



THE EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA

TAG Reports 2018



CONTENTS

Introduction	1	Callitrichid	36
Glossary	2	Larger New World Monkey	38
Terrestrial Invertebrate	3	Old World Monkey	40
Fish And Aquatic Invertebrate	4	Gibbon	42
Amphibian	7	Great Ape	43
Reptile	10	Small Mammal	47
Ratite	14	Canid And Hyaenid	49
Penguin	15	Bear	51
Ciconiiformes And Phoenicopteriformes	17	Small Carnivore	53
Waterfowl And Pelecaniformes	19	Felid	55
Falconiformes And Strigiformes	21	Marine Mammal	56
Galliformes	23	Elephant	58
Gruiformes	24	Equid	60
Charadriiformes	24	Rhinoceros	62
Pigeon And Dove	25	Tapir And Suiform	64
Parrot	26	Cattle And Camelid	66
Toucan And Turaco	28	Deer	68
Hornbill	29	Antelope And Giraffid	68
Passeriformes	30	Caprinae	70
Monotreme And Marsupial	33	Long-Term Management Plans	72
Prosimian	35		

INTRODUCTION

This Annual Report clearly showcases the range and diversity of activities that EAZA's 39 Taxon Advisory Groups (TAG) were involved in over the course of 2018.

The implementation of the revolutionary new EAZA Population Management structure started very successfully with the first new style Regional Collection Plans (RCP) and the first new style EAZA Ex situ Programmes (EEP) approved by the EEP Committee. The Canid and Hyaenid, Prosimian, Cattle and Camelid, and Rhinoceros TAGs finalised their RCPs, with draft reports developed for the Passeriformes (Asian Threatened songbirds) and Terrestrial Invertebrate TAGs.

The RCP process informs which species EAZA will actively manage across its Member zoos and aquariums as part of an EAZA Ex situ Programme. Each EEP will then develop its own tailor-made Long-Term Management Plan (LTMP), which outlines the strategy towards achieving the species-specific goals as set as part of the RCP process. In 2018, LTMPs were published for five species including for orangutan, chimpanzee and Northern bald ibis. Further LTMP meetings were held for Edwards's pheasant, spotted and striped hyena for which publications will come out in 2019.

The process of developing the RCPs and LTMPs is facilitated by the team at the EAZA Executive Office (EEO), that was able to expand as part of launching the new structure, including the set up of the EAZA Population Management Centre (PMC). The content and approval process is very much driven by the TAG Chair and TAG members (for RCPs) and the EEP coordinator and (elected representatives) of the EEP participants (for LTMP).

This report clearly demonstrates the many and varied species conservation work that the TAGs and EEPs are involved in across all taxa. Cooperation with field conservation partners and experts including, but not limited to, IUCN Specialist Groups has been strong and this, amongst others, contributed significantly to the ability to assess the *ex situ* conservation roles for our EEPs as part of the new RCP process. In terms of conservation support, the involvement and hard work of the Passeriformes TAG in the running of the EAZA Silent Forest Campaign, aiming to address the songbird crisis in South East Asia (www.silentforest.eu), deserves a special mention here as well.

The highly successful third global Joint TAG Chairs meeting was organised by EAZA on behalf of the WAZA Committee for Population Management, and

was wonderfully hosted by Budapest Zoo (Hungary). The meeting provided a unique opportunity to discuss topics including integrated conservation, the One Plan Approach, cooperation with zoos and aquariums in other regions and animal welfare and population management. Many TAGs also held their mid-year meeting in Budapest and used the opportunity to cooperate with their counterparts from other regions, including incorporating their expertise into the RCP process.

In addition to the 29 'new style' EEPs that were approved by the end of 2018, the TAGs will continue to oversee the 'old style' EEPs (187) and the European Studbooks (ESBs; 175) until all have completed their new style EEP participation process by 2023. The first five-year TAG evaluation cycle was completed by the end of 2018 and many TAGs worked hard to complete the outstanding EEP evaluations, with only a few remaining to be finalised in early 2019. With the two evaluation cycles completed the EEP Committee can now focus on updating the evaluation processes in order to align them with the new structure.

Another core task of the TAGs is (to coordinate) developing EAZA Best Practice Guidelines that reflect the best practice management in human care of the respective taxa. With ten guidelines completed, covering 12 species, approved and made freely available on the EAZA website (www.eaza.net) 2018 was a productive year in this regard.

In addition to the above-mentioned topics EAZA TAGs worked on a number of other tasks including providing expertise input for EAZA's lobby work at the European Union, for example through feedback to Invasive Alien Species (IAS) listing proposals and EAZA Position Statements towards combating illegal wildlife trade for songbirds and tigers. With the 18th CITES Conference of the Parties scheduled to take place in spring 2019, TAGs also started getting more involved in providing expertise in the process of developing EAZA positions on the CITES listing and policy proposals.

A detailed overview of the activities of each of the TAGs can be found in this TAG Annual Report. If you wish to receive more information on any of the topics raised, please contact the EAZA Executive Office via info@eaza.net. EAZA extends its thanks to all the Chairs, members and programme coordinators for their hard work in 2018.

GLOSSARY

AZA: Association of Zoos and Aquariums

BPG: Best Practice Guidelines

EEO: EAZA Executive Office

EEP: EAZA Ex situ Programme

ESB: European Studbook

GSMP: Global Species Management Plan

ICAP: Integrated Collection and Assessment Planning

ISB: International Studbook

IUCN: International Union for the Conservation of Nature

LTMP: Long-Term Management Plan

MON-P: Monitored-by-designated-person programme

RCP: Regional Collection Plan

SG: Specialist Group

SSC: Species Survival Commission

SSP: Species Survival Plan

TAG: Taxon Advisory Group

WAZA: World Association of Zoos and Aquariums

ZAA: Zoo and Aquarium Association

ZSL: Zoological Society of London

TERRESTRIAL INVERTEBRATE

TAG Chair: Mark Bushell (Bristol Zoo, Bristol, United Kingdom)

TAG Vice Chairs: Tamás Papp (Chester Zoo, Chester, United Kingdom) and Vít Lukáš (Prague Zoo, Prague, Czech Republic)

INTRODUCTION

2018 has been a busy year for the EAZA Terrestrial Invertebrate Taxon Advisory Group (TITAG) behind the scenes, with lots of planning for future work going on, the main focus of which is the start of the mammoth task of developing the Regional Collection Plan (RCP). With over a million species falling under the remit of the TAG, this is no easy task, but a team of dedicated volunteers are hard at work to ensure we go into 2019 with a good footing. The TAG had two meetings at the EAZA Annual Conference in Athens, one as a reporting session with presentations on population management programme development, plus exhibit design and species profiles, plus a second closed meeting focusing on the beginnings of the RCP and a strategy to facilitate its production.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

A meeting was held in January at the Zoological Society of London (ZSL) London Zoo (UK) for the Partula snail EAZA Ex situ Programme (EEP), with updates from several participating EAZA institutions, plus the latest news from the field as to the 2017 releases of animals. A further 2,008 individuals from seven taxa were released into the wild. As of the end of 2018, some 9,136 animals have

been reintroduced to French Polynesia from 12 taxa – an incredible number and a good foundation for the future of both the project and these highly endangered animals.

The TAG has been working hard on the development of the RCP since 2017 and this year was the first workshop, held at Chester Zoo in October and attended by colleagues from several key collections in EAZA. With such a large number of species falling under the remit of the TAG it was a daunting task to begin, but every journey starts with a single step! Over the two-day workshop, we assessed 63 species, with several new EEPs to be proposed in 2019. Many thanks go to Gerardo Garcia and his team for their hospitality and help in organising the workshop alongside colleagues from the EAZA Executive Office (EEO).

EEP Annual reports for 2018 have been produced for the Desertas wolf spider (*Hogna ingens*), Lord Howe Island stick insect (*Dryococelus australis*) and also for the European Studbook (ESB) for Gooty ornamental spider (*Poecilotheria metallica*), with reports for the other population management programmes in production.

ACHIEVEMENTS DURING THE YEAR

As part of the RCP development, work has begun in earnest on developing Best Practice Guidelines (BPG) for a number of species within the remit of the TAG. The first ones in the new format were published in mid-2018 and covered the Desertas wolf spider (*Hogna ingens*). A number of others are in draft format for the existing EEP species, and a comprehensive document detailing the husbandry of the dragon-headed katydid (*Eumegalodon blanchardi*) is also in development by Delvinder Kaur and colleagues at Wildlife Reserves Singapore (Singapore).



Participants at the first Regional Collection Plan workshop © Paul Pearce-Kelly

Desertas wolf spider (*Hogna ingens*) on Desertas Grande Island © Emanuele Biggi



COLLABORATIONS

The joint TAG Chairs meeting, held in April in Budapest Zoo (Hungary) was attended by representatives from the EAZA TAG and the Association of Zoos and Aquariums (AZA) Terrestrial Invertebrate TAG, with a presentation from the Chair of EAZA's TAG during the opening session on the importance of invertebrate conservation. A meeting was held between the two groups to discuss RCPs and future collaboration work between the two groups, with a more concerted effort to join forces, particularly in population management programmes.

FISH AND AQUATIC INVERTEBRATE

TAG Chair: Brian Zimmerman (Zoological Society of London, London, United Kingdom)

TAG Vice Chairs: Max Janse (Royal Burgers' Zoo, Arnhem, the Netherlands) for Elasmobranch subgroup; Anton Weissenbacher (Vienna Zoo, Vienna, Austria) for Freshwater Teleost subgroup; Daniel Abed-Navandi (Haus des Meeres,

Vienna, Austria) for Marine Teleost subgroup; Hugo Batista (Oceanário de Lisboa, Lisbon, Portugal) for Jellyfish subgroup; Guido Westhoff (Tierpark Hagenbeck, Hamburg, Germany) for Coral subgroup

INTRODUCTION

In 2018, the EAZA Fish and Aquatic Invertebrate TAG (FAITAG) focused on preparatory work for the freshwater and marine teleost species RCP and the mid-year meeting which was held in Vienna, jointly hosted by Vienna Zoo and Haus des Meeres (Austria). This back to back meeting allowed participants to contribute to either or both of these subgroups and the format combined a series of interesting hands-on workshops as well as species review sessions.

At the European Union of Aquarium Curators (EUAC) meeting in Hull (UK) in October, the idea to split FAITAG initially into five separate TAGs (currently five subgroups) was discussed and debated. The majority of participants felt this approach was justified and we will be pursuing this course of action in the coming year.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The Elasmobranch subgroup currently consist of 9 ESBs and 29 Monitored-by-designated-person programmes (MON-Ps) with 37 colleagues working on the different programmes. In 2018 one new ESB keeper (Black-tipped reef shark ESB) and four new MON-P coordinators were founded.

ACHIEVEMENTS DURING THE YEAR

This year the Jellyfish subgroup increased its knowledge of different jellyfish species and enhanced the network of knowledge about who has or produces which species of jellyfish. It also responded to queries from aquariums seeking jellyfish species.

In the Elasmobranch subgroup, a Veterinary advisory group was constructed consisting of four veterinarians. In 2019, the veterinarians will conduct a widespread veterinary survey within the TAG. Also, in 2018 an Elasmobranch TAG newsletter was published to spread news and results.

In Vienna, the Marine Teleost and Freshwater Teleost subgroup held a joint meeting at Tiergarten Schönbrunn and Haus des Meeres (14-16 June).

The meeting was attended by 21 persons from institutions which were EAZA and/or EUAC Members.

During this meeting, the FAITAG went through their own RCP process for the tropical marine fish families *Blennidae*, *Labridae*, *Microdesmidae*, *Gobiidae* and *Chaetodontidae*.

Out of these particularly species-rich fish families we pre-selected species according to their relevance for aquarium trade and high ranking on the International Union for the Conservation of Nature (IUCN) Red List based on conservation status, resulting in 83 species to which the group's assessment assigned one of the following three categories: Yes, No, Do Not Obtain. This resulted in the following species for inclusion in this collection plan:

- Three species of the family *Labridae*: *Cheilinus undulatus*, *Labroides dimidiatus*, *Labrus viridis*
- One species from the family *Gobiidae*: *Pandaka pygmaea*
- No species from the family *Blennidae* or the family *Microdesmidae*
- Four species of the family *Chaetodontidae*: *Chelmon rostratus*, *Chaetodon auriga*, *Chaetodon kleinii*, *Forcipiger flavissimus*

The still unassessed tropical marine teleost families *Pomacentridae*, *Pomacanthidae*, *Acanthuridae*, *Apogonidae*,

Callionymidae, *Serranidae*, *Scorpaenidae*, *Ballistidae*, *Pseudochromidae*, *Grammatidae* and *Syngnathidae* are already pre-reviewed by TAG members. The resulting species lists are now ready for quick, time group assessment during the next TAG meeting to be held in 2019.

Thanks to all participants who helped to make further steps towards the establishment of an effective freshwater collection plan.

The Freshwater Teleost subgroup, whose focus was placed on efforts to breed endangered fish species, would like to call in remembrance our vision that every European zoo or aquarium should keep and display at least one endangered freshwater fish species. A remarkable example was given by Sealife (Finland): they managed to draw a high level of attention (from media and visitors) to their new exhibit for a highly endangered species of Mexican *Cyprinodontidae*.

Most endangered fish species that are successfully bred on a regular basis at zoos and other institutions are live-bearing or multiple spawning fish species. These species have a long or even permanent breeding period. In general, it is relatively easy to isolate juveniles or eggs and rear them. This is a totally different situation from the endangered egg-laying species which lay eggs only seasonally or large amounts of eggs at one laying event every few months. It takes much more effort to breed such species. This was the reason to invite Sandra Kirchner and Luise Kruckenhauser from the Laboratory of Molecular Systematics at the Museum of Natural History (Vienna, Austria) to share their knowledge about hormone-induced spawning with us. This breeding technique is quite common in commercial aquacultures but until now has rarely been used as a tool for conservation breeding.

During the practical part of the workshop we were able to observe the hormone-induced spawning of specimens of the species *Garra barreimiae* following the working protocol developed by Cristiano Bertolucci from the University of Ferrara (Italy). One and a half days after hormone-injection spawning takes place. This method allows very accurate management: Spawning can be scheduled to suitable times. This tool will hopefully contribute to improve breeding successes - especially of endangered egg-laying fish species in our facilities. Within a short time after the workshop the first remarkable results had already been achieved!

Michael Köck from the Haus des Meeres gave an

Apocyclops: plankton food for marine fish larvae cultivated at a workshop in Vienna © Daniel Abed-Navandi / Haus des Meeres



Pregnant eagle ray (*Aetobatus ocellatus*) © Royal Burgers' Zoo



impressive presentation about the conservation project of the *Goodeidae* (*Allodontichthys polylepis*). This successful freshwater fish conservation project is a good example of a fruitful collaboration between private keepers, universities and zoos.

Thomas Ziegler from Cologne Zoo (Germany) presented his consistent strategy to display only endangered species at the vivarium of the zoo. A focus is placed on information plates to explain the reasons of endangerment of every single species displayed and inform about conservation activities.

Finally, Brian Zimmerman, Michael Köck and Anton Weissenbacher talked about breeding techniques for endangered fish species and all participants joined the discussion about different methods and individual experiences.

The Coral subgroup presented the first survey on corals from EAZA Members at the EUAC meeting in Hull. Altogether 14 institutes participated in the survey and listed 9,445 colonies in total out of 226 species. The main problem remains the uncertainty about the precise species being kept. The subgroup is trying to establish a

programme of genetic screening to create a gene bank for species determination.

COLLABORATIONS

The AZA is organising a worldwide network under the SAFE programme called “International Census of Chondrichthyans under Human Care”. The Elasmobranch subgroup found three representatives to cover the European region ensuring close collaboration between AZA and EAZA.

CONSERVATION AND RESEARCH

Den Blå Planet in Denmark received a zebra shark (*Stegostoma fasciatum*) with a strange skin colour and pattern. They conducted genetic research on this animal and the sub-population of zebra sharks. Preliminary results show no genetic difference within the zebra shark species.

A first anticonception success will be published in the Journal of Fish Biology opening a new door within Elasmobranch programmes to intervene in breeding results (Janse, M. and Luten, H. (In press). *Contraception within an elasmobranch captive breeding programme: a case report on the eagle ray Aetobatus ocellatus using gonadotrophin-releasing hormone (GnRH) agonist deslorelin (Suprelorin)*. J Fish Biol 94: 196-199).

At the Teleost meetings in Vienna the topic of cultivation of food-plankton was reviewed in a workshop at Haus des Meeres. In order to have a good basis for forthcoming fish cultivation ventures in public aquariums a brief introduction on how to grow marine phyto- and copepod-plankton on a long-term basis was given and living stock cultures traded among participants.

The genetic analysis of corals started in collaboration with Björn Källström (Maritime Museum and Aquarium, Gothenburg, Sweden). The overall goal is to establish a genetic tree which not only allows better species determination but also a screening of which corals within the EAZA institutions are related.

AMPHIBIAN

TAG Chair: Gerardo Garcia (Chester Zoo, Chester, United Kingdom)

TAG Vice Chairs: Olivier Marquis (Paris Zoo, Paris, France) and Benjamin Tapley (London Zoo, London, United Kingdom)

INTRODUCTION

In 2018 the EAZA Amphibian TAG (ATAG) expanded its core membership and welcomed Leyla Davis (Zurich Zoo, Switzerland) as ATAG Research coordinator and Sandra Honigs (Düsseldorf Zoo, Germany) as a Technical advisor.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Current single-species monitoring programmes include the ESB programmes for the lemur leaf frog (*Agalychnis lemur*; Tim Skelton, Bristol Zoo, UK); the black-eyed leaf frog (*Agalychnis moreleti*; Ben Baker, Chester Zoo, UK) and two EEPs: the achoque (*Ambystoma dumerilii*; Gerardo Garcia, Chester Zoo) and the mountain chicken frog (*Leptodactylus fallax*; Gerardo Garcia). EAZA BPG have been drafted for the three species and will be launched in early 2019. A study to investigate the relatively high incidence of corneal lipidoses in the lemur leaf frog will be initiated in 2019. The studbook for the black-eyed leaf frog has been transferred to ZIMS.

ACHIEVEMENTS DURING THE YEAR

Two ATAG meetings were held in 2018. The first meeting was a joint meeting with the Reptile TAG and was held at Aquatis, Lausanne (Switzerland) in April 2018, during this meeting a workshop on the post mortem examination of amphibians was facilitated by the Amphibian TAG Veterinary advisor (Javier Lopez, Chester Zoo). The annual meeting was held in Athens (Greece). Gerardo Garcia received international recognition in the form of a Sabin award which was given in recognition of his tireless efforts to bring highly threatened amphibian species back from the brink of extinction. A special edition of Zooquaria was published celebrating the outputs ten years after our EAZA Conservation Campaign: Year of the Frog.

COLLABORATIONS

The ATAG collaborated with a large number of different academic, government and non-government organisations to realise the objectives of a number of different conservation and research projects. These

The Bosnian alpine newt (*Ichthyosaura alpestris reiseri*) suspected to be extinct in the wild © F.-G. Grandin/MNH



collaborations include the Madagasikara Voakajy (MV), Madagascar for work on the Cowan's Mantella Project; the Australian Museum, Australia and Hoang Lien National Park, Vietnam for work on amphibians in Northern Vietnam; the governments of Montserrat and Dominica for the conservation of the mountain chicken frog; Universidad Michoacana de San Nicolás de Hidalgo, Mexico; Manchester Metropolitan University, UK; PIMVS Jimbani Xarhantani, the Centro Regional de Investigaciones Pesqueras, Mexico and the Monastery of the Dominican Order in Pátzcuaro, Mexico for the conservation of the achoque, as well as more broadly with IUCN Amphibian Specialist Group (SG). Barcelona Zoo (Spain) and Chester Zoo continue to work on a LIFE Programme (LIFE15 NAT/ES/000757) for the Montseny brook newt (*Calotriton arnoldi*) associated with different official institutions of Catalonia. The objectives of the LIFE Programme include ambitious habitat improvement plans, research on the structure of populations and the ecology of the species, education and outreach programmes and captive breeding for future reintroductions.

CONSERVATION AND RESEARCH

- ° Cologne Zoo, Germany achieved a world first *ex situ* breeding of the Vietnamese crocodile newt (*Tylostotriton vietnamensis*).
- ° A fire salamander symposium was held at Cologne Zoo

for salamander conservationists and zoologists from the Netherlands, Belgium and Germany.

- ° Jersey Zoo, UK carried out the annual Jersey agile frog head-starting project in collaboration with States of Jersey. Jersey Zoo also organised and supported several frog surveys in Madagascar in collaboration with the University of Antananarivo and the IUCN-Amphibian SG.
- ° London Zoo published the findings of their Chinese giant salamander conservation project and demonstrated that the species has undergone large scale population declines across much of China and that there might be at least three different species.
- ° In Northern Vietnam, London Zoo and Paignton Zoo, UK led amphibian work (in collaboration with Hoang Lien National Park, Vietnam; Australian Museum, Australia and Indo-Myanmar Conservation, Vietnam) resulting in the description of two new and potentially highly threatened frogs.
- ° The mountain chicken frog recovery programme (Jersey Zoo, Chester Zoo, Nordens Ark, Sweden; Bristol Zoo and London Zoo) published two ground-breaking papers, the results of which will inform future population management of the species. The team developed the first validated body condition index for an amphibian and undertook the first ever study to compare the nutritional content of the wild and *ex situ* frog populations.
- ° A conservation programme of the possibly extinct in the

The Cowan's mantella (*Mantella cowanii*) focus of the 2nd Action Plan workshop in Madagascar facilitated by ATAG member © Gerardo Garcia



- wild Bosnian alpine newt (*Ichthyosaura alpestris reiseri*) has been initiated by Paris Zoo (France) in collaboration with the Herpetological Association in Bosnia and Herzegovina (ATRA), Sarajevo University, Bosnia and Herzegovina and the French Urodels Group. Field sampling has been performed and genetic investigations of the remaining *ex situ* animals are about to start at Sarajevo University.
- ° Paris Zoo has been involved in the amphibian species inventory of the Vohimana reserve, Madagascar, supported by the NGO "L'homme et l'environnement", Madagascar.
 - ° During 2018, Barcelona Zoo focused on the conservation breeding of two native amphibian species (Montseny brook newt and Mallorcan midwife toad, *Alytes muletensis*) with plans for further *ex situ* breeding and reintroduction in progress.
 - ° Chester Zoo facilitated the second species action plan for the Cowan's mantella (*Mantella cowanii*) in Madagascar with the aim of connecting the conservation of the species, habitat and local communities.
 - ° Chester Zoo finalised the three-year monitoring programme of golden mantella (*Mantella aurantiaca*) in partnership with MV to develop a model to estimate populations in Mangabe protected area. The team published about a new predator for the species. They also finalised a MSc from their Lead Keeper in connection with Manchester Metropolitan University, UK

on the validation of marking techniques for achoques simultaneously with the survey of the remaining populations in Lake Pátzcuaro.

- ° Chester Zoo published in collaboration with Salford University (UK) the results of the comparative studies between *ex situ* and wild populations of golden mantella.

ADDITIONAL COMMENTS

Peer-reviewed publications produced by ATAG members in 2018:

Doherty-Bone, T., Nyingchia, O. and Tapley, B. (2018). *Cannibalism in the Critically Endangered Lake Oku Clawed Frog: a possible cause of morbidities and mortalities?* *Herpetology Notes* 11: 667-669.

Garcia, G. et al. (2018). *Mantella aurantiaca* (Golden mantella). Predation by terrestrial beetle larvae. *Natural History Notes. Herpetological Review* 49(1).

Garcia, G. et al. (2018). *Reintroduction programme of Montseny brook newt*. Second Wildlife Reintroduction Conference, RSG/IUCN. Chicago, US. E-poster

Jayson, S. et al. (2018). *Comparison of the nutritional content of the captive and wild diets of the Critically Endangered mountain chicken frog (*Leptodactylus fallax*) to improve its captive husbandry*. *Zoo Biology* 37: 332-346.

Jayson, S. et al. (2018). *Development of a body condition score for the mountain chicken frog (*Leptodactylus fallax*)*. *Zoo Biology* 37: 196-205.

Kanagavel, A. et al. (2018). *Distribution and habitat associations of the Critically Endangered frog Walkerana phrynoderma (Anura: Ranixalidae), with an assessment of potential threats, abundance, and morphology*. Phyllomedusa 17: 21-37.

Kane, D., Michaels, C.J. and Tapley, B. (2018). *Description and development of the tadpole of Rhacophorus feae (Anura; Rhacophoridae)*. Zootaxa 4504(1): 138-44.

Michaels, C.J., Das, S. and Tapley, B. (2018). *Modulation of foraging strategy is elicited in response to both behaviourally distinct prey items and olfactory cues alone in the aquatic frog Xenopus longipes (Anura: Pipidae)*. Herpetological Bulletin 143: 1-6.

Michaels, C.J. et al. (2018). *Batrachochytrium dendrobatidis infection and treatment in the salamanders Ambystoma andersoni, A. dumerilii and A. mexicanum*. Herpetological Journal 28: 87-92.

Ninh, H. T. et al. (2018). *First record of the Vietnam Flying Frog, Rhacophorus calcaneus Smith, 1924, from Khanh Hoa Province, including the first molecular identification and morphological description of larval stages*. Revue Suisse de Zoologie 125(2): 231-238.

Nguyen, T. V. et al. (2018). *New records and first description of females of the large-eared frog, Odorrana gigatympana (Orlov, Ananjeva and Ho, 2006) (Anura: Ranidae), from Vietnam*. Russian Journal of Herpetology 25(3): 239-244.

Passos, L.F., Garcia, G. and Young, R.J. (2018). *Comparing the bacterial communities of wild and captive golden mantella frogs: Implications for amphibian conservation*. PLoS one 13(10): p.e0205652.

Pham, C. T. et al. (2018). *A new species of Limnonectes (Amphibia: Anura: Dicroglossidae) from Vietnam*. Zootaxa 4508(1): 115-130.

Pham, C. T. et al (2018). *First record of Liuixalus feii Yang, Rao et Wang, 2015 (Anura: Rhacophoridae) from Vietnam and taxonomic assignment of L. jinxiuensis Li, Mo, Xie et Jiang, 2015*. Russian Journal of Herpetology 25 (2): 121-125.

Rauhaus, A. et al. (2018). *Good new(t)s for salamander conservation – the first reproduction of the Vietnamese Crocodile Newt in captivity*. Aark Newsletter 44: 19-21.

Rauhaus, A., Niggemann, C. and Ziegler, T. (2018). *Haltung, Reproduktion und Larvalentwicklung der Knochenkopfkroete Ingerophrynus galeatus (Günther, 1864) aus Vietnam*. Sauria 40(1): 3-24.

Spitzen, A. et al. (2018). *Collaboration for fire salamander conservation*. Aark Newsletter 45: 9-11.

Tapley, B. et al. (2018). *The disparity between species*

description and conservation assessment: A case study in taxa with high rates of species discovery. Biological Conservation 220: 209-214.

Tapley, B. et al (2018). *Two new and potentially highly threatened Megophrys Horned frogs (Amphibia: Megophryidae) from Indochina's highest mountains*. Zootaxa 4508: 301-333.

Tapley, B. et al. (2018). *A new locality and elevation extension for Megophrys rubrimera in Bat Xat Nature Reserve, Lao Cai Province, northern Vietnam*. Herpetology Notes 11: 865-868.

Turvey, S.T. et al. (2018). *Imminent extinction in the wild of the world's largest amphibian*. Current Biology 28(10): R592-R594.

Yan, F. et al. (2018). *The Chinese giant salamander exemplifies the hidden extinction of cryptic species*. Current Biology 28(10): R590-R592.

Ziegler, T. et al. (2018). *First record of longevity in Tylototriton zieglerei (Urodela: Salamandridae)*. Alytes 36(1-4): 328-338.

REPTILE

TAG Chair: Ivan Reháč (Prague Zoo, Prague, Czech Republic)

TAG Vice Chairs: Gerardo Garcia (Chester Zoo, Chester, United Kingdom), Matt Goetz (Jersey Zoo, Jersey, United Kingdom), Thomas Kölpin (Wilhelma Zoo, Stuttgart, Germany), Fabian Schmidt (Zoo Leipzig, Leipzig, Germany), Thomas Wilms (Allwetterzoo, Münster, Germany)

INTRODUCTION

The EAZA Reptile TAG (RTAG) is an expert group under the EAZA structure focused on reptiles. Its scope is extremely wide, considering the taxonomic richness of reptiles (approximately 10,500 species) and their enormous variability (from some tiny species of squamate reptiles to giant species of crocodiles, chelonians or snakes). In 2018, the RTAG consisted of 28 members and four internal advisors. It maintained six EEPs and 24 ESBs, with a wide geographical representation of involved zoos. The RTAG coordinates an optimal management of EAZA reptile collections to ensure long-term existence of populations of managed species of chelonians, crocodiles, tuataras, lizards and snakes. This is all done whilst respecting conservation requests, research issues, space availability, ethics, safety and other associated aspects. Simultaneously, the RTAG is a platform where EAZA reptile specialists, as well other

Extraction of Komodo dragon (*Varanus komodoensis*) venom for toxicological research © Ivan Rehak



professional colleagues, can meet, discuss and disseminate information and work to improve expertise in reptile husbandry, develop relevant guidelines, protocols and recommendations.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The RTAG coordinated with the AZA Jamaican iguana Species Survival Plan (SSP), the first ever transfers of Jamaican iguanas (*Cyclura collei*) to Europe. These transfers will strengthen the *ex situ* insurance population for this Critically Endangered species. This excellent example of overseas co-operation in *ex situ* conservation between AZA and EAZA, resulted in European zoos joining the AZA Jamaican iguana SSP as partners.

In accordance with a long-term evaluation schedule, evaluations were carried out on five EEPs: Ploughshare tortoise (*Geochelone yniphora*), Egyptian tortoise (*Testudo kleinmanni*), Gila monster (*Heloderma suspectum*), Mexican

beaded lizard (*Heloderma horridum*) and Jamaican boa (*Epicrates subflavus*).

Moreover, the RTAG itself underwent a TAG evaluation. Tim Skelton (Bristol Zoo, UK) produced a studbook publication for the Pancake tortoise ESB.

The EEP Committee approved the re-nomination of Michel Ansermet (Aquatis, Lausanne, Switzerland) as ESB keeper for the Mangshan pit viper (*Protobothrops mangshanensis*).

ACHIEVEMENTS DURING THE YEAR

Two RTAG meetings were held in 2018. The first meeting - a joint meeting with the Amphibian TAG - in April 2018 was hosted by Aquatis, Lausanne, Switzerland. Amongst a number of presentations and reports, attention was focused on venomous snake management and treatment of venomous snake bites. Another important topic discussed was reptile conservation in Switzerland and the connections between *ex situ*, *ex situ* in range

and *in situ* measures. This was presented by invited top Swiss conservation herpetologists. In association with a coordinated import of the Critically Endangered lesser Antillean iguana (*Iguana delicatissima*) to Europe, an update on this ESB and information on *in situ* conservation initiatives was presented by Matt Goetz (Jersey, UK). A workshop on “Technical installation of terrariums”, with equipment presentations, was also organised.

The second meeting was held during the EAZA Annual Conference in Athens, Greece, in September 2018. A great variety of presentations, reports, programme updates, new information and discussions were given. The first edition of the Gharial ESB was presented in detail with focus on the “One Plan Approach” and updates on another three crocodile management programmes were provided by respective studbook keepers. Olivier Marquis (Paris Zoo, France) presented an extensive overview on reptile thermoregulation. Until recently an extraordinarily mysterious reptile – the earless monitor lizard (*Lanthanotus borneensis*) – was for the first time successfully bred in EAZA zoos (Prague and Vienna). Respective curators, Petr Velenský and Anton Weissenbacher, provided meeting participants with important husbandry details. Miguel Pedrono (CIRAD, Madagascar) gave an exciting presentation via Skype on “Rewilding Madagascar with giant tortoises” illustrating the importance of *ex situ* conservation breeding for *in situ* ecosystem restorations.

COLLABORATIONS

The RTAG co-operated closely with internal EAZA partners – e.g. EAZA Amphibian TAG, EEP Committee, Research Committee, Population Management Advisory Group – and a number of external partners, especially from the field of reptile conservation and research. The RTAG furthered its cooperation with partners from other regional associations (e.g. AZA, Zoo and Aquaria Association ZAA). Thomas Ziegler (Cologne Zoo, Germany) got an invitation to the US HerpTAG to present significant European achievements in reptile research, conservation and husbandry. To facilitate the creation of *ex situ* and *in situ* conservation links, the RTAG continued to develop a close cooperation with the IUCN SGs, Task Forces and other IUCN umbrella organisations – in particular Crocodile SG (CSG, with Thomas Ziegler as Regional Chair for Europe), Iguana SG, Monitor Lizard SG, Skink SG, Tortoise and Fresh-water Turtle SG, CSG Tomistoma TF, Turtle Conservation Alliance – plus other international reptile conservation

initiatives (e.g. Gharial Conservation Alliance, Gharial Ecology Project, Asian Turtle Conservation Network, Blue Iguana Recovery Programme). This included active participation at SG meetings (in the CSG, a special Working Group on CSG–zoos co-operation is working well) and vice versa participation of SG members at RTAG meetings. Research was conducted in co-operation with universities and other research institutions. The Ploughshare tortoise EEP coordinated by Matt Goetz (Jersey Zoo, UK) collaborates with the University of Cardiff, UK on the genetic relationship analysis of all founder and potential founder animals, especially for the breeding station in Madagascar. The same type of genetic research is carried out by the Pancake tortoise ESB coordinated by Tim Skelton (Bristol Zoo, UK) in collaboration with University of Bristol, UK. The Lesser Antillean iguana ESB collaborated successfully with Rotterdam Zoo and the governments of the Netherlands and Sint Eustatius to transfer two pairs of wild caught Lesser Antillean iguanas from Sint Eustatius to Rotterdam Zoo as part of a safety and research population, following the recommendations of a Species Action Plan meeting held in the region. During the meeting in Lausanne the cooperation between the RTAG and the Department of Genetics and Evolution, University of Geneva, Switzerland was presented, following an excellent introductory presentation by Michel Milinkovitch (Laboratory of Artificial and Natural Evolution).

CONSERVATION AND RESEARCH

RTAG’s representatives are active in various EAZA activities related to research (Ivan Reháč – member of EAZA Research Committee, member of the Journal of Zoo and Aquarium Research board) and population management (Matt Goetz – member of EAZA EEP Committee, Fabian Schmidt – member of EAZA Population Management Advisory Group).

Significant development continued on the implementation of the EAZA Research Committee recommendations and focused on the important research issues for species management as well as conservation efforts. Thanks to the programme coordinators and cooperation from involved zoos as well as academic partners, important research projects have been conducted. For instance, a complex international cytogenetic and genome analysis research project on the Komodo dragon (*Varanus komodoensis*) is ongoing.

The coordinator of the Lesser Antillean iguana ESB, Matt

Goetz co-facilitated a regional Species Action Plan meeting for this species in Anguilla. The long-term conservation research of the European green lizard (*Lacerta viridis*), supervised by Ivan Reháč, continued and brought valuable results for both active *in situ* and *ex situ* population management.

The Gharial ESB kept at Prague Zoo supports the conservation research conducted in frame of the “Gharial Ecology Project”, operated through the Madras Crocodile Bank Trust. This registered Indian NGO was started in 2008 by Rom Whitaker and Dhruvajyoti Basu and was initially sparked by the mass die-off of 110+ gharials in the National Chambal Sanctuary.

Some RTAG members were very active in research, publication, scientific journals editorial boards, teaching and supervising university students. Thomas Ziegler (Cologne Zoo, Germany) was ranked position 38 among most productive reptile taxonomists since Linnaeus (1707-1778) and rank 10 among living reptile taxonomists.

ADDITIONAL COMMENTS

Behler, N. *et al.* (2018). *Population size, demography and diet of the Siamese crocodile, Crocodylus siamensis (Schneider, 1801) in the Mesangat swamp in Kalimantan, Indonesia.* Raffles Bulletin of Zoology 66: 506-516.

du Plessis, S. *et al.* (2018). *Genetic diversity and cryptic population re-establishment: management implications for the Bojer's skink (Gongylomorphus bojerii).* Conservation Genetics 20:137–152.

Edmonds, D., Kessler, E. and Goetz, M. (2018). *Natural exposure to ultraviolet-B radiation in two species of chameleons from Madagascar.* Zoo Biology 37:452–457.

Filippov, A. E. *et al.* (2018). *Numerical Model of the Slithering Snake Locomotion Based on the Friction Anisotropy of the Ventral Skin.* Tribology Letters 66:119.

Fischer, D. *et al.* (2018). *European green lizard (Lacerta viridis) at the territory of Prague zoo.* Gazella 43: 36-61.

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Goetz, M. and Burton, F.J. (2018). *First record of the mourning gecko, Lepidodactylus lugubris (Duméril and Bibron 1836), on Grand Cayman, Cayman Islands.* Reptiles and Amphibians 25(2): 158-159.

Le, D.T. *et al.* (2018). *New records and an updated list of*

snakes from Yen Bai Province, Vietnam. Herpetology Notes 11: 101-108.

Luu, V. Q. *et al.* (2018). *A new species of Lycodon Boie, 1826 (Serpentes: Colubridae) from central Laos.* Revue Suisse de Zoologie 125(2): 263-276.

Ngo, H. N. *et al.* (2018). *Microhabitat selection and communal nesting in the insular Psychedelic Rock Gecko, Cnemaspis psychedelica, in southern Vietnam with updated information on trade.* Nature Conservation 31: 1-16.

Nguyen, T. Q. *et al.* (2018). *First population assessment of the Asian water dragon (Physignathus cocincinus Cuvier, 1829) in Thua Thien Hue Province, Vietnam.* Nature Conservation 26:1-14.

Nguyen, T. V. *et al.* (2017). *First country record of Opisthotropis maculosa STUART et CHUAYNKERN, 2007 from Vietnam.* Russian Journal of Herpetology 25(1): 74-78.

Nguyen, T. Q., Ngo, H. N. and Ziegler, T. (2018). *The reptile fauna of the Cat Ba Archipelago: An unique biological resource with a high level of local endemism and important conservation significance.* S. 48-54 in Proceeding of a scientific workshop on “Values and Solutions to conserve biodiversity in Ha Long Bay and Cat Ba Archipelago”, IUCN Vietnam, Gland, Switzerland: IUCN: 124 S.

Nguyen, T. Q. *et al.* (2018). *New records of snakes (Squamata: Serpentes) from Hoa Binh Province, Northwestern Vietnam.* Bonn zoological Bulletin 67(1): 15-24.

Nguyen, T. T. *et al.* (2018). *Genetic screening of Siamese crocodiles (Crocodylus siamensis) in Laos and Vietnam: Identifying purebred individuals for conservation and release programmes.* Crocodile Specialist Group Newsletter 37(3): 8-14.

Pham, A. V. *et al.* (2018). *New records and an updated list of lizards from Son La Province, Vietnam.* Herpetology Notes 11: 209-216.

Procházka, M. and Reháč, I. (2018). *First breeding of gharial, Gavialis gangeticus, in Europe and management of gharial ex situ population.* Gazella 43, 63-83.

Souvannasy, P. *et al.* (2018). *Evidence of another overlooked Siamese crocodile (Crocodylus siamensis) population in Khammouane Province, central Lao PDR.* Crocodile Specialist Group Newsletter 37(3): 6-8.

Ziegler, T. (2018). *Herpetodiversity research in Vietnam and adjoining countries: Linking morphology, molecular biology and population surveys with nature conservation.* BMBF Travelling Conference “Biodiversity as a basis for sustainable bioeconomy: New ways towards Biodiversity (BIONOM)”, The Vietnam National Museum of Nature, Hanoi

Study on Gharial (*Gavialis gangeticus*) tooth's morphology specialised to piscivory. Computer-coloured photograph taken with a scanning electron microscope © Petr Juracka



and The Natural History Museum, Berlin, Hanoi, 9 February 2018.

US Herp TAGs, Double Tree Suites, Southcenter, Seattle, WA, hosted by Woodland Park Zoo, April 2018:

Ziegler, T. (2018). *Shinisaurus crocodilurus vietnamensis*: Research and conservation projects.

Ziegler, T. (2018). Monitor lizard projects of the Cologne Zoo, Germany, with a general look at zoo collections.

Ziegler, T. (2018). Overview of the amphibian keeping and projects of the Aquarium of the Cologne Zoo, Germany, and our partner programmes with Vietnam.

Ziegler, T. (2018). Overview of the chelonian facilities and breeding at the Aquarium of the Cologne Zoo, Germany, and our partner programmes with Vietnam.

Ziegler, T. (2018). Crocodiles at the Aquarium of the Cologne Zoo, Germany, and related projects.

Ziegler, T. (2018). *Shinisaurus crocodilurus vietnamensis* and monitor lizards: Research, zoo biology and conservation projects. Master Course, Villanova University, 25 April 2018.

Ziegler, T. (2018). Some examples for shifts towards improved *in situ* conservation. EAZA Freshwater TAG, Wien, 12 June 2018.

Ziegler, T. (2018). Conservation of the Crocodile Lizard (*Shinisaurus crocodilurus*). Consultation and training workshop: Collaborative transboundary conservation of vulnerable species and habitats under climate change. VNU Hanoi University of Science, Hanoi, Centre for Biodiversity and Conservation, American Museum of Natural History, New York, Fondation Prince Albert II de Monaco, 11 July 2018.

Ziegler, T. (2018). *Zwei Jahrzehnte Erforschung und Schutz der Amphibien- und Reptilienvielfalt in den letzten verbliebenen Regenwäldern von Vietnam und Laos*. 9. Jahrestagung Vivaristische Vereinigung e. V. (ViVe), Aquazoo – Löbbecke Museum, Düsseldorf, 17 November 2018.

Ziegler, T. et al. (2018). Morphological and molecular review of Jacob's Mountain Stream Keelback *Opisthotropis jacobi* Angel and Bourret, 1933 (Squamata: Natricidae) with description of a sibling species from northern Vietnam. *Zootaxa* 4374(4): 476-496.

Ziegler, S. et al. (2018). Testing the applicability of ¹⁵N isotopic marker in skin tissue to distinguish between captive and wild monitor lizards. *Biawak* 12(2): 73-83.

Ziegler, T. et al. (2018). Erstnachweis der Weißlippen-Bambusotter (*Trimeresurus albolabris*) für Haiphong: Dokumentation einer ungewöhnlichen Farbvariante von der Insel Bach Long Vy im Golf von Tonkin, Nordvietnam und Identifizierung zuvor fehlbestimmter *T. rubeus* und *T. cardamomensis* aus Südvietnam. *Sauria* 40(2): 1-24.

Ziegler, T. and Le, M. D. (2018). New Records of the Blue-tailed Monitor, *Varanus doreanus* (Meyer, 1874), Including a Maximum Size Record. *Biawak* 12(1): 48-53.

Ziegler, T. et al. (2018). A new species of *Parafimbrios* from northern Vietnam (Squamata: Xenodermatidae). *Zootaxa* 4527(2): 269-276.

RATITE

TAG Chair: Joost Lammers (Vogelpark Avifauna, Alphen aan den Rijn, the Netherlands)

TAG Vice Chair: Jo Gregson (Paignton Zoo Environmental Park, Paignton, United Kingdom)

INTRODUCTION

The EAZA Ratite TAG was established in 2008 and encompasses all palaeognath bird species including ostriches, rheas, cassowaries, emus, kiwis and tinamous. The mission of this TAG is to facilitate the management of captive ratites and tinamous in EAZA collections and to participate in and support relevant conservation efforts.

POPULATION MANAGEMENT PROGRAMME

DEVELOPMENTS

The four population management programmes within the scope of this TAG are running well with no notable changes occurring in 2018; no evaluations or RCP changes took place this year. Maren Frerking (Hannover Zoo, Germany), EEP coordinator for the North African ostrich (*Struthio camelus camelus*), has been working hard on producing the first studbook for that EEP and this is expected early 2019.

The first Northern brown kiwi (*Apteryx mantelli*) hatched in Avifauna, the Netherlands © Vogelpark Avifauna



As of November 2018, 21.16.0 North African ostriches are kept in 12 institutions. Six of these institutions keep sexually mature pairs. So far just one institution (Sigean, France) is keeping several sexually mature males together.

ACHIEVEMENTS DURING THE YEAR

During the Ratite TAG meeting at the EAZA Annual Conference in Athens, a workshop allowed for the discussion of two topics flagged up in the previous year, namely:

- 1) The need for guidelines on the transportation of large (and potentially dangerous) ratites;
- 2) Risk assessments for the keeping of large ratites in EAZA collections – we looked for consensus in our policies and strategies in dealing with ratites across European countries.

It became obvious that more research is needed on the use of sedatives in large ratites and one of the actions coming out of this discussion is the production of TAG guidelines on the use of sedatives in and/or prior to the transport of large ratites.

COLLABORATIONS

Close collaborations are still ongoing with the AZA Ratite TAG.

CONSERVATION AND RESEARCH

Ivo Jacobs (Lunds University, Sweden) has been conducting research on elegant crested tinamou (*Eudromia elegans*) and Tataupa tinamou (*Crypturellus tataupa*) at Vogelpark Avifauna as part of a larger project called “Dinosaur cognition; reconstructing the dinosaur mind”.

ADDITIONAL COMMENTS

In *Zooquaria* (#103), there has been an article on the first ever hatching of a Northern brown kiwi (*Apteryx mantelli*) in Vogelpark Avifauna in the Netherlands.

PENGUIN

TAG Chair: Pierre de Wit (Wildlands Adventure Zoo Emmen, Emmen, the Netherlands)

TAG Vice Chair: Jo Elliott (Edinburgh Zoo, Edinburgh, United Kingdom)

INTRODUCTION

As iconic flagship animals, the goal of the EAZA Penguin TAG is to provide leadership for the management of penguins in EAZA collections in order to maintain healthy,

Humboldt penguins (*Spheniscus humboldti*) breeding at Zoo Košice © Patrik Pastorek



sustainable populations for the purpose of inspiring and promoting appreciation and conservation of penguins and their habitats.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

A TAG meeting was held at the EAZA Annual Conference in September in Athens (Greece), in which the status of the different species was discussed.

Even though the hatch rate is increasing, the population of the king penguin (*Aptenodytes patagonicus*) is decreasing. In this EEP, cooperation is excellent and a high percentage of the transfer recommendations were achieved.

The EEP for the Humboldt penguin (*Spheniscus humboldti*) has been suffering from a lack of continuation for some years due to the stepping down of previous coordinators. Yet, in 2018, Patrik Pastorek of Zoo Košice (Slovakia) was chosen as their successor. The first priority is to get a good overview of the population, but after a meeting of the coordinator with members of the TAG and the EEO, there is a general plan established on how to follow up on this and get the programme back on track again.

As the gentoo penguin (*Pygoscelis papua*) population (ESB) is at carrying capacity and no new holders are confirmed, the general recommendation was to not breed unless institutions can hold offspring, or unless specifically recommended by the studbook keeper.

The EEP of the African penguin (*Spheniscus demersus*) is comprised of 1,986 live birds, which is a growth of 1.3 %

relative to 2017. A meeting was held to discuss the latest details of the programme with its participants.

The populations of Southern and Northern rockhoppers (*Eudyptes moseleyi* and *Eudyptes chrysocome*) saw a slight increase in numbers, but breeding is still problematic.

The population of magellanic penguins (*Spheniscus magellanicus*) (after a slow decrease after 2008) is back to where it started, at almost 130 birds.

The population of the macaroni penguin (*Eudyptes chrysolophus*) remains more or less stable, but is too small to be viable in the long run.

The populations of Adélie penguins (*Pygoscelis adeliae*) and chinstrap penguins (*Pygoscelis antarctica*) within EAZA are not sustainable. As such, it is recommended that both species are not to be obtained.

ACHIEVEMENTS DURING THE YEAR

The total review of the RCP is an ongoing process, to be finished in 2020 when the EAZA Penguin TAG RCP Workshop is scheduled. The datasets of the African penguin, king penguin and gentoo penguin were migrated into ZIMS for Studbooks.

COLLABORATIONS

The Penguin TAG was not represented at the Joint TAG Chairs meeting at Budapest in April.

Previous contacts between the TAG and the ZAA led to an agreement to set up a population of little penguins (*Eudyptula minor*) in Europe. By the end of 2017, a Merlin facility in Australia closed down, resulting in a colony of this species becoming available. Managed under the auspices of an Australasian Species Management Programme, the exportation to another Merlin facility (Weymouth, UK) was approved. Although Weymouth is not a Member of EAZA, the actual importation took place in close cooperation between Merlin and the TAG. In this process, it was agreed between the TAG, ZAA and Merlin that a second importation will be done by Living Coasts (UK) as soon as birds will become available. This implies the establishing of an EEP for the species.

CONSERVATION AND RESEARCH

The TAG does not directly support conservation work but highlights the work of its members. As before, the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) and Sphenisco (for African and Humboldt penguins respectively) are supported by EAZA Members

holding penguins.

Late 2018, a visit of the African penguin EEP coordinator to SANCCOB, celebrating its 50th anniversary, was a significant contribution in strengthening the bonds between both parties.

The research project to ascertain whether current African penguins in the EEP are of a hybrid ancestry with either Humboldt or magellanic penguins is ongoing and will extend into 2019.

CICONIIFORMES AND PHOENICOPTERIFORMES

TAG Chair: Catherine King (Weltvogelpark Walsrode, Walsrode, Germany)
TAG Vice Chair: Andrea Bračko (Zagreb Zoo, Zagreb, Croatia)

INTRODUCTION

This year provided the opportunity for the EAZA Ciconiiformes and Phoenicopteriformes TAG to exchange

experiences and further develop inter-regional working relationships and priorities through the Joint TAG Chairs meeting held in Budapest in May. Other meetings attended, particularly the Conservation Forum in Tallinn, spawned ideas for future collaborations between zoos and IUCN Species Survival Commission (SSC) SGs. The participation of the TAG in a two-day workshop covering long-legged waterbirds organised by the French zookeeper association (Association Francophone des Soigneurs Animaliers, AFSA) was very instructive in how much keeper organisations can achieve, what the priorities are and how the TAG can support their efforts.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The Oriental white stork EEP evaluation was initiated and will be completed shortly.

Two new TAG Veterinary advisors were appointed. Fabia Wyss (Basel Zoo, Switzerland), whose PhD study helped give direction in avoiding foot lesions in flamingos, will now help us determine how we can further address this issue on a regional basis, as well as advising on other issues. Through



Eurasian spoonbill (*Platalea leucorodia*) nest in Artis Zoo © Mark van de Hoef

Trauma surgery on a white stork (*Ciconia Ciconia*) at Warsaw Zoo © Catherine King



her work running the rehabilitation centre at Warsaw Zoo, Agnieszka Czujkowska has become very experienced in treating trauma - especially of white storks (*Ciconia ciconia*), as approximately 150-200 are treated in the rehabilitation centre per year. Her expertise is already being put to great use within the TAG as trauma remains the most important source of mortality for our species. It is also relevant for species for which the TAG supports conservation efforts.

ACHIEVEMENTS DURING THE YEAR

A TAG meeting was held on 3 May, and another on 19 September. As the May meeting took place together with the international Joint TAG Chairs meeting, it was an opportunity to hear from other colleagues about their experiences working with similar issues.

Donna Bear Hall (Jacksonville Zoo, USA) and Scott Newland (Sedgwick County Zoo, USA) from the AZA region gave fascinating presentations on the management of rookeries in zoos, and their experiences will be used to develop a document for managing zoo rookeries more generally.

Christian Olaciregui (Barranquilla Zoo, Columbia) presented his findings on which herons are kept in the Association of Latin American Zoos and Aquaria

(ALPZA) zoos and why, which is very helpful for assessing collaboration possibilities between EAZA and ALPZA zoos, but also regarding the IUCN SSC Heron SG Ex situ Conservation and Breeding Management Working Group.

Similarly useful was the presentation by Kazutoshi Takami (Osaka Municipal Tennoji Zoological Gardens, Japan) on the management of Ciconiiformes and Phoenicopteriformes in the Japanese Association of Zoos and Aquaria (JAZA). Three talks on flamingo husbandry given during the two meetings collectively, two by AZA colleagues, Jeff Sailer (Toledo Zoo, USA) and Jenny Tibbot (San Diego Safari, USA) and by Friederike von Houwald (Basel Zoo, Switzerland) gave very useful perspectives on flamingo management. All three pointed to the use of very fine sand and extensive water coverage in flamingo enclosures to help alleviate foot lesion issues.

To lower the barrier for getting more people, particularly non-native English speakers, to participate more in discussions, as well as providing a chance to informally exchange ideas with non-EAZA colleagues, we held our first “café” style workshop in May, in which small groups of people talked for 10 minutes about a Ciconiiformes and Phoenicopteriformes management subject before independently (not as one group) moving to another table to discuss another subject. It definitely led to the sharing of ideas, and much was learned about how to do future workshops of this type.

COLLABORATIONS

Maartje de Vries and Mark van de Hoef, keepers at Artis Zoo (the Netherlands), attended the IX International Workshop Eurasian Spoonbill International Expert Group on 14-28 November, in Djerba (Tunisia). They gave a presentation on the management of Eurasian spoonbills (*Platalea leucorodia*) in Artis and made suggestions on how *ex situ* populations of Eurasian spoonbills might serve to augment knowledge of this species generally. Currently they are giving technical and logistic advice for an egg translocation project to study migration in these birds. János Szánthó (Artis Zoo) monitors this species.

Similarly, Catherine King attended the VII International Black stork Conference held at Estación Biológica de Doñana (Spain) on 29-30 November, where she gave a talk on the status of black storks (*Ciconia nigra*) in (EAZA) zoos and the potential for collaboration with *in situ* activities. Conference participants asked if the performance of post mortem investigations of free-ranging black storks,

particularly in France, by zoos would be possible. Another person asked if it would be possible for zoos to document moult of black storks to see if this can be used as individual identification within a given time span. We will investigate whether these two requests are possible to fulfil.

CONSERVATION AND RESEARCH

The TAG continues to work with the IUCN SSC Heron SG White-bellied Heron (*Ardea insignis*) Working Group to support *ex situ* conservation of this critically endangered heron.

Tshewang Lhendup, who will be working at the Royal Society for Protection of Nature white-bellied heron breeding centre in Bhutan when it is finished, spent two months at Prague, Zlín and Warsaw zoos to learn about husbandry and other aspects of *ex situ* management relevant to the care of this heron. He is the second person to undergo training; a third person will be trained in 2019. Extra attention was put on simple medical procedures and first response actions in case of trauma, as there will be no external veterinary facilities close to the breeding centre, and veterinarians in Bhutan have little experience working with birds.

Warsaw Zoo arranged the transport of 159 white storks from rehabilitation centres in Poland for an on-going re-wilding project in the UK, in which some EAZA institutions are participating.

ADDITIONAL COMMENTS

The following documents were prepared in 2018:
Goodman, G. *et al.* (2018). *Ex situ conservation of the white-bellied heron Ardea insignis in Bhutan*. Poster, Conservation Forum 22-25 May 2018. Tallinn, Estonia.

Pouvreau, S. *et al.* (2019). *Rapport de formation juin 2018*. Association Francophone des Soigneurs Animaliers. www.afsanimalier.org

WATERFOWL AND PELECANIFORMES

TAG Chair: Bernd Marcordes (Cologne Zoo, Cologne, Germany)

TAG Vice Chairs: Peter Smallbones (Paignton Zoo Environmental Park, Paignton, United Kingdom) and Johnpaul Houston (pending)

INTRODUCTION

During 2018, the main actions of the EAZA Waterfowl and Pelecaniformes TAG have been the preparation work for the upcoming RCP meetings, as well as the receipt of the first TAG evaluation since the two TAGs were merged in 2014.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Several species are monitored by the TAG as EEPs, Studbooks (European, ESB and International, ISB) and MON-Ps:

- Dalmatian pelican (*Pelecanus crispus*) EEP, Agnieszka Mech, Poznan Zoo, Poland
- Meller's duck (*Anas melleri*) EEP, Harriet Whitford, Jersey Zoo, UK
- White-winged wood duck (*Asarcornis scutulata*) EEP, William van Lint, EEO, the Netherlands
- Baer's pochard (*Aythya baeri*) ESB, Peter Smallbones, Paignton Zoo Environmental Park, UK
- Berniers teal (*Anas bernieri*) ISB, Simon James, Jersey Zoo, UK
- Little pied cormorant (*Microcarbo melanoleucos*) ESB, Martin Kaiser, Berlin Tierpark, Germany



Southern screamer (*Chauna torquata*) chicks at Paignton Zoo © Peter Smallbones

Ruddy-headed goose (*Chloephaga rubidiceps*) © Johnpaul Houston


- Madagascar pochard (*Aythya innotata*) MON-P, Simon James, Jersey Zoo, UK
 - Pink-backed pelican (*Pelecanus rufescens*) ESB, Georgina Barnes, Longleat Safari Park, UK
 - Scaly-sided merganser (*Mergus squamatus*) ESB, Johnpaul Houston/ Pending, Blackpool Zoological Park, UK
 - Eastern white pelican (*Pelecanus onocrotalus*) MON-P, vacant
 - Lesser white-fronted goose (*Anser erythropus*) MON-P, Anna Kazazou, Attica Zoo, Greece
 - Northern gannet (*Morus bassanus*) and Anhinga (*Anhinga anhinga*) MON-Ps, vacant
 - Philippine duck (*Anas luzonica*) and Marbled teal (*Marmoranetta angustirostris*) MON-P, Nigel Simpson, Wild Place Project, Bristol, UK
 - Red-breasted goose (*Branta ruficollis*) MON-P, Tobias Rahde, Berlin Zoo, Germany
 - Screamers (*Chauna* sp.) and Black-billed whistling-duck (*Dendrocygna arborea*) MON-P, Joost Lammers, Avifauna, the Netherlands
 - Seaducks (*Mergini*) and Hawaiian duck (*Anas wyvilliana*) MON-P, Catherine King, Weltvogelpark Walsrode, Germany
- Agnieszka Mech (Poznań Zoo) was confirmed as the

new EEP coordinator for Dalmatian pelicans, taking over from Piotr Ćwiertnia – many thanks to Piotr for his work, including the Long-Term Management Plan (LTMP) for the EEP finalised in 2017.

Meller's duck EEP was evaluated and advised that it would be beneficial to elect a Species Committee.

The Waterfowl and Pelecaniformes TAG was evaluated for the first time since the two TAGs were combined, and the publishing of an RCP was flagged as a key priority. Additionally, the TAG will increase efforts to more proactively promote waterfowls (use TAG page, publish articles, highlight species/conservation activities, etc.), and will start working on publishing BPG for priority species.

ACHIEVEMENTS DURING THE YEAR

Species assessments were completed in anticipation of the upcoming 2019 RCP review and an order was laid out to facilitate prioritisation in this meeting – taking place in March 2019 and kindly hosted by Paignton Zoo (UK). The TAG commented on the use of Waterfowl and Pelecaniformes in bird displays across the region, and the need for specific guidance for the two taxa in this regard.

A waterfowl meeting was held at the Joint TAG Chairs mid-year meeting in Budapest during 2018.

COLLABORATIONS

Collaboration is continuing between East Asian - Australasian Flyway Partnership and both the Baer's pochard and scaly-sided merganser programmes within EAZA. Members of the TAG are also members of various IUCN SG Committees.

AZA colleagues, and relevant IUCN SG members are being collaborated with in regard to the RCP to achieve a more global approach to species management within our taxa.

CONSERVATION AND RESEARCH

Augsburg Zoo (Germany) kindly donated € 2,000 to the scaly-sided merganser task-force to facilitate research *in situ* in Far East Russia and China.

ADDITIONAL COMMENTS

Vice Chair Johnpaul Houston talked at the 2018 Waterfowl Conservation workshop (joint meeting with International Wild Waterfowl Association annual meeting) hosted by Sylvan Heights Bird Park in Scotland Neck, North Carolina (USA).

FALCONIFORMES AND STRIGIFORMES

TAG Chair: Mark Habben (Zoological Society of London, London, United Kingdom)

TAG Vice Chair: Kirsi Pynnönen-Oudman (Helsinki Zoo, Helsinki, Finland)

INTRODUCTION

2018 was a busy year for the EAZA Falconiformes and Strigiformes TAG. Several population management programmes had good reproduction results and numerous raptors could be released to the wild. Also *in situ* populations of released raptors had a successful breeding year. Unfortunately, at the end of the year, Mark Habben, Chair of the TAG for nearly six years, stepped down. He will remain as an advisor to the TAG. The Vice Chair Kirsi Pynnönen-Oudman will be taking over the position. The TAG was divided in subgroups with the following leaders:

Kirsi Pynnönen-Oudman for the Owls subgroup, Jan Hanel (Zoo Liberec, Liberec, Czech Republic) for the Eagles and Hawks subgroup, Marleen Huyghe and Joost Lammers (Planckendael Zoo, Antwerp, Belgium and Avifauna, Alphen aan den Rijn, the Netherlands) for the Vultures subgroup and Graeme Dick (Longleat Safari Park, Warminster, UK) for the Falcons subgroup.

POPULATION MANAGEMENT PROGRAMME

DEVELOPMENTS

The breeding programme for the Rueppels vulture (*Gyps ruepellii*), led for many years by Yitzhak Yadid (Rome Zoo, Italy), became vacant and the TAG is working on a successor for this position. The EEP for Eurasian black vulture (*Aegypius monachus*) was evaluated in 2018 with a positive outcome. The evaluations for two other vulture EEPs started in 2018 and are to be finalised in 2019. A first concept for the Strigiformes RCP was presented by Simon Bruslund (Zoo Heidelberg, Germany) in the mid-year TAG



Great grey owls (*Strix nebulosa*) are prone to Usutu virus © Kirsi Pynnönen-Oudman

meeting ahead of the scheduled RCP workshop for owls in 2020.

ACHIEVEMENTS DURING THE YEAR

The mid-year TAG meeting in Budapest was held after the international TAG meeting. AZA Raptor TAG Chair Scott Tidmus (Disney Animal Kingdom, USA) presented highlights of the AZA conservation activities. In addition, as a background for the consideration of the possible owl EEPs in EAZA, he also presented the AZA Owl SSPs.

Andreia Pinto (Lourosa Zoo, Portugal), presented her first report as newly appointed studbook keeper for the king vulture (*Sarcoramphus papa*). Marleen Huyghe (Planckendael Zoo, Belgium) reported on the meeting of the Vulture Conservation Foundation held in Sardinia, in which several topics were discussed such as the use of drones in wild populations, future projects focusing on the conservation of the Egyptian vulture (*Neophron percnopterus*) and the Bulgarian reintroduction project for Eurasian black vultures, in particular the release methodology and the tagging methods to be used.

At the EAZA Annual Conference in Athens, José Tavares, Director of the Vulture Conservation Foundation, gave an overview of the populations, trends and different conservation projects currently happening for vultures in Europe and stressed the roles of EAZA zoos in conservation work. Impressive conservation work on the Egyptian vulture in Bulgaria was presented by Stoyan Nikolov of the Bulgarian Society for the Protection of Birds and Ivaylo Klisurov from Green Balkans. Bulgaria, being the stronghold of the species, had a very good breeding year with 26 breeding pairs resulting in 25 chicks hatching and



Eurasian black vulture (*Aegypius monachus*) release in Bulgaria © Marleen Huyghe

21 fledging. Supplementary feeding stations have been established to support the existing population and to attract non-breeding birds.

Anton Vaidl, coordinator of the Egyptian vulture EEP organised a workshop in which he highlighted the actual status of the breeding population and emphasized particular husbandry techniques e.g. breeding pairs in zoos should be kept separate and out of viewing/hearing distance from each other. 2018 was a pilot year for testing different release techniques for this migratory species: delayed release, fostering captive-bred chicks in a wild nest and hacking release. The goal of this EEP is to release 30-50 birds in the next five years, each time 10 birds under each method.

Adéla Obračajová presented the first breeding success in white-tailed sea eagles (*Haliaeetus albicilla*) in Ostrava Zoo (Czech Republic) and the first Eurasian black vulture reintroduction in Bulgaria. Wildlife Research Ecologist Vasileios Bontzorlos followed to talk about his work managing the barn owl (*Tyto alba*) as a natural control agent for pest rodents in central Greece.

COLLABORATIONS

Close cooperation with the Vulture Conservation Foundation (VCF) continued for the four European vulture species together with local NGOs. In Africa, research and conservation cooperation with the Peregrine Fund, the Hawk Conservancy and Alterra Wageningen to save the critical endangered African vultures is ongoing.

Several zoos took part in the study of feather corticosterone determination of bearded vultures (*Gypaetus barbatus*; Laura Monclús Anglada, University of Barcelona). Results of this study showed high intra- and inter-individual variation, and this variation could not be explained by the feather type. A report can be read here: <https://www.tdx.cat/handle/10803/565674>.

CONSERVATION AND RESEARCH

In continuous support (second year) for the Mauritius kestrel (*Falco punctatus*) project, two keepers from ZSL were sent to assist in the recovery work. In Bulgaria, the first release of three captive bred Eurasian black vultures took place in Kotel. Genetic follow up of these birds is performed by Philippe Helsen from the Centre for Research and Conservation in Antwerp Zoo. Four Egyptian vultures were released using the delayed release technique and are still alive. First results show that delayed release is

more successful than other methods. Several Eurasian griffon vultures (*Gyps fulvus*) were released in Sardinia to strengthen the existing population on the island. Thirteen bearded vulture releases occurred in five sites (Austria, Switzerland, France and Spain).

Due to the obvious threat of Usutu virus for great grey owls (*Strix nebulosa*), fact sheets (compiled by Dominik Fischer, Veterinary advisor of the TAG) with laboratory references have been added to the TAG page.

A new technique has been successfully used by VCF to improve the hatching success of artificially incubated eggs of bearded vultures. Eggs are removed four times a day from the incubator and exposed to outside temperatures for 5 minutes, and the clutch is manually turned 180°.

GALLIFORMES

TAG Chair: Jan Dams (pending)

TAG Vice Chair: Ludo Pinceel (World Pheasant Association, Hexham, United Kingdom)

INTRODUCTION

The EAZA Galliformes TAG manages all members of the order Galliformes, including Megapodes (*Megapodiidae*), Turkeys (*Meleagrididae*), New World quails (*Odontophoridae*), Pheasants and Partridges (*Phasianidae*), and Guineafowl (*Numididae*) with the exception of Chachalacas, Guans, and Curassows (*Cracidae*). The latter groups are overseen by the Cracid TAG, which is currently in the process of being merged with the Galliformes TAG.

Edwards's pheasant (*Lophura edwardsi*) © Ariel Jacken



POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

At the end of 2018, a LTMP meeting for Edwards's pheasant (*Lophura edwardsi*) was hosted by Antwerp Zoo (Belgium) and was attended by relevant stakeholders. Besides various representatives from EAZA Member institutions and members of the World Pheasant Association, the meeting was attended by Nigel Collar (BirdLife International, UK) and Pham Tuan Ahn from VietNature (Vietnam). It led to a very productive and meaningful meeting. Due to the guidance of Kristin Leus (Copenhagen Zoo, Denmark) and William van Lint (EEO, the Netherlands), the group was able to set achievable goals and divide tasks.

Marcin Chrapowicki (Warsaw Zoo, Poland) was approved as the new studbook keeper of the ESB for the Malay crestless fireback (*Lophura erythrophthalma*). This species was no longer present within EAZA collections, but with Marcin's help a healthy population can hopefully be



Attendants of the Edwards's pheasant Long-Term Management Plan meeting © Jan Dams

established within EAZA for these peaceful and attractive birds.

ACHIEVEMENTS DURING THE YEAR

The third Joint TAG Chairs meeting and mid-year bird TAG meeting were held in Budapest (Hungary) in May. Through the combination of both meetings, many regions were represented during the EAZA Galliformes TAG meeting. It was thus possible to create stronger bonds between the regions. With a mix of presentations and active workshops, attendants looked for ways to globally increase our *in* and *ex situ* conservation reach through stronger cooperation across regions.

COLLABORATIONS

Through the active involvement of the TAG member Simon Bruslund (Heidelberg Zoo, Germany), the TAG has been actively involved in the conservation of the *Bonasa bonasia rhenana* subspecies from the hazel grouse. The subspecies is becoming increasingly rare in its restricted range (France, Belgium, Germany and Luxemburg). To secure the subspecies a newly established hazel grouse task force has decided to establish a safety-net *ex situ* population in international cooperation. The Galliformes TAG will offer support and leadership where needed.

CONSERVATION AND RESEARCH

One of the main focusses of the Galliformes TAG is the providing of guidance to help with the building of a conservation breeding centre for Edwards's pheasant in Vietnam under the leadership of VietNature. Through the active involvement of Jo Gregson and Peter Smallbones (Paignton Zoo, UK), representatives from VietNature were trained at Paignton Zoo and guidance was given during the construction of the first aviaries built on the grounds of VietNature.

GRUIFORMES

In the absence of a Chair and Vice Chair at the beginning of 2019, no report has been submitted for 2018.

CHARADRIIFORMES

TAG Chair: Simon Matthews (Arabia's Wildlife Centre, Sharjah, United Arab Emirates)

TAG Vice Chair: Jo Gregson (Paignton Zoo Environmental Park, Paignton, United Kingdom)

INTRODUCTION

The EAZA Charadriiformes TAG covers all 377 species of the order which are split over 19 different families. This diverse group of birds can be loosely divided into three types: waders, gulls and auks. The TAG is working to raise awareness of the conservation needs of these species, develop BPG to improve welfare and assist to maintain sustainable *ex situ* populations.

POPULATION MANAGEMENT PROGRAMME

DEVELOPMENTS

The TAG currently has two managed populations, Atlantic puffin (*Fratercula arctica*) and Inca tern (*Larosterna inca*), both are ESBs. BPG for both populations are being formulated and we hope to have the Atlantic puffin BPG published by the end of next year.

The breeding successes of the two programme species were very contrasting. The Inca terns had a bumper year with over 100 specimens bred and the species being held in over 50 institutions. The studbook has also been successfully moved to ZIMS. The Atlantic puffins had only three hatches and the population is now just over 100 birds.

The TAG is planning the future RCP review in 2022, where more species will most likely be included.

Living Coasts in Devon (UK) bred a red-legged kittiwake (*Rissa brevirostris*), this was the first breeding of the species in the UK and in a long time in an EAZA collection. This is important as the current *ex situ* population is quite small and the species is classified as Vulnerable by the IUCN Red List.

ACHIEVEMENTS DURING THE YEAR

Our first meeting in a number of years was held at the EAZA mid-year meeting in Budapest (Hungary) and went very well. The covered subjects included potential future conservation projects in need of support, the work of the Department of Conservation in New Zealand and the use of drones to monitor wild populations. We also

Inca terns (*Larosterna inca*) at Living Coasts © Amy Fitzgerald



introduced a species investigator role, which will look at some of our current populations within EAZA and evaluate how sustainable they are and whether they need more attention. The investigators have been asked to report back at the 2019 mid-year meeting.

The Charadriiformes Conservation Facebook page was launched by the TAG and is very active and growing in following. The page is sharing varied posts regarding Charadriiformes and their conservation, both *in situ* and *ex situ*, as well as relevant scientific publications.

COLLABORATIONS

The Budapest meeting also included the Joint TAG Chairs meeting. Most of the attendants stayed and attended the Charadriiformes session. The TAG was fortunate to discuss links with the Japanese Association of Zoos and Aquaria (JAZA) and the ZAA TAG equivalent and agreed to keep in contact and share information. Contacts with the AZA have already been made and an update on the AZA Shorebird TAG was presented in the Budapest sessions.

CONSERVATION AND RESEARCH

Many Charadriiformes around the world are included in threatened categories according to the IUCN Red List, but there are very few projects within EAZA currently. The TAG

is working to raise awareness of the projects that need support and hopes that some collections will take up work with the threatened species.

We were lucky to be able to appoint Paul Rose (University of Exeter, UK) as a Research advisor for the TAG and he is looking forward to starting and supporting some research projects in the near future.

ADDITIONAL COMMENTS

In preparations for the species investigator roles we compiled data on Charadriiformes held in EAZA collections and found that a number of scientific names used in ZIMS were out of date. We have written to Species360 and worked together to update the taxonomy of the whole Charadriiformes order.

PIGEON AND DOVE

TAG Chair: Duncan Bolton (Paignton Zoo Environmental Park, Paignton, United Kingdom)

TAG Vice Chair: Nigel Simpson (Wild Place Project, Bristol, United Kingdom)

INTRODUCTION

The EAZA Pigeon and Dove TAG programmes continue to develop, and we are increasingly becoming involved with *in situ* conservation activities for threatened species of birds within the remit of the TAG. One area of increasing concern relates to the fate of the European turtle dove (*Streptopelia turtur*) which is facing huge population decline across its range. An EU-wide action plan published in 2018 highlights landscape management as a priority but also cites hunting as a significant issue. Of an estimated adult population of six million individuals across the EU and Russia, some two million birds are legally shot each year on migration routes, much of which is within EU Member States. This level of hunting is clearly not sustainable and is unlikely to be mitigated by landscape management actions. At this time as EAZA is focused on the impacts of bird trade in South East Asia, the Pigeon and Dove TAG is equally concerned about what is taking place in our own backyard, impacting on our migratory species.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The Victoria crowned pigeon ESB has transferred from

White-naped pheasant pigeon (*Otidiphaps aruensis*) © Miguel Sierra


Mylène Sannier (Réserve Zoologique de Calviac, France) to Anaïs Tritto (Jurong Bird Park, Singapore). The TAG would like to thank Mylène for her work on this ESB and congratulate Anaïs on her recent appointment. The continued population growth within the Pink pigeon EEP has been excellent with this EEP reaching its target size a year ahead of schedule. We now hope to ensure that this population continues to thrive both demographically and genetically and to ensure strong links (including transfers) with the free-living population in Mauritius. Harriet Whitford (Durrell Wildlife Conservation Trust, UK) would be happy to hear from collections wishing to keep this species in the future.

The White-naped pheasant pigeon ESB continues to do well and new holders are also needed for this programme for the future.

ACHIEVEMENTS DURING THE YEAR

The TAG support for the Santa Cruz ground dove (*Alopecoenas sanctaerucis*) in the Solomon Islands has continued, with huge support from Toledo Zoo, USA as well as Wildlife Reserve Singapore (Jurong Bird Park). The birds rescued from traders in late 2017 have recovered well with 60 birds being transferred to Jurong and the

remaining birds being maintained in Honiara. Young have been produced at both centres in recent months and negotiations to gain access to islands to carry out field surveys have been carried out. We hope to have more information regarding the situation in the wild for this species during 2019. It is likely that groups of birds will need to be moved from Jurong to other centres as breeding continues, unless we can identify safe areas for reintroduction back in the Solomon Islands. Our colleague, Joe Wood, continues to work tirelessly in Honiara with this programme, with ongoing funding from Toledo Zoo. A number of EAZA Members including ZGAP (Zoological Society for the Conservation of Species and Populations) also provided emergency funding during the early phases of the rescue work, without which the birds would have been lost.

COLLABORATIONS

The TAG is providing advice to colleagues in Brazil relating to the potential conservation efforts for the blue-eyed ground dove (*Columbia cyanopsis*) which is listed as Critically Endangered by the IUCN and exists in very low numbers. It is thought that *ex situ* management is likely to play a significant role in the conservation of this species.

PARROT

TAG Chair: Simon Bruslund (Heidelberg Zoo, Heidelberg, Germany)

TAG Vice Chair: Sandra Molloy (Dublin Zoo, Dublin, Ireland)

INTRODUCTION

Parrots are one of the most threatened bird orders with 28% of species listed as globally threatened and 56% of all parrot species in decline. The goal of the EAZA Parrot TAG is to facilitate and enhance cooperation on parrot conservation within the EAZA community.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Five EEPs were evaluated in 2018 and the findings were as follows:

- The Blue-throated macaw EEP was rated as good. This EEP is running very well and the population is growing but the numbers of reproductively active birds needs to increase.

- The Buffon's macaw EEP was rated as good-sufficient. This EEP is well run but there are concerns about uneven founder representation as a result of only a few pairs breeding.
- The Palm cockatoo EEP was rated as sufficient. The EEP is well run and the coordinator has greatly increased our knowledge of subspecies of palm cockatoos (*Probosciger aterrimus*) in EAZA zoos by spearheading genetic research in this area. However, there are concerns about low breeding success and varying cooperation levels by some participating Members.
- The Red-crowned Amazon EEP was rated as sufficient-insufficient. The EEP is well run with good communication but annual reports and studbooks are not being produced regularly; BPG are also required. In the second half of 2018, the coordinator began collecting data to write BPG.
- The Red-tailed amazon EEP was rated as sufficient. The EEP is well run but more regular annual reports and studbooks need to be produced as well as active participation in the TAG meetings.

In 2018, the Parrot TAG was also evaluated, and the overall rating was good! Suggestions for improvement included encouraging the production of more BPG and compiling TAG specific demonstration guidelines.

Two new EEPs for cockatoo species are in working progress and to be formalised with candidate coordinators already working proactively - one for White cockatoos (*Cacatua alba*) with Tobias Rahde (Zoo Berlin, Germany) and the second for Yellow-crested cockatoos (*C. sulphurea*) excluding the citron-crested cockatoo subspecies with Maximilian Birkendorf (Zoo Neuwied, Germany).

Initial efforts are underway to start a new EEP for Black-cheeked lovebirds (*Agapornis nigrigenis*) with an experimental management protocol for colony breeding species as well as first steps for a new EEP for Blue-headed macaw (*Primolius couloni*).

Andy Cope (Bristol Zoo, UK) was appointed as new studbook keeper for the Kea ESB. Laëtitia Latorre (ZooParc de Beauval, France) was appointed as new EEP coordinator of the Palm cockatoo EEP. Harriet Good (Edinburgh Zoo, UK) was appointed as new EEP coordinator for the Red-fronted macaw EEP.

ACHIEVEMENTS DURING THE YEAR

In March, breeding guidelines for *Cacatua spp.* were produced. These guidelines were based on information

shared at the *Cacatua* breeding workshop in Belfast (September 2016) and the Skype conference call (November 2016) on the same topic. Advice was sought from many experts, with further input and information welcomed for this living document.

In May, an interactive parrot conservation workshop was held at the Joint TAG Chairs meeting in Budapest. This was an ideal time to hold this workshop as representatives from all over the world could attend. It examined ways in which zoos already participate in parrot conservation and how we might increase our contributions. The Parrot TAG plans on creating a parrot conservation toolkit to assist zoos in supporting parrot conservation.

In September, the Parrot TAG held a workshop discussing virus management for parrots. Conservative estimates suggest that 30% of parrots in human care are infected with one or more viruses relevant for population health. The Parrot TAG recommends managed programmes for 79 species, and at least 18 of these are flagged as having a direct conservation benefit. However, it is vital that we do not inadvertently spread viruses and compromise the conservation benefit of these zoo-managed populations. The workshop consisted of two presentations from one of the Parrot TAG Veterinary advisors, Helena Vaidlova (private, Prague), followed by a group discussion on how to tackle this issue. Since this workshop, an article has been published in *Zooquaria* highlighting this issue and another workshop is planned for the mid-year meeting in 2019.

COLLABORATIONS

Following a request from the Parrot TAG, Species360 made changes to ZIMS to allow institutions to select if a parrot they hold is a hybrid or colour mutation at the taxonomic level. This should greatly assist the Parrot TAG with monitoring the level of hybridisation and colour mutations especially with species of conservation concern or where such mutations may be associated with compromised welfare. This development is also of relevance to the EAZA position statement "Intentional Breeding for the Expression of Rare Recessive Alleles".

The TAG Chair and Vice Chair along with the AZA Parrot TAG Chair hosted a joint workshop on parrot conservation at the Joint TAG Chairs meeting in Budapest.

The Parrot TAG and Heidelberg University are continuing the research into determining the subspecies of yellow-crested cockatoos and scarlet-breasted lorikeets (*Trichoglossus forsteni*) using genetic markers as well as

on the relatedness of founders within the EEP for Citron-crested cockatoo (*C. s. citrinocristata*).

The Parrot TAG is cooperating with various non-EAZA participants who are united under the single coordination of Society of Conservation Aviculture with the aim to develop intensive population management and research for the Critically Endangered swift parrot (*Lathamus discolor*). Protocols and legal frameworks are being established and BPG are in progress.

CONSERVATION AND RESEARCH

The Ecuadorian amazon EEP coordinator, Becca Biddle (Chester Zoo, UK), gave a presentation at the EAZA Annual Conference on her research on the population, distribution and threats of the Ecuadorian amazon (*Amazona autumnalis lilacina*) in the wild. In addition to supporting this research, Chester Zoo has made a long-term commitment to the conservation of this species and is also involved with education programmes and employment opportunities to further these conservation goals.

The Parrot TAG continued to collect genetic samples



Pair of Moluccan cockatoos (*Cacatua moluccensis*) © Attica Zoo

Ecuadorian amazon (*Amazona autumnalis lilacina*) in the wild © Becca Biddle, Chester Zoo



from yellow-crested cockatoos for subspecies research. Samples from citron-crested cockatoos were also collected to investigate relatedness of founders in the EEP.

We continued research into cockatoo nutrition which is being led by the Parrot TAG Nutritional advisor, Maja Damjanović (Zagreb Zoo, Croatia).

The Red-fronted macaw EEP and the Sun conure (*Aratinga solstitialis*) programme are both planning on carrying out molecular genetic research on the managed populations in 2019.

ADDITIONAL COMMENTS

Bruslund, S., Molloy, S. and Vaidlova, H. (2018). *Breaking the virus stigma: Why active participation in virus management is essential for the health of the global parrot population.* *Zooquaria* 103; Winter 2018/2019

Molloy, S. and Bruslund, S. (2018). *Guidelines for breeding Cacatua spp.* Available from the EEP coordinators and to download from the EAZA website.

Stagegaard, J., Bruslund, S. and Lierz, M. (2018). *Could introducing confiscated parrots to zoological collections jeopardise conservation breeding programmes?* *Bird Conservation International*. Volume 28(3): 493-498.

TOUCAN AND TURACO

Due to the absence of a Chair or a Vice Chair for this TAG, there is no report for 2018.

Successfully hand-reared great hornbill (*Buceros bicornis*) at 35 days © Václav Štraub, Zoo Zlín



Chairs on this effort. A husbandry and management survey was distributed late 2018 to collect important data from the European holders of these species ahead of the upcoming workshop. These collective efforts should result in the publication of EAZA BPG for *Bucorvus* species in the near future.

The TAG received a request to assist with management, housing and potential re-location of groups of confiscated



Same great hornbill (*Buceros bicornis*) fledged © Václav Štraub, Zoo Zlín

HORNBILL

TAG Chair: Koen Brouwer (Attica Zoological Park, Athens, Greece)

TAG Vice Chair: Joost Lammers (Vogelpark Avifauna, Alphen aan den Rijn, the Netherlands)

INTRODUCTION

2018 was an exciting year for the EAZA Hornbill TAG. Advances were made in breeding and husbandry of hornbills in human care and the TAG is now officially involved in their conservation through its relationship with the recently re-launched IUCN SSC Hornbill SG.

POPULATION MANAGEMENT PROGRAMME

DEVELOPMENTS

Highlights of the year were the successful breeding of three Palawan hornbills (*Anthracoceros marchei*) in Zoo Wrocław (Poland) and the hand-rearing of a great hornbill (*Buceros bicornis*) in Zoo Zlín (Czech Republic). Great hornbills are not breeding well in zoos worldwide and it is hoped that this successful rearing will lead to a breakthrough in European zoos.

Sadly Adrian Walls (London Zoo, UK) announced the need to step down as ESB coordinator for the Malayan black hornbill (*Anthracoceros malayanus*). The TAG thanks him for his efforts over the years and wishes him all the best. Andrzej Kruszewicz (Warsaw Zoo, Poland) handed over his Veterinarian advisory role to Luis Carlos Neves (Jurong Bird Park, Singapore). We welcome Luis and thank Andrzej for his contributions over the past years.

ACHIEVEMENTS DURING THE YEAR

Fernando L. Gutierrez, president of the Talarak Foundation Inc. (Philippines), gave an inspiring presentation during the TAG meeting in September about the many important achievements made in hornbill breeding and conservation in the Philippines. The Talarak Foundation currently has 27 Visayan tarictic hornbills (*Penelopides panini*), 12 Walden's hornbills (*Rhabdotorhinus waldeni*) as well as three other endemic hornbill species in its breeding centres.

COLLABORATIONS

Preparations for a ground hornbill workshop, to be held in Berlin Zoo in 2019, are underway. The Southern ground hornbill (*Bucorvus leadbeateri*) and Northern ground hornbill (*B. abyssinicus*) coordinators are working with the TAG

great hornbills and wreathed hornbills (*Rhyticeros undulatus*) at a government run rescue centre in Vietnam. Options to support the centre with aviaries and to transfer a number of the hornbills to the EEP are under discussion.

CONSERVATION AND RESEARCH

The TAG Chair was invited to sit on the steering committee of the re-launched IUCN SSC Hornbill SG. He participated in the inaugural meeting of this SG at Kasetsart University in Bangkok, Thailand in August. There he was requested to chair a Working Group on *ex situ* conservation and management, including trade, rehabilitation, confiscation and reintroduction issues.

The official launching of the action plan and conservation strategy 2018-2027 for the Critically Endangered helmeted hornbill (*Rhinoplax vigil*) was attended by the TAG Chair in Bangkok as well. Illegal poaching of this species for its casque has led to a serious decline of the species over the last few years.

The TAG Chair was also involved in the preparations for a workshop on the conservation of the Sulu hornbill (*Anthracoceros montani*) to be held in Manila, Philippines, early 2019. This species is Critically Endangered and the production of an action plan for its survival is urgently required.

The larger Asian hornbills are not breeding well in zoos, and Joost Lammers, the Great hornbill EEP coordinator, initiated two research projects in collaboration with Utrecht University (the Netherlands) on 1) Personality and reproductive success in hornbills "Can personality be used as a tool to establish compatible pairs?" 2) "Understanding hornbills" an overview of behavioural and corticosterone differences between proven breeding pairs and non-proven pairs of four different Asian hornbill species. The results of these projects involving eight zoos in three countries are expected in 2019.

The TAG is also focusing on what can be done to improve the nesting conditions. More data are needed on nest box temperatures and humidity during incubation, as it may be that fertile eggs stop developing at an early stage of incubation. The TAG is working on the production of recommendations on the best methods to collect data on temperatures and humidity.

ADDITIONAL COMMENTS

An article was published by Nigel Simpson (Bristol Zoo, UK) in *Zooquaria's* "Species of the Month" series to generate

more interest in participating in the Visayan tarictic hornbill's EEP and further conservation activities in the Philippines. This Critically Endangered species is breeding successfully in EAZA zoos and the article generated interest from several EAZA Members.

A selected number of EAZA zoos support hornbill conservation in Africa and Asia, especially by participating in nest adoption programmes in India and Bangkok. The TAG is working hard to increase the involvement of EAZA Members in these efforts.

PASSERIFORMES

TAG Chair: David Jeggo (Cologne Zoo, Cologne, Germany)

TAG Vice Chair: Theo Pagel (Cologne Zoo, Cologne, Germany)

INTRODUCTION

At the end of 2017, the EAZA Passeriformes TAG's new RCP was approved, one of the last in the style of the old programme management system. This provided the essential groundwork to begin preparing an RCP along the lines required by the new management structure.

In light of the large number of songbird species and in order to make the task more manageable, the scope was restricted to just those species occurring in Asia. Species from this region were selected due to the desperate need for conservation population management programmes and the current focus through EAZA's conservation campaign "Silent Forest".

While the main focus of the TAG remains with Asian species, the TAG is beginning to look also at those from South America.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

There were very few changes to the population management programmes. Jamie Graham stepped down as the coordinator of the ESB for the Chestnut-backed thrush (*Geokichla dohertyi*), we are grateful to him and London Zoo for looking after this species up until now. The programme will be taken over by Ian Edmans of Waddesdon Manor Aviaries (UK), once approved by the EEP Committee.

A number of other species are lined up to also seek approval as EEPs, once the new RCP for the Asian species is

officially approved. Only one application, *i.e.* the Javan green magpie (*Cissa thalassina*), however has been submitted so far and approved by the EEP Committee. It will continue to be coordinated by Andrew Owen (Chester Zoo, UK).

ACHIEVEMENTS DURING THE YEAR

A major achievement of the year was undoubtedly getting the new RCP for the Asian species into its final draft. This was the result of a workshop held during the Joint TAG Chairs meeting in Budapest in May.

Kathy Traylor-Holzer from the IUCN SSC Conservation Planning SG facilitated the workshop and the EEO assisted with the preparations, all of which contributed greatly to the successful outcome. Over the two days of the workshop some 100 species were reviewed. Through this process, 24 species came out as requiring an EEP, and almost twice this number as needing to be monitored by the TAG, with many of the EEP species having a conservation role due to the degree of threat they are under in the wild. In several instances it was recommended that a group rather than a single species should be coordinated *i.e.* hill mynas (*Gracula sp.*) and leafbirds (*Chloropsis sp.*).

In general, the new system worked well and the increased emphasis of linkage with conservation requirements was a definite improvement.

With the RCP for the Asian species in its final stages the next region to be worked on will be South America. This was introduced as a subject during the TAG's meeting at the EAZA Annual Conference.

Some of the most colourful of South American birds are the tanagers (*Thraupidae*) and the TAG is looking into a new initiative, with the aim of seeing some species of this family better represented in the collections of EAZA institutions.

The TAG was also involved in the drafting of an EAZA Position Statement on wild-caught songbirds entering Europe. It is becoming increasingly evident that the legislation introduced, as a result of bird flu, banning the importation of wild-caught birds into the European Union is not effective given the evidence that many species are coming in and being offered for sale. This is particularly serious when it involves some of the endangered Asian species, such as the Sumatran laughingthrush (*Garrulax bicolor*).

COLLABORATIONS

The EAZA conservation campaign "Silent Forest" which was running throughout the year and will continue into 2019, is

partnered by TRAFFIC, Birdlife International and the IUCN Species Survival Commission Asian Songbird Trade SG. This campaign is drawing attention to the ongoing threat that many Asian Passerines face through unsustainable trade in wild-caught birds and is raising funds to assist with measures to combat this conservation crisis.

Two members of the TAG attended the annual meeting of the Indonesian Zoo and Aquarium Association (PKBSI) in Jakarta (Indonesia). This helped forge valuable links and was an opportunity to meet government officials and discuss some of the complex issues of conserving the songbirds of this nation.

CONSERVATION AND RESEARCH

Through the Threatened Asian Songbird Alliance subgroup of the TAG, and EAZA's conservation campaign, a high proportion of the TAG's activity during the year was directed towards the conservation of highly threatened Asian species.

Much of this activity has been in place for a number of years and carries on, irrespective of the campaign. With the added impetus of the campaign, more EAZA institutions will be drawn into this work which, in particular, involves support for in-country conservation breeding centres but also for field surveys and other research.

The need to increase the capacity of these breeding centres is particularly urgent as a number of species require population management programmes. Some are on the verge of extinction in the wild, *e.g.* Javan pied starling (*Gracupica jalla*) and black-winged myna (*Acridotheres melanopterus*), while others are rapidly declining in number, with little prospect of ensuring their survival in the wild.

The linkage between the population management programmes and conservation activities is very real and continues to develop. For the blue-crowned laughingthrush (*Garrulax courtoisi*), still one of very few Global Species Management Plans (GSMPs), not only is the *ex situ* population becoming more secure but the connection with the conservation activities in China is developing very well and positively.

There is currently no formal international programme for the Bali myna (*Leucopsar rothschildi*) but the EEP works very closely with North America, AZA, and the SSP for this species, through involvement in the International Advisory Board, which operates under the Association of Curik Bali Preservation. This group was formed in Indonesia to help conserve this species and progress is being made for the

Red-tailed laughingthrush
(*Trochalopteron milnei*): one of the
Asian species for which an EEP is
recommended © Charlotte Pegg



Participants at the Regional Collection Plan workshop in Budapest © Passeriformes TAG

EEP to be more involved in the efforts to restore a thriving wild population of this iconic bird.

ADDITIONAL COMMENTS

While the songbird crisis in Asia will continue to occupy the TAG's attention, migrating birds closer to home are also under threat as they are slaughtered in huge numbers as they pass through Southern Europe.

EAZA is beginning to look at how it can assist in bringing this damaging practice to an end and as songbirds are particularly targeted, the Passeriformes TAG has an obvious role to play in this.

MONOTREME AND MARSUPIAL

**TAG Chair: Flemming Nielsen
(Copenhagen Zoo, Copenhagen, Denmark)
TAG Vice Chairs: Achim Winkler
(Copenhagen Zoo, Copenhagen,
Denmark), Matthias Papiés (Antwerp Zoo -
Planckendael Zoo, Antwerp, Belgium)**

INTRODUCTION

In 2018 the EAZA Monotreme and Marsupial TAG aimed at increasing the visibility of the TAG both inside and outside the EAZA community. A TAG logo was developed. The first TAG mid-year meeting was held with great success under the kind invitation of Wilhelma Zoo, Germany. The TAG welcomes Matthias Papiés as new Vice Chair in addition to Achim Winkler, the TAG Vice Chair supported by Copenhagen Zoo. Among the work coming up, it is especially worth mentioning the workshop on the new style RCP to be held in 2020 for which the preparation has started in 2018 and will continue through 2019.



POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In 2018 the TAG finalised the evaluation of all the EEP

programmes and of the TAG itself. These evaluations make the basis of most of the work done in 2018 and the future work of the TAG.

An overview of TAG advisors can be found in the TAG workspace on the EAZA Member Area.

ACHIEVEMENTS DURING THE YEAR

The EAZA Monotreme and Marsupial TAG met briefly with our colleagues from ZAA and AZA during the Joint TAG Chairs meeting. We touched base on a few common issues related to all regions and we will keep developing the relationship with these regions further.

In June 2018 the first mid-year meeting of our TAG was held at Wilhelma Zoo (Germany). Fourteen participants, including Androo Kelly from Trowunna Wildlife Sanctuary in Tasmania, were in attendance. The meeting was mostly built up around the outcome of the TAG Evaluation and the prioritized points for action coming out of this.

At the EAZA Annual Conference in Athens, the TAG conducted an open meeting.

The former TAG Chair, Udo Gansloßer (Greifswald University), stepped down. In Athens, he was thanked for his activities as Chair – which added up to an impressive 25 years of active work for the Monotreme and Marsupial TAG. Udo will stay close to the TAG as the Scientific / Behavioural advisor. Volker Grün (Duisburg Zoo, Germany) was appointed as coordinator both for the Koala EEP and the Wombat EEP with the help of Achim Winkler as special advisor to both programmes.

Because of several unapproved imports from Australia of EEP species to EAZA Member institutions, the TAG drafted a Position Statement on imports of Monotremes and Marsupials to EAZA in order to establish a clear outline on how to proceed with these iconic species from Australia and Indonesia. The statement underlines certain rules to follow and shows the benefits for the Member institution to follow the procedures set. At the same time, it fortifies the need to follow the EAZA Population Management Manual. The statement clearly states the action to be taken by the Monotreme and Marsupial TAG if these guidelines are not followed. The document is currently under review and will be shared once finalised.

In 2018, the Invasive Alien Species (IAS) risk assessments on common brush-tailed possum (*Trichosurus vulpecula*) in captivity in Europe came up for comments by the TAG. These risk assessments form part of a review carried out by the European Commission to decide which species to add

Tasmanian devil (*Sarcophilus harrisi*) at Planckendael Zoo © Matthias Papies


to the IAS list. In June 2018 the TAG sent a comprehensive answer to the EAZA EU Policy Coordinator, arguing that this species has a high educational value and that the risk of establishing the species as invasive to Europe by unintentional escapes is non-existing. Several other clearly documented arguments went against the inclusion of this species in the IAS Regulation. Following our response, it was announced that the species was no longer part of the IAS list coming up for approval.

During the mid-year meeting it was decided to make more use of the EAZA TAG Member Area and make it easier for the TAG members to get access to the site. The TAG webspace was then re-organised.

While the Tammar wallaby ESB is lacking animals to meet holders' needs, the Swamp wallaby ESB and the Red kangaroo ESB both reported to be challenged by placing surplus animals. All programmes would benefit from roles and goals. Those will be established during the RCP workshop in 2020. For the tammar wallaby (*Macropus eugenii*), plans are to import new bloodlines from Auckland Zoo (Australia). For the swamp wallaby (*Wallabia bicolor*), a contraception plan will be developed. Guidelines on walk-through exhibits with macropods are in development.

The yellow-footed rock wallaby (*Petrogale xanthopus xanthopus*) is an Australian ambassador species meaning that new holders are validated by the Australian Government. The EEP is closely working together with the SSP. The EEP coordinator is actively involved in research on contraception/implant usage and developing a toxoplasmosis vaccination. The Pouch management policy will be shared with the TAG members.

Regarding the Eastern quoll (*Dasyurus viverrinus*), too few institutions are breeding on a regular basis resulting in an overaging population. It is split and being managed in the European or in the Australian rhythm. The recommendation

is now to keep all animals in the Australian rhythm and concentrate all animals of breeding age in the most experienced institutions. The coordinator is working on producing a veterinary handbook of the species.

The EEP for Brush-tailed bettong (*Bettongia penicillata*) further increased in numbers and seeks ways to manage its surplus by welcoming new holders. An updated studbook is expected for later this year.

The EEP for Tasmanian devil (*Sarcophilus harrisi*) welcomed three new holders in 2017 and is awaiting the Tasmanian Devil Ambassador Programme (TDAP) business plan later this year to have a better picture on potential future expansion of the programme.

The coordinator of the EEP for Greater bilby (*Macrotis lagotis*) is still in discussion with ZAA to receive a potential date when the first bilbies can be imported from Australia into EAZA.

The EEP for Koala (*Phascolarctos cinereus*) is jointly managed with AZA and all movements of animals need approval from the Australian Government.

The Wombat EEP currently consists of two subspecies with three holders keeping the common wombat (*Vombatus ursinus*) and three holders keeping the Tasmanian subspecies. The decision on how to manage both subspecies within EAZA will be discussed during the RCP workshop 2020. The programme is in need for more animals and improved husbandry and management (exhibit design).

Updates on the current status of the GSMP for the Goodfellow's tree kangaroo (*Dendrolagus goodfellowi*) and the progress made in the conservation project were shared. The Second Global Tree kangaroo workshop helped all European holders to gather more knowledge on the optimal keeping of tree kangaroos in captivity and the needed conservation actions.



Forester kangaroos (*Macropus giganteus*) in a walkthrough © Copenhagen Zoo

COLLABORATIONS

The TAG members agreed on the importance of re-establishing useful links to other regions.

A link to the Southeast Asian Zoo Association (SEAZA) especially needs to be established in the future to meet the potential conservation needs for species there. Currently no IUCN SG seems to be in place for Monotremes and Marsupials and the TAG reached out to the IUCN SG to offer help where needed.

CONSERVATION AND RESEARCH

A fee is paid by EAZA koala holders when the animals belong to San Diego Zoo (USA) to support the coordinated koala projects, such as the reproductive and population ecology study on St. Bees Island (Australia) and the Chlamydia research.

Besides supporting by funding, Trowunna Wildlife Sanctuary in Tasmania is the main partner in the Save the Tasmanian Devil Programme, and Copenhagen Zoo sent two keepers there to help with *in situ* actions.

The Goodfellow's tree kangaroo GSMP supports the "Tenkile Conservation Alliance" doing *in situ* work in Papua New Guinea.

The EAZA Monotreme and Marsupial TAG is actively looking for conservation projects to support.

PROSIMIAN

TAG Chair: Achim Johann (NaturZoo Rheine, Rheine, Germany)

TAG Vice Chair: Delphine Roulet (Cotswold Wildlife Park, Burford, United Kingdom)

INTRODUCTION

An interview with the EAZA Prosimian TAG's Chair entitled "The future starts now" (*Zooquaria*, 103 / winter 2018/19) draws attention to the TAG's biggest achievement in the year: Finalizing the RCP and consecutively defining and describing the EAZA *ex situ* conservation programmes. The document was developed by the TAG members in cooperation with EAZA's Population Management Centre, discussed "live" among these and with counterparts from the North American zoo association (AZA) and key persons from the natural range countries of prosimians (namely Madagascar and South East Asia) at the joint TAG and RCP-workshop meeting in Budapest and finally approved by the

ECP Committee at their meeting in Athens.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The new RCP comprises 20 EEPs for Madagascan lemurs (15), Asian Lorises (4) and African bushbabies (1). These numbers and the species behind them are not considerably different from the "up-to-then" defined list for taxa to get propagated by a population management programme. However, by passing the new RCP process, the roles and goals for the recent EEPs are much more founded on facts and recent knowledge and supported by objective evaluation. The next step is now to implement the new RCP.

Sad as it is: 95% of all the lemur species (105) are listed in the IUCN Red List categories "Critically Endangered CR", "Endangered EN" or "Vulnerable VU". Population management programmes in zoos will play a crucial role to build up and to manage "insurance populations" for at least a few of them. Zoos must realize that even the ubiquitous (in zoos!) ring-tailed (*Lemur catta*) and ruffed lemurs (*Varecia rubra*) are highly threatened in their native range with remaining numbers of animals being likely less than those kept in zoos.

Zoos must be aware of their responsibility to contribute to the future of lemurs.

LTMPs will gradually get developed to ensure appropriate population management and to fulfill the defined roles. An LTMP for the Ring-tailed lemur EEP is scheduled for spring 2019.

ACHIEVEMENTS DURING THE YEAR

A specific meeting for sifakas took place during the EAZA Annual Conference. The main purpose was to define research needs to improve the husbandry of these delicate species and to work towards common goals for the soon to be two taxa namely the crowned sifaka (*Propithecus coronatus*) and the Coquerel's sifaka (*Propithecus coquereli*). The latter is due to arrive in EAZA zoos in 2019 from the North American breeding programme for this species. The expansion of this programme to EAZA zoos will allow more sustainable population-growth in the SSP and also gaining more husbandry experience with the whole taxon of *Propithecus* in EAZA.

CONSERVATION AND RESEARCH

Over the years the TAG – and mainly in the person of

Arrival of red ruffed lemurs (*Varecia rubra*) from the EEP at Vakona Forest Lodge, Madagascar © Delphine Rouillet; Red ruffed lemur (*Varecia rubra*) at Vakona. © Delphine Rouillet



the Vice Chair – formed links to *ex situ* facilities and key persons in the ministry of environment in Madagascar. These connections are regarded as essential to maintain sustainable populations for selected lemur species as *ex situ* population size and genetic diversity will profit considerably from inclusion of the stock kept in public zoo-like institutions in Madagascar. These animals should be gradually included in the population management programmes which aim for becoming more a global programme along the vision of the “One Plan Approach”.

Also, these institutions might house, propagate and prepare lemurs for release projects.

However, the husbandry, housing and management standards in such facilities in Madagascar need improvement and continuous support and guidance. Additionally, the political relationship with the ministry is sensitive and requires regular conversation and contacts in person.

Finding funds and recruiting volunteers to to work on the above-mentioned tasks is a challenge in itself. Therefore, the TAG will install a funding system entitled “TAGether for lemurs” to ensure budgeting for activities in support of *ex situ*-based conservation activities in Madagascar and to allow “personal contacts on site” – also for representatives from the Madagascan ministry and conservationists to participate in TAG meetings.

It is worth mentioning the TAG endorsed activity relating to the transfer of red ruffed lemurs to the private reserve of Vakona Forest Lodge. This was done with the purpose to gain experience with adaptability of zoo-born lemurs in a natural environment, to establish a release-population in the country of origin and to demonstrate the ambition of a

faithful cooperation in the conservation of prosimians.

ADDITIONAL COMMENTS

More about the TAG’s, EEPs’ and EAZA zoos’ commitment in *ex situ* propagation and *in situ* conservation of prosimians can be found in the “Prosimian TAG Newsletter” which gets edited and circulated four to five times per year.

CALLITRICHID

TAG Chair: Eric Bairrão Ruivo (Beauval Zoo, St Aignan, France)

TAG Vice Chairs: Dominic Wormell (Jersey Zoo, Jersey, United Kingdom) and Miranda Stevenson (Bristol Zoo, Bristol, United Kingdom)

INTRODUCTION

The EAZA Callitrichid TAG has 22 members and covers eight EEPs, three ESBs, monitors four species (and their subspecies), and other callitrichids in EAZA collections that are not part of programmes. Membership of the TAG underwent some changes during the year. Nic Dunn (Paignton Zoo Environmental Park, UK) took on the job of Marketing advisor; Kelly-Anne Kelleher (Zoolokal, UK) as Education advisor after the sad death of Tine Griede. Christoph Schwitzer (Bristol Zoo, UK) became a General advisor and Francis Cabana (Wildlife Reserves Singapore) replaced him as Nutrition advisor. At the Annual Conference in Athens thanks were given to Tine, not only for her work with the TAG but also for her considerable contribution and inspiration to EAZA over the years.

In 2018, two meetings were held, one at the EAZA Annual Conference in Athens and a mid-year meeting in Budapest in April/May. All minutes, along with TAG reports, programme updates, studbooks and annual reports, are on the TAG page of the EAZA Member Area.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Several changes occurred during the year: Bryan Carroll (Bristol Zoo, UK) took over from Nick Lindsay (ZSL, UK) as EEP coordinator for the golden lion tamarin (*Leontopithecus rosalia*); Zak Showell (Shaldon Wildlife Trust, UK) took on the ESB for the silvery marmoset (*Mico argentatus*), Nic Dunn added on the monitoring of non-managed species after Franck Haelweyn (Parc Zoo du Reynou, France) left the TAG. We are most grateful to Franck and to Nick for the enormous amount they both contributed to the work of the TAG over the past years. Nick was presented with a lovely golden lion tamarin painting, done by Dominic, in Athens.

ACHIEVEMENTS DURING THE YEAR

Our mid-year meeting was held at the Joint TAG Chairs meeting in Budapest, with representatives from AZA, ZAA, ACOPAZOA (Colombian Association of Zoos and Aquariums), ALPZA, JAZA (Japanese Association of Zoos and Aquaria) and SEAZA (Southeast Asian Zoo Association). This resulted in a decision to hold an Integrated Collection and Assessment Planning (ICAP) before our RCP meeting, in April 2019 in Amsterdam. Preparatory work was well under way at the end of the year.

We were all very proud when two of our members, Nick Lindsay and Bryan Carroll were awarded EAZA Lifetime Achievement Awards at the Annual Conference. Very fitting acknowledgements for all their hard work over the years.

The TAG now has a logo thanks to Dominic Wormell and Sally Fransen (Shaldon Wildlife Trust). This branding will help increase our profile and gain more support for our field conservation projects. To this end we created a Communications Group, led by Nic Dunn. The group has produced an Action Plan for the year 2019. One aim - to increase contributions to the Facebook group - got off to a good start with 500 members by the end of the year. In an effort to improve intra-TAG communication, WhatsApp groups have been created. The newsletter continued to be produced regularly.

Posters of all field projects have been produced and we

had a TAG conservation stall at the EAZA Conservation Forum in Tallinn and at the Annual Conference in Athens.

Thanks to the idea, originally from Tine Griede, Jersey and Twycross zoos produced more husbandry videos and these are currently on the Facebook page and appearing on the EAZA Member Area.

COLLABORATIONS

As a result of our inter-regional cooperation, black lion tamarins (*Leontopithecus chrysopygus*) have been born and raised in Jersey Zoo from animals imported from Brazil. Exported EEP cotton-top tamarins (*Saguinus oedipus*) have bred in Auckland Zoo. Progress is being made with emperor tamarin (*Saguinus i. subgriseus*) moves to the SSP. The TAG has excellent relations with ALPZA and other zoo and conservation organisations in South America.

Several TAG members (Kristin Leus, EAZA; Bryan Carroll, Bristol Zoo; Dom Wormell, Jersey Zoo; and Peter Galbusera, Antwerp Zoo) attended the Lion Tamarin International Coordination meeting and the golden lion tamarin strategic conservation planning meeting of Associação Mico-Leão-Dourado (AMLD) in Brazil.

Research on genetic diversity in cotton-tops - led by Christina Hvilsom at Copenhagen Zoo - is progressing with sequencing beginning on 15 key animals, mainly sent from zoos to museums.

CONSERVATION AND RESEARCH

Peter Galbusera continued to coordinate research with Thierry Petit (La Palmyre Zoo, France) as Veterinary specialist. Research publications and listings are on the TAG webpage under "research". The TAG approved and supported one new multi-zoo project: a survey of UVB provision in primate enclosures in EAZA Member zoos by Bristol Zoological Society and the University of Bristol. The report is on the webpage. Research on callitrichids in Brazil (mainly São Paulo) further focuses on Yellow Fever vaccination, cryopreservation, taxonomy, hybridization and population genetics (in collaboration with Antwerp Zoo).

Alice Poirier, PhD student of Andrew Smith of Anglia Ruskin University (UK), started working on a project (endorsed by BIAZA) called "Making sense of scents: primate scent-marking behaviour and semiochemistry", in collaboration with Banham Zoo. John A. Nyakatura (Institute of Biology, Humboldt-Universität, Germany) has received TAG approval to do research on the functional morphology

Callitrichid TAG Logo © Dom Wormell and Sally Fransen



and evolution of the postcranium in callitrichid primates.

A project testing nest box designs for tamarins was carried out in Jersey. Genomic research continued in Brazil in analysis of all four lion tamarin species (see publications). A report of the “Survey of Crossing Structures Among Captive Primates” from the University of Oregon was received as well as an update of the Mother’s Curse project from Antwerp Zoo.

The TAG currently supports eight field programmes in Brazil and Colombia, as detailed in previous reports. The buffy tufted-ear (*Callithrix aurita*) and buffy-headed marmosets (*Callithrix flaviceps*), are the focus of the Mountain Marmosets Conservation Programme. This project is led by Rodrigo Salles de Carvalho (UERJ) and comprises the creation of sustainable captive insurance populations whilst conserving and managing the wild habitat. These two species are found in the upland areas of South East Brazil, with severe threats of habitat reduction and hybridisation with non-indigenous *Callithrix* species. TAG members have assisted in the



Buffy tufted-ear marmoset (*Callithrix aurita*) © Rodrigo Bramili

preparation of a master plan and we hope to engender support from EAZA Members to raise funds and assist with workshops in Brazil in 2019 (see more on www.mountainmarmosetsconservation.com/).

ADDITIONAL COMMENTS

The following publications directly involved TAG members and/or are connected with TAG projects.

Domingues de Freitas, P. *et al.* (2018). *Next-generation sequencing of the complete mitochondrial genome of the endangered species black lion tamarin *Leontopithecus chrysopygus* (Primates) and mitogenomic phylogeny focusing on the Callitrichidae family.* *G3* 8:1985-1991.

Magro Moraes, A. *et al.* (2018). *Population genetic structure of an endangered endemic primate (*Leontopithecus chrysomelas*) in a highly fragmented Atlantic coastal rain forest.* *Folia Primatol.* 89:365-381.

Salles de Carvalho, R. *et al.* (2018). *Callithrix aurita a marmoset species on its way to extinction in the Brazilian Atlantic forest.* *Neotropical Primates* 24(1): 1-8.

Silva, F.F.R. *et al.* (2018). *A survey of wild and introduced marmosets (*Callithrix: Callitrichidae*) in the southern and eastern portions of the state of Minas Gerais, Brazil.* *Primate Conserv.* 32:1-18.

LARGER NEW WORLD MONKEY

TAG Chair: Jan Vermeer (Parc Animalier de Sainte Croix, Rhodes, France)

TAG Vice Chair: Adrian Baumeyer (Basel Zoo, Basel, Switzerland)

INTRODUCTION

New World Monkeys are emblematic representatives of the Latin American rainforest and are popular among zoo visitors. As such, they can play an important educational role. Many species are Critically Endangered, and zoos can contribute to their survival through *ex situ* breeding and (financial) support to *in situ* conservation projects.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In 2018, the EAZA Larger New World Monkey TAG received the results of the EEP evaluations for the Red-faced black spider monkey EEP and the Yellow-breasted capuchin monkey EEP.

The first was rated good-sufficient, the second sufficient.

A family of San Martin titi monkeys (*Plecturocebus oenanthe*) © Proyecto Mono Tocón



The difficulty of the Yellow-breasted capuchin monkey EEP is the male-biased population and the difficulties in finding space for surplus animals. A LTMP for the population is necessary, which needs the involvement of the Species Committee and holders. Furthermore, EAZA zoos should stop breeding non-recommended species of capuchins, as has been requested in the RCP and various communications.

Dee Winfield (Edinburgh Zoo, UK) resigned as EEP coordinator for the Common squirrel monkey (*Saimiri sciureus*). As none of the holders took over the responsibility for this population, the TAG Chair acted as interim coordinator and updated the studbook.

Gea Karssemeijer left Wildlands Zoo Emmen (the Netherlands) and resigned as EEP coordinator for the Colombian black spider monkey (*Ateles fusciceps rufiventris*) and we are also looking for a replacement for this programme.

Unfortunately, very few updated studbooks were produced by the coordinators and much improvement is certainly necessary. Several studbook keepers have been very busy migrating their studbook to ZIMS for Studbooks,

which should facilitate in the future the management of the programmes.

Several EEPs, such as the White-faced saki monkey EEP and the earlier mentioned Yellow-breasted capuchin monkey EEP, struggle with male-biased populations and difficulties to find good space for surplus animals. Some breeding restrictions were necessary for the Peruvian squirrel monkey EEP as the population is reaching its target size.

There is a lack of (unrelated) breeding males for the red-faced black spider monkeys (*Ateles paniscus*) and white-throated capuchins (*Cebus capucinus*).

A second potential founder of the white-bellied spider monkey (*Ateles hybridus*) was imported from the USA, and we hope that this male will contribute its genes to the EEP population.

Several of the red titi monkeys (*Callicebus cupreus*) that were imported in 2017 from the USA are breeding, which is very good news for the future of the population.

More holders are needed for several EEPs, including capuchin monkeys, howler monkeys (*Alouatta caraya*) and spider monkeys.

White-throated capuchin monkey (*Cebus capucinus*) © Jan Vermeer



COLLABORATIONS

The Joint TAG Chairs Meeting in Budapest was very interesting. The strengthening of ties between the different regions should make collaboration with several population management programmes possible.

CONSERVATION AND RESEARCH

Contribution to the *in situ* conservation of Larger New World Monkeys is limited to a few zoos and conservation projects. Some holders of white-bellied spider monkeys started to support the Spider Monkey Project in Venezuela. This project struggles to protect the last habitat for this Critically Endangered species.

Other zoos support the Shipstern Conservation and Management Area, home of black howler monkeys (*Alouatta pigra*) and spider monkeys (*Ateles geoffroyi*). There is also once again a conservation research programme for the yellow-breasted capuchins (*Sapajus xanthosternos*), that could use more support from holders of capuchin

monkeys.

Proyecto Mono Tocón, focussing on the conservation of the critically endangered San Martin titi monkey (*Plecturocebus oenanthe*) of Peru still receives much support from EAZA zoos, though more holders of red titi monkeys could and should join.

OLD WORLD MONKEY

TAG Chair: Tjerk ter Meulen (GaiaZOO, Kerkrade, the Netherlands)

TAG Vice Chair: none

INTRODUCTION

“To encourage the good management of Old World Monkeys (OWM) in EAZA collections and associated institutions by means of promoting high standards of husbandry and RCP with a view to establishing self-sustaining populations in captivity for the purposes of education, research, *ex situ* conservation and the support of *in situ* conservation initiatives”.

The EAZA Old World Monkey TAG organised themselves in diverse subgroups coordinated by:

- Matt Hartley (Twycross Zoo, UK) for the guenon subgroup,
- Andrea Dempsey (WAPCA/Heidelberg) for the mangabey, drill and mandrill subgroup,
- Holly Farmer (Paignton Zoo, UK) for the macaque’s species,
- Fabian Krausse (Hannover Zoo, Germany) for the colobine subgroup,
- The baboon subgroup is still in need of a subgroup leader.

The TAG consists of 26 programmes, has not grown in the last year, and we are in full preparation for the upcoming RCP meeting in July 2019. This exercise can, of course, cause changes in the current managed programme list.

POPULATION MANAGEMENT PROGRAMME

DEVELOPMENTS

A lot of EEP evaluations have been finished, and I would like to thank the following programmes for their time and effort to get this done: Sulawesi crested macaque (*Macaca nigra nigra*), Roloway monkey (*Cercopithecus diana roloway*), mandrill (*Mandrillus sphinx*), lion-tailed macaque (*Macaca silenus*) and Hamlyn’s monkey (*Cercopithecus hamlyni*).

Thomas Bionda from Apeneheul (the Netherlands) was

Sulawesi crested black macaques (*Macaca nigra nigra*) © Owen Taylor



appointed as new EEP coordinator for the Javan Langur (*Trachypitecus auratus auratus*), taking over from Warner Jens from the same institution.

ACHIEVEMENTS DURING THE YEAR

BPG have been published by Matt Hartley and Mel Chapman (Twycross Zoo, UK) for the De Brazza monkeys (*Cercopithecus neglectus*) and by María Teresa Abelló (Barcelona Zoo, Spain), Tjerk ter Meulen and Emile Prins (GaiaZoo, the Netherlands) for the mangabeys.

COLLABORATIONS

In 2018 we had the third Joint TAG Chairs meeting in Prague. We tried to get as many people from as many different regions as possible in the room, and it worked out well. All regions joining the meeting presented the development of the OWM population in their region, and we discussed potential collaborations for the future.

CONSERVATION AND RESEARCH

Holly Farmer has done a fascinating study on the mortality and morbidity of the Sulawesi crested macaques (*Macaca nigra nigra*) between 2012 and 2017 and presented the outcomes during the EAZA Annual Conference in Athens. During the same meeting, Luca Morino (Paris Zoo, France) presented the results of a contraception study he conducted on the Guinea baboon (*Papio papio*). If you want to know more about these projects, please have a look at the OWM TAG page on the Member Area, where you can also find many documents about the TAG's work.

ADDITIONAL COMMENTS

Since years this TAG has been struggling to find enough new holders to maintain the current populations on a healthy level; please do not hesitate to get in touch if your zoo wants to house Old World Monkeys. There are many species to choose from to add to your collection.

Roloway monkeys (*Cercopithecus diana roloway*) © Benoit Quintard



GIBBON

TAG Chair: Brice Lefaux (Mulhouse Zoo, Mulhouse, France)

TAG Vice Chair: Matt Ford (Howletts Wild Animal Park, Canterbury, United Kingdom)

INTRODUCTION

Referring to the EAZA Gibbon RCP, the EAZA Gibbon TAG manages six EEPs for: the Siamang (*Symphalangus syndactylus*), two Crested gibbons (*Nomascus leucogenys* and *N. gabriellae*) and three *Hylobates* (*Hylobates moloch*, *H. pileatus* and *H. lar*). *Nomascus siki* and *H. agilis* are being phased out due to their very small population size. All of these species in the wild are threatened by deforestation and poaching. They are all listed as Endangered species on the IUCN Red List. 2018 was a productive year again for our TAG. We participated in the Joint TAG Chairs meeting in Budapest, held a workshop on the surplus issue and

kept regular contact with the IUCN Section on Small Apes concerning illegal trade.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In 2018, EEP evaluations were completed for six programmes. Over the last two years, all the EEPs of the TAG have been evaluated. The management of four programmes has been evaluated as good-sufficient, three of them as sufficient-insufficient and one as insufficient. The TAG will work together with the EEP coordinators to improve the functioning of the programmes.

The selective and controlled breeding that has been implemented to lar gibbon, siamang and crested gibbon populations, has demonstrated a reduced birth rate. This will help control the population of these larger programmes.

The TAG used the current transfer of Javan gibbons (*Hylobates moloch*) to Java as an example to discuss openly the impact reintroductions have on the long-term viability of the *ex situ* population of gibbons held in the EAZA region. The discussion allows the TAG to highlight to its members the ideal procedure to be followed.

ACHIEVEMENTS DURING THE YEAR

A Space Survey has been carried out to evaluate the potential evolution of the different EAZA populations of gibbons. The main point was to investigate how institutions will maintain the six populations by taking into account the most common difficulty of placing surplus males. This is a huge problem in almost all the gibbon EEPs.

A workshop on “how to deal with surplus?” was held during the mid-year meeting in Budapest to try to tackle this issue in a structural way. As a result, a “Gibbon Action Plan” was discussed to manage current surplus animals and to avoid future surplus. The main actions discussed were to develop exchanges with institutions outside EAZA, to increase mixed exhibit experience and to establish spare space. Avoiding more surplus individuals could be achieved by holders following controlled breeding recommendations. The document will be shared on the TAG workspace once finalised.

To continue the completion of BPG, a Health survey has been sent out and completed.

Northern white-cheeked gibbon (*Nomascus leucogenys*) and son © M. Foos / Zoo Mulhouse



CONSERVATION AND RESEARCH

Project Anoulak (www.conservationlaos.org) is the official Crested gibbon EEP conservation programme. The EEP asks all crested gibbon holders to consider supporting this programme. In 2018, researchers attempted a habituation process which unfortunately failed, research on gibbon song has been studied and completed.

Susan Cheyne, Vice Chair of the Small Ape Section of the Primate SG of IUCN, director of Outrop (www.outrop.org), asked the TAG members to assist her in the fight of the increasing illegal trade of gibbon to Russia and Ukraine. The Gibbon Day (24 October) was presented and the TAG asked all the EAZA gibbon holders to participate actively in this global awareness day.

GREAT APE

TAG Chair: María Teresa Abelló (Barcelona Zoo, Barcelona, Spain)

TAG Vice Chair: Sandra Reichler (Heidelberg Zoo, Heidelberg, Germany)

INTRODUCTION

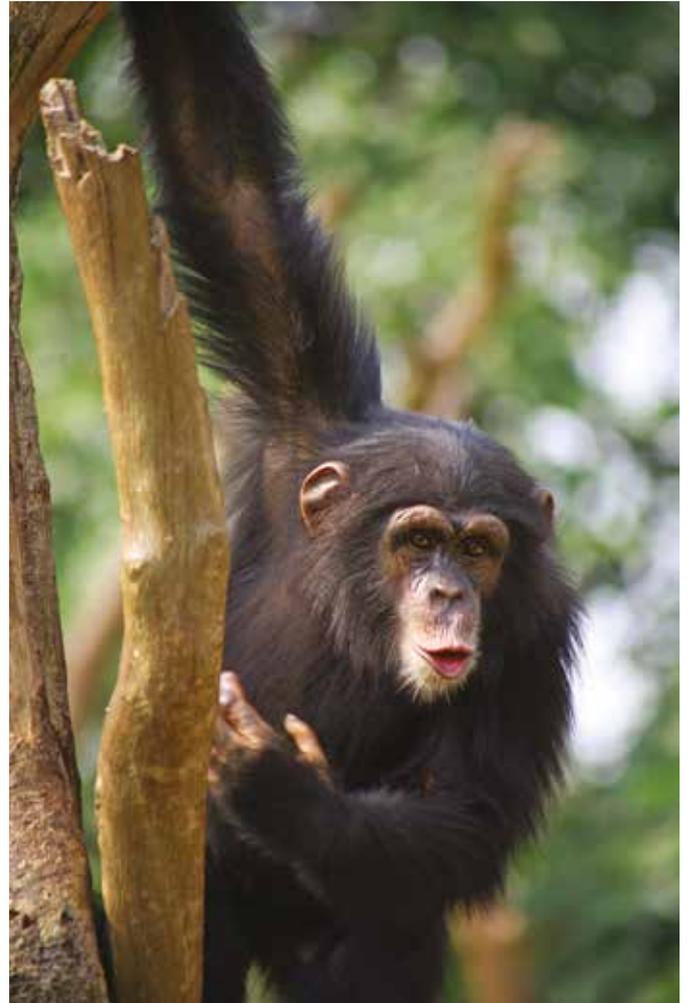
The Mission of the EAZA Great Ape TAG is to maintain self-sustaining and healthy populations of all the taxa of great apes to sub specific level where possible, and to encourage and promote their conservation in the wild. We consider that the roles of zoo populations of great apes are primarily to be ambassadors for their wild counterparts for conservation education, to support their global conservation and to be used for non-invasive research in line with the EAZA Research Standards. These zoo populations can contribute when necessary to the reinforcement of wild populations and should therefore be managed to preserve maximum genetic diversity and natural behaviour.

One of the major tasks carried out this year has been the production of the LTMP for the Chimpanzee EEP (initiated 2016) and the Orangutan EEP, defining goals and objectives of the programmes, and determining the management strategies for the next years in support of these goals.

Last year we held the mid-year meeting in Karlsruhe (Germany, April 2018), and the annual meeting during the EAZA Annual Conference in Attica (Greece, September 2018). Between these two meetings a reorganisation took place with the following results.

This TAG covers four EEPs:

- The EEP for Bonobo (*Pan paniscus*) managed in close collaboration with the Bonobo SSP.
Coordinator: Jeroen Stevens, Vice coordinator: Zjef Pereboom (both Antwerp Zoo, Belgium)
- The EEP for Chimpanzee (*Pan troglodytes*) covering all four subspecies, and natural as well as unnatural hybrids; including two population management programmes for Western chimpanzees (*Pan troglodytes verus*) and Central chimpanzees (*P. t. troglodytes*) as well as limited breeding with hybrids.
Coordinator: Frands Carlsen (Copenhagen Zoo, Denmark), Vice coordinator: Tom de Jongh (Royal Burgers' Zoo, the Netherlands).
- The EEP for Gorilla (*Gorilla g. gorilla*) including one population management programme and the population is pending of genetic analysis.

Chimpanzee (*Pan troglodytes verus*) in Tacugama © Frands Carlsen

The Chimpanzee EEP

The EEP has population management programmes for Western chimpanzees and Central chimpanzees, and interim breeding with hybrids in order to counter a predicted dip in the populations of Western and Central chimpanzees until breeding effort catch up for the two subspecies. The remaining population is phased out through a managed decline. At the end of 2018, the EEP population was 285.472.1 (758) in 92 institutions and the registered population for the entire region including non-EEP animals was 465.624.2 (1091).

A new Species Committee was elected in 2018. The LTMP has been finished and published. The coordinators are working on a management plan (breeding and transfers) related to the conclusions from the LTMP.

Initial focus on EEP endorsed support for conservation was for Western chimpanzees in Sierra Leone, since a large number of the wild chimpanzees that were originally imported to Europe came from Sierra Leone in particular. Along with the development of the programme, the need

Coordinator: Neil Bemment (Apenheul, the Netherlands), Vice coordinator: María Teresa Abelló (Barcelona Zoo, Spain). Our esteemed Gorilla EEP coordinator, Frank Rietkerk, decided to leave EAZA to work for another zoo, but with the promise to come back and be involved in the near future. Neil Bemment was appointed as new Gorilla EEP coordinator with the support of Apenheul Zoo.

- The Orangutan EEP covering both species, Bornean (*Pongo pygmaeus*) and Sumatran (*Pongo abelii*) managed separately in two population management programmes, but not split to subspecies level to avoid losing their viability; and a remaining population of hybrids. The description of *Pongo tapanuliensis* is not going to have any effect on these programmes at the moment. Coordinator: Clemens Becker (Karlsruhe Zoo, Germany), Vice Coordinators: Neil Bemment (Barcelona Zoo, Spain), Simone Schehka (Münster Zoo, Germany). Veterinarian TAG advisor: Hanspeter Steinmetz (Chester Zoo, UK).

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS
The Bonobo EEP

The population on 31 December 2017 was 52.78 (130) in ten institutions and is gradually increasing. Two more institutions will join the programme in the near future. The collaboration with the SSP is intensely favouring a good development of the global population. We organised a global EEP/SSP Bonobo Workshop with representatives from all European Zoos as well as three SSP institutions, and Gottfried Hohmann as field researcher attending the one-day meeting in Karlsruhe. Two females were imported from the SSP in 2018 and are now fully integrated into two groups within the EEP, with the hope that they will reproduce soon. In November 2018 a Bonobo Research Network Meeting was organised between Royal Zoological Society of Antwerp and the University of Antwerp to see how zoos could facilitate access to scientific data on bonobos.

EEP institutions are providing support for *in situ* projects as well as the only sanctuary for bonobos, Lola Ya Bonobo in Kinshasa. The EEP supports this approach and in addition, in order to facilitate conservation support from institutions without such links, maintains a list of EEP-endorsed projects/organisations.

for endorsement of projects from other regions has evolved. Several chimpanzee holding institutions in EAZA support specific projects selected based on historical affiliations with countries/regions/organisations/individuals. The EEP supports this approach and in addition, in order to facilitate conservation support from institutions without such links, maintains a list of EEP-endorsed projects/organisations.

The Gorilla EEP

The population on 31 December 2017 was 223.262.2 (485) within 75 participating institutions. The population includes 11 castrated males, and there are 20 bachelor groups in 18 institutions. The number of males and females in the population is getting closer in the last years. This will exacerbate the problem of surplus males. For the last few years the annual management plan has incorporated a longer interbirth period to reduce the problem, but demographic projections show that elongating the interbirth and building more bachelor groups will not be enough. This year we had a negative growth of two individuals less; if this result keeps repeating it could cause problems for maintaining a long-term self-sustaining population. Castration of some individuals, whilst in the infant stage, with lesser genetic value is scientifically proven to be a possible management tool to favour and ensure higher levels of welfare in males who would not have possibilities to establish a breeding group in their lifetime. Regarding genetic determination, after many years looking for funding, now we are ready to begin testing the population. Following the advice of Angela Meder (Berggorilla und Regenwald Direkthilfe), zoos participating in the Gorilla EEP are informed about the projects of interest and encouraged to participate.

The Orangutan EEP

The population on 31 December 2017 was 68.108 (176) Bornean orangutan and 61.91(152) Sumatran orangutan. With a total population of 137.209 (346 including hybrids) in 72 holding institutions. Both populations are showing a low increase in the last 30 years (43,9 % Sumatran, 50,9 % Bornean and 5,2 % hybrids). This year the LTMP was carried out, the Annual Management Plan was implemented as a new document to facilitate annual recommendations, and the BPG was published.

Graham L. Banes from the University of Wisconsin-Madison as a genetic expert for orangutans attended the

meeting in Karlsruhe. The EEP intends to work with Graham on a molecular genetic study aiming at analysing the entire living population in the coming years. Additionally, Warner Jens from Apenheul Primate Park (the Netherlands) attended the mid-year meeting. Together with Thomas Bionda, also from Apenheul and with the Leiden University, they started a project supported by the EEP called "Tinder for orangutans". The project aims to unravel the partner preferences of zoo-housed orangutans and thus will explore whether partner choice can be made possible in zoo-housed orangutans with touchscreen-based psychological tasks instead.

During the last mid-year meeting the TAG decided and agreed to appoint a Veterinarian advisor for each species to broaden the capacity for advice. The appointed veterinarians are: Hanspeter Steinmetz (Orangutan EEP, private), Matyas Liptovszky (Gorilla EEP, Twycross Zoo), Romain Poitier (Chimpanzee EEP, private) and André Schüle (Bonobo EEP, Berlin Zoo). The Veterinarian Guidelines for Apes are almost finished, and we hope they will be available shortly.

ACHIEVEMENTS DURING THE YEAR

Big efforts are being done by the TAG members to continually strive to improve standards of husbandry and welfare in the region. Species-specific BPG are being compiled and updated when necessary. Great Ape Veterinary guidelines, Gorilla BPG and Orangutans BPG (1st version published 2018). The Chimpanzees BPG and Bonobos BPG are on the way.

The TAG has produced a few new documents. Monitoring welfare of all the individuals is the main concern, including the welfare of geriatric animals. The Great Ape Behavioural Information template is for better monitoring of individuals being transferred from one institution to another, the sender should inform the receiver in as much detail as possible about the individual characteristics, behavioural and medical history. Due to the importance of the necropsy report for the future health of the *ex situ* populations, a template has been designed and is available on the TAG Member Area, including collaboration with Ape Heart Project.

COLLABORATIONS

Collaboration with the EAZA Group on Zoo Animal Contraception (EGZAC) has been intensified to favour reproductive management in great apes, enhancing

reproduction with a holistic approach to male and female fertility and identifying limiting factors and practical ways to manage them (Contraception survey).

Collaboration with the EAZA Biobank are impelling genetic testing of the populations (Christina Hvilsom from Copenhagen Zoo, Denmark, and Tomás Marqués from Barcelona Zoo, Spain) and increasing the number of samples and incrementing the number of samples.

CONSERVATION AND RESEARCH

Conducting and/or facilitating research is strongly encouraged, particularly into species conservation, population management, reproductive management, husbandry, animal welfare and general species biology. To this particular end, the TAG has established the Great Ape TAG Research Group, an advisory body comprising researchers and TAG members from the zoo community and the academic community.

A new initiative is the EAZA Great Ape Gamete Recovery Initiative (Imke Lüders, Allwetterzoo Münster, Germany and Manel López Béjar, University Barcelona, Spain) to promote cryopreservation of gametes (*i.e.* sperm or oocytes) from certain individuals in order to store viable genetic material



Bonobos (*Pan paniscus*) in Leipzig © Jeroen Stevens

and enhance genetic diversity within the Great Ape EEPs in the future.

Other research on the way concerns matching orangutans, a survey about gorilla keeper hours and hours of outdoor access for gorillas, regurgitation and reingestion in orangutans and gorillas, nutrition in orangutan, monitoring castrated and uncastrated males.

The TAG in cooperation with the relevant EEPs and their Conservation advisors promote conservation issues and support *ex situ* and *in situ* conservation initiatives relevant to species in the TAG. The EAZA Conservation Database is an important tool to evaluate our results. The TAG is open to a closer cooperation with IUCN, Great Ape Survival Partnerships (GRASP) and Pan African Sanctuary Alliance (PASA) and other reputable conservation organisations to exchange conservation status and issues of ape species and to work closely together to maintain apes in the wild. The last round of the Ape Conservation Fund approved support for the following projects: “Community-led protection of critical ape habitat in the Sabangau peat-swamp forest, Central Kalimantan, Indonesian Borneo” (Borneo Nature Foundation) and “Community monitoring of Grauer’s gorillas in Itombwe nature Reserve”. The total amount invested in *in situ* conservation projects for apes since 2010 when the campaign was launched, is € 573,084.

ADDITIONAL COMMENTS

◦ Last year, International Zoo Yearbook published a volume dedicated to Great Apes to which many members of our TAG contributed: *Zoo contributions towards improving management and well-being of great apes: augmenting knowledge to safeguard our closest relatives.*

◦ Other publications are listed below:

Ancrenaz, M. *et al.* (2018). *Building relationships: how zoos and other partners can contribute to the conservation of wild orangutans Pongo spp.* Int. Zoo Yb., 52: 164-172.

Banes, G. L. *et al.* (2018). *Orang-utans Pongo spp in Asian zoos: current status, challenges and progress towards long-term population sustainability.* Int. Zoo Yb., 52: 150-163.

Behringer, V. *et al.* (2018). *Aging and sex affect soluble alpha klotho levels in bonobos and chimpanzees.* Frontiers in Zoology 15(1).

Behringer, V. *et al.* (2018). *Getting closer: contributions of zoo studies to research on the physiology and development of Bonobos Pan paniscus, Chimpanzees Pan troglodytes and other primates.* Int. Zoo Yb., 52: 34-47.

Breuer, T., Manguette, M. and Groenenberg, M. (2018). *Gorilla Gorilla spp conservation – from zoos to the field and back: examples from the Mbeli Bai Study*. *Int. Zoo Yb.*, 52: 137-149.

Cabana, F., Jasmi, R. and Maguire, R. (2018). *Great ape nutrition: low-sugar and high-fiber diets can lead to increased natural behaviours, decreased regurgitation and reingestion, and reversal of prediabetes*. *Int. Zoo Yb.*, 52: 48-61.

de Groot, N.G., Stevens, J.M.G. and Bontrop, R.E. (2018). *Does the MHC confer protection against malaria in bonobos?* *Trends in Immunology* 39(10): 768-771.

Druelle, F. et al. (2018). *Segmental morphometrics of bonobos (Pan paniscus): are they really different from chimpanzees (Pan troglodytes)?* *Journal of Anatomy*, 233: 843-853.

Fisken, F. A. et al. (2018). *Global population records and managed-programme updates for the great apes: short report*. *Int. Zoo Yb.*, 52: 212-226.

Gartner, M. C. and Weiss, A. (2018). *Studying primate personality in zoos: implications for the management, welfare and conservation of great apes*. *Int. Zoo Yb.*, 52: 79-91.

Grawunder, S. et al. (2018). *Higher fundamental frequency in bonobos is explained by larynx morphology*. *Current Biology* 28, R1171–R1189.

Groves, C. P. (2018). *The latest thinking about the taxonomy of great apes*. *Int. Zoo Yb.*, 52: 16-24.

Hill, S. P. (2018). *Regurgitation and reingestion (R/R) in great apes: a review of current knowledge*. *Int. Zoo Yb.*, 52: 62-78.

Huskinson, S. M. and Chism, J. L. (2018). *Emerging relationships in a new group of Western lowland gorillas Gorilla gorilla gorilla at Riverbanks Zoo and Garden, Columbia, SC*. *Int. Zoo Yb.*, 52: 92-102.

Marques-Bonet, T. and Hvilsom, C. (2018). *Genomic variation of the great apes and the application to conservation*. *Int. Zoo Yb.*, 52: 25-33.

Moreno Rivas, M., Rodríguez Teijeiro, J. D. and Abelló, M. T. (2018). *Genetic and demographic analysis of European Endangered Species Programme (EEP) and Species Survival Plan (SSP) Western lowland gorilla Gorilla gorilla gorilla populations*. *Int. Zoo Yb.*, 52: 194-211.

Murphy, H. W., Danforth, M. D. and Clyde, V. L. (2018). *The Great Ape Heart Project*. *Int. Zoo Yb.*, 52: 103.

Rietkerk, F. and Pereboom, J. J. (2018). *Editorial: Conservation of Great Apes*. *Int. Zoo Yb.*, 52: 9-15.

Samuel, D.S. et al. (2018). *Hand pressures during arboreal locomotion in captive bonobos (Pan paniscus)*. *Journal of Experimental Biology* 221(8).

Stokes, R., Tully, G. and Rosati, A. G. (2018). *Pan African*

Sanctuary Alliance: securing a future for the African great apes. *Int. Zoo Yb.*, 52: 173-181.

Strong, V. J. et al. (2018). *A retrospective review of great ape cardiovascular disease epidemiology and pathology*. *Int. Zoo Yb.*, 52: 113-125.

Strong, V. J. et al. (2018). *Guidelines for consistent cardiovascular post-mortem examination, sampling and reporting of lesions in European zoo-housed great apes*. *Int. Zoo Yb.*, 52: 126-136.

Tagg, N. et al. (2018). *A zoo-led study of the great ape bushmeat commodity chain in Cameroon*. *Int. Zoo Yb.*, 52: 182-193.

van Leeuwen, T. et al. (2018). *Insights into the musculature of the bonobo hand*. *Journal of Anatomy*, 233(3): 328-340.

van Leeuwen, T. et al. (2018). *Mobility and structural constraints of the bonobo trapeziometacarpal joint*. *Biological Journal of the Linnean Society*, bly162.

Cowl, V., Walker S. L. and Feltrer, Y. (2018). *Assessing the efficacy of Deslorelin acetate Implants (Suprelorin) in alternative placement sites*. *Journal of Zoo and Wildlife Medicine* 49(1): 1–8.

SMALL MAMMAL

TAG Chair: Richard Viduna (Jihlava Zoo, Jihlava, Czech Republic)

TAG Vice Chairs: Dorota Gremlicová (Brno Zoo, Brno, Czech Republic), Jutta Heuer (Halle Zoo, Halle, Germany), Johannes Pfeleiderer (Duisburg Zoo, Duisburg, Germany), and David White (Chester Zoo, Chester, United Kingdom)

INTRODUCTION

The EAZA Small Mammal TAG supports and promotes the conservation of small mammal species within our scope around the world. This is achieved through *ex situ* management, conservation education, engagement in *in situ* management and conservation programmes, and advocacy for these species both in human care and in the wild.

The TAG objectives are to:

- promote high standards of animal welfare by providing a discussion forum for husbandry, veterinary, ethical and other issues ensuring the development of improved animal management techniques and producing BPG for

Attendants of the TAG mid-year meeting at Halle Zoo © Richard Viduna


- the managed species,
- actively encourage more EAZA institutions to keep and breed small mammal species to represent greater mammal biodiversity,
 - promote collaboration and cooperation between holders of small mammal species,
 - connect *ex situ* programmes with *in situ* conservation efforts and encourage fundraising to support *in situ* conservation,
 - encourage high-quality research *in* and *ex situ*,
 - promote education programmes within Europe and in range states,
 - establish and regularly review the Small Mammal RCP to reflect the large number of species within our remit.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The Malagasy giant jumping rat (*Hypogeomys antimena*) due to its status in the wild (Endangered according to the IUCN Red List) and the drastically reduced range, is one of the TAG's key species and the population, which is managed as a worldwide ISB programme, will hopefully start growing again during the next years.

ACHIEVEMENTS DURING THE YEAR

The 2018 mid-year meeting took place in Halle Zoo, Germany. Many thanks to colleagues for hosting this event. The TAG members gave very interesting presentations about different small mammals and various aspects from husbandry to diseases. Reports from the population management programmes and from *in situ* conservation projects were also shared. These presentations will be uploaded to the TAG page on the Member Area. Guided tours of the Natural History Museum in Halle, Magdeburg Zoo and Schönebeck Zoo were organised for the TAG

members.

During the EAZA Annual Conference in Athens (Greece), the TAG had its annual meeting for the presentation of the new TAG structure, population management programme reports, and *in situ* projects. On the first day of the conference, new positions within the TAG were approved by the EEP Committee: Richard Viduna took over as TAG Chair. Jutta Heuer (responsible for subgroup Sloths, Anteaters, and Armadillos), Johannes Pfeleiderer (responsible for subgroups Mice, Rats, Squirrels, Springhares, and Gundis), and David White (responsible for subgroup Bats) were introduced as TAG Vice Chairs.

In autumn the EEP Committee also confirmed the nomination of Dorota Gremlíková as TAG Vice Chair responsible for subgroup Cavies and Porcupines.

COLLABORATIONS

The TAG continues in established cooperation with IUCN SSCs and relevant structures of AZA. Flávia Miranda from the Anteater, Sloth, and Armadillo SG attended the TAG annual meeting in Athens to present proceedings of the "Projeto Tamanduá" focused on giant anteater (*Myrmecophaga tridactyla*), silky anteater (*Cyclopes*


Young Malagasy giant jumping rat (*Hypogeomys antimena*) at Duisburg Zoo © Johannes Pfeleiderer

didactylus), and lesser anteater (*Tamandua tetradactyla*), which has been followed and supported by the TAG.

CONSERVATION AND RESEARCH

During the annual meeting in Athens, the TAG promoted and supported the Kha-nyou project led by Zoo Wrocław (Poland) aiming at research and conservation actions for the Laotian rock rat (*Laonastes aenigmamus*) in Laos. The TAG also keeps supporting the Colombian pakarana project, the East Asian pangolin projects and Brazilian Projeto Tamanduá.

CANID AND HYAENID

TAG Chair: Simon Marsh (Yorkshire Wildlife Park, Doncaster, United Kingdom)

TAG Vice Chair: Raymond van der Meer (EAZA Executive Office, Amsterdam, the Netherlands)

INTRODUCTION

Having completed the first “new style” EAZA RCP for all the canids and hyaenids, the EAZA Canid and Hyaenid TAG identified ten species for which intensive *ex situ* management is needed to fulfil the roles and goals of those species. These ten species were selected as candidates for the new EAZA Ex situ Programme. Over the coming months and years, we will focus our energy and work closely with the coordinators and holders to achieve these roles which are contributing to conservation.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

For nine out of the ten new EEPs a managed programme already existed. During the RCP process it was decided to continue with new style EEPs for the painted dog (*Lycaon pictus*), bush dog (*Speothos venaticus*), dhole (*Cuon alpinus*), maned wolf (*Chrysocyon brachyurus*), Iberian wolf (*Canis lupus signatus*), striped hyena (*Hyaena hyaena*), spotted hyena (*Crocuta crocuta*), fennec fox (*Vulpes zerda*) and bat-eared fox (*Otocyon megalotis*). The newest of the new EEPs is the grey wolf (*Canis lupus*). This programme will include all subspecies of wolf (apart from the Iberian wolf) and hybrids with an aim to ultimately have a pure population of European grey wolf (*Canis lupus lupus*) held across EAZA Members.

The Grey wolf EEP will be coordinated by Marc

Enderby from the Highland Wildlife Park, UK. We have a new coordinator for the Dhole EEP, Patrick Roux from Réserve de la Haute-Touche, France. Also, we have a new coordinator for the Spotted hyena EEP, Bas Aalders from Amersfoort Zoo, the Netherlands.

As part of the new EAZA population management structure all EEPs that are identified in the RCP process will be scheduled for a LTMP meeting. For 2018, the spotted and striped hyena were the first two species in the TAG to be selected and a meeting was planned from 17-18 December in Amsterdam. The report of this LTMP for spotted and striped hyenas will be finalised and shared with the wider community.

ACHIEVEMENTS DURING THE YEAR

Most of our achievements through 2018 were implementing the new RCP and EEPs. The coordinators have since been busy contacting the collections holding that species and informing them of any changes to the programme. For the EEPs upgraded from ESBs and the newly formed EEP, they have been busy recruiting Species Committee members to assist them with expert knowledge and management of the programme.

There has been a change in TAG Chairs, with Simon Marsh stepping up to Chair and Raymond van der Meer stepping down to Vice Chair. His new role as EAZA Population Management Centre Manager in the EEO means he could not continue at the helm of the TAG. Raymond has successfully managed the TAG for several years, so we are lucky to be keeping him until we find a new Vice Chair.

COLLABORATIONS

During the EAZA Annual Conference in Athens, the TAG held a closed workshop with Sarah Thomas, ZSL, to identify how we achieve the education roles for the spotted and striped hyena. During this session we also held workshops and discussions with Yedra Felter from the EAZA Group on Zoo Animal Contraception (EGZAC) on reproduction and contraception issues and with Christina Hvilsom from the EAZA Biobank.

During our mid-year meeting in Budapest, we hosted a one-day workshop to focus on the development of multi-region participation to assist in the global management and conservation of three species. These were the painted dog (Africa) and the maned wolf and bush dog (South America). The workshop was attended by representatives from AZA,

Painted dogs (*Lycaon pictus*) in the lake at Yorkshire Wildlife Park © Yorkshire Wildlife Park



PAAZA (Pan-African Association of Zoos and Aquaria), ALPZA, WAZA (World Association Zoos and Aquariums), CZA (Central Zoo Authority) and SCTI (Species Conservation Toolkit Initiative).

CONSERVATION AND RESEARCH

In situ conservation contributions have increased since our last survey of the EAZA Conservation Database and the start of our initiative to link zoos to *in situ* conservation projects. Over the last five years the canid and hyaenid *in situ* projects have almost doubled. We would encourage all Members to populate the Conservation Database with their *in situ* projects, particularly for canids and hyaenids!

Regarding research, the TAG has been collaborating with Chester Zoo and developed a questionnaire regarding painted dog aggression which was presented at the EAZA Annual Conference. This is to help improve husbandry and management of the packs. We also had a maned wolf mate selection poster presented at the conference from Udo Gansloßer, one of the TAGs Research advisors. During the conference we had a live Skype presentation from Greg Rasmussen (Painted Dog Research Trust) in Zimbabwe.

Kerry Hunt is our other Research advisor who has been very active for the TAG, collating current research and

working on a strategy for future research projects. Kerry has produced research on bat-eared fox cub survival.

ADDITIONAL COMMENTS

In 2018, we published the Canid and Hyaenid RCP and the long awaited global ICAP workshop proceedings. The TAG would like to thank the IUCN Conservation Planning SG, EEO and the AZA TAG for all their guidance during both workshops, especially Kathy Traylor-Holzer, Kristen Leus and Karen Bauman.



Spotted and Striped Hyena LTMP Meeting Group Photo © EAZA

Male Andean bear (*Tremarctos ornatus*) in Vienna zoo © Lydia Kolter


successfully reproduced. Transfers to establish new breeding groups were achieved.

Linking of the EEP for sloth bears (*Melursus ursinus*) with field research is in progress.

ACHIEVEMENTS DURING THE YEAR

2018 was the year of reflection and communication. The latter resulted in a proper EAZA Bear TAG Facebook group administered by Zsuzsa Petró from Sóstó Zoo (Hungary). Remy Gaillot (Parc animalier d'Auvergne, France), the TAG Conservation facilitator started preparing the first Happy Bear Day to be held on 5 May 2019.

COLLABORATIONS

In collaboration with Polar Bears International (PBI) the First European Workshop on Polar Bears and Conservation Science was held in Vienna Zoo, Austria, on 12-14 April 2018. Fifty participants from 22 Institutions and 5 Universities, representing 11 countries within Europe, The United States, and Canada attended. We discussed research topics and ways in which research for conservation could be accomplished on *ex situ* polar bears (*Ursus maritimus*).

During the Joint AZA and EAZA Bear TAG Meeting on 3 May in Budapest, participants mainly focussed on the Sloth bear EEP and SSP and discussed threats and chances for the *ex situ* and wild population.

Two Bear TAG members attended the International Bear Association (IBA) Conference in Ljubljana (Slovenia), and actively participated in the meeting and in the *ex situ* session of the IUCN Bear SG. They organised, with the President of the IBA, the workshop Joining forces - how to make *ex situ* research more available and beneficial for *in situ* conservation of brown bears.

We had two feature articles in the EAZA *Zooquaria* magazine. One was an overview of the new ICAP and RCP and how the Canid and Hyaenid TAG were the first to trial this process. The Second article was by Marc Enderby about the new Grey wolf EEP.

2018 saw the Canid and Hyaenid TAG newsletter circulated, the first in February and the second in June. We will aim for two issues a year, the third issue is due out January 2019. Each issue has a snapshot of TAG Updates, Conservation, Research, a Species Spotlight and Reading and Viewing section with links for further exploration.

If you are interested in receiving the newsletter, please contact Teague Stubbington at teague.stubbington@zsl.org.

BEAR

TAG Chair: José Kok (Ouwehands Zoo Rhenen, Rhenen, the Netherlands)

TAG Vice Chair: Lydia Kolter (Cologne Zoo, Cologne, Germany)

INTRODUCTION

The EAZA Bear TAG membership is growing! In 2018 two more people joined.

Dorota Gremlicová, curator of mammals from Brno Zoo (Czech Republic) is a new member. Thea Bechshøft, from the University of Aarhus (Denmark) and Polar Bears International was appointed as Polar Bear Research advisor and facilitator.

The search for a new Bear TAG Vice Chair has not yet been successful.

POPULATION MANAGEMENT PROGRAMME

DEVELOPMENTS

The studbook keeper of the Asiatic black bear (*Ursus thibetanus*) (ESB currently only including the 'no sub-species' population) suggested working towards the establishment of an EEP for the Manchurian black bear (*Ursus thibetanus ussuricus*). Irina Ovchinnikova (Moscow Zoo, Russia) would be willing to assist as EEP vice-coordinator.

The LTMP-report for the brown bear (*Ursus arctos*) was finished and distributed in the first half of 2018. The ESB for Andean bears (*Tremarctos ornatus*) was moved to ZIMS after the coordinator participated in the EAZA training course.

The genetic status of the sun bear (*Helarctos malayanus*) population improved as a pair on loan from Cambodia

The President of the IBA afterwards attended the Bear TAG Meeting during the EAZA Annual Conference in Athens and presented his view on possible research cooperation between EAZA zoos holding brown bears in their collection and IBA.

During the closing session of the EAZA Annual Conference in Athens, Lydia Kolter (Cologne Zoo, Germany) received an EAZA Lifetime Achievement Award. Mulhouse Zoo (France) organised the first *Colloque Francophone sur l'Ours polaire* on 4-6 December 2018. This was one of the outcomes of the polar bear keepers' exchange organised and financed by PBI and the Bear TAG. The coordinator of the Sloth bear EEP attended the Advancing Bear Care conference organised by the Bear Care Group in Agra (India) on 3-6 December 2018. Two Bear TAG members attended the Conservation Planning SG course "Facilitating Species Conservation Planning Processes" held in July at Chester Zoo (UK).

CONSERVATION AND RESEARCH

Anna Hein (Karlsruhe Zoo, Germany) is currently measuring glucocorticoids in polar bear hair and faeces (21 EAZA zoos involved in the study).

The TAG received a request to comment on a draft for the planned project 'Welfare for Captive Bears - the Development of a Welfare Assessment Protocol for Polar Bears and Brown bears' by Cecilie Ravn Skovlund, Copenhagen Zoo (Denmark).

ADDITIONAL COMMENTS

Drake, G. *et al.* (2017). *Treatment success in three Andean bears (Tremarctos ornatus) with alopecia syndrome using oclacitinib maleate (Apoquel®)*. *Journal of Zoo and Wildlife Medicine*, 48(3):818-828.



Polar bear (*Ursus maritimus*) © Ouwehands Zoo Rhenen

SMALL CARNIVORE

TAG Chair: Aude Haelewyn-Desmoulins (Parc Zoo du Reynou, Le Vigen, France)

TAG Vice Chairs: Allan Galway (Chester Zoo, Chester, United Kingdom); Janno Weerman (Rotterdam Zoo, Rotterdam, the Netherlands)

INTRODUCTION

During 2018, the EAZA Small Carnivore TAG (SC TAG) has continued to improve its structure and organisation. We were very pleased to have Janno Weerman from Rotterdam Zoo assisting the TAG Chair and Vice Chair with many TAG activities in addition to managing the Red panda EEP. The TAG now has 37 members, managing eight EEPs and five ESBs. Thirty-one species are monitored, either to help determining the status of the EAZA population and the role it could play for conservation or to free space for more important species. Eleven members of the TAG are vital advisors / consultants to the TAG. We rely heavily on their expert knowledge and skills for research, nutrition, conservation, communication and marketing.

2018 was a busy year and saw several valuable members leave and many new members join.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The EEP for the Owston's civet (*Chrotogale owstoni*) was successfully evaluated and rated as "sufficient". The Owston's civet is a priority species for the SC TAG but struggles with its small population and lack of interest from EAZA zoos. The EEP coordinator looks forward to working on increasing awareness for the species' plight. As prioritised by the results of the evaluation in 2016, the EEP for Giant otter (*Pteronura brasiliensis*) elected a new species committee and approved a number of extensive animal transfers to put the population in a breeding situation again.

ACHIEVEMENTS DURING THE YEAR

Our open meeting at the EAZA Annual Conference in Athens was fruitful: we successfully filled vacancies for a number of outstanding species monitoring positions and were very happy to welcome a number of enthusiastic new TAG members.

The TAG worked on streamlining its reporting structure and created standardised slides for TAG members to

report information on their species at the mid-year and annual meetings, with the Chair and Vice Chair asking for key issues with each programme species before each meeting. These are split into two formats depending on the species and the desired meeting content. Our minutes are also now produced in a new easy-to-read and take-action format.

It was decided to split the workload of the TAG between the Chair and two Vice Chairs. Each of them will oversee various taxonomic groups and species programmes. This workload division will help improve communication and efficiency within the TAG.

COLLABORATIONS

The SC TAG continues to collaborate closely with both the IUCN SSC Small Carnivore and Otter SGs and has members from both these groups actively participating in its initiatives as advisors. This collaboration is increasing each year and communication has been found to be mutually beneficial for all parties.

Throughout 2018, the SC TAG and EAZA Members have been collaborating with Save Vietnam's Wildlife with the organisation of a workshop to be held in Vietnam to redirect efforts to save the endangered Owston's civet. The workshop concept was developed during our mid-year meeting in Romania in 2017. Save Vietnam's Wildlife along with EAZA institutions (Paignton Zoo and Newquay Zoo, UK; Tallinn Zoo, Estonia and Wildlife Reserves Singapore); SC TAG members; the IUCN Red List authority for small carnivores, and Will Duckworth, have been extremely busy lobbying at meetings, providing financial and technical support. We look forward to reporting about the workshop and its outcome in the annual report for 2019.

CONSERVATION AND RESEARCH

◦ Euplerid conservation subgroup

In the closed SC TAG meeting during the EAZA Annual Conference in September 2018, "In and ex situ actions for Malagasy species" was a point on the agenda. The TAG agreed on the need to act efficiently and quickly for the Malagasy small carnivore species. A result of this is the "re-launch" of the Euplerid conservation group as a subgroup of the TAG, comprised of (but not limited to) SC TAG members, EAZA programme managers and experts, IUCN experts and field biologists as members.

This working subgroup is tasked with developing an action plan adhering to the IUCN SSC Conservation

Male red panda (*Ailurus fulgens fulgens*) with GPS collar © Wiene Bunte; inset: European mink (*Mustela lutreola*) © Tiit Maran



Planning SG One-Plan Approach philosophy and the new IUCN SSC guidelines on the use of *ex situ* management for species conservation. The principle motivation is identifying one or a small number of Madagascar carnivore projects/programmes the TAG can endorse, run or support. It will also be an opportunity to engage a wider group in the conservation of these species.

◦ **Urolith prevalence in Asian short-clawed otters**

The study to determine the prevalence of uroliths in Asian short-clawed otter (*Aonyx cinereus*) under human care and to evaluate which feeding patterns and nutrients may be linked to their occurrence was completed and published by Francis Cabana (Wildlife Reserves Singapore), the SC TAG's Nutrition advisor. The study found age and calcium were risk factors, whereas crude protein and sodium were protective. Therefore, calcium may need to be controlled within their diet. A

diet high in fish and crustaceans may be beneficial and is consistent with wild Asian short-clawed otter diets.

◦ **Owston's civet diet**

A new research project is being undertaken to study the diet and effect on the Owston's civet by Francis Cabana.

◦ **GPS collars for red pandas**

It has been a long-lasting wish of Red Panda Network to do a GPS collaring study on red panda (*Ailurus fulgens fulgens*). With the current GPS techniques, a lot of ecological data can be collected. These are a valuable addition to the current ecological data on red pandas in general and they can also be used for more efficient conservation measures.

The *in situ* phase of this study aims to improve the understanding on how red pandas interact in human-dominated landscapes and assess their population viability in fragmented landscapes in Nepal. More specifically, it will

help answer the following questions:

- What is the spatial-temporal pattern of space use, resource use, movement and social interaction?
- How do they respond to human disturbances over spatial-temporal scale?
- Are grazing and developmental activities (especially roads) the real conservation threats?
- What size of population will be viable in a fragmented and human-dominated landscape (key factors affecting population viability)?
- What will be the long-term effect of habitat fragmentation on red panda survival?

Because there is no literature about how red pandas react behaviourally to GPS collars and if a collar causes physical problems or injuries, the collars first need to be tested *ex situ*. In November 2018, two red pandas in Rotterdam Zoo were collared to see if the GPS collar significantly changes red pandas' behaviour and causes physical problems or injuries. The study is ongoing, and we expect the results by the end of February. We hope the *in situ* part of the GPS study can be conducted in October 2019.

◦ **Research on mucoid faeces in red pandas**

The preliminary tests run for the SC TAG, EEP and GSMP-endorsed research on mucoid faeces in red pandas are positive. Funding for this research is now secured: it will officially be launched in 2019.

ADDITIONAL COMMENTS

Last year, the first European newsletter for European mink (*Mustela lutreola*) was compiled. The aim of this newsletter is to inform a wide public, from policy makers and conservationists to the general public, about this small carnivore on the brink of extinction. The newsletter provides a clear overview of the conservation efforts made throughout Europe for the protection of the European mink.

GaiaZOO (the Netherlands) built three new separate enclosures for European mink, each about 10 m wide and 4 m deep, including a running water stream and a deep pond. At the end of September, two European minks from the breeding centre in Tallinn Zoo moved to the new enclosures. Next breeding season, we hope that they will produce young for the EEP. A total of € 10,000 was fundraised for the species at the zoo in 2018.

The Global Otter Conservation Strategy has been

published and can be downloaded from the Otter SG website or from the SC TAG page on the EAZA Member Area.

The research on urolith prevalence in otters led to a publication co-authored by Allan Galway and Francis Cabana among others.

Yoong, Y-T. *et al.* (2018). *Urolith prevalence and risk factors in Asian small-clawed otters (Aonyx cinereus)*. *Journal of Zoo and Wildlife Medicine* 49(4): 863-869.

FELID

TAG Chair: Alexander Sliwa (Cologne Zoo, Cologne, Germany)

TAG Vice Chairs: André Stadler (Alpenzoo, Innsbruck, Austria); David Barclay (Highland Wildlife Park, Kingussie, United Kingdom)

INTRODUCTION

2018 was another eventful year for the EAZA Felid TAG which included holding two meetings of its members, advisors and guests; compilation of the Felid TAG Demonstration Guidelines; workshops on reintroduction of captive felids; discussion on geriatric felids and many other topics reported on below.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The RCP summary table was updated at the mid-year meeting at Fota Wildlife Park (Cork, Ireland) in March 2018 and is available on the TAG webspace; BPG have been finished and approved for the Southern cheetah EEP and Asiatic golden cat EEP, while several BPG are currently being worked on and have and will be published in 2019 (*i.e.* Jaguar EEP, Margay EEP); several EEP evaluations have been performed, although some of them have only been finished in early 2019 – only the Clouded leopard EEP remains to be evaluated; LTMP has been done for the Eurasian lynx (*Lynx lynx*).

The following changes in programmes occurred: Upgrade of rusty-spotted cat (*Prionailurus rubiginosus*) to an EEP, coordinated by Johannes Köhler (Frankfurt Zoo, Germany).

Jérôme Catinaud (Parc-des-Félins, France) has been appointed as new EEP coordinator for sand cats (*Felis margarita*).

Attendees of the EAZA Felid TAG mid-year meeting © José Ferreira


Andrea Cerny (Attica Zoo, Greece) has taken up the MON-P position for the European wildcat (*Felis s. silvestris*). Sam Harley has moved from Newquay Zoo to Chester Zoo and with her the Margay EEP.

The Black-footed cat EEP has been discontinued, due to the lack of animals in Europe in the last five years.

ACHIEVEMENTS DURING THE YEAR

We finished and published the Felid TAG Demonstration Guidelines. We held a workshop together with the IUCN Cat SG and the AZA Felid TAG Chair at Fota Wildlife Park (Cork, Ireland) in March 2018 on principles of captive felid reintroductions. The TAG also attended a meeting on African Lion genetics at Givskud Zoo (Denmark) in December.

COLLABORATIONS

We work in constant collaboration amongst the Felid TAG members together with specialists and advisors to the TAG on many topics (genetics, taxonomy, health and reproduction, behaviour and husbandry), as well as with the AZA Felid TAG through the attendance of their TAG Chair at our mid-year meeting. A close collaboration on many topics regarding both *ex situ* and wild living felids is also in place with the IUCN Cat SG.

CONSERVATION AND RESEARCH

Each Felid TAG member is to some degree involved in conservation and research activities, to name a few: the Sumatran and Amur tiger EEPs, Amur leopard EEP, Persian leopard EEP, Sri Lankan leopard EEP; Snow leopard EEP; Pallas cat EEP (TAG Vice Chair David Barclay) – which co-organised the first Global Pallas's cat conservation planning meeting in Norden's Ark; Black-footed cat EEP (TAG Chair active *in situ*), Sand cat EEP (TAG Chair active in the field).

Presentation by the IUCN Cat Specialist Group co-Chair Urs Breitenmoser at the TAG mid-year meeting © Alexander Sliwa


ADDITIONAL COMMENTS

Sliwa A. *et al.* (2018). *Camera trap use in the study of black-footed cats (Felis nigripes)*. African Journal of Ecology 56: 895–897.

Mattucci, F. *et al.* (2018). *How to spot a black-footed cat? Successful application of cross-species markers to identify captive-bred individuals from non-invasive genetic sampling*. Mammal Research 63.

MARINE MAMMAL

TAG Chair: Claudia Gili (Acquario di Genova, Italy)

TAG Vice Chair: Agustin Lopez Goya (Parques Reunidos, Spain)

INTRODUCTION

The EAZA Marine Mammal TAG oversees the running of two EEPs - for Bottle-nosed dolphin (*Tursiops truncatus*) and for Caribbean manatee (*Trichechus manatus*) - and five ESBs, namely for Patagonian (*Otaria flavescens*) and Californian (*Zalophus californianus*) sea lions, South American fur seals (*Arctocephalus australis*), Grey seals (*Halichoerus grypus*) and Walrus (*Odobenus rosmarus*). The harbor seal (*Phoca vitulina*) belongs to a monitoring programme.

Our Veterinary advisors are:

- Daniel Garcia Parraga (Oceanogràfic Valencia, Spain): TAG advisor
 - Kathrin Baumgartner (Nuremberg Zoo, Germany): Manatee advisor
 - Nicola Pussini (Acquario di Genova, Italy) and Kerstin Turner (Duisburg Zoo, Germany): Pinniped advisors
- Within the Memorandum of Understanding with the

South American fur seal (*Arctocephalus australis*) © Brian Gratwicke



European Association for Aquatic Mammals (EAAM), the board has a position in the TAG. In 2018 this position was handed over from Arlete Sogorb (Lisbon Zoo, Portugal) to Javier Almunia (Loro Parque Zoo, Spain).

Tania Monreal (IZVG – Independent veterinarian) will be part of the Marine Mammal TAG as representative between EAZA and the Accreditation Committee of EAAM.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

We are working on all the programmes and addressing the major challenges for the species targeted either by our detractors or by commercial requests from other countries. The TAG is working on the possible upgrade for the sea lions from an ESB to an EEP.

ACHIEVEMENTS DURING THE YEAR

The TAG reorganised the group structure and functions with regular meetings and programmes to engage the new members and participants. The TAG also addressed issues such as the closing of dolphinarium and reacted to the commercial activities related to pinnipeds (sealions in

particular), worked on developing “EAZA Demonstration Guidelines for Marine Mammals” and collaborated with EAAM in their process drafting the EAAM Standard and Guidelines.

The Caribbean manatee EEP finalized the BPG which were approved by the TAG and EEP Committee. Furthermore, the BPG for Pinnipeds, a joint document by EAZA and EAAM was approved by the TAG and EEP Committee. Both guidelines are available on the EAZA website.

The TAG held meetings in ZooMarine Rome (Italy) and Attica Zoo (Greece) in March and September respectively.

We submitted a proposal for the next EAZA campaign on “sustainability of marine resources” which has been accepted and is currently under development.

COLLABORATIONS

Collaboration with EAAM continued, aiming to achieve the best possible species management and care of marine mammals, and to make the greatest possible contribution to public education concerning, and conservation of, marine mammal species and their habitats.

The Memorandum of Understanding was evaluated in September 2018 and updates were provided to the EAZA Council.

CONSERVATION AND RESEARCH

Some of the parks (*i.e.* Acquario di Genova, Attika Park) and EAAM are involved in direct participation and/or financial support to conservation projects on Monk seals carried out by Mom (the Hellenic Society for the Study and Protection of the Monk seal) in Greece on a yearly basis.

Acquario di Genova continues the conservation project on *Tursiops truncatus* in the wild in Mediterranean (Tursiomed) engaging more than 20 research facilities on the European coasts to share data related to the abundance of the species, its census and related to Marine Strategy. It has also started a new related project named: Dolphins Without Borders.

Nuremberg Zoo and YAQU PACHA (Germany) are very active in conservation activities and have organised and hosted the “*Ex situ* Options for Cetacean Conservation Workshop” designed to explore the role that *ex situ* management can play in the overall conservation of small cetacean species. The meeting took place on 14 to 18 December 2018 in Cistercian Monastery in Heilsbronn (Nuremberg). This workshop was organised by Nuremberg Zoo, Vaquita Conservation, Protection and Recovery, the National Marine Mammal Foundation, and YAQU PACHA e.V. Organisation for the Conservation of South American Aquatic Mammals, with the participation of IUCN SSC specialists as well as EAZA, WAZA and Conservation Planning SG. Ocean Park Hong Kong, YAQU PACHA and Nuremberg Zoo have provided funding for the workshop. A report from the meeting is currently being completed and presented internationally.

ADDITIONAL COMMENTS

Frasson, D., Gili, C. and Valettini, B. (2018). *A better Life - How the FISH SCALE project took on the conservation problems of commercial fishing*. *Zooquaria* 103.

ELEPHANT

TAG Chair: Thomas Kölpin (Wilhelma Zoo, Stuttgart, Germany)

TAG Vice Chair: Jana Pluhackova (Ostrava Zoo, Ostrava, Czech Republic)

INTRODUCTION

The EAZA Elephant TAG manages two *ex situ* population management programmes: the EEPs for the African elephant (*Loxodonta africana*) and the Asian elephant (*Elephas maximus*). The goal of the TAG is to develop a sustainable population of both species within EAZA institutions.

POPULATION MANAGEMENT PROGRAMME

DEVELOPMENTS

In 2018 the African elephant EEP had 3.3 births, 0.6 deaths and transferred 5.1 elephants.

At the end of 2018 the population management programme covered 53.138 (191) elephants in 47 institutions.

The African elephant EEP is still in a very challenging situation, ten births per year are needed for a healthy self-sustaining *ex situ* population of African elephants in Europe.

In 2018 the Asian elephant EEP had 7.2 births, 4.15 deaths and transferred 5.5 elephants.

At the end of 2018 the programme contained 92.200 (292) elephants in 69 institutions.

The main challenge for the Asian elephant EEP remains the huge lack of space for males.

ACHIEVEMENTS DURING THE YEAR

A new Chair was elected before the mid-year meeting in Vienna and a new Vice Chair was elected during the EAZA Annual Conference in Athens.

The new LTMP for the African elephant EEP was rescheduled for 2021.

A “housing group” to help design new facilities was nominated.

The programme succeeded in building new bachelor groups of four young bulls in Magdeburg Zoo (Germany) and by bringing an adult bull to two young bulls in Noah's Ark Zoo Farm (UK).

Three females were brought into breeding position by moving a proven breeding bull to Dresden Zoo (Germany). The following goals were defined:

- No single elephants

New TAG Chair, Thomas Kölpin © Wilhelma Zoo


- Never separate females from their mothers without strong reasons
 - Never separate young bulls too early from their families
 - Minimize the time young bulls are standing alone in their new facilities when building new bachelor groups
 - Never mix young bulls with older females
 - Bring all females of age class 8 to 30 (25) into breeding positions
 - Investigate potential sperm donors and bank sperm
- During the TAG meeting, the following management strategy was determined for the Asian elephant EEP for the next five years:
- Tighten relations with *in situ* experts and range states for the *Elephas maximus indicus* x *Elephas maximus maximus* population (IxM population) and for the Sumatran elephant to truly evaluate potential direct and indirect conservation roles
 - Until there is more clarity on the exact direct and indirect conservation roles, the Asian elephant EEP should in the meantime:
 - Stop mixing the IxM population with the Sumatran and Bornean Evolutionary Significant Units (ESUs)
 - Phase out the Bornean ESU and hybrids, given their small number
 - Stop mixing Sumatran elephants with the IxM population and the Bornean ESU.

The current main focus of the Asian elephant EEP as part of the LTMP is the IxM population. The IxM EEP population has a number of issues that need to be addressed urgently, most notably a space problem for male elephants. Until there is further clarity on the (direct) conservation roles, the

New Vice Chair, Jana Pluhackova © Ostrava Zoo


IxM population will be managed as if it had an insurance role aiming to maintain a demographically and genetically diverse population with behaviourally competent individuals. With this in mind, the LTMP will develop a reproductive plan for all institutions with recommendations for all individuals that will focus on:

- An EEP-driven management strategy rather than an institution-driven management strategy. The Asian elephant Species Committee decides where males and female groups move to and from, and which animals have a (non-) breeding recommendation, based on what is best for the EEP population and the individual elephants
- Working towards increasing space and social options for housing of bulls (working towards fission fusion holding systems for breeding herds, option for bachelor herds, dedicated bull facilities, and so on – these should become part of the new BPG)
- Reproductive health of females by ensuring first calves are produced at the appropriate age (6-8 years old)
- Increasing the inter-birth interval (to 6-7 years) to slow population growth while not compromising the future reproductive potential of females
- Consider research into sex ratio at birth and sperm-selection/options to reduce the number of male calves
- Cooperation with other regions might be explored, although it is not expected that this will contribute to solving the bull-related space problem.

COLLABORATIONS

With the International Elephant Foundation (IEF): the African elephant Species Committee members Harald Schwammer (Vienna Zoo, Austria) and Arne Lawrenz (Wuppertal Zoo, Germany) are board members of IEF. IEF supports conservation, awareness and scientific programmes that enhance the survival of elephants and protect their habitats worldwide. In 2018, IEF supported over 12 projects in eight different countries in Africa by focusing on everything from anti-poaching patrols to habitat protection to community education.

CONSERVATION AND RESEARCH

The TAG collaborates with the IEF in the following projects in Africa:

Big Tusker Project, Kenya; Mount Kenya Horse Patrol Team, Kenya; Support of the Anti-Poaching Teams 9-1 and 9-2 of Northern Rangelands Trust Conservancies, Kenya; Experimental Test of Elephant Deterrents and Ecological Correlates of Crop Raiding, Kenya; Logistical support for the Nsama community scout anti-poaching unit for Nsumbu National Park, Zambia; Support to Wildlife Protection Efforts in the Lower Zambezi National Park, Zambia; Elephant Utilization of the Kavango -Zambezi Wildlife Corridor of KAZA TFCA, Zambia; Elizabeth Conservation Area, Uganda; Protecting elephants in Kibale National Park, Uganda through conservation education, Uganda; Boots on the Ground-Ziama, Republic of Guinea; Extension of solar powered electric elephant fence to reduce human-elephant conflict in Thuma Forest Reserve and Dedza Salina Escarpment, Malawi; Debunking Critical Assumptions to Improve Forest Elephant Censusing and Monitoring, Gaboon; Reduction of poisoning of African elephants in Southern Africa, Zimbabwe.

EQUID

TAG Chair: Ulrike Rademacher (Wilhelma-Stuttgart Zoo, Stuttgart, Germany)

TAG Vice Chairs: Jaroslav Simek (Prague Zoo, Prague, Czech Republic) and Tanya Langenhorst (Marwell Wildlife, Winchester, United Kingdom)

INTRODUCTION

A total of six species fall under the remit of the EAZA Equid TAG: African wild ass (*Equus africanus somalicus*), Grevy's

zebra (*Equus grevyi*), Hartmann's mountain zebra (*Equus zebra hartmannae*), Turkmenian kulan (*Equus hemionus kulan*), onager (*Equus hemionus onager*), Przewalski's horse (*Equus przewalskii*).

New holders are needed, in particular for Somali wild ass, onager, kulan and Hartmann's mountain zebra EEPs.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In 2018, the evaluation of the Onager EEP has been completed.

A new coordinator has been appointed for the Przewalski's horse EEP: Benjamin Ibler (Cologne zoo, Germany).

Robert Hermes from the Institute for Leibniz Zoo and Wildlife Research (IZW), Germany, has been appointed Reproduction advisor to the TAG.

The new Veterinary advisor committee for the Przewalski's horse EEP is: Christine Gohl (Munich Zoo, Germany), Endre Sos (Budapest Zoo, Hungary), Roman Vodicka (Prague Zoo, Czech Republic), Christina Geiger and Nicole Schauerte (both Frankfurt/Main, Germany).

Plans have been put in place for the completion of the RCP scheduled for late 2019.

ACHIEVEMENTS DURING THE YEAR

The TAG completed a survey on mixed exhibits with equids which has been made available to the EAZA Membership provides guidance for EAZA Members holding equid species for mixing with other species.

COLLABORATIONS

Support was provided to the IUCN Equid SG by providing a survey and analysis on diseases affecting equids across Europe.

A new Memorandum of Understanding between Cologne Zoo and Hortobagy National Park (Hungary) was signed. About 380 Przewalski's horses (*i.e.* half of the EEP population) are kept there.

CONSERVATION AND RESEARCH

In January 2018, the biennial survey of Grevy's zebra took place in Kenya. The Grevy's zebra EEP/Marwell Wildlife supported the rally financially and with several teams in the field. Results showed there are now ~2,800 Grevy's zebras in Kenya representing a healthy increase (2,350 in 2016) despite extreme drought and unrest in the country the year

Grevy's zebra (*Equus grevyi*) during the 2018 Kenya survey © Marwell Wildlife



before.

The Recovery and Action Plan for Grevy's zebra 2017-2026, co-written/co-edited by Marwell Wildlife, was published by the Kenyan authorities in June 2018.

The Northern Kenya Grevy's zebra Project uses a network of 20 scouts with camera traps to study remote Grevy's populations in the north. One aim is to promote peace and increase awareness of the needs and threats of the wildlife through involving the local communities.

The KULANSTEP project is ongoing despite a new translocation failing in 2018.

Christine Wurmser from the Technical University Munich is trying to identify genes which might be responsible for infertility in Przewalski's horse.

Christiane Otzdorff, Ludwig-Maximilians-University Munich, is looking at the histology of fertile and infertile

horse testes.

In May 2018, a team from SEZARC (South-East Zoo Alliance for Reproduction and Conservation) came to Hamburg to collect semen from an Onager for an EAZA/AZA artificial insemination programme. Unfortunately, no semen for cryopreservation could be obtained. The project will be continued in the next year.

ADDITIONAL COMMENTS

The following non-TAG publications are relevant to the TAG's work.

Hsuan-Yi, H. *et al.* (2018). *Complete mitochondrial genome sequence for the Somali wild ass *Equus africanus somaliensis**. Conservation Genetic Resources. <https://doi.org/10.1007/s12686-018-1035-y>

Kaczensky, P. *et al.* (2018). *Genetic characterization of free-*



Przewalski's horses (*Equus przewalskii*) at Hortobagy © Hortobagy National Park

ranging Asiatic wild ass in Central Asia as a basis for future conservation strategies. *Cons. Gen.* 19(5): 1169–1184

Rubenstein, D. *et al.* (2018). *The Great Grevy's Rally - The State of Kenya's Grevy's Zebras and Reticulated Giraffes: Results of the Great Grevy's Rally 2018.* GZTC, Kenya.Nairobi, Kenya.

Tesfai, R. *et al.* (2018). *Viability of the critically endangered African wild ass (Equus africanus) population on Messir Plateau (Eritrea).* *Journal of Mammalogy* DOI: 10.1093/jmammal/gyy164

Tuckova, V. *et al.* (2018). *Overmarking by adult females in four equid species: social bonds and group cohesion.* *Journal of Zoology.* Doi:10.1111/jzo.12578

Kenya Wildlife Service (2017). *Recovery and Action Plan for Grevy's Zebra (Equus grevyi) in Kenya (2017-2026),* Kenya Wildlife Service, Kenya.

RHINOCEROS

TAG Chair: Friederike von Houwald (Zoo Basel, Basel, Switzerland)
TAG Vice Chair: Lars Versteeg (Safaripark Beekse Bergen, Hilvarenbeek, the Netherlands)

INTRODUCTION

The vision and mission of the EAZA Rhinoceros TAG is to have a healthy and viable population of free ranging and intensively managed rhinos ranging through intact ecosystems, where they are valued and cherished both locally and globally, and to ensure all populations in human care are healthy, self-sustaining, genetically viable, and capable of being an effective tool in support of rhino conservation in the wild.

According to information from the IUCN African Rhino SG, the number of African rhinoceros killed by poachers in 2018 were 768. Two greater one-horned rhinoceros (*Rhinoceros unicornis*) were poached in Assam (India) in 2018. As many as 102 of these animals have been poached there since 2008.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The status of the three EEPs within the Rhinoceros TAG are as follows:

Eastern black rhinoceros (*Diceros bicornis michaeli*)

- Living on 31/12/2018: 93 (38.55) at 24 collections
- Births in 2018: 4.2 in 4 collections

- Deaths in 2018: 4.2 in 6 collections
- Transfers: 7.4

Greater one-horned rhinoceros (*Rhinoceros unicornis*)

- At the end of 2018: 80 (40.40) kept in 31 EAZA zoos
- Births: 4.2 of which 4.1 survived
- Death: 0.1
- Transfers: 3.0

Singapore Zoo and non-EAZA participant Batusecret Zoo (Indonesia) have joined the EEP.

Male births have outnumbered female births in recent years, so solutions will have to be found for the surplus males and breeding restrictions will have to be considered in the near future.

White rhinoceros EEP (*Ceratotherium simum*)

- The white rhinoceros EEP population started with 316 (132.184) animals in 80 zoos.
- Births: 10.9 of which 10.8 survived.
- Deaths: 1.5 +0.1 calves that did not survive. The adult deaths include mostly older animals.
- Transfer: In total 17 (11.6) animals were transferred between the participants showing the continuous close cooperation within this EEP.
- During 2018 Singapore Zoo became an EAZA Member, adding 8 animals (+ 1.1 births) to the EEP population.

The initiatives of the EEP, with regard to the historical lack of breeding in this species are now really showing results with more and more animals breeding. Up to 45% of the female rhinoceroses are now breeding, and this percentage is rising with a large majority of younger females starting to breed without any problems. With the number of births rising, the population has become sustainable.

But with the increasing number of calves, there is an increase in the importance of additional separation/holding facilities for animals which cannot be held in the group any longer. Especially older males, no longer needed for breeding, can be a potential future problem. Holders are encouraged to be creative to be able to house surplus rhino in other hoofstock paddocks since they are easy to mix with other species.

ACHIEVEMENTS DURING THE YEAR

In 2018 the EAZA Rhinoceros TAG met at the Joint TAG Chairs meeting in Budapest, which was also attended by the AZA Rhino TAG Chair.

Prior to the EAZA Annual Conference in Athens, a

Eastern black rhinoceroses (*Diceros bicornis michaeli*) © Chester zoo


meeting was set up with *in situ* and *ex situ* experts as well as representatives from the IUCN, Rhinoceros conservation NGOs Save the Rhino International (SRI), and International Rhino Foundation (IRF) to work on the new EAZA RCP for Rhinoceros. Thanks to the input of various experts as well as the help from the EEO, the first edition within the new population management structure was finished and published on the EAZA Member Area.

The TAG also met at the EAZA Annual Conference where the executive director from IRF, Susie Ellis, talked about the efforts they are putting into conserving Sumatran (*Dicerorhinus sumatrensis*) and Javan rhinoceros (*Rhinoceros sondaicus*), and, as the *in situ* situation needs urgent help for these two Critically Endangered Asian species, the need of zoos to engage in rhinoceros conservation as much as possible. The second invited guest speaker was Jes Gruner, Park Manager/CEO of the Akagera Management Company (Akagera National Park, Rwanda), talking about the close cooperation of the EAZA Eastern black rhinoceros EEP with the *in situ* initiative to reintroduce five Eastern black rhinoceros from European zoos into Akagera in 2019. In preparation of this transfer, five rhinoceros were moved from Ebeltoft Zoo (Denmark) and Flamingo Land (UK) to

Dvůr Králové Zoo (Czech Republic) in 2018.

COLLABORATIONS

The EAZA Rhinoceros TAG has found reliable partners like SRI and IRF who are also members of the TAG and members of the respective IUCN African Rhino SG/Asian


Rhinoceros Regional Collection Plan workshop in Athens © EAZA

Rhino SG.

More information and materials are available for EAZA Members on the EAZA Rhinoceros TAG workspace.

CONSERVATION AND RESEARCH

The following topics are studied in black rhinoceros:

- Quantifying the genetic diversity of the Eastern black rhinoceros EEP (Franziska Elsner-Gearing, Manchester University, UK)
- Gut microbiome and diet in rhinoceros (Linda Bruins-Van Sonsbeek, Rotterdam Zoo, the Netherlands)
- Role of oxidative stress in the pathogenesis of Iron Overload Disorder in captive black rhinoceros (Hanae Pouillevet, Vet student - Oniris, Nantes, France).

Many participants are involved in White rhinoceros conservation projects, especially through the large conservation organisations SRI and IRF.

Many EAZA rhinoceros holding facilities already support rhinoceros conservation projects and according to the EAZA Conservation Database, rhinoceros were the second most supported species by EAZA Members in 2017. The ongoing challenge of the Rhinoceros TAG is to motivate each zoo already keeping rhinoceros as well as every new rhinoceros holder to participate in *in situ* conservation activities.

ADDITIONAL COMMENTS

Antwis R. *et al.* (2019). *Rare gut microbiota associated with breeding success, hormone metabolites and ovarian cycle phase in the critically endangered eastern black rhino*. *Microbiome* 7:27.

Gimmel, A. *et al.* (2018) *Milk composition of Indian rhinoceros (*Rhinoceros unicornis*) and changes over lactation*. *Journal of Zoo and Wildlife Medicine* 49(3): 704 – 714.

TAPIR AND SUIFORM

TAG Chair: Bengt Holst (Copenhagen Zoo, Copenhagen, Denmark)

TAG Vice Chair: Jochen Reiter (Aquazoo Löbbecke Museum, Düsseldorf, Germany)

INTRODUCTION

The EAZA Tapir and Suiform TAG is responsible for the tapirs (Tapiridae), the hippos (Hippopotamidae), the pigs (Suidae), and the peccaries (Tayassuidae). The TAG was created in 2014 when the former Tapir and Hippo TAG and the Pigs and Peccaries TAG were merged. The TAG has very close links to the IUCN SSC Tapir SG, The IUCN SSC Hippo SG and the IUCN SSC Wild Pig SG.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

During 2018, the evaluation of the Babirusa EEP was completed, and results from the evaluation were circulated to the participants. The overall evaluation of the programme was fine, although it is obvious that the programme suffers from too few founders. However, breeding results have improved lately.

ACHIEVEMENTS DURING THE YEAR

During the EAZA Annual Conference in Athens, the TAG met twice with the first session focusing on tapirs and hippos, and the second one on pigs and peccaries. The overall focus for both meetings was the *in situ* status and activities for the various species covered by the TAG. In addition to the *in situ* reports from the various EEP species, reports were given on the Chaco ecosystem and reasons for its deforestation, affecting key species like Chacoan peccary (*Catagonus wagneri*) and Lowland tapir (*Tapirus terrestris*) in Paraguay. The Javan warty pig (*Sus verrucosus*) programme on Java, the Red river hog (*Potamochoerus porcus pictus*) programme in Bénoué National Park (Cameroun), the forest hog (*Hylochoerus meinertzhageni*) project supported by Fondation Segré, and the pygmy hog (*Porcula salvania*) reintroductions carried out early 2018. Last, but not least, short reports were given on the cooperation with the relevant IUCN SSC SGs.

After many years of duty as species coordinator for the Lowland tapir EEP, Aude Haelewyn-Desmoulins (Parc du Reynou, France) stepped down, and Stephanie Jessen from Aquazoo Friesland (the Netherlands) took over as new species coordinator. A warm welcome to Stephanie and a

Visayan warty pig (*Sus cebifrons negrinus*) © Yorkshire Wildlife Park


huge thank you to Aude for all her efforts and hard work during the years.

COLLABORATIONS

The TAG has a year-long collaboration with the following IUCN SSC SGs: Tapir SG, Hippo SG, and the Wild pig SG. All these collaborations were continued and developed further during 2018.

In addition, all EEPs have close links to *in situ* projects for their respective species, and the Babirusa EEP is heavily involved in the globally supported babirusa GSMP.

CONSERVATION AND RESEARCH

A three-year research project for all four species of Tapirs, financed by Fondation Segré, was finished in 2018, and a final report was sent to the foundation.

A three-year conservation project on the Javan warty pig in Baluran National Park, Indonesia, launched in 2017 was continued according to the initial plan. The project is managed by Copenhagen Zoo (Denmark) and is financed by Fondation Segré. During 2018 the project worked closely together with Chester Zoo (UK) in sampling of data. Chester Zoo continued its field research on Javan warty pigs on Java and provided supporting data to the Copenhagen Zoo project mentioned above.

The *in situ* and *ex situ* activities for the babirusa (*Babyrusa babyrussa*) in the GSMPs for banteng, anoa and babirusa were continued in 2018 and reported on during the EAZA Annual Conference in Athens.

Members of the Chacoan peccary EEP continued supporting *ex situ* and *in situ* conservation activities of this taxon in Paraguay.

Members of the Visayan warty pig EEP are supporting *ex situ* conservation activities of Talarak Foundation, which coordinates the population management programme

Babirusa (*Babyrusa babyrussa*) piglets at Chester Zoo © Tim Rowlands


in the Philippines. Talarak Foundation reported its conservation efforts in Athens too.

A research project on Vocal Communication in Malayan tapirs was carried out in seven EAZA zoos.

Flora and Fauna International (FFI) and ZSL in Sapo National Park and FFI in Wongezi, Liberia are investigating pygmy hippo (*Choeropsis liberiensis*) status and distribution as well as capacity building, awareness building and law enforcement training.

Royal Society for the Protection of Birds/Birdlife International in Gola Forests, Sierra Leone are developing a Community Youth Conservation Volunteer programme focusing on Pygmy Hippo conservation within the communities living around the National Park.

Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS) in Tai National Park, Ivory Coast are looking into the assessment of the viability of the pygmy hippopotamus and its habitat in the Tai National Park.

Another study aims at determining the diet of pygmy hippopotamus in the Tai National Park.

ADDITIONAL COMMENTS

Burton, J. (2018). *Plans agreed for next phase of anoa, babirusa, banteng and Sumatran tiger conservation during second ACTION INDONESIA workshop*. Action Indonesia Newsletter 3: 2.

Burton, J. et al. (2018). *Action Indonesia - Global Species Management Plans for banteng, anoa and babirusa*. Annual Report 2017.

The documents above are available on www.asianwildcattle.org.

Flacke, G.L. et al. (2018). *Evaluating adrenocortical activity and characterizing the reproductive biology of the pygmy hippopotamus (Choeropsis liberiensis) through non-invasive*

endocrine monitoring. In Proceedings of the American Association of Zoo Veterinarians, European Association of Zoo and Wildlife Veterinarians, and Leibniz Institute for Zoo and Wildlife Research Joint Conference. Prague, Czech Republic: AAZV/EAZWW/IZW, p. 134–135.

Frantz, L.A.F *et al.* (2018). *Synchronous diversification of Sulawesi's iconic artiodactyls driven by recent geological events*. Proc. R. Soc. B 285: 20172566.

Kauffels, T. and Beckmann J. (2018). *Babirusa (Babyrousa babyrousa) European Studbook 2017*.

Leus, K. (2018). *Ex situ conservation of wild pigs and peccaries: roles, status, management successes and challenges*. In: Melletti M, E Meijaard (eds) Ecology, Conservation and Management of Wild Pigs and Peccaries. Cambridge University Press, Cambridge, 420-436.

Macdonald, A.A. (2018). *Sulawesi Babirusa Babyrousa celebensis (Deninger, 1909)*. In: Melletti M, E Meijaard (eds) Ecology, Conservation and Management of Wild Pigs and Peccaries. Cambridge University Press, Cambridge, 59-69.

Macdonald, A.A. and Shaw, D. (2018). *Maxillary tooth growth in the adult male babirusa (genus Babyrousa)*. Comptes Rendus Biologies, 341(4): 235-244.

Macdonald, A.A. (2018). *Aberrant growth of maxillary canine teeth in male babirusa (genus Babyrousa)*. Comptes Rendus Biologies, 341(4): 245-255.

Macdonald, A.A., Kailuhu, V. and Pattikawa, M.J. (2018). *Babirusa (Babyrousa spp.) on Buru and the Sula Islands, Maluku, Indonesia*. Suiform Soundings 17(1): 22-36.

Macdonald, A.A. (2018). *First traces of the husbandry of Babirusa (Babyrousa spp.)*. Suiform Soundings 16(2): 13-22.

Millyanawati, B. *et al.* (2018). *Current distribution of Javan Warty Pig in East Java*. Suriform Soundings 17(2): 5-10.

Pluháček, J (2018). *European studbook for common hippopotamus Hippopotamus amphibius Linné, 1758, 12th edn*. Ostrava Zoo.

Rowlands, T. *et al.* (2018). *EAZA Best Practise Guidelines for Babirusa (Babyrousa)*.

Steck, B. (2018). *International studbook for the pygmy hippopotamus (Choeropsis liberiensis - Morton, 1844)*. Zoo Basel.

CATTLE AND CAMELID

TAG Chair: Terry Hornsey (Africa Alive!, Lowestoft, United Kingdom)

TAG Vice Chair: James Burton (IUCN SSC, Chester, United Kingdom)

INTRODUCTION

Once again, the EAZA Cattle and Camelid TAG continued to move forward, not only with regards to the programmes that fall under its remit, but also with its RCP, conservation and research projects. We also continued to work with and forge new links with both *in situ* and *ex situ* colleagues around the world, whilst continuing to strengthen relationships and ties with the IUCN SSC Asian Wild Cattle SG (AWCSG) and IUCN SSC Saola Working Group (SWG).

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Douglas Richardson (with institutional support from Jersey Zoo, UK) continued as EEP coordinator for the European bison (*Bison bonasus*) and the LTMP continued to be formulated. As part of the EEP evaluation procedure, the Gaur EEP was evaluated and rated as *sufficient to good*. However, the EEP Committee was disappointed with the amount of feedback received, which they felt reflected a lack of interest in the programme and in the taxon by many parties involved.

ACHIEVEMENTS DURING THE YEAR

The TAG went through the new RCP process in May (during the Joint TAG Chairs meeting held in Budapest), and with huge assistance from Merel Zimmermann, Maaïke Voorham and Kristin Leus from the EEO, managed to work through a five-step decision process for all 15 species under its remit and submitted a new plan to the EEP Committee for approval by the end of 2018. The RCP resulted in the proposal for the establishment of the following six new style EEPs - Banteng (*Bos javanicus*), Anoa (*Bubalus depressicornis* / *Bubalus quarlesi*), Gaur (*Bos gaurus*), European bison (*Bison bonasus*), African buffalo (*Syncerus caffer*), Vicuna (*Lama vicugna*), with specific description of the varying roles. Additionally, two new style EEPs will focus on activities in range country only – Saola (*Pseudoryx nghetinhensis*) and Tamaraw (*Bubalus mindorensis*) - were proposed. The RCP confirms the priority for conservation of Asian wild cattle species. Furthermore, the TAG urges linking the holding of the domestic species with concrete

Second Global Species Management Planning Workshops for Anoa, Banteng, Babirusa and Sumatran tiger held at Taman Safari, Indonesia © James Burton


education activities on the conservation status and efforts for (their) wild counter parts.

The IUCN Saola Working Group Memorandum of Understanding was signed off by Vietnamese Government. Members of the TAG had been heavily involved in its production.

COLLABORATIONS

The TAG continued to work with IUCN SSC SWG and the Government of Vietnam with the setting up of an Annamites Endangered Ungulate Conservation Centre in Bach Ma NP, Vietnam.

There was continued work with IUCN SSC AWCSG, AZA, Indonesian Zoo and Aquarium Association (PKBSI) and Indonesian Ministry of Forestry with managing the Anoa and Banteng within the GSMPs.

The Banteng EEP coordinator Tim Rowlands and his assistant Amy Humphreys (Chester Zoo, UK) coordinated the GSMP Husbandry Working Group and provided materials for “Enclosure Design” training for PKBSI zoo staff. Discussions were held with Prague Zoo (Czech Republic) to see whether the TAG could assist/help support in some way their work with the Wild Bactrian camel (*Camelus ferus*) in the Gobi (Mongolia).

CONSERVATION AND RESEARCH

Anoa and Banteng genetic research continued. The study addresses the following topics: 1) the genetic variability available in these zoo populations; 2) the individuals’

geographic origin; 3) the level of relatedness and inbreeding in the populations.

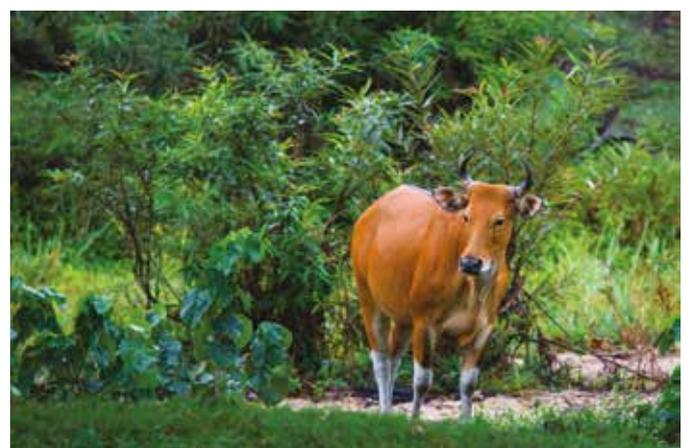
TAG members attended the Second GSMP Workshops for Anoa, Banteng, Babirusa (and Sumatran tiger), held at Taman Safari, Bogor, West Java, Indonesia in February to define a new set of actions for the period February 2018 to January 2020 and to update the Masterplan.

In June, TAG members attended the first ever IUCN SSC SWG Task Team Leaders Planning meeting held in Lowestoft, Suffolk, U.K.

ADDITIONAL COMMENTS

The Vicuna International studbook was published, which included transfer recommendations.

An article on Anoa, entitled “The Charismatic Anoa – The Enigma of Sulawesi” was published in *Zooquaria* 103. A paper was published on the Genetics and Evolution



Banteng (*Bos javanicus*) © Rushen_Thai National Parks

of Anoa and will help inform future breeding recommendations: Frantz, L. *et al.* (2018). *Synchronous diversification of Sulawesi's iconic artiodactyls driven by recent geological events*. Proceedings of the Royal Society B: Biological Sciences 285.

It was also highlighted in the Guardian <https://www.theguardian.com/science/2018/may/17/sulawesi-alfred-russel-wallace-wallacea-biologists>.

DEER

No report has been submitted by the EAZA Deer TAG for 2018.

ANTELOPE AND GIRAFFID

TAG Chair: Sander Hofman (Antwerp Zoo and Planckendael Zoo, Antwerp, Belgium)

TAG Vice Chair: Kim Skalborg Simonsen (Givskud Zoo, Givskud, Denmark)

INTRODUCTION

The EAZA Antelope and Giraffid TAG (AGTAG) is a large and complex TAG, representing approximately 40 species (and about 80 taxa) held in EAZA zoos. Currently the TAG holds 11 EEPs and 11 ESBs - of which an impressive nine species are part of ISBs. The remaining species within the EAZA Region are all monitored either by individual TAG members or by the subgroup leaders within the TAG.

Our mission is "to maintain healthy, genetically viable, self-sustaining, captive populations of okapis and a representative cross-section of antelope and giraffe taxa. These populations will be: ambassadors, drawing attention to the plight of these taxa in the wild; a focus for fund-raising for conservation; a source of individuals for re-stocking and reintroduction purposes, and a research resource to improve husbandry, welfare and *in situ* conservation".

POPULATION MANAGEMENT PROGRAMME

DEVELOPMENTS

In 2018 the TAG produced a "light version" RCP. The official AGTAG RCP planning under the new structure process is scheduled for 2021 and 2022. In the meantime, the RCP urgently needed an update. We therefore decided to create a shorter document with recommendations for all taxa that fall under the remit of the TAG and are currently in

the EAZA region. The document is a tool to prioritize the efforts of the TAG and to assist collection managers in their choices. The RCP is available on the TAG workspace on the Member Area.

During the year the TAG finalised the EEP-evaluations of the Dama gazelle EEP and the Dorcas gazelle EEP. The TAG is now up-to-date with the programme evaluations.

At the end of 2018, Tania Gilbert (Marwell Zoo, UK) handed over the Scimitar-horned oryx EEP to Franck Haelewyn (Parc Zoo Reynou, France). The TAG would like to thank Tania for many years of excellent work for this programme. She has proven to be a true champion for the species. The international studbook will remain at Marwell Zoo and Tania is still a member of the TAG in her roles as conservation coordinator and Arid-land antelope subgroup leader.

ACHIEVEMENTS DURING THE YEAR

In April, the TAG met for the mid-year meeting which was kindly hosted by Chester Zoo. It was an intensive two-day meeting filled with presentations and discussions. Amongst others we had guest speaker Tommy Sandri giving input on conservation genetics of the Mountain Bongo (*Tragelaphus eurycerus isaaci*) and Ed Harris on the theory behind, and practical outcomes of managing genetic diversity. Both are from Manchester Metropolitan University and liaise with Chester Zoo on these topics.

Other topics included the IUCN 'Guidelines for Reintroductions and Other Conservation Translocations' (2013), EAZA Biobank and the possible implications of Brexit for our different programmes.

The TAG leadership attended the 3rd Global Joint TAG Chairs meeting in Budapest where developments and trends in population management across the zoo and aquarium community were discussed and further partnerships and collaborations were formed.

The second AGTAG meeting was at the Annual Conference in Athens, where the TAG held two open sessions. Apart from the regular reporting on the efforts of the TAG and the status of our programmes, we had some interesting speakers. From the EAZA community Douglas Richardson of Highland Wildlife Park (UK) presented an initiative in support of conservation breeding of saiga (*Saiga tatarica*) and Will Walker from Bristol Zoo (UK) presented their project on (amongst other species) antelope and giraffe conservation in Cameroon. We had Julian Fennessy,

Kordofan giraffe (*Giraffa Camelopardalis antiquorum*) © Planckendael Zoo/ Jonas Verhulst



co-Chair of the IUCN SSC Giraffe and Okapi SG giving us an update on current activities and developments. He also gave an in-depth presentation about the Okapi Conservation Project in DR Congo, of which the European okapi zoo community has been a long-term partner (almost 30 years). Finally, David Wildt from the Smithsonian Conservation Biology Institute (USA) shared with us the recent developments within the Source Population Alliance of the Conservation Centres for Species Survival (C2S2). An initiative by some major zoos and conservation centres in North America that work together with private landowners to breed genetically and demographically healthy large herds of endangered ungulate species.

COLLABORATIONS

At the 2018 mid-year meeting, the TAG elected three new members:

Wouter Pieters (Parc Animalier d'Auvergne, France) was elected as an additional Veterinary advisor. From now on he will work together with our long-time Veterinary advisor Sven Hammer from Goerlitz Zoo (Germany).

Julian Fennessy (co-Chair of the IUCN SSC Giraffe and

Okapi SG) and David Mallon (co-Chair of the IUCN SSC Antelope SG) were both elected as Conservation advisors to the TAG.

As both giraffids are threatened, as well as almost a third of the antelope taxa, it is of utmost importance to prioritize the efforts of the TAG. Not only in our choice for which taxa we open up space for breeding within EAZA, but also using our population management skills in range states, research, genetics, conservation education, financial support of field projects, etc. In other words, playing our part in the One Plan Approach.

CONSERVATION AND RESEARCH

The AGTAG has coordinators for Research (Karolína Brandlová, Derbianus Conservation NGO) and for Conservation (Tania Gilbert). They keep the TAG up-to-date on relevant research and conservation issues. Currently, EAZA Members report about 50 conservation projects carried out in 26 range countries in Africa and the Arabian Peninsula. We hope to be able to continue to stimulate zoo involvement in conservations and research.

Reintroduced scimitar-horned oryx (*Oryx dammah*) in Dghoumes National Park, Tunisia © Marie Petretto



CAPRINAE

TAG Chair: Pascal Damois (Parc Animalier d'Auvergne, Ardes, France)

TAG Vice Chair: Jan Robovský (Liberec Zoo, Liberec, Czech Republic)

INTRODUCTION

The EAZA Caprinae TAG changed leadership in 2018 when Douglas Richardson (Highland Wildlife Park, UK) and Jean-Luc Berthier (retired from La Ménagerie du Jardin des Plantes, Paris) stepped down, and Pascal Damois and Jan Robovský were appointed. The new Chairs appointed a steering Committee of ten members including the Chair from the AZA Caprinae TAG, Gil Myers, and the Chair from the IUCN SG, Sandro Lovari. It was our top priority to link our efforts globally, also with *in situ* conservation projects, and it's been a very encouraging first year as we received a warm welcome from our partners.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Currently, we work with nine programme leaders (EEPs and ESBs) who take care of takins (*Budorcas taxicolor*), Turkmenian markhors (*Capra falconeri heptneri*), Nubian ibexes (*Capra nubiana*), West Caucasian turs (*Capra caucasica*), muskoxes (*Ovibos moschatus*), Chinese gorals (*Naemorhedus caudatus*), East Caucasian turs (*Capra cylindricornis*), blue sheep (*Pseudois nayaur*) and Saharan Barbary sheep (*Ammotragus lervia sahariensis*). We are scheduled to go through the new RCP process in 2020 and, in preparation for that, we appointed new members to monitor other caprinae species (argalis (*Ovis ammon*), urials (*Ovis orientalis*), chamois (*Rupicapra ssp.*), Siberian ibexes (*Capra siberica*), Alpine ibexes (*Capra ibex*), Himalayan tahrs (*Hemitragus jemlahicus*), Arabian tahrs (*Arabitragus jayakari*),

wild goats (*Capra ssp.*), mouflons (*Ovis ssp.*), and Barbary sheep of unknown origins).

Thanks to the hard work of Mikkel Stelvig at Copenhagen Zoo (Denmark), a new LTMP was issued for muskox.

In 2018, we finished the review for two programmes (markhor, muskox) and also for the TAG.

ACHIEVEMENTS DURING THE YEAR

For a first year, it was a busy year! The new Chairs met in Prague in June to discuss the priorities of the TAG for the coming years. Then, we organised a closed meeting in Athens during the EAZA Annual Conference to check who was willing to participate in the work of the TAG and prioritize its new objectives. We were thrilled to have a meeting with more than 20 participants including the Chair of the IUCN Caprinae SG, Sandro Lovari, who was able to attend thanks to the EAZA Speakers Fund.

Jeff Holland, Roland Wirth (Zoologischer Gesellschaft für Arten und Populationschutz, Germany), Jan Robovský and Pascal Damois worked together before the meeting to have the most complete list of *in situ* conservation projects. Unfortunately, we did not have enough time during the open meeting to present it, but the list was sent to all TAG members and is available on demand and on the EAZA Member Area. We will continue to gather as much information as we can about *in situ* conservation projects.

The number one priority is to focus more on endangered species for this TAG (please see the collaborations section). Therefore, we are looking for more holders for the endangered species (takin, West Caucasian tur, Turkmenian markhor, Himalayan tahr, Nubian ibex etc.).

Another priority was to create an international database for caprinae-mixed exhibits. This work has been led enthusiastically by Marco Penello from Parco Faunistico Valcorba (Italy). We will present the results of Marco's work at the next EAZA Annual Conference in Valencia. Once Marco's assignment is almost finished, we will create another database with the most innovative education projects involving caprinae. This work will be led by Nina Trontti (Helsinki Zoo, Finland).

Finally, 2018 saw the creation of our Facebook page "EAZA Caprinae TAG" showing amazing pictures of the species within our TAG, examples of mixed exhibits, info about *in situ* conservation projects etc. It is run by Ewa Wikberg from Nordens Ark (Sweden). Jan Robovský also updated the pages of the Caprinae TAG on the EAZA Member Area.

Markhors (*Capra falconeri*) at Parc Animalier d'Auvergne © Marie Demoulin



COLLABORATIONS

As the top priority of the TAG has been to focus on endangered species, we created a Working Group to deal with Barbary sheep of unknown origins that represent more than 600 animals in EAZA zoos and established a position to monitoring mouflons (approximately 700 animals in EAZA zoos). This Working Group falls under the leadership of Dennis Müller (Halle Zoo, Germany) and Simone Haderthauer (Vienna Zoo, Austria). Other Spanish and German experts for this species from outside the world of zoos have joined the group.

We have been in touch with Gil Myers and David Powell, Chair and Vice Chair of the AZA Caprinae TAG, while they were going through the process of their own new RCP which is due for March 2019.

We were also very happy to have Nick Karpov from Moscow Zoo join the TAG as Eurasian Regional Association of Zoos and Aquariums (EARAZA) and Union of Zoos and

Aquariums of Russia (SOZAR) liaison. He will also monitor the Siberian ibex for the EAZA Caprinae TAG.

Finally, we are in a close contact with Sandro Lovari and Stefan Michel (IUCN SSC Sustainable Use and Livelihoods SG and SSC Caprinae SG).

CONSERVATION AND RESEARCH

One of our top priorities was to create a Working Group with our AZA colleagues to focus on assisted reproduction. Yann Locatelli (La Réserve de la Haute Touche, France) and Budhan Pukazhenthil (Smithsonian's National Zoo, USA) will lead this group. They already met once through a videoconference in November 2018.

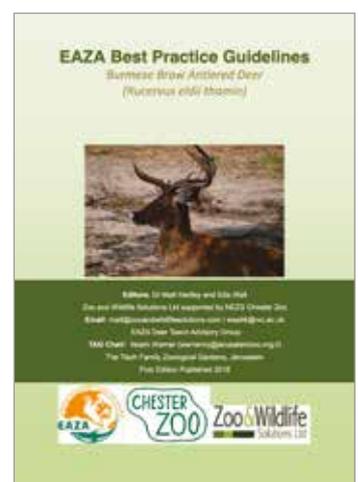
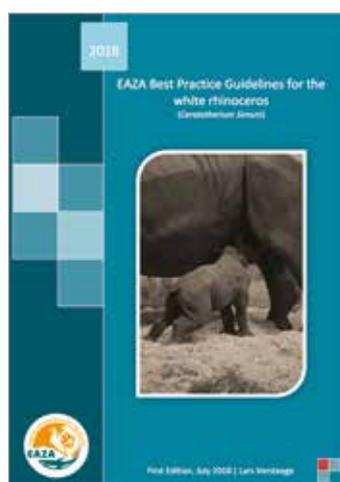
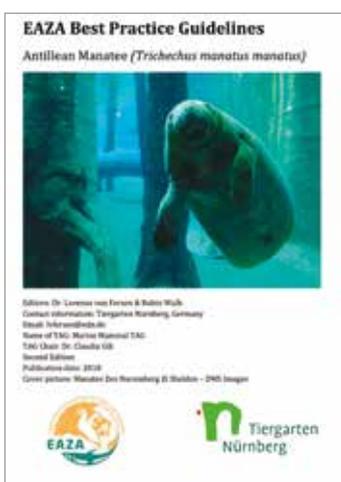
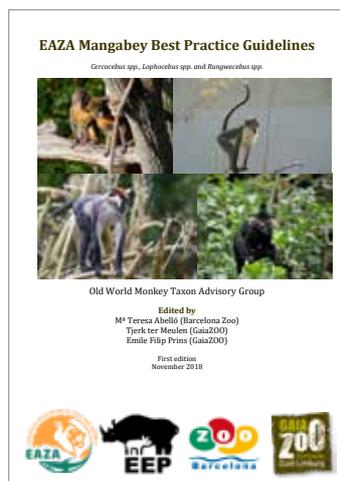
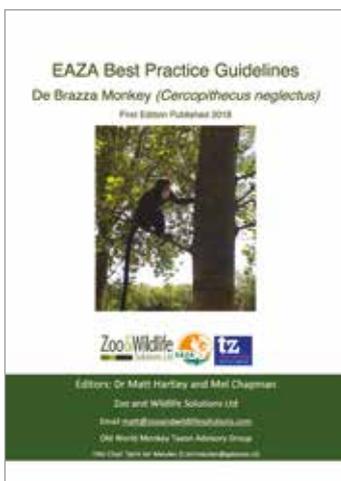
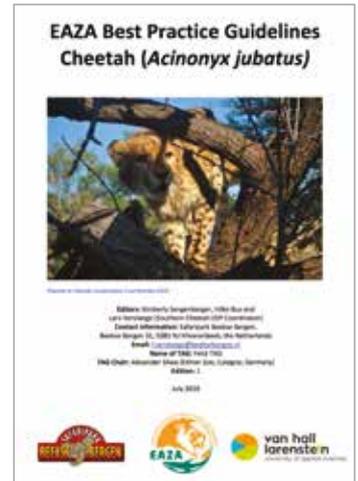
Wouter Pieters (Parc Animalier d'Auvergne, France), Veterinary advisor for the TAG is also working towards a document for all illnesses that involve caprinae, likely leading to a more complete study in the future.

Concerning the Barbary sheep, we have discussed a potential genetic survey with some colleagues conducting the current phylogeographic evaluation of this species.

Ten Best Practice Guidelines, enabled in part by funding from an EU LIFE NGO operating grant and thanks to the efforts of programme coordinators and TAG members, were published on the EAZA website in 2018

Demonstration Guidelines for felid species used in public demonstrations • Orangutan (*Pongo sp.*) • Asiatic golden cat (*Catopuma temminckii*) • Cheetah (*Acinonyx jubatus*) • De Brazza's monkey (*Cercopithecus neglectus*) • Mangabey (*Cercocebus spp.*, *Lophocebus spp.* and *Rungwecebus spp.*) • Pinnipeds (*Otariidae* and *Phocidae*) • Antillean manatee (*Trichechus manatus manatus*) • White rhinoceros (*Ceratotherium simum*) • Burmese brow antlered deer (*Rucervus eldii thamin*).

Visit www.eaza.net/conservation/programmes/ for a complete overview of the available EAZA Best Practice Guidelines.



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