing the current population of eastern black rhinoceros (*Diceros*

bicornis michaeli) in Akagera National Park (Rwanda) with unrelated eastern black rhinoceros, which has the potential to improve the overall genetic diversity. Furthermore, it is believed that at least some of the founders of the European population came from that region of Africa and could hold some genetic diversity that is now completely unrepresented in any African population.

WHITE RHINOCEROS

There are quite a few individuals present in range countries with private holders. However, due to increasing poaching and the consequential

increase in the cost of protecting the rhino, there is a risk that private owners will soon lose interest. The EAZA population is in such good condition that it could function as an insurance population in the future, especially as global management is developed further. The EEP wants to collaborate as much as possible to prevent the complete extinction of the northern white rhinoceros subspecies (*Ceratotherium simum cottoni*). The EEP and TAG are currently supporting a collaborative project that combines Assisted Reproductive Technologies to aid population management with improvement of IVF technologies



for the northern white rhinoceros by assigning specific southern white rhino females as candidates through this EEP. The balance between white rhino and black rhino population numbers will need to be closely monitored to safeguard the established roles of the programmes for both African species.

GREATER ONE-HORNED RHINOCEROS

The threats to this species (*Rhinoceros unicornis*) are still very much present and can result in a rapid decrease in numbers, especially for isolated populations. As there is no coordinated programme within the origin region itself, the EAZA population can

function as an insurance population. Additionally, there are several indirect conservation roles that have been identified, which makes it essential for the species to be managed within the EEP framework. For this programme, collaboration with other regions will be further explored to help fulfil the insurance role in a more robust manner.

And what about the remaining rhinoceros species? It was decided that separate new EEPs would not be established for the other African subspecies, nor for the Javan rhinoceros (*Rhinoceros sondaicus*) or Sumatran rhinoceros (*Dicerorhinus sumatrensis*). This seems logical, as we do not keep these species within our region.

However, the new EAZA Population Management Structure aims to determine where EAZA can make a difference for a species, using our collective knowledge and experience. When specific expertise or advice is needed at a later stage for Sumatran rhinoceros or Javan rhinoceros, for instance, the TAG would be open to providing this. At this stage, however, there will be no need to do this within the EEP framework. Meanwhile, the TAG does want to explore potential collaborations with other zoo associations and established partners on advocacy work for positive actions for this species by the Indonesian government.

HOW YOU CAN HELP

The TAG urges all rhinoceros holders to:

- Follow recommendations for targeted fundraising from established conservation partners to ensure funds are focused and best used in the field. EAZA Members are encouraged to commit to long-term support.
- Use education materials on topics provided by our partners.
- Collect extra blood, tissue and serum samples for the EAZA Biobank whenever an animal is sedated.

This biobank aims to be a primary resource for genetically supporting population management and conservation research.

- Have their individuals registered in the RhODIS (Rhino DNA Index System) database. Profiling rhinoceros horns contributes to the identification of poaching sources and networks, fine-tuning the identification methods used as well as adding to the safety of EAZA population.

Protocols are available on the EAZA Member Area.





Population paradox

IN THE WAKE OF A 'CRITICALLY ENDANGERED' STATUS UPDATE, THE ORANG-UTAN EEP IS REVIEWING AND REVISING ITS STRATEGIES

Elmar Fienieg, EAZA population biologist; Clemens Becker, EEP coordinator, Karlsruhe Zoo Foundation, Germany; Simone Schehka, vice EEP coordinator, Münster Zoo, Germany; and Neil Bemment, vice EEP coordinator, Barcelona Zoo, Spain.

An upgrade to Critically Endangered and the discovery of the Tapanuli orang-utan (see 'Taxonomy Study' opposite) meant that 2018 was not a minute too soon to review the EEP's roles and strategies as part of an LTMP. The need for a plan was further emphasised when population projections showed that the EEP populations for both the Bornean and Sumatran species were facing two serious demographic challenges.

POPULATION PROJECTIONS

The first challenge is ageing of the population. So far, the average age of an orang-utan in the EEP has been quite low. Young populations breed a lot, so for a long time the Bornean and the Sumatran EEP populations were able to increase. However, these populations also grow older, and older orang-utan females do not have a great

history of reproductive success. An older population is likely to breed less, leading to fewer births, further ageing of the population and so on. Based on projections, in 14 to 16 years from now, the birth rate could be insufficient to offset the number of deaths in the EEP. Population size would keep declining, until one day there are no orang-utans left. Of course, whether this will happen will depend on the actions we take.

PLACING MALES

Theoretically, the population is still young enough to grow in size in the near future before it would start decreasing in size. Growing the population size now would win time for the EEP to prevent declining population sizes in the future. However, this brings us to the second demographic challenge; a survey among current holders concluded that there

is currently no space to grow within the EEP. This is because the number of males is increasing faster than the number of females, but enclosures in the EEP were built on the basis of the historical sex-ratio, when there were more females. Finding more space to house males is therefore essential to prevent a population crash in the future.

Placing males is a recurrent subject for many EEPs where, due to the biology of the species, one male is kept with multiple females. A variety of options are available to deal with this situation (see box below). For the Orang-utan EEP, part of the solution is to increase holding space for males within the existing EEP participants. Fortunately, some space is also likely to be found with new holders. The currently available males make it possible for new institutions taking on orang-utan to keep two majestic orang-utan males without having to invest as much into the costly and large enclosures needed to keep a breeding group. Such enclosures may work particularly well in smaller institutions that would keep orang-utan males in a mixed exhibit with other species, such as gibbons and otters. It is also being investigated whether high-quality holding space can be found at reliable institutions outside the EAZA region that meet the EAZA standards.

For the long-term, the EEP will also investigate whether castration of genetically overrepresented males could help by allowing several castrated males to be kept together. This option has great potential, but it will be years before it becomes clear whether it will help with population levels.

The EEP coordinators will do their best to place males as soon as suitable enclosures are available, but a solution is still a few years away. EEP participants

PLACING MALES

In any EEP where one male is kept with multiple females, a strategy is needed to create a structural solution to this situation. Otherwise, the EEP coordinator and participants spend all their time looking for temporary solutions. There are various options available:

- Males can be kept solitary. However, this is not a desirable option for many social species.
- Males can be kept in a rotational system with a group of females.
- Males can be kept in a bachelor group. This works well for some species but can lead to aggression in others. For some species, it requires particularly large and

flexible enclosures, so males can retreat when needed.

- Castration or hormonal suppression of males, which generally needs to happen at a young enough age, may allow them to live with other males.
- Sperm selection could be used to bias the birth-sex ratio towards females. However, this is usually costly and requires in vitro fertilisation.
- Culling (see EAZA Culling statement).

The challenge is to find out which option is best for each EEP population. Some options, such as castration and bachelor groups, generally need to be tried and studied closely on a small scale before they are tried out on a population level.

FUTURE ROLES OF THE ORANG-UTAN EEP

The role of all EEPs of the Great Ape TAG is to maintain self-sustaining and healthy populations to encourage and promote conservation of the species in the wild. In addition, the future roles of the Orang-utan EEP continue to be to:

- Raise awareness of the plight of wild orang-utans, their precarious conservation status and the threats to wild orang-utans and their habitat. This includes raising awareness of the large-scale use of non-sustainable resources and more sustainable alternatives. Rather than limiting this to palm oil, this should also include unsustainable timber and other agricultural products to promote the creation of natural reserves.
- Lobby national and EU governments to improve the conservation status of the orang-utan by ensuring that zoos practise what they preach in terms of sustainable resources, and encouraging zoos to campaign for the use of sustainable resources by reaching out to local cafes, businesses and schools.
- Support field conservation efforts via the many NGOs working in the field.
- Function as back-up for future reintroductions if safe habitats exist, following IUCN reintroduction guidelines. The aim is not to reintroduce individuals descending from different subspecies, but use these only in cases where pure and healthy populations of these subspecies no longer exist.
- Work with *ex situ* programmes in other regions to build capacity.
- Participate in research, according to the EAZA-approved research guidelines and in line with the Great Ape TAG research group. This includes providing samples for the EAZA Biobank to facilitate future research.

TAXONOMY STUDY

A study was recently published that suggested the existence of a third species of orang-utan: the Tapanuli orang-utan, living on Sumatra. This raises another question; are any of the founders of the Sumatran orang-utan EEP from Tapanuli? If so, it is unlikely that there are many. Nevertheless, for management and research purposes it will be useful to have a better understanding of the genetic make-up of the EEP.

Similarly, there are taxonomic questions on the Bornean EEP population. There are three subspecies of Bornean orang-utan recognised and it is likely that these are all represented in the EEP, but which exact founders of the EEP belong to which subspecies? To answer these questions, the EEP intends to work with the University of Wisconsin-Madison on a molecular genetic study. The aim is to analyse the entire living population in the coming years, which means it is important for EEP participants to start taking samples.

are asked to be patient for now and to work closely with the EEP coordinators to manage this situation as best they can.

MANAGEMENT STRATEGY

Until more space is created for males, neither the Bornean and Sumatran populations can grow any further. This is the paradox of the Orang-utan EEP; some females will have to be contracepted to prevent an increase in population size, but in 14 years or so, the EEP will have to work hard to prevent a decrease in population size. Non-breeding recommendations will generally be given to less genetically valuable females, but at the same time the EEP will aim to allow all females the chance to learn maternal behaviour to maximise the reproductive potential of the population in the future. In the

meantime, the EEP is already working with its participants to ensure they follow the Best Practice Guidelines (available on the EAZA website) to maximise positive welfare. These improvements will hopefully improve the birth rate in the long-term and as such avert a population crash. The EEP will also continue to improve the understanding of the needs of orang-utans; the 'Tinder for orang-utans' study (see box, right) is an example of this.

GENETIC MANAGEMENT STRATEGY

Despite the demographic challenges, genetically both the Bornean and Sumatran EEP populations are doing very well. Nevertheless, management by mean kinship alone is not enough to avoid losing the high percentage of genetic diversity from the wild currently

surviving in the EEP. Fortunately, cryopreservation of sperm and eggs to safeguard genetic diversity and revive lost genes in the future seems to be a realistic tool for these species. Therefore, the EEP aims to freeze the population's genetic diversity in time by figuring out the right techniques. Developing this tool is not only invaluable for maintaining genetic diversity in the EEP, but also could make a direct contribution to conservation by allowing us to save genetic variation of individuals in Indonesian rescue centres.

TINDER FOR ORANGUTANS

In many species, allowing mate-choice increases reproductive success, writes *Thomas Bionda, Apenheul*. However, most EEPs do not incorporate this rather important animal behaviour. For the Orang-utan EEP, it is currently not feasible to provide mate-choice because this still requires the potential mates to be at the same location. The 'Tinder for orang-utans' project will explore whether partner choice can be made possible in zoo-housed orang-utans with touchscreen-based psychological tasks instead.

In this way, a project led by Apenheul Primate Park and Leiden University aims to unravel the partner preferences of zoo-housed orang-utans. When the orang-utan carries out these tasks successfully, its preferences could be measured and considered before translocation to a new zoo. After determining potential mates based on genetic and husbandry considerations, an individual will be presented with photos of these individuals in different tasks. Based on its performance, it can then be assessed whether it has a cognitive bias for any potential mates, which may indicate attraction. Using this information in decision-making may in time increase reproductive success and benefit the welfare of zoo-housed orang-utans.

We want to thank EAZA Members Ouwehands Zoo Foundation, Barcelona Zoo, Allwetterzoo Münster, Karlsruhe Zoo Foundation, Wilhelma Zoo Stuttgart, Dublin Zoo and Zoo Osnabrück for financially supporting this project.



David Williams-Mitchell, EAZA Director of Communications and Membership

Power to the people

HOW EAZA MEMBERS ARE FINDING NEW WAYS TO INVOLVE THEIR VISITORS IN THE FIGHT TO SAVE OUR SPECIES

EAZA Member zoos and aquariums provide an accessible way for visitors to engage with conservation, and this has led to a variety of approaches and strategies aimed at helping the public to contribute in a meaningful way during their visit. At the same time, zoos and aquariums are under pressure from activists, politicians and, to an extent, the wider public to demonstrate their conservation, education and fundraising credentials. Two recent developments suggest that combining these three credentials into a single activity can be particularly effective.

PALM OIL PROJECT

In March, the first of these approaches bore fruit and gained a significant amount of media and public interest: the declaration of Chester, UK, as the world's first sustainable palm oil city. The plan was simple, but points to a number of trends that Members could exploit.

First, it is increasingly being recognised that individual actions by members of the public can rarely create enough effect to be meaningful to

climate change, imported deforestation, biodiversity loss and the myriad other issues that are facing nature. In order to be truly effective, efforts need to be focused and mandated by a collective action – whether that means via the aggregation of efforts under one brand or organisation (such as the EAZA conservation campaigns and institutions' campaigns) or via legislation at municipal, regional, national or supranational levels.

The Chester campaign to purge the city of unsustainable palm oil sales required citizens and visitors to the zoo to demand that the municipality act on their behalf – an action that in turn introduces the second trend: to help visitors and citizens become activists on behalf of nature.

Activism tends to unite people for a common cause, but it generally needs an authority that can be petitioned, pressured, cajoled or otherwise persuaded to take action in order to bring about a result. While the municipality of Chester has apparently been strongly supportive of the initiative, one of its principal roles in this campaign appears to have been to

act as the body under pressure to bring about change.

Thirdly, the adoption of the measures to prevent the sale of unsustainable palm oil has provided visitors and citizens with a feeling of having won a campaign. This palpable feeling of success not only provides them with a sense of pride, but also inspires actions from other cities, and a pathway for further actions by an activist base inspired by the zoo's messaging. In short, the campaign further establishes Chester Zoo as the conduit for direct public engagement with the environment and underlines its credentials as the community's centre for environmental action. It seems unlikely that Chester will be the last city to adopt sustainable palm oil as a city ordinance.

CONSCIOUS CONTRIBUTION

Another scheme is also becoming popular, and so far has involved several practitioners among the EAZA Membership, including Wilhelma Zoo Stuttgart and Leipzig Zoo, Germany, and the Parc Animalier d'Auvergne in France. The strategy is simple: to charge a set fee as part of the entrance ticket. Usually set at €1, the fee is added to the entry fee, and can be refunded to the visitor if they object to paying it. Stefanie Reska at Wilhelma says that it is unusual for visitors to ask for an exemption of the fee – at most, around



10 per cent of visitors ask not to pay or ask for a refund if they pay by accident. On the whole, however, visitors are happy to make the contribution. The scheme has several important elements wherever it is enacted. Firstly, it makes clear to visitors that they are making a contribution to conservation just by buying a ticket – a link that has been highlighted less explicitly in the past. It also helps to show a separation of the fee into operational support for the zoo (the main body of the entrance fee) and a conservation fee that will not be subject to deductions, overheads and so on.

Secondly, the scheme provides a strong learning opportunity: in all cases, the projects that the €1 donation is supporting are presented to the visitors as they wait in line to buy a ticket. For Pascal Damois of Auvergne, this means drafting in temporary staff to explain to those visitors how and where their euro will be spent, and a large increase in signage at the gate to provide further explanations. Usually there are three or four projects being supported at any one time, and in some cases the visitor can choose which of these projects receives their euro. In any case, the principle remains the same: to involve the visitor in conservation at the moment of their arrival, thereby setting the tone for their visit to the zoo. As yet, there are no studies that show

whether visitors who have paid the conservation euro are more engaged with the conservation messaging of the zoo or aquarium, but it does not seem a stretch to claim that strong conservation engagement at the gates will increase the visitor's sensitivity. Stuttgart supports this view and reinforces the messaging through the strategic placement of screens showing short films about the conservation projects and labelling exhibits to ensure that visitors understand that the species they are seeing is the one they have supported with their entry fee.

VISIBLE CONTRIBUTION

The effect of such fundraising is also easier to show: by choosing to add €1 to the ticket price, institutions of whatever size can expect to raise a significant amount of money – from tens of thousands of euros for a smaller institution to hundreds of thousands for larger facilities. In addition, the aggregation of these funds makes the contribution meaningful to the project, and provides the opportunity to show visitors, especially local visitors, that their visits are having a material effect on the conservation of species. To an extent, this helps to fulfil the criteria of making visitors into activists and showing them the results of their activism. It also reinforces the institution's credentials as a local centre for environmental action

and can help to encourage political authorities to engage with it further. Again, the principle is that action and visibility are great catalysts for further action and further visibility.

CREATING MOMENTUM

Part of this visibility is inevitably the engagement of media to report on these initiatives: this is not only to establish or reinforce the image of the institution as a strong agent of fundraising for conservation, but also to promote the idea that zoos and aquariums belonging to a network such as EAZA can unite geographically separate communities where more traditional political structures may not. Obviously, zoos and aquariums will act on behalf of nature in this political sphere, rather than in other policy areas – but as traditional politics appears to be limited in its desire or ability to create meaningful change for the environment, it should be possible for zoos and aquariums, leveraging their core skillsets from education to population management, to create momentum locally to inspire more global change.

Zoos and aquariums rely on the public for their mandate to operate and are widely supported by the communities that surround them; we could and should repay this support by using our skills to place visitors at the heart of global environmental protection.



From adversaries to advocates

THE SNOW LEOPARD TRUST IS WORKING WITH LOCAL COMMUNITIES IN THE MOUNTAINS OF ASIA TO CREATE LASTING CHANGE FOR ONE OF THE WORLD'S MOST ELUSIVE AND ENDANGERED CATS

Matthias Fiechter, Communications Manager, Snow Leopard Trust

'I used to hate snow leopards', says Amarsaikhan, without hesitation. 'They'd kill my horses and goats out in the pasture or in their holding pen, and I didn't get any help or compensation. I've often thought about going after them and killing them.'

Amarsaikhan has spent his entire life as a herder in Mongolia's South Gobi province. It's a barren, often desolate landscape, scorched by blistering heat in the summer and swept by bone-chilling winds and freezing temperatures in winter. There's very little vegetation, and water sources are few and far between. Life in these parts is defined by hardships, both for people and animals.

People in the South Gobi rear goats, sheep, horses and camels. For Amarsaikhan and many others in his community, their livestock is both the sole provider of income and a crucial source of food.

The Tost Mountains, where Amarsaikhan lives, are one of several ranges that rise from the flat landscape

of the Gobi, like islands from the sea. These mountains are home to about a dozen or so adult snow leopards (*Panthera uncia*) as well as large herds of their main prey, Siberian ibex (*Capra sibirica*) and argali (*Ovis ammon*). In the winter, when the winds sweeping over the flatlands become unbearably cold for people as well as animals, herders like Amarsaikhan pack up their woollen yurts, round up their livestock and move into the mountains – and into the path of the snow leopard.

When snow leopards attack and kill livestock, the impact for herders like Amarsaikhan can be devastating: the financial loss rips a hole in their tight household budget, and the psychological effect creates fear, anger and resentment. 'I used to sometimes spend the night outside, near my animals, to guard them against attacks,' Amarsaikhan recalls.

The resulting conflicts rarely end well for the snow leopard. In 2016, the wildlife crime-fighting network TRAFFIC estimated that four snow

leopards had been killed each week across their range for the last 10 years, and that more than half of these snow leopard killings were in retaliation for livestock attacks. In many parts of the snow leopard's habitat, it's the biggest threat to the cats.

That's why the Snow Leopard Trust has made community-based conservation a cornerstone of our mission and, with support from hundreds of zoo partners and supporters, devoted the past 38 years to developing the resources and tools necessary to reduce human-wildlife conflict. Today, thanks to the passion, commitment and insight of zoos across Europe, we have the tools to address these threats. For Amarsaikhan and his community – and for the snow leopards of Tost Mountain – things have changed dramatically over the last decade.

Together, we've formed community-run livestock insurance funds that give herders like Amarsaikhan access to compensation in case they lose

livestock. We've built predator-proof corrals to minimise the risk of night-time predation. And we've trained herder women to create unique handicrafts from the wool of their livestock, which are now sold all over the world – for instance in the gift shops of our zoo partners – to boost family incomes.

At the same time, our local team has been organising eco-education camps where local children learn about the ecosystem around them and the role of each plant and animal in it.

These partnerships between the local community and conservationists have made a huge difference for herders like Amarsaikhan and for Tost's wildlife. There have not been any reports of killing or illegal hunting of snow leopards or their prey species in the last five years, which is an outstanding result. Instead, our long-term research study in the area has shown that Tost's snow leopard population is stable and thriving, with at least six females currently raising cubs.

Quite simply, the community no longer sees a need to retaliate against the cats. 'We lose fewer animals thanks to the corrals. And when we do, the insurance fund helps herders cope. I no longer hate snow leopards!' Amarsaikhan says.

In Tost, and across Mongolia, we're working with more than 50 families, insuring more than 11,000 heads of livestock and producing 30,000 handicrafts annually. We've built 20 corrals, which have done their job perfectly: to date, there have been no predation incidents inside any of these corrals.

'Partnering with the Snow Leopard Trust has changed not only how I think about snow leopards, but also attitudes in the entire community. Living with snow leopards has become possible for us, and people are much more in favour of conservation now,' says Amarsaikhan.

Amarsaikhan himself is one of the biggest conservation champions in his community. He volunteers his time to manage a livestock insurance fund, helps our researchers with wildlife monitoring and often advocates for conservation among his peers. In 2018, he even travelled to the Snow Leopard Trust's head office in Seattle to share his story of transformation.

Across five different snow leopard range countries, the Snow Leopard Trust is partnering with local herders like Amarsaikhan and empowering them to not only live alongside snow leopards, but also actively protect them from outside threats such as poachers.

By helping the Snow Leopard Trust engage with more than 5,500 families in five countries, EAZA zoos are making it possible to protect more than 100,000 km² of snow leopard habitat – and an estimated 500 snow leopards. 'These are cats living outside formal Protected Areas, on lands used actively by local communities,' says Marissa Niranjin, Snow Leopard Trust Director of Zoo Programmes. 'If zoos didn't make these community-based programmes possible, there would be very little – if anything – available to support conservation in these areas.'

The role of the zoo community in our work cannot be overstated. Community-based conservation programmes require a sustained presence over many years, which means a serious investment of time and resources and a huge dose of patience before results can be measured. Our zoo partners have been particularly important for initiating concomitant long-term research, including camera-trap studies and GPS tracking of snow leopards, that has not only expanded our understanding of this elusive cat, but also provided a chance to look at the biological impacts of community-based conservation.

In Tost, these investments have paid dividends beyond anyone's expectations. Not only has retaliatory killing of snow leopards ceased, but the local community successfully led a grassroots campaign to save Tost from other mounting threats, such as large-scale industrial mining. In 2010 we learned that the majority of the Tost Mountains – a mineral-rich landscape – were blanketed by mining licences. Leveraging data from our long-term research, and building on years of conservation engagement, the local community was able to mobilise and convince the federal government to convert the Tost Mountains into Mongolia's first-ever protected area specifically for snow leopards.

Since our earliest days, zoos have been pivotal investors in Snow Leopard Trust programmes, making

accomplishments such as the Tost Nature Reserve possible. Since 2008, we have received financial support from 39 EAZA Members, for a total of more than €500,000. We've also received vital technical support when we've needed it most, such as testing our camera traps and GPS collars with zoo cats before deploying them in the field. Today we're using data sets from zoo cats to verify the accuracy of our snow leopard identification systems. In return, our field staff regularly visit partner zoos to share the latest research findings and updates from local communities.

The snow leopard is listed as Vulnerable by the IUCN Red List, and while we don't know exact numbers, there is reason to believe that the global population may be as low as 4,000 cats – and it continues to decline. This elusive and charismatic big cat urgently needs protection.

But there is hope. The success of the community-based conservation programmes in the Tost Mountains shows that by working together, the Snow Leopard Trust, zoos and local people can save the species. Partnering with and empowering local communities to protect snow leopards has the potential to halt its decline before it's too late. And we are pleased to say that through global advocacy and policy enhancement, all 12 snow leopard range countries have stepped up to form a global alliance for the protection of this iconic cat, and recognised the need to expand community-based conservation partnerships across the snow leopard's range.

With support from EAZA zoos, the Snow Leopard Trust is ready to harness this momentum to reach even more communities in snow leopard habitat. To do so, we'll need even more investors and partners who share our vision of a world where snow leopards and people thrive side by side. We're looking forward to working with you!

We owe immense thanks to all our zoo partners and donors and their fantastic staff, within EAZA and beyond. You make our work possible with your support, but you also raise awareness and spark curiosity for the snow leopard among the millions of visitors to your park. You're an essential pillar of wildlife conservation, and we cannot thank you enough for all that you do.

Going Dutch for local species

HOW KEY PLAYERS IN THE NETHERLANDS WORKED TOGETHER TO SUPPORT LOCALLY THREATENED SPECIES, ASSISTED BY AN EXCEPTIONAL NEW EXHIBIT AT GAIAZOO

Emile F. Prins, Zoological Assistant, and Roxan Havik, Education, GaiaZOO, Kerkrade, The Netherlands

The hills of the Netherlands, in the province of Limburg, are characterised by their calcareous soils, streams, valleys and deciduous forests. Some species found here are unique to this part of the country, yet face local extirpation due to human action. Several national non-governmental conservation organisations (NGOs) have focused their efforts on these locally threatened species and have been actively working on *in situ* preservation. However given the situation for some of these species, mere *in situ* preservation will not suffice. Here is where GaiaZOO steps in, as it is situated within the natural range of these species and can make a significant contribution to our back-yard biodiversity.

At GaiaZOO, visitors can see how beautiful and unique Earth really is; the vision of GaiaZOO is self-evident, showing how important biodiversity conservation is to the zoo. Since the very beginning, there has always been a focus on locally threatened species, beginning with the common hamster (*Cricetus cricetus*) project. Over the years these local conservation activities expanded, encompassing a more diverse

array of species, meaning that more and more national NGOs are becoming frequent visitors to GaiaZOO. There was only one link missing in this chain of conservation activities, which was the need to broadcast these important stories to the half a million or so annual visitors to GaiaZOO.

In 2018 GaiaZOO proudly opened the doors of the new crowning glory for all these activities: limburgHUIS. With limburgHUIS, GaiaZOO has created an entirely new educational platform to showcase the beauty of local biodiversity, while also providing the facilities to proactively work on the conservation of the locally threatened species.

SPECIES CONSERVATION

Nowadays GaiaZOO is directly involved in the conservation of five local species. The icon of Limburg conservation, the common hamster, was the first project to find its way to GaiaZOO. Together with the Dutch Mammal Society (ZV) and Wageningen Environmental Research (WER), this longstanding breed-and-release project aims to supplement wild populations of the species in Limburg nature reserves. This species

has experienced a significant decline due to intensified agricultural practices, which resulted in habitat degradation. Without supplementation from the zoo population, none of the remaining wild populations would have survived.

The role of each party becomes very clear with the common hamster project; GaiaZOO houses a sizeable population in specially designed facilities for these animals with a high annual reproductive output, where the zookeepers have built up the knowledge to take proper care of the species in captivity over the years. In charge of the annual releases are both the ZV and WER, who also communicate with the province for the assignment of targeted nature reserves. Monitoring of the released animals and wild populations are also conducted by ZV and WER.

A project involving the garden dormouse (*Eliomys quercinus*) is somewhat similar, although on a much smaller scale. This species has also experienced a dramatic decline due to habitat decline¹. ZV monitors the last wild population of this rodent species in the Netherlands, and GaiaZOO staff happily volunteer. In turn, GaiaZOO

holds a small population of the species, mostly behind the scenes, for population management purposes. As GaiaZOO has an institutional studbook for the species, we are able to coordinate pair formation and thus manage the genetic diversity of the population. The first and only release of garden dormouse thus far occurred in early summer 2018, when 41 animals bred in human care were released in an area where only five wild animals were thought to occur. The effects of this release will continue to be monitored by ZV.

The very exotic-looking fire salamander (*Salamandra salamandra terrestris*) is another locally threatened species, one that requires a completely different set of skills. The Dutch wild population has experienced a 99.9 per cent reduction due to the infectious fungal disease *Batrachochytrium salamandrivorans* (Bsal)². Reptile, Amphibian & Fish Conservation Netherlands (RAVON) collected the remaining individuals, which were Bsal-free, and placed them amongst others at GaiaZOO.

Population management for this species appears to be more challenging compared to a common hamster, and care must be taken with their health status, given the natural threat. RAVON remains responsible for the population that is now in human care, and hence not only continues to monitor the wild population but also is involved in management and disease-screening of the zoo population. Furthermore, GaiaZOO staff, alongside RAVON, take part in the newly established Ex Situ Salamandra Group that brings together Universities, NGOs, GOs and zoos to collaborate on fire salamander conservation across the Netherlands, Germany and Belgium.³

All of the locally threatened species that are considered priority species in GaiaZOO have their place in limburgHUIS. For example, people have rarely been able to see a noble crayfish (*Astacus astacus*) as easily as they now can in the new aquarium. Furthermore, almost the entire holding facilities of the fire salamander in GaiaZOO have been moved to a temperature-controlled area, all of which is visible to the public. It makes it so much easier for us to share our conservation stories effectively with our visitors when they can see so clearly what we are doing.



A PART OF THE ENVIRONMENT

The role of limburgHUIS goes so much further than simply displaying the threatened species; it is a demonstration of all of a zoo's conservation activities. LimburgHUIS has been built in the green heart of GaiaZOO, where two natural waterholes meet and are surrounded by a small deciduous forest. In the past few years, we have discovered a high level of biodiversity in this area, thanks to the several BioBlitz activities that we hosted. The two waterholes appeared to be a hotspot for wildlife such as birds, amphibians, insects and several bat species. Therefore, limburgHUIS had to be beneficial for on-site biodiversity as well as for visitors and animals in the collection. The nature-inclusive design provides facilities such as bat boxes and nesting boxes for various bird species including the house sparrow (*Passer domesticus*) and black redstart (*Phoenicurus ochruros*).

The building generates its own electricity via solar panels on the roof and is therefore CO² neutral. However, part of the interactive educational panels are 'man-powered', meaning that visitors must generate electricity themselves by setting an item in motion which triggers animal sounds or a story to play. LimburgHUIS is thus a part of the environment without negatively impacting it.

VISITOR EDUCATION

Naturally, conservation education is a significant part of limburgHUIS. The top floor is designed as a natural history museum, focusing on locally endemic species, threatened species and those that are returning to the Netherlands after a time of absence, such as the grey wolf (*Canis lupus lupus*) and the European wildcat (*Felis silvestris silvestris*). As a zoo, we house the more common large mammal species found in zoos, such as great apes; so the question was, how could we get the public excited about the smaller and (sometimes) duller native species? With limburgHUIS this is being

done by creating unique encounters for the visitors, stimulating different senses. Upon entering limburgHUIS, people hear native birds singing in the background, smell the forest and experience the lives of the animals through highly detailed displays. Throughout limburgHUIS, several touchscreens allow people to choose what video or vlog they would like to see. These videos tell different stories; for example, the threats faced by local species in the wild, the role of GaiaZOO in the conservation activities, and the role of the relevant NGO and how GaiaZOO collaborates with them. Furthermore, there are several interactive educational displays, such as a man-powered pedestal that produces the mating call of a male red deer (*Cervus elaphus*). It brings the natural history museum to life, and conveys the educational story very effectively. The NGOs have proved to be extremely valuable to the educational input of limburgHUIS; without them the stories would have had less meaning.

GaiaZOO envisions limburgHUIS to be a dynamic place where visitors are engaged in and excited about local biodiversity; it aspires to be the face of all the ongoing conservation activities for local nature. The successful collaboration between GaiaZOO and the NGOs is of vital importance, although it is not without its obstacles, as each party, of course, has its own perspectives and ideals. However, in the conservation of species, collaboration, where both parties bring their own skills to the table, is essential. We hope very much that we will see an increase in conservation activities in the future, and that we will continue to be effective in delivering conservation messages to our visitors.

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Biodiversity begins at home

TWO NEW EXHIBITS AT ZOO WROCLAW HAVE BEEN DESIGNED TO EXPLAIN AND PROMOTE THE URGENT NEED TO PROTECT BIODIVERSITY

Anna Mielnikiewicz PhD and Katarzyna Walowska, Marketing and Education Department, ZOO Wrocław, Poland



The ongoing extinction of animal species has become a fact. We may not see it for ourselves, as the process often affects distant corners of our globe. But it is a serious problem, because the mass loss of biodiversity will drastically affect everyone's lives, in both socio-economic and biological terms. Biodiversity loss is also taking place on a local scale, and for this reason it is important to take action in your own backyard.

As part of the expansion of the so-called European region, ZOO Wrocław has begun two new educational projects, for the European otter (*Lutra lutra*) and the European wolf (*Canis lupus lupus*).

The first one is a continuation of the architectural approach of the Odrarium. The Odrarium is an exhibit consisting of four water reservoirs that showcase the flora and fauna native to the Odra basin. A new run has been created for another indigenous species – the European otter. It perfectly fits the need to protect species threatened with extinction, especially those that represent the richness of local biodiversity and enable us to continue our ecological education. The objectives of the investment were:

1. To construct an exhibit for the European otter to enable population management.
2. To strengthen the mechanisms of biodiversity protection in the region.
3. To create appropriate pro-ecological attitudes among visitors through the educational setting of the exhibition.

4. To expand ecological knowledge about the biology of the European otter among participants of educational workshops.

5. To build correct social awareness about predatory animals that are currently perceived in a negative way.

ENGAGING THE PUBLIC

Environmental education at ZOO Wrocław has been successfully implemented for over 10 years. We focus on education because only full public awareness can bring about the necessary actions that help to conserve endangered species. As part of our ecological education, we ran workshops for children and young people that attracted 1,000 participants. They had an opportunity to get acquainted with the biology and ecology of the otter, the environmental requirements and the threats that it encounters in the natural environment. In addition, two multimedia stations have been set up next to the otters' habitat, displaying information about the biology of the species and how to protect it.

The exhibit's area is approximately 1,000m². The pool has a varied depth, from 0m to about 1.5m, with a water surface area of around 100m² and a volume of approximately 100m³. The banks of the pool are made of Artbeton, imitating the Odra River natural biotope – rocky, washed out, overhung river banks with protruding roots. The area of the den

is approximately 2.6 m². The pool was designed with glass panes below the water level, to allow visitors to observe the otters in their aquatic environment. Knowing the enthusiasm that these animals have for fun and play, an acrylic tunnel of 50cm in diameter was also built in, adding another way for visitors to observe the otters' natural behaviour. At the bottom of the pool on the outer runs, as well as around the entire exhibition, domestic species of plants characteristic of the Odra biotope were planted.

The second exhibit, covering 2,777.16m², has been created to meet the needs of population management of the European wolf, and was devised in consultation with Polish wolf experts. For the comfort of the visitors, there are two (one- and two-storey) viewing platforms. On the second level of the two-storey viewing platform there is a telescope enabling a close-up view of the territory of the animals.

In addition, there is a 'dugout' – a tunnel that cuts into the exhibit, which has a lowered floor, allowing the person standing at the window inside to be at the wolves' eye level. The 'wolf harbour' has also been fitted with a variety of educational features, including educational boards, monitors showing short films, a rotating board (known as the 'mosaic game'), display cases, sound-stands, 2D silhouettes, 3D figures at the 1:1 scale, and casts of skulls. We've also installed a complete novelty – a diorama showing a fragment of the forest and evidence of the animals' presence. Currently, wolves recolonise the territories of western Poland, which creates a lot of confusion and misinformation in the media. The general public needs reliable sources of knowledge about this species if its presence in ecosystems is to gain social acceptance.

Both exhibits received funding from external sources. The otter exhibit received funds from the *Operational Programme Infrastructure and Environment 2014–2020*, and the wolf exhibit received funds from the Voivodeship Fund for Environmental Protection and Water Management in Wrocław. We hope that the new exhibits will promote and improve our visitors' understanding of the vital importance of preserving local biodiversity.





Let the songbirds keep singing

AS THE ASIAN SONGBIRD CRISIS CONTINUES TO IMPACT HUNDREDS OF SPECIES ACROSS THE REGION, AN ALLIANCE OF CONSERVATION ORGANISATIONS IS DETERMINED TO MAKE A DIFFERENCE TO THEIR PLIGHT – AND TO THEIR FUTURE

Kanitha Krishnasamy, Director for Southeast Asia, TRAFFIC

Shipped in their tens of thousands in cages, crammed into plastic water bottles, eggs strapped on vests or birds tied to legs of passengers boarding an aeroplane – these are some of the scenarios in which trapped birds are transported illegally to feed the global cage-bird trade.

The result of this age-old practice is that one in 20 threatened and near-threatened bird species are being trapped for domestic and international trade, with many being closer to extinction. Nowhere is this more pronounced than in Southeast Asia. The region has had a long history of bird trading, as songbirds are prized for singing competitions, parrots and birds of prey are sought after as pets, passerines (or smaller birds) are used for merit release, particularly within the Buddhist culture, and waterbirds are consumed as food.

Songbirds in particular have taken a massive hit from this trade, involving millions of birds annually and hundreds of species. The pastime of keeping birds or competing in bird-singing competitions has had a severe impact on many of the region's songbirds, especially in the Greater Sundas (comprising Brunei, western Indonesia, Malaysia, southernmost Myanmar, Singapore and south Thailand), which is home to more than 850 species of birds with high levels of endemism. TRAFFIC's surveys revealed that from 2014–2017, more than 86,000 birds were recorded for sale in markets in Indonesia, Malaysia, Singapore, Thailand and Vietnam. Of these countries, Indonesia is considered a hotbed: almost 23,000 birds were recorded over five days in Central and East Java and 19,000 in three Jakarta markets

over three days. While open trade continues, authorities in the country have carried out a string of seizures. Between November 2018 and March 2019 alone, more than 16,000 birds were seized from just two towns in Indonesia.

JOINING FORCES

While the scale of the problem seems dire, various efforts are underway to tackle this problem across Southeast Asia. The Asian Songbird Trade Crisis Summit was organised jointly by TRAFFIC, Wildlife Reserves Singapore and the Cikananga Wildlife Centre; this first-of-its-kind event in October 2015 brought together more than 35 experts on birds in the Greater Sundas region to prepare a plan for saving its more threatened species from extinction. As a result, a comprehensive Conservation Strategy for Southeast Asian Songbird Trade was launched in 2017.

The Strategy's recommendation for the region's current 28 most threatened species includes improved enforcement, greater education and community outreach, establishing and expanding conservation assurance colonies and further taxonomic research. Importantly, the Summit was the impetus for the creation of the Asian Songbird Trade Specialist Group within the International Union for the Conservation of Nature's Species Survival Commission (IUCN SSC) – of which TRAFFIC is a member and a coordinator – dedicated

solely to preventing the imminent extinction of songbirds threatened by unsustainable trapping and trade. TRAFFIC is actively working within the region to monitor trade and assess trends against legal and policy framework, and is working with a wide range of partners to try to turn the tide.

The Summit also paved the way for innovative partnerships to be forged to address this problem in a strategic and coordinated manner. Among them is a Memorandum of Understanding (MoU) between TRAFFIC and EAZA, particularly to further objectives under EAZA's *Silent Forest Campaign*. The Campaign focuses on the Asian songbird trade and aims to address and mitigate the ongoing crisis by providing resources, scientific know-how and funding to prevent Asian songbird extinction. The MoU also commits both parties to share knowledge and expertise on a range of issues covering captive-breeding and illegal sourcing of specimens, with the ultimate aim of preventing illegal wildlife trade and species extinctions.

This collaboration also allows both organisations to further the aspirations of EAZA's Position Statement on songbird trafficking, working closely with partners such as BirdLife International and the IUCN SSC Asian Songbird Trade Specialist Group.

This is just the start of a very exciting journey to save Asia's most threatened birds. Watch this space!

For more information, visit www.traffic.org or follow us on www.facebook.com/trafficnetwork.

Getting the message across

A NEW INITIATIVE IN BELGIUM IS DETERMINED TO CONVINCING THE SCIENTIFIC COMMUNITY AND THE GENERAL PUBLIC THAT ZOO-BASED RESEARCH IS INVALUABLE TO THE CONSERVATION CAUSE

Zjef Pereboom, EAZA Research Committee Chair, Centre for Research and Conservation, KMDA Antwerp Zoo, Belgium

Frustrated with false claims that zoos do not care about animal welfare? Upset with anti-zoo lobbyists condemning the existence of zoos, and claiming that zoos use research and education to conceal that their real business is entertainment? Disappointed that the general public doesn't recognise the essential role that zoos play in conservation? Exactly, so were we, and we decided it was about time to do something about it. Enter ZOO Science, a new specific Antwerp brand that highlights the scientific base of all that we at Antwerp ZOO and Planckendael ZOO stand for. More broadly, it shows how the zoo community in general contributes to biodiversity conservation, to improving health and animal welfare, and to advancing knowledge and expertise in animal husbandry and breeding.

Within the zoo community we know without question that scientific research contributes substantially to what we do on a day-to-day basis. Zoo-based researchers and their academic partners use science-based working methods to provide the best animal care and husbandry, to ensure the physical and psychological health of the animals in our care, to improve our breeding programmes, to support conservation efforts, and to contribute to the advancement of scientific knowledge about the species in our collections. However, seeing a connection between zoos and science is not something that our visitors, or more broadly the general public, tend to do automatically. Even within our own institutions, one would be surprised how few of our members of staff are aware of the role that science plays in our day-to-day work as zoo professionals, let

alone the general public, or worse even, the anti-zoo lobby. How often have we heard it is false to claim that breeding programmes in zoos protect endangered species? How many times are we accused of not really contributing to research and education? We've all had our share of that, and even well-respected zoos with dedicated in-house scientific staff and robust research programmes are accused of merely using science, education and conservation to justify what we 'really' do, who we are, and what we stand for.

This attitude has been one of my greatest frustrations since I joined the Antwerp ZOO Centre for Research and Conservation (CRC) in 2005, a research department fully embedded within Antwerp ZOO and Planckendael ZOO. Although this research department is officially recognised as a zoo-based knowledge institution and core-funded by the Flemish government, hardly anyone in Belgium knows about its existence or is even remotely aware of who we are and what we do.

We practise applied and basic research in our parks day in day out, contribute to capacity building, training and education and are actively involved in biodiversity conservation. But unfortunately much of this work happens rather anonymously and behind the scenes, without anyone realising how we contribute to our zoos' mission.

This is precisely why we recently launched ZOO Science, a joint endeavour of the zoology department and our marketers and communication officers. ZOO Science is a new brand translated into a dedicated web-based platform and social media channels aimed

at informing the world (not just Belgium) who we are, what we do and why scientific research and science-based working methods are the foundation for the daily work in our zoos and for biodiversity conservation. Our target audience is rather broad, ranging from zoo visitors and the interested layperson to students and peers in research institutes, universities and conservation organisations.

A mere six months after its launch, ZOO Science has become our one-stop solution to showcasing this once-hidden work and a way of promoting the relevance of what we do as a zoo. Although it is still too early to measure its effects precisely, since the launch in October last year we have noticed a considerable increase in media attention.

Newspapers and other media outlets find it easier to discover detailed background information on our scientific activities after a nudge on social media, or through a press release sent out and pushed by our press office. Simple tweets about newly published papers or events that we are organising trigger media attention with less effort than before, and frequently result in interviews, newspaper articles, publications in more popular magazines and even items on prime time television news or television shows.

We will have to wait and see whether this will also result in our ultimate goal: being recognised by society and by the scientific community and conservation organisations of the roles that zoos can play in biodiversity conservation.

For more information, please go to: www.zooscience.be/en and twitter.com/ZOOscience_eng.

Concrete solutions

AN EAZA CORPORATE MEMBER HAS MASTERED THE ART OF FASHIONING NATURAL LANDSCAPES OUT OF CARVED AND SPRAYED CONCRETE

Ralf Koeppel, Director, Sanero Kunstfelsbau

Recreating the natural habitat and living environment for animals living in zoos has been our main concern from the very beginning of our involvement in the industry in 2001. At first, this meant producing panels that replicated natural rock for various companies; later we varied the methods we used to make our creations look as much like a natural habitat as possible. In order to manufacture our artificial rocks, we use various techniques; we make glass fibre reinforced concrete panels, we manufacture rocks on site by moulding the concrete on metal structures and carving it into shape, and we decorate existing walls with glass fibre reinforced resin panels.

We have delivered artificial rocks and faux tree bark made of glass fibre reinforced modified concrete panels for our client, Parc Merveilleux Bettembourg. We have manufactured artificial rocks for a new birdhouse, in which we have created a habitat that welcomes plants and birds. This work looks very realistic, replicating the finest details, patterns and shapes. This allowed us to create a perfect horizontal and vertical system, allowing minimal but well-chosen locations for visitors and a perfect balance between the areas assigned to plants and birds. Being light, the concrete panels significantly reduce the static charge of buildings, thus providing important savings on the cost of foundations and base structures.

Another major benefit is that they need almost no maintenance throughout their entire lifetime. In the wolf section of the zoo, we created a wall made of glass fibre reinforced modified concrete panels replicating the bark of trees. Concrete panels measuring between one and three metres in height have been placed on concrete structures, providing a safe fence between visitors and animals. Another great advantage of the concrete panels is that they are fireproof and very environmentally friendly. The easy handling of the



panels makes it easier and faster to install them inside and outside the establishments. By using sprayed concrete, we have created various forms of rocks and trees, adding architectural value to the space and providing optimal conditions for the animals' development and daily activity. Most of our manually carved artificial landscape rocks are produced by spraying the concrete on to a metal frame that is initially covered with a metal or a polyethylene net. Using this procedure, one can build water tanks for zoo-based animals that are adjusted to the particular needs of their inhabitants. This bespoke design is essential if the animals are to survive and thrive in human care.

Thanks to the experience we have gained by producing, to date, 30,000 square metres of artificial rocks, we can now recreate natural habitats by using specialised construction methods that fit the artistic skills of our sculptors, and habitats that include rocks, trees, logs, vines and other natural features. The design of an animal enclosure is extremely important from many points of view, both for providing appropriate living conditions for animals and for conveying the message the zoo wants to send. The old metal fences that used to feature prominently in zoos

have developed into water-filled or dry moats or even artificial landscape rocks. More and more zoos are using realistic landscapes to make visitors feel as if they are in the middle of the natural environment of the animal they have come to see.

Currently, the design of zoos is changing, in that visitors now often find themselves walking on narrow and bumpy pathways, stepping over fallen trees and walking through densely planted wild landscapes, all of which have been designed to place visitors in a simulated natural environment of that animal. The visitors view the animals through invisible fences, and they feel as if the animals are in control of the location. This is why we build caves, waterfalls and even a series of tunnels made of artificial landscape rocks in which there is only a glass wall between the visitors and the lions, leopards, tigers and many other large mammals. This ecologic composite – the glass fibre reinforced concrete – which has a low-energy consumption and is made of natural raw materials, can be fashioned into a large variety of forms and colours, gaining a multitude of friends among designers, architects, engineers and zoo directors.

For more details, please visit our website: www.kunstfelsbau.de.

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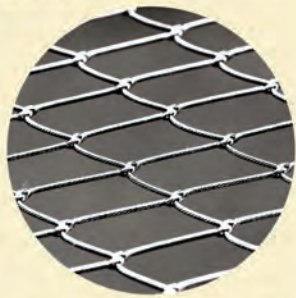
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2 mm	38 x 38 mm / 51 x 51 mm / 60 x 60 mm 76 x 76 mm / 90 x 90 mm
2,4 mm	51 x 51 mm / 60 x 60 mm / 76 x 76 mm 90 x 90 mm / 102 x 102 mm / ...
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