



EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA

TAG Reports 2020



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Cover image

Each EAZA Ex situ Programme develops its own tailor-made Long-Term Management Plan (LTMP), which outlines the strategy towards achieving the species-specific goals set as part of the Regional Collection Plan process. LTMPs for species including this Critically Endangered - but effectively Extinct in the Wild - Vietnam pheasant (*Lophura edwardsi*) were published in 2020. © Hubert Fryca

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INTRODUCTION

This Annual Report provides a detailed overview of the diverse activities that EAZA's 42 Taxon Advisory Groups (TAGs) were involved in over the course of 2020.

Despite a very productive beginning of the year, from mid-March onwards the work of all TAGs was impacted by the COVID-19 pandemic, in different ways and to varying extents. In spring, many TAG mid-year meetings and Regional Collection Plan (RCP) workshops had to be postponed, whilst a lot of preparatory work had already been done for these meetings by the TAG, the EAZA Executive Office (EEO) and hosting institutions. Similarly, the global joint TAG Chairs meeting planned to be hosted in Living Desert (USA) in April was cancelled as well. Various TAG members were furloughed for a period of time in 2020, and sadly we also saw a greater number of our colleagues leaving their institutions, and consequently leaving their TAG positions.

The TAGs have however showed a strong resilience, and the limitations caused by the pandemic also resulted into creativity and new opportunities for collaborations as well as increased engagement, transparency and more inclusive decision making thanks to online meeting platforms. This Annual Report therefore still demonstrates successes and great progress achieved across the TAGs.

The implementation of the new EAZA population management structure continued with RCP meetings held face to face for Gibbons, Caprinae, Amphibians (*Caudata*) and Raptors (Owls), followed by online meetings for Monotreme and Marsupials, Tapir and Suidae and Penguin later in the year. Upon completion, RCP publications are made available on the [Member Area](#) of the EAZA website.

The RCP process informs which species EAZA will actively manage across its Member zoos and aquariums as part of an EAZA Ex situ Programme (EEP). Each EEP will then develop its own tailor-made Long-Term Management Plan (LTMP), which outlines the strategy towards achieving the species-specific goals set as part of the RCP process. In 2020, LTMPs were published for Vietnam pheasant (*Lophura edwardsi*), gibbons and mangabeys (multiple species).

The TAGs' and EEPs' species conservation work continued in 2020, albeit in some cases at slower pace. Cooperation with field conservation partners and experts including, but not limited to, IUCN Specialist Groups (SG) stayed strong. In many cases, partners were able to participate more in the work of the TAGs due to greater online meeting attendance possibilities. This contributed significantly to the ability to assess the *ex situ* conservation roles for our EEPs as part of the RCP process.

Fifty-six new style EEPs were approved bringing the total to 136 by the end of 2020. In addition to these, TAGs will continue to oversee 135 old style EEPs and 142 European Studbooks (ESB) until all have completed their new style RCP process.

Another core task of TAGs is (to coordinate) developing EAZA Best Practice Guidelines (BPG) that reflect the best practice management in human care of the respective taxa. With seven BPG completed, covering eight species, approved and freely available on the EAZA website (www.eaza.net), 2020 was another productive year in this regard.

Except a handful waiting for technical software developments by Species360, all EAZA based Studbooks had migrated to Zoological Information Management Software (ZIMS) for Studbooks by the end of 2020. A major achievement, completing an important process for our community.

In addition, the TAGs worked on other tasks including providing expertise input for EAZA's lobbying work at the European Union and representation with other organisations. For instance, the Deer and Small Mammal TAGs provided input in the EU Invasive Alien Species listing process and the Songbird and Felid TAGs developed EAZA-led (and approved!) motions for the IUCN World Conservation Congress.

For more information on topics raised in this report, please contact the EEO at info@eaza.net. EAZA extends its thanks to all the Chairs, Vice Chairs, Programme Coordinators and Committee members for their resilience, support and commitment to EAZA in 2020.

GLOSSARY

AZA: Association of Zoos and Aquariums

BPG: Best Practice Guidelines

Chester Zoo: North of England Zoological Society (NESZ) / Chester Zoo

CITES: Convention on International Trade in Endangered Species

EEO: EAZA Executive Office

EEP: EAZA Ex situ Programme

ESB: European Studbook

GSMP: Global Species Management Plan

ICAP: Integrated Collection and Assessment Planning

IUCN: International Union for the Conservation of Nature

LTMP: Long-Term Management Plan

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

RCP: Regional Collection Plan

SEAZA: Southeast Asian Zoo Association

SG: Specialist Group

SSC: Species Survival Commission

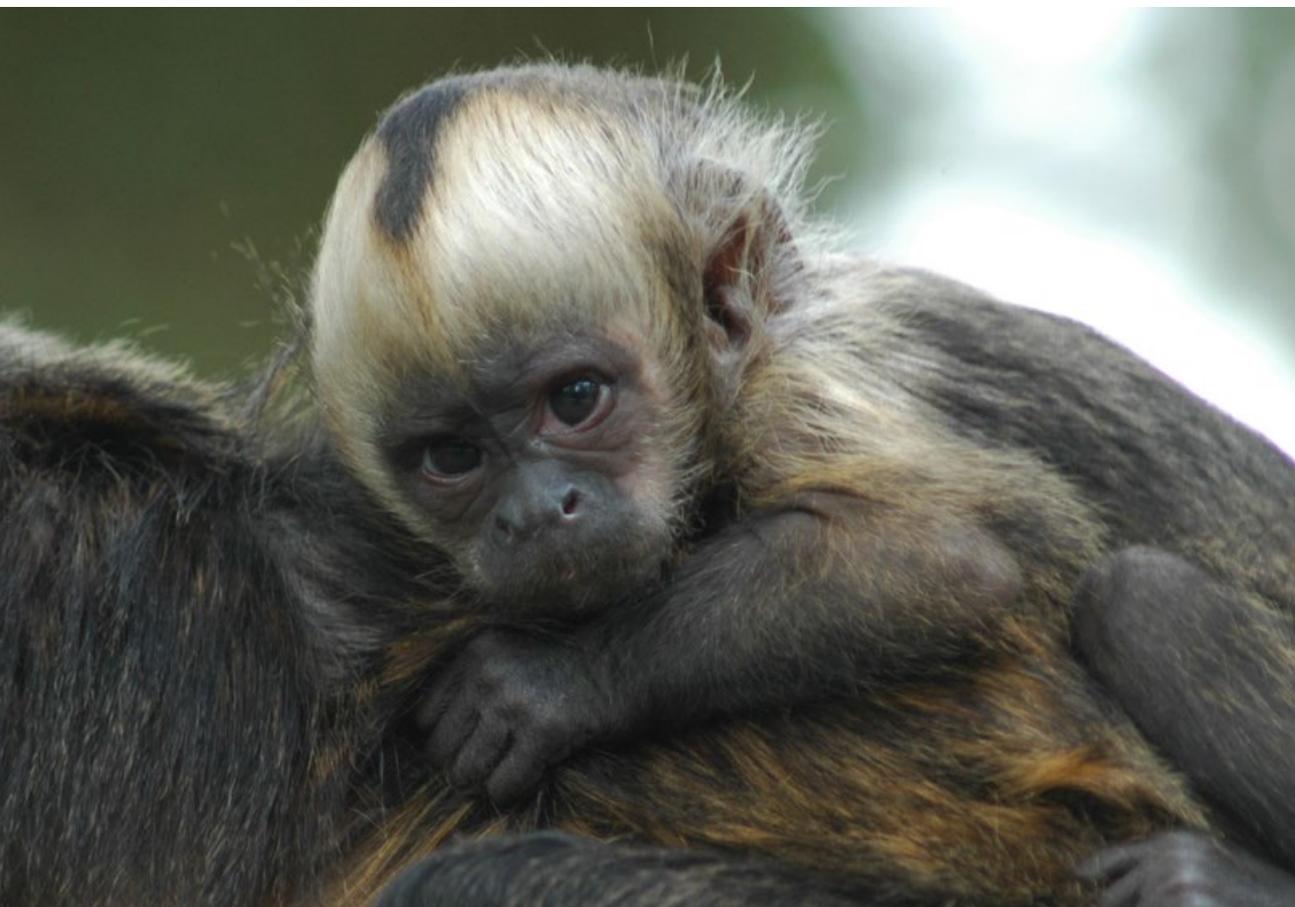
SSP: Species Survival Plan

TAG: Taxon Advisory Group

ZAA: Zoo and Aquarium Association

ZIMS: Zoological Information Management Software

ZSL: Zoological Society of London



Yellow-breasted capuchin (*Sapajus xanthosternos*) © Jan Vermeer

1 TERRESTRIAL INVERTEBRATE

TAG Chair: Mark Bushell (Bristol Zoo, Bristol, United Kingdom) • **Vice Chair:** Tamás Papp (Chester Zoo, Chester, United Kingdom)

INTRODUCTION

As with many of the TAGs, the EAZA Terrestrial Invertebrate TAG has had a rather quiet year, although some activities have been going on throughout the coronavirus pandemic. The TAG had no formal meetings in 2020 but had informal meetings with the EEO to discuss the second RCP workshop that will hopefully take place in 2021.

A new link has also been forged with the IUCN Species Survival Commission (SSC) Spider and Scorpion SG, with Mark Bushell (Bristol Zoo, UK) taking the co-chair role. Mark also stepped down as the co-chair of the Grasshopper SG but continued to be the *ex situ* focus for them.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

BPG were produced for the Montserrat tarantula (*Cyrtopholis femoralis*) by colleagues at Chester Zoo (UK). Additionally, BPG entered final review stage for the noble chafer (*Gnorimus nobilis*) after a great deal of hard work by colleagues at Copenhagen Zoo (Denmark). Similarly, a final draft of BPG for the dragon-headed katydid (*Eumegalodon blanchardi*) was produced by colleagues at Wildlife Reserves Singapore

(Singapore) and will be submitted to the EEP Committee for review early in 2021.

BPG for the existing EEPs were also planned to be produced in 2020, but were delayed due to unforeseen circumstances. This will hopefully be picked up again in 2021.

CONSERVATION AND RESEARCH

Work on the noble chafer project continued with the release of more than 2,000 larvae bred in human care into native habitat in Sweden, plus the veteranisation of more than 100 trees to create more natural habitat spaces and opportunities for breeding for the species.

2 FRESHWATER TELEOST

TAG Chair: Brian Zimmerman (Bristol Zoo, Bristol, United Kingdom)

INTRODUCTION

In 2020 a new Freshwater Teleost TAG Chair was appointed (Brian Zimmerman, Bristol Zoo, UK) after Anton Weissenbacher (Vienna Zoo, Austria) stepped down due to other commitments. Brian was the former Chair of the Fish and Aquatic Invertebrate TAG. Anton continued to play a leading role in the TAG with the development and publication of the RCP for Freshwater Teleosts.



Rhinoceros katydid (*Copiphora rhinoceros*) © Wildlife Reserves Singapore - David Tan



Jordan mouthbrooder (*Astatotilapia flavijosephi*) sparring © Barbara Nicca

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

During 2020, the development of the new RCP for Freshwater Teleosts was the primary focus of activities. After evaluation by the working group, with a total of 200 freshwater teleost families (more than 21,600 species) considered for prioritisation, a refined list of 84 families (containing more than 8,000 species) were evaluated for EEP eligibility. The group's methodology was to review EEP potential at family level and the resulting evaluation yielded 30 families qualifying for EEPs. Identifying Coordinators and establishing some test EEPs for key families is the next stage of development.

ACHIEVEMENTS DURING THE YEAR

The pandemic affected some aspects of TAG development, preventing in-person meetings at the usual conferences and forcing TAG members to focus on operational aspects in their institutions. However, the editing and production of the RCP was realised and now forms the foundation from which managed programmes and greater collaboration can develop.

COLLABORATIONS

Participation in the IUCN SSC Conservation Planning Specialist Group (CPSG) conference and the Group Management Working Group in early October allowed a fish example to be included in the development plans. The Extinct in the Wild pupfish *Cyprinodon longidorsalis* was chosen as an example

species due to its behavioural characteristics, reproduction methods, short lifespan and requirement for intensive management in aquariums. Population modelers and group management analysts in the working groups provided insight and the pupfish provided challenges to overcome as the zoo / aquarium community tackles LTMPs in the future for species under imminent threat of extinction. The CPSG working group continues to work on developing management protocols and the TAG will remain closely part of the working group.

CONSERVATION AND RESEARCH

In Greece, the Fish Net project (initiated at the Zoological Society of London and now at Bristol Zoological Society, UK) continued working with in-country biologists exploring and expanding the use of environmental DNA (eDNA) as a monitoring tool for cryptic freshwater fish species in habitats that are difficult to access. A PhD project focusing on eDNA revealed encouraging results utilising this methodology for detecting species. A current PhD is focusing on the interactions of native fish fauna and invasive alien species in Greece with future projects aiming at control or eradication methods for invasive species, one of the key drivers of extinction in freshwater fishes. An early collaboration between Vienna Zoo and Bristol Zoo seeks to investigate the prevalence of threatened freshwater species in the ornamental trade and explore the impact of these sources on wild populations.

3 MARINE TELEOST

TAG Chair: Attila Varga (Sóstó Zoo, Sóstófürdő, Hungary)

INTRODUCTION

Like other TAGs, the activities of the EAZA Marine Teleost TAG in 2020 were impacted by the pandemic and meetings had to be held online. The latest TAG meeting took place in December.

ACHIEVEMENTS DURING THE YEAR

The TAG's database was moved to the EAZA Member Area for an easier access to updated documents by all TAG members and EAZA Members.

The RCP work continued apace. Nicole Kube (German Oceanographic Museum) and her colleagues finished the species assessment sheets for the *Blenniidae*, *Gobiidae*, *Labridae*, and *Microdesmidae* families. The documents will be available on the TAG page soon.

Due to the difference in comparison of the Marine Teleost group with other taxonomical groups in our collections a different approach to regional collection planning becomes a necessity. Several hundred species and millions of specimens are kept in our collections, and their special features (e.g. several thousand eggs after a single successful mating), the sustainability (protection of wild habitats) and the conservation (protection of threatened species) merits deserve different considerations and approaches.

For example, in case of many species that were put in the 'yes' category (species that need the coordination of RCP care), there is not a single breeding record in human care. At the same time, other species, that are not threatened with extinction at all but breed well in human care, can be important in increasing the sustainability of our collections. Breeding and transferring them in the zoo and aquarium community can be an effective tool to decrease the pressure on the natural populations and habitats.

According to the above-mentioned considerations, the following criteria were included into the species selection:

- Gap of knowledge (no breeding experience)
- Research potential and breeding biology
- Conservation concerns
- Aquarium sustainability (size and welfare)
- Sustainability (use of wild population)
- Market capacity
- Aquaculture status
- Impact of collection (financial aspects)
- Broodstock availability within partner collections

The development of the above detailed criteria will be one of the main tasks of the forthcoming meeting. For evaluating the possibilities within the taxonomic group, it is essential to collect as much information about the reproductively active species as possible within our collections. To address this, a specific survey is in development and will be sent to the EAZA and the European Union of Aquarium Curators (EUAC) communities soon. The preliminary evaluation of the data will take place during the next meeting in April 2021.



Bluecheek butterflyfish (*Chaetodon semilarvatus*) © Sóstó Zoo

COLLABORATIONS

Several aquariums, including non-EAZA Members, participate to the TAG activities and their remarkable knowledge and contribution are essential for the TAG's development.

4 ELASMOBRANCH

TAG Chair: Max Janse (Royal Burgers' Zoo, Arnhem, the Netherlands)

INTRODUCTION

Due to the COVID-19 pandemic, it was a difficult year for the EAZA Elasmobranch TAG, the programmes and individual zoos and aquariums.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In 2020, the TAG consisted of nine European Studbooks (ESB) and 30 Monitored-by-designated-person Programme (MON-P). New Coordinators were found for the following species: blacktip reef shark (*Carcharhinus melanopterus*; ESB), common skate (*Dipturus batis* species complex; MON-P) and nurse shark (*Ginglymostoma cirratum*; MON-P).

One new MON-P was started in 2020 for a species with no *ex situ* animals - a first within the TAG. The programme includes *Dipturus batis*, a regionally Critically Endangered batoid which is a complex of two species: the blue skate (*Dipturus flossada*) and the flapper skate (*D. intermedius*). Its goal is to gather husbandry information on the species as well as information from other species within the genus. The MON-P, coordinated by Mark de Boer (Rotterdam Zoo, the Netherlands) is in close corporation with a feasibility study for a reintroduction programme in the North Sea, initiated by Dutch Ark Foundation, Dutch WWF, Rotterdam Zoo and Royal Burgers' Zoo (the Netherlands). This species has been kept in different European aquariums over the last two decades. Due to its size (maximum 287 cm total length; Fishbase, 2020) it is very uncommon in public aquariums, but its IUCN status makes it



Blue spotted stingray (*Taeniura lymma*) © Oceanário de Lisboa - Mafalda Frade

an important flagship species of the European Region. The RCP workshop was planned in May 2020 in Hagenbeck Zoo (Germany) but was postponed due to the pandemic and rescheduled online for May 2021. Extensive preparations were started in 2020. A census was sent to all Coordinators to get further insight per programme on collaboration with *in situ* conservation initiatives, species-specific scientific research. Of the 25 programme answers, 24% have links with *in situ* conservation via education, knowledge sharing or where animals are part of the programme. The link with science is even bigger: as high as 68%. Scientific research is related to subjects in husbandry, veterinary field, reproduction, genetics (paternity and taxonomy) or collaboration with science in the field.

The only non-elasmobranch species in the TAG, the closely related MON-P for the Spotted ratfish (*Hydrolagus colliei*) had remarkable results. In October 2020, for the first time in the aquarium industry, six juveniles bred in human care, aged 18 months, were still alive and three were presented to the public at Planet Ocean Montpellier (non-EAZA EEP participant, France).

ACHIEVEMENTS DURING THE YEAR

In 2020, seven Studbook programmes transferred their data from the Sparks software to ZIMS.

COLLABORATIONS

Within the steering committee of the TAG, Núria Baylina (Oceanário de Lisboa, Portugal) became the liaison officer with

the Association of Zoos and Aquariums (AZA) Marine Fish TAG. This will ensure an increase in information sharing and possibly closer cooperation between the two regions in the future.

The Elasmobranch TAG is working continuously to monitor the changes of its populations in human care. A five-year census was made in 2011, 2016 and a new one planned for 2021. In the meantime, a new system, the International Census of Chondrichthyans in human care (ICCHC or Chondrocensus), was launched as part of the AZA SAFE Sharks and Rays Project. This cooperative web-based platform (<http://sharksandraysproject.com>) aims to integrate and sustain a global census of every chondrichthyan species in human care. The goals of this project include promoting communication between institutions and support cooperative research, conservation of endangered species and collaborative breeding programmes. The TAG ensures direct contact with the ChondroCensus. More than 20 Regional Coordinators were recruited to assist the participants, three of them being European: for Southern Europe, Carlos Taurá (Oceanogràfic Valencia, Spain); for Northern Europe, Ana Ferreira (Oceanário de Lisboa); and for Central Europe, Max Janse (Royal Burgers' Zoo).

CONSERVATION AND RESEARCH

A Veterinary Advisory Group of the Elasmobranch TAG was initiated in 2019. In 2020, an extensive veterinary census was sent to all programme participants. Results will be presented in 2021.

In 2016, a special fund was started to conduct genetic research within the Fish and Aquatic Invertebrate Taxon Advisory Group (FAITAG), made possible due to a kind financial offer from Oceanário de Lisboa. In 2020, the fund was used for different genetic elasmobranch studies, e.g. paternity testing of young spotted eagle rays (*Aetobatus ocellatus*) in Wrocław Zoo (Poland) and Royal Burgers' Zoo, and for species determination on eagle rays from Wrocław Zoo and Istanbul Aquarium (Turkey).

5 CORAL

TAG Chair: Guido Westhoff (Hagenbeck Zoo, Hamburg, Germany)

The activities of the EAZA Coral TAG have been heavily impacted by the pandemic with TAG members having to focus on institutional crises. The TAG's activities will only be able to progress when zoos and aquariums can reopen again.

One of the preparatory activities involved contact with AZA to join forces and collaborate. In another, the TAG and EAZA Biobank are looking into building a global initiative, called the World Coral Conservatory, aiming at countering the anticipated disappearance of coral reefs by combining the expertise and resources of the world's public aquariums and coral reef scientists. Aquariums will serve not only as a reservoir for the purpose of conservation, restoration, and research of reef-building corals, but also as a laboratory for the implementation of operations for the selection of stress-resilient and -resistant genotypes. The proposed project will provide a global dimension to coral reef education and protection as a result of the involvement of a network of public and private aquariums.

An article about the project was published in Plos Biology: - Zoccola D. et al. (2020). *The World Coral Conservatory (WCC): A Noah's ark for corals to support survival of reef ecosystems*. PLoS Biol 18(9): e3000823.

Furthermore, extensive taxonomic research has been done within the Coral TAG on coral taxonomy.

6 JELLYFISH

TAG Chair: Hugo Batista (Oceanário de Lisboa, Lisbon, Portugal)

INTRODUCTION

This year was clearly marked by the pandemic triggered by COVID-19 which led to the closure of many institutions and forcing them to manage their collection in the best possible way to reduce costs. This led to a number of institutions stopping their jellyfish programmes to reduce costs, directly impacting the production of jellyfish. To help these institutions, the EAZA Jellyfish TAG created an online database with information about where and how to request polyps stock from other institutions to restart production when possible.

ACHIEVEMENTS DURING THE YEAR

Despite the pandemic, the TAG continued, through participation of different institutions, to acquire information on how to produce and maintain more species of jellyfish, such as *Chrysaora fuscescens*, *Chrysaora plocamia*, *Leuckartiara octona*, *Phacellophora camtschatica* and *Rhizostoma pulmo*. Versions of species already in the database were also updated, such as *Aurelia aurita*, *Cotylorhiza tuberculata* and *Phyllorhiza punctata*.

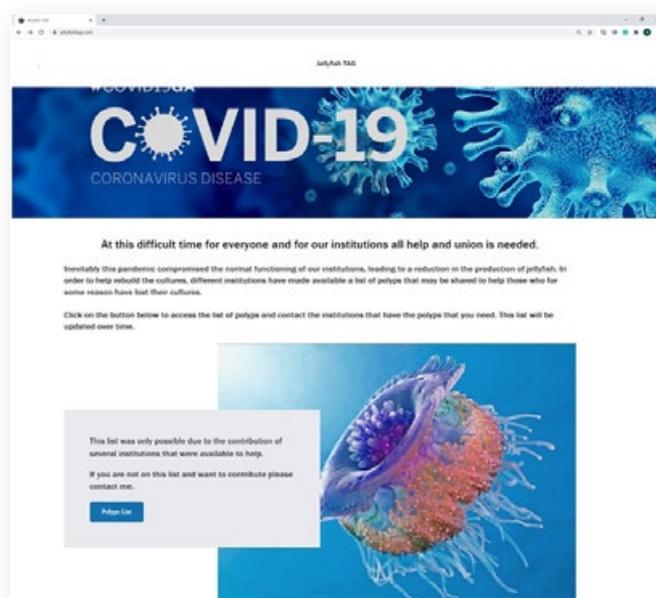
Due to the pandemic, many institutions chose to shut down the production of jellyfish in response to lost revenue. To help them rebuild the cultures, the TAG brought together, from different institutions, a list of polyps to be shared with those who, for any reason, have lost their cultures.

A total of 15 institutions participated in the construction of this database, having gathered information from 48 species. All this information can be found on the website, www.jellyfishtag.com, after requesting an access password from the TAG Chair, Hugo Batista (Oceanário de Lisboa, Portugal).

COLLABORATIONS

Three additional jellyfish specialists contributed to the jellyfish database: Elena Mauriño (Madrid Zoo Aquarium, Spain), Fabian Schmidt (Basel Zoo, Switzerland) and Laëtitia Odinet (Biarritz Ocean, France).

We thank the 15 EAZA and non-EAZA institutions which contribute to the construction of the polyp's database: Genoa Aquarium (Italy), Pula Aquarium (Croatia), San Sebastián Aquarium (Spain), Basel Zoo, Horniman Museum (UK), Kierownik Aquarium (Poland), Loro Parque (Spain), Malmö Museum (Sweden), Meeresmuseum Stralsund (Germany), Munich Zoo (Germany), Oceanário de Lisboa, Oceanográfico Valencia, Madrid Zoo Aquarium, Vienna Zoo (Austria) and Vienna Aquarium (Austria).



Jellyfish TAG Polyps list front page © Hugo Batista

7 AMPHIBIAN

TAG Chair: Gerardo Garcia (Chester Zoo, Chester, United Kingdom) • **TAG Vice Chairs:** Olivier Marquis (Paris Zoo, Paris, France) and Benjamin Tapley (ZSL London Zoo, London, United Kingdom)

INTRODUCTION

In 2020, there were no changes to the core membership of the EAZA Amphibian TAG (ATAG). One big achievement of the year was the publication of an RCP for salamanders of the Western Palearctic due to the threat posed by the pathogen *Batrachochytrium salamandrivorans* (Bsal).

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The quarantine and non-quarantine mountain chicken frog (*Leptodactylus fallax*) populations have been stable with successful breeding. A female frog at Nordens Ark (Sweden) reared three clutches of eggs to metamorphosis in 2020.

Paris Zoo (France) now manages the ESB for Morelet's tree frog (*Agalychnis moreletii*).

The ESB for Lemur leaf frog (*Agalychnis lemur*) needs new participants to outplace animals so efforts can concentrate on breeding unrepresented individuals.

The EEP for Achoque (*Ambystoma dumerilii*) is working with partners in Mexico to ensure the long-term conservation

of the species via an integrative and multidisciplinary approach, incorporating *ex situ* and *in situ* elements. The team is determining sites and strategies for conservation and management of water biota and resources. Potential achoque diseases were identified and models predicting their impact need development. Steps have been taken to improve the local and international management of the species in human care. Outreach activities are being undertaken around Lake Pátzcuaro highlighting the achoque and the need to protect freshwater habitats.

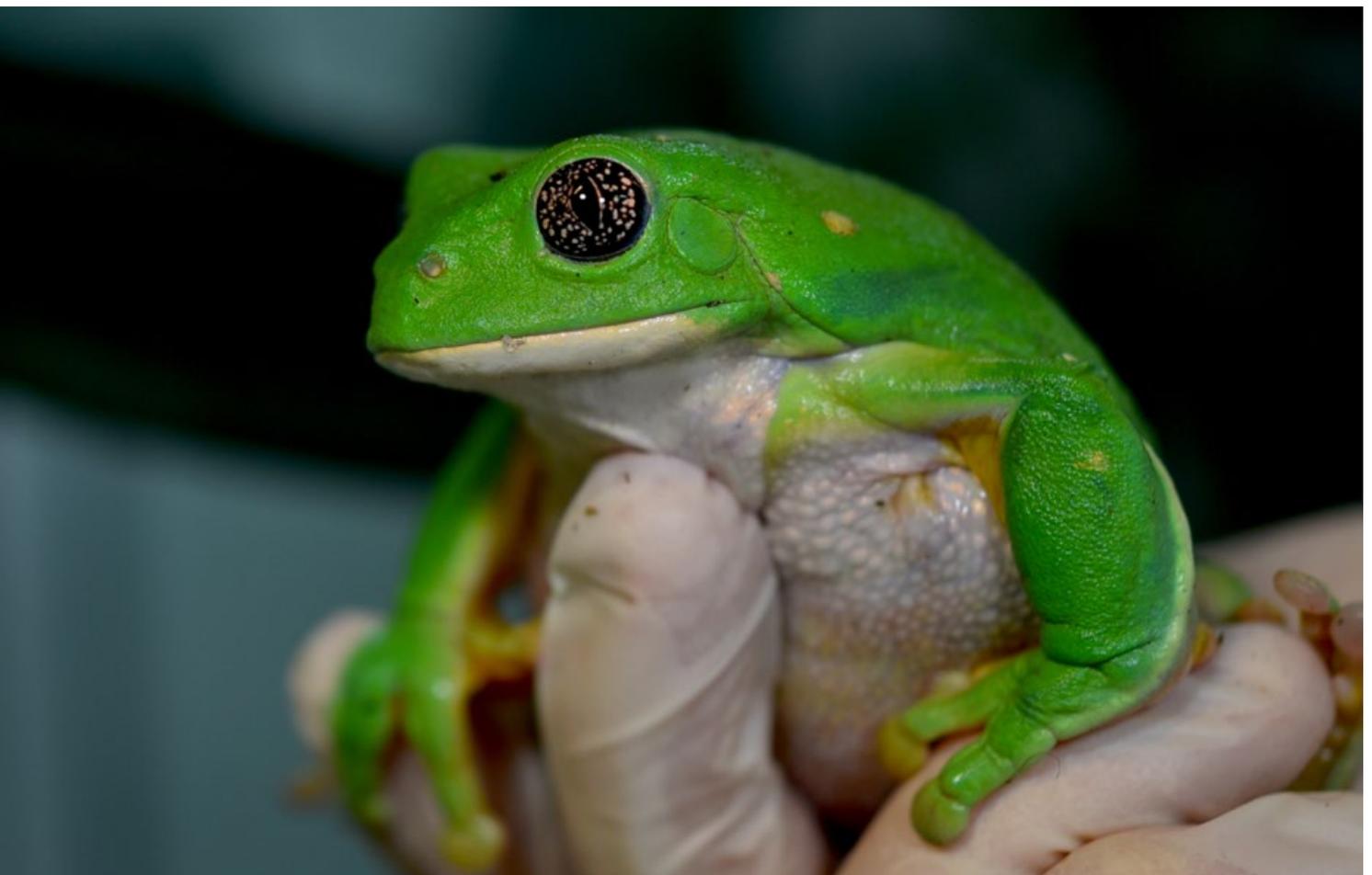
The EEP for Montseny brook newt (*Calotriton arnoldi*) is working with four breeding centres (Chester Zoo, UK; Barcelona Zoo, Pont de Suert and Torreferussa Wildlife Recovery Centre, Spain). The release of individuals from breeding centres has been undertaken.

COLLABORATIONS

The ATAG collaborated with different academic, government and non-government organisations to realise the objectives of different conservation and research projects (see below).

CONSERVATION AND RESEARCH

The recovery programme for mountain chicken frog (Jersey Zoo, Chester Zoo, Bristol Zoo, ZSL London Zoo, UK; and Nordens Ark) continued to advise on the frogs bred in human care, exported to Montserrat and housed in semi-wild enclosures. 23 of the 27 frogs are surviving and viable nests



Giant Mexican leaf frog (*Agalychnis dacnicolor*), bred for the first time in a European zoo © Chester Zoo - Gerardo Garcia

were produced in 2020; none were successfully reared. The EEP supported three research projects: 1) "Assessment of biosecurity practices in European zoos housing collections of mountain chicken frogs on their effectiveness to prevent disease outbreaks following conservation translocation", 2) "Adenocarcinoma incidence in captive mountain chicken frogs" and 3) "Impact of cholelithiasis in captive populations of mountain chicken frog".

Aquazoo Düsseldorf (Germany) bred Lake Titicaca frogs (*Telmatobius culeus*) and opened a new breeding facility for them and for fire salamanders (*Salamandra salamandra*).

Bristol Zoo bred bicoloured moss frogs (*Theloderma bicolor*), a threatened species from Vietnam and disseminated these to other zoos. The team investigated temperature-dependant sex determination in this species by rearing larvae at different temperatures.

Chester Zoo achieved the first successful captive breeding of the giant Mexican leaf frog (*Agalychnis dacnicolor*) in a European zoo. The team facilitated and published a workshop report and action plan for the harlequin mantella (*Mantella cowanii*) in collaboration with Madagasikara Voakajy and IUCN SSC ASG Madagascar. Raphali Andriantsimanarilafy started the first pilot survey on the last relict populations as part of a PhD. Chester Zoo facilitated an online Action Planning Workshop for bleeding toads (*Leptophryne* sp.) with Mirza Kusriani (Bogor Agricultural University). One of these toads is the first amphibian to be included on the Indonesian protected species list and has been prioritised for conservation by the Asian Species Action Partnership (ASAP).

Cologne Zoo (Germany) bred 11 amphibian species, including the first F2 breeding of Endangered Vietnamese crocodile newts (*Tylototriton vietnamensis*). The offspring of *T. vietnamensis* that were repatriated to Vietnam's Me Linh Station for Biodiversity in 2019 reproduced in 2020. These newts were also provided to Citizen Conservation (Germany) and the first participants bred the species. Cologne Zoo collaborated with Truong Quang Nguyen from Institute of Ecology and Biological Resources (IEBR, Vietnam) and scientifically described six new amphibian taxa from Vietnam. The team headstarted green toads (*Bufo viridis*) and released 63 toads in a newly created habitat in the Cologne area. The team also published research on the pathogens of the green toad in the Cologne area.

Jersey Zoo continued their annual Jersey agile frog (*Rana dalmatina*) head-starting project, releasing 6,266 late-stage tadpoles. The project won a 2020 British and Irish Association of Zoos and Aquariums (BIAZA) Gold award for the conservation category.

Münster Zoo (Germany) bred threatened amphibians including Lake Titicaca frogs and Achoque.

Nordens Ark continued to breed, rear and release European green toads, and launched a new five-year research project where 25 toads will be fitted with radio transmitters annually. A three-week pilot study was undertaken where transmitters were attached to toads reared in human care.

ZSL London Zoo published research papers describing the larvae of several Asian amphibians as well as work on the cultural associations people have with mountain chickens, the use of Local Ecological Knowledge in Conserving amphibians in the Western Ghats and the decline of Chinese giant



Green toad (*Bufo viridis*) release in Cologne © A. Rauhaus

salamanders (*Andrias davidianus*). The team helped coordinate an IUCN Red List workshop on Chinese giant salamanders and helped facilitate joint Conservation Needs Assessments and Red List assessments of 345 Indian amphibians. London Zoo supported EDGE Fellows in Africa and Asia working on seven highly threatened amphibians.

Rotterdam Zoo (the Netherlands) continued breeding efforts, in human care, for fire salamanders in collaboration with GaiaZOO (the Netherlands) and RAVON (Reptile, Amphibian and Fish Conservation Netherlands) in response to the threat of *Bsal*. Several European zoos, NGOs and universities formed an *ex situ* Salamander Group and this group is finalising EAZA BPG for the species.

Singapore Zoo (Singapore) is collaborating with Project Palaka to conserve the Critically Endangered Gigante wrinkled ground frog (*Platymantis insulatus*), endemic to the Gigantes Islands of the Philippines. The species will be subject to a new conservation breeding programme. Project partners include University of the Philippines, ASAP, Synchronicity Earth, Amphibian Ark and Stiftung Artenschutz.

Zürich Zoo (Switzerland) and Wildlife Conservation Society launched a genomic screening for the Endangered Lehmann's poison frog (*Oophaga lehmanni*) breed-to-release colony at Cali Zoo (Colombia).

ADDITIONAL COMMENTS

Members of the TAG were involved in the following publications:

- Aparici Plaza, D. et al. (2020). *Taking a stand against Bsal*. Zooquaria, 110: 26
- Bernardes, M. et al. (2020). *Integrative taxonomy reveals three new taxa within the Tylototriton asperrimus complex (Caudata, Salamandridae) from Vietnam*. ZooKeys, 935: 121-164
- Emmett, C. et al. (2020). *Hearing ghosts: acoustic survey protocol and vocalisation characterisation for lemur leaf frogs*. Herpetological Review 51(1): 24-29
- Jacken, A., Rödder, D. and Ziegler, T. (2020). *Amphibians in zoos: a global approach on distribution patterns of threatened amphibians in zoological collections*. International Zoo Yearbook, 54: 146-164
- Johnson, K., Carrillo, L. and Tapley, B. (2020). *Conservation Needs Assessments for Indian amphibians*. Amphibian Ark

Newsletter, 52: 7–9

- Kanagavel, A. et al. (2020). *Are local and traditional ecological knowledge suitable tools for informing the conservation of threatened amphibians in a biodiversity hotspot?* Herpetological Bulletin, 153: 3-13
- Kasper, K. et al. (2020). *The extent of the illegal trade with terrestrial vertebrates in markets and households in Khammouane Province, Lao PDR.* Nature Conservation, 41: 25-45
- Mudke, M. et al. (2020). *First report on the fossorial tadpole of *Micrixalus kottigeharensis* (Rao, 1937).* Herpetology Notes, 13: 645-648
- Nicholson, D.J. et al. (2020). *Cultural association and its role in garnering support for conservation: the case of the mountain chicken frog on Dominica.* Amphibian and Reptile Conservation, 14: 143-144
- Nguyen, L.T. et al. (2020). *A description of the tadpole of the Critically Endangered Botsford's leaf-litter frog (*Leptobrachella botsfordi*) with comments on the distribution and conservation status of the species.* Zootaxa, 4860: 293-300
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- Tapley, B., Nguyen, L.T. and Le, M.V. (2020). *A description of the tadpole of *Megophrys "Brachytarsophrys" intermedia* (Smith, 1921).* Zootaxa, 4845: 26-34
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8 REPTILE

TAG Chair: Ivan Reháč (Prague Zoo, Prague, Czechia)
• Vice Chairs: Ivan Cizelj (Zagreb Zoo, Zagreb, Croatia), Matt Goetz (Jersey Zoo, Jersey, United Kingdom), Fabian Schmidt (Basel Zoo, Basel, Switzerland) and Guido Westhoff (Hagenbeck Zoo, Hamburg, Germany)

INTRODUCTION

In 2020, the EAZA Reptile TAG (RTAG) consisted of 31 members and 3 Advisors. It maintained 19 EEPs and 23 ESBs, with a wide geographical representation of involved zoos. 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 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 year 2020 brought a fast development in chelonian Population Management Programmes reflecting the previous approval of the Chelonia RCP.

The following existing programmes were approved as new style EEPs:

- Radiated tortoise (*Astrochelys radiata*)
- Ploughshare tortoise (*Astrochelys yniphora*)
- Roti island snake-necked turtle (*Chelodina mccordi*)
- Galapagos giant tortoise (*Chelonoidis* species complex)
- European pond turtle (*Emys orbicularis*)
- African pancake tortoise (*Malacochersus tornieri*)
- Spider tortoise (*Pyxis arachnoides*)
- Egyptian tortoise (*Testudo kleinmanni*)

ACHIEVEMENTS DURING THE YEAR

In March, the Komodo dragon EEP organised the workshop "Towards a One Plan Approach for Komodo dragons" in Barcelona (Spain) to bring together conservation stakeholders from around the world and address key challenges in *in situ* and *ex situ* conservation of this species. Current trends and efforts to improve and apply our knowledge on the behavioural and reproductive biology of *Varanus komodoensis* in the wild and in controlled environments were the main themes. The total number of participants was 20 from eight institutions of the EEP.

There are important connections between *ex situ* breeding and conservation / research projects, e.g. of the 23 reptiles produced last year in Cologne Zoo (Germany), 12 are connected to Vietnamese projects and include species threatened in the wild, such as the Critically Endangered tiger gecko (*Goniurosaurus huullensis*).

Important for conservation breeding were publications about genetical identification of lineages in crocodile lizard (*Shinisaurus crocodilurus*), cryptic golden tegu (*Tupinambis cryptus*), four-eyed turtle (*Sacalia quadriocellata*), spotted softshell turtle (*Pelodiscus variegatus*) and water monitor lizard (*Varanus salvator*), also as administrative assistance for the authorities. Another paper reported about the population assessment and threat analyses for the Asian water dragon (*Physignathus cocincinus*) and a reptile trade study in central Laos.

An RCP workshop for crocodylians, to be hosted by Cologne Zoo, was prepared for March with guest crocodile experts from AZA, Zoo and Aquarium Association (ZAA) and the IUCN Crocodile SG, but was cancelled due to COVID-19. The TAG would have been well represented with at least eight members. The RTAG mid-year meeting in the following days had to be cancelled too.

COLLABORATIONS

The RTAG cooperated closely with internal EAZA partners – e.g. EAZA Amphibian TAG, EEP Committee, Research Committee, Population Management Advisory Group – and several external partners, especially from the field of reptile conservation and research. They furthered their cooperation with partners from other regional associations (e.g. AZA and ZAA) and continued to develop a close cooperation with the IUCN SG, Task Forces (TS) and other IUCN umbrella organisations – in particular the Crocodile SG, Iguana SG, Monitor Lizard SG, Skink SG, Tortoise and Freshwater 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).

The RTAG provided other EAZA Members with expert consulting and advisory services and participated in projects with external partners, e.g. the Chelonia subgroup

collaborated with the German herpetological society (DGHT) to collate chelonian husbandry data requested by the German conservation authority (BfN) to allow the assessment of CITES permit request with more rigorous data on breeding potentials. The international team around Thomas Ziegler (Cologne Zoo) in concert with Truong Quang Nguyen (IEBR, Hanoi) scientifically described 10 new reptile species from Vietnam and neighbouring countries and published diverse new records. Endangered species, population and pet trade analysis and conservation breeding projects were again in the focus of their research and species conservation work in Vietnam.

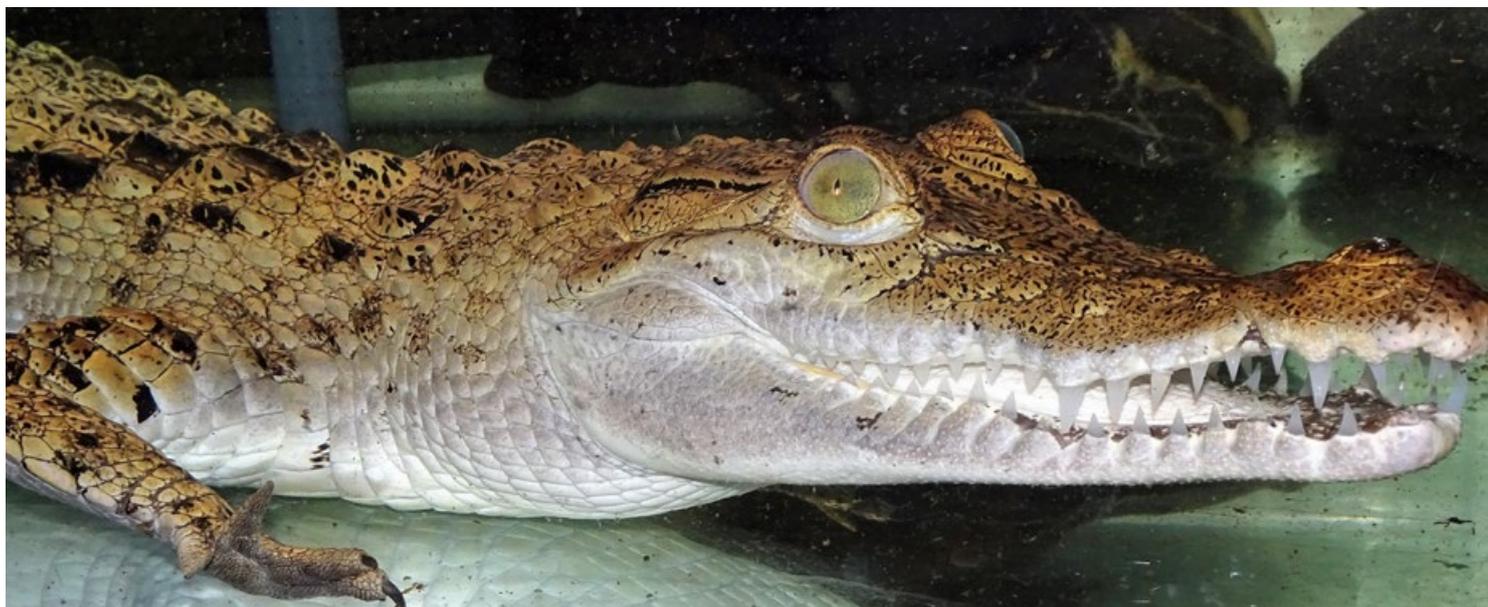
CONSERVATION AND RESEARCH

RTAG's representatives were active in research, publication, scientific journal editorial boards, teaching and supervising university students. Many cooperations, focusing on important research issues for species management as well as conservation efforts, were conducted by implementing the EAZA Research Committee recommendations.

Some of our breeding programmes have significant research and conservation parts.

The European pond turtle EEP - a diverse species with more than 80 haplotypes described - must ensure that breeding is limited to genetically pure animals, and ideally of the haplotypes for which reintroduction projects exist. Thus, involved zoos have to test their animals, before making breeding and transfer recommendations possible for their animals. This may also include the situation that zoos in different regions keep different haplotypes and cooperate closer with a local regional conservation programme than with other EEP participants.

The Komodo dragon EEP launched the research project "Monitoring female reproduction in Komodo dragons". The objective is to have data from complete reproductive cycles in every sexually mature female dragon in EAZA and address the most important welfare issue in the breeding programme



One of the repatriated Philippine crocodiles (*Crocodylus mindorensis*) bred at Cologne Zoo © Thomas Ziegler



Bio-secure facility established at Jersey Zoo for species rescued from the Mauritius oil spill © Matt Goetz - Durrell Wildlife

for the species. Moreover, this EEP supported the Komodo dragon research which included “Monitoring Komodo dragon population at Longos Island”, “Disseminating draft of National Strategic Action Plan for Komodo dragon Conservation to public and stakeholders at Labuan Bajo”, “Implementing capacity building and education programme for local community around Torong Padang peninsula, Sambinasi Village, North Flores”, “Infrastructure maintenance and kept in touch with local communities”, “Patrolling programme in North of Flores run by members of the local community” and educational programmes.

In spite of COVID-19 restrictions, the majority of conservation and research programmes continued.

Jersey Zoo undertook an emergency operation after the MV Wakashio oil spill off the coast of Mauritius, rescuing a safety population of three species of geckos and skinks from affected islands which harbour unique genetic structures not found elsewhere. A rapidly established bio-secure holding space in Jersey is now breeding these species under institutional Studbook management. Regular pollutant and species monitoring on the islands will determine when it might be safe to return the animals.

Jersey Zoo also established field research on the newly described endemic Montserrat iguana (*Iguana melanoderma*) to inform the government on management needs and whether invasive green iguanas (*I. iguana*) and hybrids are present on the island. They assisted the Ministry of Environment of Barbados, together with Fauna and Flora International, in the building of a predator/invasive species exclusion fence for a “mainland island”.

All other ongoing Jersey Zoo-led reptile field programmes in Madagascar, Mauritius, Montserrat, Anguilla and St Lucia continued with reduced progress under pandemic restrictions.

Two genetically screened, purebred and well-socialised (mother-reared) Philippine crocodiles (*Crocodylus mindorensis*) from Cologne Zoo were repatriated in December to restock the diminished wild populations.

ADDITIONAL COMMENTS

Members of the TAG were involved in the following publications:

- Chmelař, J. et al. (2020). *Distribution of the European green lizard, Lacerta viridis (Squamata: Lacertidae), in the Czech Republic: Real data and a predictive model*. Acta Soc. Zool. Bohem, 84: 1–12
- Do, Q. H. et al. (2020). *A new species of Hemiphyllodactylus (Squamata: Gekkonidae) from Tuyen Quang Province, Vietnam*. Zootaxa, 4821(3): 511–532
- Gewiss, L. R. et al. (2020). *Population assessment and impact of trade on the Asian Water Dragon (Physignathus cocincinus Cuvier, 1829) in Vietnam*. Global Ecology and Conservation, 23: 1–10
- Goetz, M. (2020). *Embracing the one-plan approach - a new EAZA Regional Collection Plan for turtles and tortoises*. Zooquaria, 107: 14–15
- Goetz, M. (2020). *A best-practice approach for light and heat provision for chelonians (and other reptiles)*. Zooquaria, 107:28–29
- Janssen, H. Y. et al. (2020). *Range extension and extended diagnosis of Lycodon pictus: First country record from China*. Revue suisse de Zoologie, 127(2): 413–422
- Kasper, K. et al. (2020). *The extent of the illegal trade with terrestrial vertebrates in markets and households in Khammouane Province, Lao PDR*. Nature Conservation, 41: 25–45
- Le, M. D. et al. (2020). *Threats from wildlife trade: The importance of genetic data in safeguarding the endangered Four-eyed Turtle (Sacalia quadriocellata)*. Nature Conservation, 41: 91–111
- Luu, V. Q. et al. (2020). *New records and an updated list of reptiles from Ba Vi National Park, Vietnam*. Bonn Zoological Bulletin, 69(1): 1–9
- Luu, V. Q. et al. (2020). *A new species of Achalinus (Squamata: Xenodermidae) from Trang An Landscape Complex, Ninh Binh Province, Vietnam*. Zootaxa, 4877(1): 174–184
- Miller, A. H. et al. (2020). *Discovery of a New Species of Enigmatic Odd-Scaled Snake (Serpentes: Xenodermidae: Achalinus) from Ha Giang Province, Vietnam*. Copeia, 108(4): 796–808
- Moss, J. B. et al. (2020). *Contrasting patterns of movement across life stages in an insular iguana population*. Journal of



Spotted softshell turtle (*Pelodiscus variegatus*) © Thomas Ziegler

Herpetology, 54(1): 67-77

- Moss, J. B. et al. (2020). *Conditional female strategies influence hatching success in a communally-nesting iguana*. Ecology and Evolution, 10(7): 3424-3438

- Ngo, H. T. et al. (2020). *Genetic screening of captive crocodile lizards (*Shinisaurus crocodilurus*) in Europe*. Der Zoologische Garten, 88: 17-30

- Nguyen, T. Q. et al. (2020). *Two new species of Hemiphyllodactylus (Squamata: Gekkonidae) from Hoa Binh Province, Vietnam*. Zootaxa, 4801(3): 513-536

- Nguyen, T. H. et al. (2020). *A new species of Dixonius (Squamata: Gekkonidae) from the karst forest of Khammouane Province, central Laos*. Zootaxa, 4759(4): 530-542

- Ostrowski, S. et al. (2020). *A new species of Cyrtodactylus (Squamata: Gekkonidae) from southern Vietnam*. Zootaxa, 4789(1): 171-20

- Pham, A. V., Ziegler, T. and Nguyen, T. Q. (2020). *New records and an updated checklist of snakes from Son La Province, Vietnam*. Biodiversity Data Journal, 8: e52779

- Pounder, K. C. et al. (2020). *Testing for hybridisation of the critically endangered Iguana delicatissima on Anguilla to inform conservation efforts*. Conservation Genetics, 21: 405-420

- Reháč, I. and Velenský, P. (2020). *The great turtle rescue*. Zooquaria, 107: 22-23

- Reháč, I., Velenský, P. and Zahradníčková, V. (2020). *The earless monitor lizard (*Lanthanotus borneensis*) in European zoos – past, present, perspectives*. Gazella (Praha) 46: 30-53

- Reháč, I. and Zahradníčková, V. (2020). *Lanthanotus borneensis in EAZA Report of the Reptile TAG*. Prague Zoo

- Schneider, N. et al. (2020). *Two new species of Cyrtodactylus (Squamata: Gekkonidae) from northern Laos, including new finding and expanded diagnosis of *C. bansocensis**. Zootaxa, 4822(4): 503-530

- Soanes, L. M. et al. (2020). *Terrestrial endangered species action plan for Anguilla*. Report for the Anguilla National Trust, The Valley, Anguilla, and Fauna and Flora International, Cambridge, UK

- Velenský, P. and Reháč, I. (2020). *Home comforts*. Zooquaria, 107: 27

- Wang, J. et al. (2020). *Re-examination of the Chinese record of *Opisthotropis maculosa* (Squamata, Natricidae), resulting in the first national record of *O. haihaensis* and description of a new species*. ZooKeys, 913: 141-159

- Ziegler, T. (2020). *Artenschutz pausiert nicht [Statement für Rubrik „Angespannte Zeiten – auf „Stimmenfang“ während der Pandemie“]*. DATZ 5/2020: 9

- Ziegler, T. (2020). *„Đầu Sấu“ – ein Rekordkrokodil aus Vietnam*. Elaphe: 46-50

- Ziegler, T. et al. (2020). *In search of the Spotted Softshell Turtle in Vietnam: An implementation of the One Plan Approach*. WAZA News 2020 1: 24-27

- Ziegler, T., Rauhaus, A. and Vences, M. (2000). *Does genetic screening reveal first zoo breeding of the Cryptic Golden Tegu (*Tupinambis cryptus*)?* Zool. Garten N.F. 87(2019): 25-40

- Ziegler, T. and Vences, M. (2020). *Molecular identification of water monitors (*Varanus salvator complex*) from confiscations and the pet trade, including phylogenetic placement of *V. s. ziegleri* – a molecular reference for species conservation enforcement and conservation breeding*. Der Zoologische Garten, 88: 31-50

9 RATITE

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

INTRODUCTION

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

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The TAG extends its sincerest appreciation and thanks to Jo Gregson, Vice Chair, who retired from Paignton Zoo (UK) in summer 2020. Jo's enthusiasm and passion will be missed in the TAG and hopefully the position of Vice Chair will be filled again early 2021.

Unfortunately, Peter Smallbones (Paignton Zoo) had to step down as ESB keeper for the lesser rhea (*Rhea pennata*) due to the reorganisations taking place in Paignton Zoo as a consequence of the COVID-19 pandemic. Peter has done a great job over the years, and he too will be missed in this TAG. The position is still vacant at the end of 2020.

COVID-19 has not been kind on the breeding programmes in this TAG with many delayed transports and even worse, some zoos had to significantly change their Institutional Collection Plans (ICPs), leaving them no other choice than removing large ratites from their plans.

Still some positive developments happened over the year with the arrival of two female brown kiwis (*Apteryx mantelli*) from Smithsonian National Zoo (US) into the EAZA population (one to Avifauna Birdpark, the Netherlands and one to Zlín-Lešná Zoo, Czechia) as one of the highlights for the breeding programmes.



Brown kiwi (*Apteryx mantelli*) arriving at Zlín-Lešná Zoo © Zlín-Lešná Zoo

Maren Frerking (Hannover Zoo, Germany), EEP Coordinator for the North African ostrich (*Struthio camelus camelus*) started working on the first draft BPG for the species and being ready in early 2021 for revision by the holders/TAG. The aim is to have the BPG officially approved in 2021.

10 PENGUIN

TAG Chair: Pierre de Wit (WILDLANDS Emmen, Emmen, the Netherlands) • Vice Chair: Jo Elliott (Edinburgh Zoo, Edinburgh, United Kingdom)

It was also a challenging year for the EAZA Penguin TAG. Nevertheless, the TAG managed to successfully complete an online RCP workshop supported by the EEO in early December. During this workshop all 18 penguin species were individually assessed and their (in)direct conservation roles and/or non-conservation roles confirmed. Based on the roles it was decided for which species active management would be required and a new style EEP be established. In addition to the TAG members, both *in situ* and *ex situ* penguin experts from different regions joined the workshop.

In recognition of the concerns around worrying levels of trade of wild penguins, flagged by the IUCN Penguin SG, the EAZA Penguin TAG focusses on carefully managing the animals in our collections and actively discourages the acquisition of penguin species not kept in our collections (MON-T DNO, Do Not Obtain). The little penguin (*Eudyptula minor*) potentially being a notable exemption given that they come from a carefully managed population in another region.

The RCP meeting resulted in seven species recommended for new style EEPs, with Southern (*Eudyptes chrysocome*) and Northern (*Eudyptes moseleyi*) rockhoppers managed as

one programme. The RCP report is now being prepared for publication.

In addition, the BPG for Penguins has been drafted and is in review.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The Northern rockhopper penguin EEP population slightly increased up to 127 individuals held in five institutions. Chicks hatched successfully in Edinburgh Zoo (UK) and Vienna Zoo (Austria). Unsuccessful breeding attempts were reported in ZSL Whipsnade Zoo (UK) and Odense Zoo (Denmark). New enclosures are under construction in Sóstó Zoo (Hungary) and Kattegatecentret (Denmark) which will open in 2022 and receive young birds from Vienna.

The Southern rockhopper penguin EEP population is stagnating with 82 birds in five institutions. Breeding was only successful in Loro Parque (Spain) where four chicks hatched.

Two new institutions (Salzburg Zoo, Austria and Zoom Erlebniswelt Gelsenkirchen, Germany) joined the EEP for African penguins (*Spheniscus demersus*). Unfortunately, the EEP lost Living Coast (UK) as holder given their closure in 2020. The whole group of penguins could luckily be relocated to Pairi Daiza (Belgium).

2020 was a very active year for the Humboldt penguin EEP with the Studbook currently being updated. Starting with 6,750 suggested animals and 8,355 animal records with updates in January, we were able to end the year with “only” 3,662 suggested animals and 1,977 animal records with updates. During the process, lots of duplicates (or more) were found and mistakes were fixed with the help of Species360.



Northern rockhoppers (*Eudyptes moseleyi*) at Munich Zoo © Munich Zoo - Gemma Borrell

New institutions joined the programme, including non-EAZA institutions, Temporary and Under Construction EAZA Members. Transport recommendations as well as husbandry and veterinary recommendations were given to the programme members. The EEP is in contact with Latin American Association of Zoological Parks and Aquariums (ALPZA) institutions regarding a potential transfer of animals from the EAZA to the ALPZA populations.

As for the conservation role, the Sphenisco project continued to be supported by the EEP.

After a big decrease in 2019, the population of magellanic penguins (*Spheniscus magellanicus*) stayed stable in 2020. One institution with a small colony left the programme and the birds moved to another institution to build up a bigger colony. At the end of 2020, eight institutions kept 106 individuals.

The ESB for the Gentoo penguin (*Pygoscelis papua*) continues to be managed as three populations. *Pygoscelis papua papua* is doing well but the smaller population size and small number of holders are a risk for the future. The *P.p.ellsworthi* group is demographically fragile but doing well in the short term. The largest group of gentoos is very stable and able to meet the demands of new holders as required, the population has a largely unknown pedigree. Several new institutions are joining the programme or due to join in 2021/22 and breeding will be increased to supply this demand.

The EEP for King penguin (*Aptenodytes patagonicus*) is relatively stable, but demand is still far higher than the population can support. Work on improving breeding success is required.

COLLABORATIONS

As part of the RCP process the TAG has been in touch with the IUCN SSC Penguin SG to discuss potential *ex situ* contribution of the conservation of penguin species. Luckily, Tom Schneider (Detroit Zoo, USA) as AZA Penguin TAG Chair and member of the IUCN SSC Penguin SG steering committee could attend the full RCP workshop.

In addition, colleagues from Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) joined the RCP workshop when discussing the African penguin, as well as colleagues from ZAA when discussing the species living in Oceania.

11 CICONIIFORMES AND PHOENICOPTERIFORMES

TAG Chair: Catherine King (Lagos Zoo, Lagos, Portugal)
• Vice Chair: Andrea Bračko (Zagreb Zoo, Zagreb, Croatia)

INTRODUCTION

COVID-19 restrictions had a tremendous impact on the planned activities of the EAZA Ciconiiformes and Phoenicopteriformes TAG during 2020. The TAG held a meeting on 13 March, in conjunction with the Bird TAGs mid-year meeting in Arnhem (the Netherlands). Unfortunately, due to concerns about flight availability, a number of attendants were called home during the course of the three-day meeting; this proved to be rather

distracting. We are still adjusting to the new normal, and hope that it is mostly temporary, although it has paved the way for more online meetings which might prove beneficial.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Several ESB keepers stepped down from their positions in 2020, primarily because of leaving their supporting institution: Zuzana Boumrah (ZSL London Zoo, UK) for the Abdim's stork (*Ciconia abdimii*); Jo Gregson (Paignton Zoo, UK) for the Lesser adjutant stork (*Leptoptilos javanicus*); Stephanie Jessen (AquaZoo Friesland, the Netherlands) for the Goliath heron (*Ardea goliath*); Tjerk ter Meulen (GaiaZOO, the Netherlands) for the Puna ibis (*Plegadis ridgwayi*). The TAG thanks all of them for their years of dedication to the programmes. The intention is that Roman Horský (Zlín-Lešná Zoo, Czechia) will take over the Lesser adjutant stork ESB and Emile Prins (GaiaZOO) is continuing the Puna ibis ESB. Appointment of an ESB keeper for the Goliath heron is in progress, but one for the Abdim's stork is still being sought.

ACHIEVEMENTS DURING THE YEAR

Some flamingo workshops focusing on husbandry and welfare were held under the auspices of the Association of British and Irish Wild Animal Keepers (ABWAK). We wanted to gauge interest and practicality of holding similar workshops in other countries/regions within EAZA. Attendants of the March meeting broke into four discussion groups to answer relevant questions. Results indicated that the meeting attendants were far more interested in developing a library of videos illustrating best practices, e.g. catching flamingos, than holding workshops. Participants felt that such a resource should be available for other taxa as well. Videos could be viewed by pertinent staff together, and the applicability to the particular zoo discussed, as sometimes already happens at some zoos. The TAG is compiling a list of subjects that would be particularly useful and will encourage zoos to send in already made videos or to make them as possible.

COLLABORATIONS

Plans were in progress to work together with the IUCN SSC Heron SG to organise an international heron symposium, and the IUCN SSC Flamingo SG to organise a flamingo symposium and a lesser flamingo workshop at the 2020 Pan African Ornithological Conference (PAOC) in Zimbabwe. The PAOC meeting was cancelled, but there are tentative plans to organise the meeting in 2022 in South Africa.

CONSERVATION AND RESEARCH

The TAG continued working with Aaranyak, an NGO in Assam, India, to provide nest structures to further improve breeding of the Endangered greater adjutant storks (*Leptoptilos dubius*). Approximately half of the world population breeds in three adjacent villages in Assam, where 208 nests were built in the 2019 - 2020 breeding season. Ten nest structures, providing nesting platforms for multiple breeding pairs were erected in the 2019 - 2020 breeding season and another ten in the 2020 - 2021 breeding season. Funds were received from ten EAZA zoos and foundations associated with zoos for this purpose.



Greater flamingos (*Phoenicopterus roseus roseus*) © Lourosa Bird Park

This is a community-based conservation project, with a rural women's group, the Hargila Army (hargila being the name of the Greater adjutant stork in Assamese), involved in protecting the storks and their nesting sites. Purnima Barman, the leader of the project, has received world acclaim for her efforts to engage the local population in conservation efforts and to develop livelihood alternatives for the women. Additionally, trees have been planted and may someday provide additional breeding sites for these very large storks.

The TAG also has long-term involvement in another project, establishing a Royal Society for Protection of Nature (RSPN) breeding centre for the Critically Endangered white-bellied heron (*Ardea insignis*) in Bhutan. Breeding centre personnel have been trained in Prague and Zlín-Lešná Zoos in Czechia, and also in Warsaw Zoo (Poland). Acquisition of needed equipment has been provided by Zlín and Prague. The plan was to remove some chicks from nests in the wild for hand-rearing at the centre in spring of 2020, with personnel from zoos to assist in removal of the chicks from their nests and in their rearing. However, because of the COVID-19 crisis this plan was aborted. As it is still not possible to visit Bhutan in the next months when chicks will be of a suitable age for such efforts, the decision is to develop appropriate husbandry guidelines, including relevant video segments, and to further train staff and provide assistance remotely. Only a few nests are found each year, and often they are difficult to access. The plan is to leave at least one chick in each nest, and the remaining chicks will receive a satellite transmitter when old enough, as there is very little known about movements of immature white-bellied herons and the threats that they face.

ADDITIONAL COMMENTS

An article, co-authored by EEP Coordinator Christiane Böhm (Alpenzoo Innsbruck, Austria), was published and reviews the past and current status of the Endangered northern bald ibis (*Geronticus eremita*) in the wild and in human care, and the role zoos are playing in translocations of this ibis, as well as future issues that could be addressed: Böhm, C. et al. (2020). *The Northern bald ibis Geronticus eremita: history, current status and future perspectives*. *Oryx*, 1-13.

12 WATERFOWL AND PELECANIFORMES

TAG Chair: Johnpaul Houston (institutional support from Calviac Zoo, Calviac, France) • Vice Chair: Bernd Marcordes (Cologne Zoo, Cologne, Germany)

INTRODUCTION

Following the reinvigorated RCP, the EAZA Waterfowl and Pelecaniformes TAG will continue to concentrate on Asian, European and Madagascan wildfowl species, as well as the blue-winged goose (*Cyanochen cyanoptera*) and pelican species with an IUCN threat status. A new focus on filling gaps in husbandry knowledge is being reflected in EEPs with the development of BPG for the sea ducks, and the grebes.

The species under the TAG's remit are of the *Anseriformes*, *Podicipediformes*, *Phaethontiformes*, *Gaviiformes*, *Procellariiformes*, *Suliformes* and *Pelecanidae* families.

The TAG met in March at the EAZA Bird mid-year meeting, held by Royal Burgers' Zoo (the Netherlands), and was also

represented at the AZA Waterfowl TAG meeting and at the EAZA Annual Conference (both online) in September.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Following the outcome of the 2019 RCP meeting, at Paignton Zoo (UK), 16 species recommended for new style EEPs have been worked on during 2020 and submitted for consideration to the EEP Committee.

To date, the EEPs for the Dalmatian (*Pelecanus crispus*), Spot-billed (*Pelecanus phillipensis*) and Pink-backed (*Pelecanus rufescens*) pelicans have been approved, and the ones for the Scaly-sided merganser (*Mergus squamatus*), Baer's pochard (*Aythya baeri*), White-winged duck (*Asarcornis scutulata*), Madagascar pochard (*Aythya innotata*) and White-headed duck (*Oxyura leucocephala*) are awaiting approval as new style EEPs, with the other eight programmes close to finalisation.

Sadly, Peter Smallbones (Paignton Zoo) had to step down from the Vice Chair and Baer's pochard EEP Coordinator positions. The TAG thanks Peter for his involvement during the last few years.

In November 2020, the roles of TAG Chair and Vice Chair were switched – with Johnpaul now Chair, and Bernd now Vice Chair. We look forward to continuing working on the TAG together, under the remit of the new RCP, and look forward to welcoming another Vice Chair to the TAG in 2021.

ACHIEVEMENTS DURING THE YEAR

The TAG began to explore the extent to which species included on the Invasive Alien Species (IAS) legislation are present in EAZA collections, and this will be worked on towards a plan during 2021.

The TAG also began to explore potential opportunities for aquariums to get more actively involved in the population management efforts for waterfowl and pelecaniformes.

The Chair was able to present the outcomes of the 2019 EAZA Waterfowl and Pelecaniformes RCP at the AZA Waterfowl TAG meeting, which was great to keep up to date with colleagues in the USA and see where crossovers can occur.

COLLABORATIONS

Collaboration continued between East-Asian Australasian Flyways Partnership and both programmes for the Baer's pochard and scaly-sided merganser.

Members of the TAG are also members of various IUCN SG Committees, such as Threatened Waterfowl SG.

Our collaborations with Wildfowl and Wetlands Trust (WWT) continued from the 2019 RCP meeting, with Samantha Halpin, WWT Arundel (UK), talking about their impressive sea duck collection and husbandry, at the EAZA Bird mid-year meeting.

CONSERVATION AND RESEARCH

The marbled teal (*Marmaronetta angustirostris*) has benefitted from a release programme on Mallorca, organised by Jerez



Pink-backed pelicans (*Pelecanus rufescens*) © Berlin Tierpark

Zoo (Spain) and the Consorci per a la Recuperació de la Fauna de las Illes Balears (COFIB). Cologne Zoo (Germany) supplied 44 teal for release, and these were rung by COFIB, so they could be tracked and their adaptation to Mallorca monitored. As this species will be a new style EEP, it is great to link it already to an active breed and release project.

The genetics work on scaly-sided merganser was picked up again by an MSc student at Manchester Metropolitan University (UK), and hopes to identify the relatedness of the European population and compare this to wild genetics, to ascertain if an import would be beneficial at this stage, and help make decisions on pairings. This will later form part of a larger study into historical loss of genetics in this species, and paternal inheritance.

ADDITIONAL COMMENTS

Samantha Worthington (Lakes aquarium Ulverston, UK) presented as the upcoming aquarium liaison at the BIAZA National Aquarium Conference (November 2020) held online to gauge interest and gaps in knowledge.

We wish to acknowledge the sad passing of Tobias Rahde (Berlin Zoo, Germany), and recognise the work already done on the red-breasted goose (*Branta ruficollis*) – which Tobias was set to manage as a new style EEP. We know whoever will take this project on in the future will benefit from the foundations Tobias had begun.

13 RAPTOR

TAG Chair: Kirsi Pynnönen-Oudman (Helsinki Zoo, Helsinki, Finland), subgroup Owls • **Vice Chairs:** Jan Hanel (Liberec Zoo, Liberec, Czechia), subgroup Eagles and Hawks; Marleen Huyghe (Planckendael Zoo, Mechelen, Belgium) and Joost Lammers (Avifauna Birdpark, Alphen aan den Rijn, the Netherlands), subgroup Vultures; Graeme Dick (Longleat Safari Park, Warminster, United Kingdom), subgroup Falcons

INTRODUCTION

Due to COVID-19, the work of the EAZA Raptor TAG was slowed down to some extent. A unique meeting was held in March in Amsterdam (the Netherlands) so that the Owl RCP process could be continued. Due to the pandemic, only some of the invited participants were able to attend the meeting. However, basic decisions could be made and the population biologists at the EEO could continue with the RCP process. Eight EEPs are proposed for a variety of owl species, including one covering multiple scops owl species. The RCP for the owls will be published in the beginning of 2021. The RCP process was presented during the EAZA mid-year Bird TAG meeting in Arnhem (the Netherlands), as well as during the online EAZA Annual Conference with a talk entitled "Future contribution to translocations as part of the owl RCP".

CONSERVATION AND RESEARCH

In 2020, 25 fledglings survived in the Bearded vulture EEP: 14 were bred in the specialised breeding centres (18 breeding pairs), and 11 in zoos, recovery centres and private collections (23 breeding pairs). Twenty-one nestlings were released: eight in Andalusia, nine in the framework of the LIFE project GypConnect (five in Grands Causses, two in Vercors and two in Baronnies), two in Switzerland and two in Maestrazgo; and four were added to the breeding network (three males and one female).

The Bearded Vulture Captive Breeding Network, coordinated by the Vulture Conservation Foundation (VCF) on behalf of the EEP, faced the biggest crisis since the creation of this programme in 1978 due to the pandemic. Transfers were sometimes impossible, and the hatchlings had to be adopted by unexperienced breeding pairs. However, thanks to the emergency protocols, chicks hatched during the 2019/2020 breeding season could be saved.

The Egyptian Vulture New LIFE Project tested three methods for the release of Egyptian vultures (*Neophron percnopterus*), bred in human care, for three consecutive years (2018 - 2020). Twenty vultures were released in the Eastern Rhodopes, Bulgaria: ten vultures were released through the delayed-release method, six through hacking and four through fostering. 75% of the vultures released by fostering survived during their first autumn migration and reached their wintering grounds, 70% of the delayed released vultures survived their first south migration. In contrast, the survival rate of the birds released through hacking was only 33,3%. The survival rate of the wild juveniles tagged in the same period was 50% (n=4). Based on the criteria for success set



Singapore Zoo is the only EAZA zoo keeping the rapidly declining in the wild Philippine eagle owl (*Bubo philippensis*) © Roland Wirth

for each method and these preliminary results, the project considers fostering and delayed-release as successful methods for the release of Egyptian vultures bred in human care, whereas hacking can be considered as unsuccessful. These are however preliminary results, and a larger sample size is needed. All birds, donated to the project, are from the EEP (for more details, see www.4vultures.org).

COLLABORATIONS

In November, a bearded vulture technical webinar was organised by VCF. An overview of all ongoing release projects and research on vultures was presented. Due to the open concept of the meeting, a few hundred participants were able to follow the talks.

Marleen Huyghe (Planckendael Zoo, Belgium) was nominated as a representative of the TAG in the Translocation Working Group. She has been active with the cinereous vulture (*Aegypius monachus*) reintroduction projects already for several years and thus is the most experienced member of the TAG in this field.

14 GALLIFORMES

TAG Chair: Jan Dams (Antwerp Zoo, Antwerp, Belgium)

• **Vice Chairs:** Ludo Pinceel (World Pheasant Association, Hexham, United Kingdom) and Geer Scheres (Cracid and Crane Breeding and Conservation Centre, Zutendaal, Belgium)

INTRODUCTION

The EAZA Galliformes TAG manages all species of the order Galliformes, including megapodes (*Megapodiidae*), turkeys (*Meleagrididae*), New World quails (*Odontophoridae*), pheasants and partridges (*Phasianidae*), guineafowl (*Numididae*) and chachalacas, guans, and curassows (*Cracidae*). Many of these species are threatened according to IUCN SSC Red List criteria and would benefit from *in-* and *ex situ* conservation. Together with the AZA Galliformes TAG and the World Pheasant Association (WPA) we have been working to increase our conservation efforts through the management of Studbooks and seeking to get actively involved in ongoing conservation efforts.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Tomáš Kapic, former EEP Coordinator for the Vietnam pheasant (*Lophura edwardsi*), left Prague Zoo (Czechia) leaving the EEP vacant. We are thankful that Prague Zoo provided a very suitable successor: Veronika Zahradníčková. Veronika already proved her worth to this programme, working together with the WPA Studbook keepers, sending out recommendations even before she was officially approved as Coordinator. Prague Zoo has also volunteered to hold and organise the transport of three pairs of Vietnam pheasants to Taipei Zoo (Taiwan) to set up an Asian satellite population. The Studbook is still looking for additional holders for this attractive, easy to keep and probably extinct in the wild species which has a fantastic conservation story.

Marcin Chrapowicki (Warsaw Zoo, Poland) is responsible for the ESB for Malayan crestless fireback (*Lophura erythrophthalma erythrophthalma*), the youngest Studbook within the TAG. It was initiated at a time when the species was no longer present within EAZA. All birds were acquired through WPA in an effort to set up a healthy population within the zoo community because even in private hands the numbers of this threatened species are dwindling.

The EEP for Palawan peacock-pheasant (*Polyplectron napoleonis*), coordinated by Hester Whitehead (Jersey Zoo, UK), is doing well within EAZA with a stable population.

The ESB for Mountain peacock-pheasant (*Polyplectron inopinatum*) was also initiated just a few years ago. Gavin Harrison (Waddesdon Manor Aviary, UK) has done extremely well professionally managing this species by establishing a population of these beautiful peacock pheasants within EAZA. The programme is looking for potential new holders as more space is needed to expand the population.



Malayan peacock pheasant (*Polyplectron malacense*)
© Cheong Weng Chun

Gavin Harrison is also working towards getting the ESB for Malay peacock-pheasant (*Polyplectron malacense*) back on track. There are only three institutions working with this species within EAZA, therefore cooperation with WPA through the establishment of a joint Studbook will be vital to set up a population of these threatened birds.

Unfortunately, Chaz Barr (Paignton Zoo, UK) had to resign from the ESB for Great argus pheasant (*Argusianus argus*). We want to thank Chaz for everything he did for this programme. We are now looking for a successor to take over the Studbook. Chaz has worked hard to get the Studbook into good shape which will allow a good transition.

Some much needed breeding success has been achieved in the EEP for Congo peafowl (*Afropavo congensis*) – coordinated by Steven Vansteenkiste (Antwerp Zoo, Belgium) – through the continued efforts of Warsaw Zoo, Copenhagen Zoo (Denmark) and Planckendaal Zoo (Belgium) in the last years.

The ESB for Cabot's tragopan (*Tragopan caboti*) is also off to a (relatively) new start under the leadership of Veronika Zahradníčková. Her first task was to get all the birds within EAZA genetically tested for purity through WPA's genetic study on Cabot's, Temminck's and Satyr tragopans. Now it is our goal to further increase the numbers of this threatened representative of the tragopan family through intensive breeding efforts within EAZA zoos and further cooperation with WPA.

ACHIEVEMENTS DURING THE YEAR

A Galliformes TAG meeting was held during the mid-year Bird TAG meetings at Royal Burgers' Zoo (the Netherlands). Programme updates were given on EAZA Studbooks, the rhenana hazel grouse project and the reintroduction of the Alagoas curassow in Brazil with pictures kindly provided by Geer Scheres. A proposal to increase our conservation efforts within the TAG through the establishment of "conservation teams", a group of people focussing on one certain species, was proposed. This idea is being taken forward together with members from the AZA Galliformes TAG and WPA.

During the mid-year Bird TAG meeting a closed Vietnam pheasant meeting was held to discuss the Best Practice Guidelines and the Recovery Plan established by the Vietnam pheasant recovery team.

The BPG for the Vietnam pheasant, authored by Jan Dams, were published at the end of the year. These are the first BPG for a Galliformes species. This document was shared with our partner in Vietnam (Viet Nature) to help guide them in their efforts to breed this species in Vietnam once the breeding centre is built.

COLLABORATIONS

The main focus of the Galliformes TAG is the Vietnam pheasant. In 2020 a recovery team was created to plan and guide the reintroduction of this species back into the wild. This team consists of the following members: Simon Dowell (Chester Zoo, UK), Nigel Collar (Birdlife International), Pham Tuan Anh (Viet Nature), Le Trong Trai (Viet Nature), Sonja Luz (Singapore Zoo), Katharina Herrmann (Berlin Zoo, Germany), Jo Gregson (WPA) and Jan Dams (Antwerp Zoo). Through monthly online meetings, updates were shared, and further plans discussed. Much of the work in 2020 involved fundraising for the establishment of a breeding centre in Vietnam. A special mention to Karlsruhe Zoo and Berlin Zoo for their most generous contributions.

At the end of 2020, Jo Gregson (who recently retired as bird curator at Paignton Zoo) was hired by WPA as programme officer. Through her strong links with the EAZA and AZA communities, this gave a boost to the cooperation between these entities. The EAZA and AZA Galliformes TAG Chairs have met with Jo on a regular basis to discuss ways on how to cooperate in our conservation efforts.

15 GRUIFORMES

TAG Chair: Vacant • Vice Chair: Gary Ward (ZSL London Zoo, London, United Kingdom)

INTRODUCTION

2020 has been a troubling year for the EAZA Gruiformes TAG, not just with the impact of the COVID-19 pandemic, but more significantly with the saddening, tragic and untimely passing of our TAG Chair, Tobias Rahde. Tobias took on the role of TAG Chair in early 2019 and in his friendly and proactive manner had made significant progress in revitalising the TAG and several of the EEPs. The Gruiformes TAG wishes to extend our heartfelt condolences to his family and colleagues at Berlin Zoo (Germany).

It is important now that the Gruiformes TAG continues to develop as Tobias would have wanted, and we wish to honour his memory by continuing to improve the functionality and proactiveness of the TAG moving forward.

The Gruiformes TAG oversees all species in the order Gruiformes, including cranes (*Gruidae*), finfoots (*Heliornithidae*), limpkin (*Aramidae*) rails and gallinules (*Rallidae*), trumpeters (*Psophidae*) as well as the bustards (order Otidiformes),



West African crowned cranes (*Balearica pavonina*) © Gary Ward

kagu and sunbittern (order Eurypygiformes), mesites (order Mesitornithiformes) and seriemas (order Cariamiformes).

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

EEP evaluations are ongoing and have now been completed for the Red-crowned crane EEP and White-naped crane EEP. The EEP for Red-crowned cranes (*Grus japonensis*) was rated as insufficient/unacceptable by the EEP Committee. Following this, a new EEP Coordinator, Pavel Rozhkov from Moscow Zoo (Russia) was appointed. The TAG will be working closely with Pavel to revitalise the crucial management of this Endangered species. The EEP for the White-naped crane (*Grus vipio*) was evaluated as sufficient. Ruben Holland from Leipzig Zoo (Germany), who was coordinating this EEP, stepped down due to other work commitments. The TAG would like to thank Ruben for his many years of dedication to this EEP. Julia Gottschlich from Schwerin Zoo (Germany) will be nominated as the new Coordinator to the EEP Committee, so this position can be formalised in early 2021.

Other new Coordinators were appointed in 2020 including Christopher Scala from Marineland Antibes (France) as EEP Coordinator for Kagu (*Rhynochetos jubatus*), Timo Allner from Walsrode Birdpark (Germany) as EEP Coordinator for Siberian crane (*Leucogeranus leucogeranus*) and Marcin Chrapowicki from Warsaw Zoo (Poland) as ESB keeper for Sunbittern (*Eurypyga helias*).

The TAG is also looking for a new candidate to take on the ESB for West African crowned crane (*Balearica pavonina*) as the current holder, Mike Woolham (Banham Zoo, UK) needs to step down due to other work commitments.

The TAG wishes all new Coordinators the very best and we look forward to working with them as they move forward with these important programmes.

ACHIEVEMENTS DURING THE YEAR

Unfortunately, there were no Gruiformes TAG meetings in 2020 due to the pandemic and other reasons. A workshop covering the husbandry requirements for kagu was planned but postponed to 2021. Another meeting regarding the Red-crowned crane EEP, aiming at discussing the best way forward with the programme and reintroductions opportunities for this species, was also postponed to early 2021. An online Gruiformes TAG meeting has been planned for the end of March 2021, where the important topic of appointing a new TAG Chair will be addressed.

Franziska Waked (Neuwied Zoo, Germany) was appointed as the Gruiformes TAG Education Advisor. Franziska has an extensive zoo education background and is currently Head of Education at Neuwied Zoo. Her experience and expertise in delivering conservation education and visitor engagement surrounding crane exhibits combined with a passion for Gruiformes species make her a real asset to the TAG.

COLLABORATIONS

In the coming year we will look to build on our collaborations with the AZA Gruiformes TAG in the USA, and look to establish links with the IUCN SG for Cranes and Bustards and the International Crane Foundation.

CONSERVATION AND RESEARCH

These areas need development within the Gruiformes TAG and we will be looking at this in due course. This will include the appointment of a Conservation Advisor for the TAG.

16 CHARADRIIFORMES

TAG Chair: Simon Matthews (Bristol Zoo, Bristol, United Kingdom) • **Vice Chair:** Jo Gregson (Paignton Zoo, 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 in maintaining sustainable populations in human care.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

With the closure of collections due to COVID-19, there is little to report on our two Population Management Programmes.

The ESB for Inca tern (*Larosterna inca*) is currently without a Coordinator. Their population is slowly declining and BPG are still needed.

The ESB for Atlantic puffin (*Fratercula arctica*) remained at low population numbers but stable from the previous year.

ACHIEVEMENTS DURING THE YEAR

The TAG was fortunate to be able to meet at the mid-year meeting which took place as the restrictions of the COVID-19 pandemic started to take place, in Arnhem (the Netherlands). Presentations by several species experts took place to assist in the RCP review due in 2022.

COLLABORATIONS

For a long time, the TAG has worked closely with the team at Living Coast (UK). We were shocked and saddened to



Atlantic puffins (*Fratercula arctica*) © Marita Gulckett and Jens-Kjeld Jensen

see it close this year. They held the Inca tern ESB, as well as a productive flock of wader species. Hopefully most have already been allocated to other collections within the EAZA community.

17 PIGEON AND DOVE

TAG Chair: Duncan Bolton (institutional support from Paignton Zoo, Paignton, United Kingdom) • Vice Chair: Nigel Simpson (Bristol Zoo, Bristol, United Kingdom)

INTRODUCTION

No formal meeting took place during 2020, with most collections' activities focused on operations due to the COVID-19 pandemic. The commitments for institutional responsibilities have meant that very few activities in relation to the EAZA Pigeon and Dove TAG could take place throughout the year.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Initial discussions and planning between the TAG Chair, Vice Chair and the EEO started in late 2020 in regard to RCP evaluation and process due to be undertaken in 2021. Initial species selection and setting out of the procedures and processes for an online RCP workshop were decided.

The data regarding the EEP for Socorro dove (*Zenaida graysoni*) was migrated to ZIMS for Studbooks in 2020 with data reconciliation ongoing. An updated Studbook is planned for 2021 once all data has been corrected. A concern with this EEP is the heavily biased sex ratio for males with current EEP population of 58.30.

In the EEP for Mauritius pink pigeon (*Nesoenas mayeri*) and the three ESBs for Crowned pigeon (*Goura* sp.), migration to ZIMS has also proceeded with data clean-up continuing through the year.

ACHIEVEMENTS DURING THE YEAR

Discussions began with the Coordinators of the Victoria (*Goura victoria*), Sclater's (*G. sclateri*) and Blue crowned (*G. cristata*) pigeons for joint BPG. An initial meeting in 2019 was followed up with email correspondence throughout 2020. Progress with this has been slower than anticipated due to the pandemic, but nonetheless is continuing.

CONSERVATION AND RESEARCH

Due to the COVID-19 situation, various field project work was either halted or postponed as countries went into lockdown and travel restrictions were imposed.

The Socorro dove team was not able to visit Socorro Island in 2020 as planned. They had hoped to start evaluating the flora of the island since the eradication of sheep in 2012. Evidence is that the island is much greener, but that the highly successful species are likely alien to the island and full evaluation is required. A PhD student is looking at aspects relating to habitat restoration in preparation for the future return of Socorro dove to the island.



Socorro dove (*Zenaida graysoni*) © Nigel Simpson - Bristol Zoo

Bristol Zoo's field researchers were stuck on the North-West Panay Island in the Philippines, when extensive travel restrictions were imposed, preventing even local travel. They have recently produced heat maps for this area for suitable habitat for Negros bleeding-heart doves (*Gallicolumba keayi*).

Mauritius pink pigeon genetic research is continuing. The species is benefiting from a number of research projects at present. Cock van Oosterhout (University of East Anglia, UK) successfully obtained a Royal Society Grant for his project 'Next generation genomics for the conservation of three iconic bird species of Mauritius'. This ambitious study will sequence Mauritius pink pigeon samples, identifying mutations that are responsible for fitness loss, as well as identifying immunogenetic variants that offer resistance to disease. Essentially, this will lead to a genomics-informed rescue of the Mauritius pink pigeon population. The Bird 10,000 Genomes (B10K) Project and the Vertebrate Genome Project are also keen to work with the species, and such work will yield unprecedented resolution of the pigeons' genetic make-up.

18 PARROT

TAG Chair: Simon Bruslund (Marlow Birdpark, Marlow, Germany) • Vice Chair: Sandra Molloy (Dublin Zoo, Dublin, Ireland)

INTRODUCTION

The EAZA Parrot TAG is a very large TAG with over 18,500 parrots in around 250 institutions. The TAG continually strives to increase the conservation impact of our *ex situ* populations. The year 2020 was hugely disrupted by the COVID-19 pandemic. However, the Parrot TAG continued to be active thanks to the dedication of the many TAG members and collaborators.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The programmes for Yellow-crested cockatoos (*Cacatua sulphurea*; excluding *C. S. citrinocristata*) and White cockatoos (*Cacatua alba*) were officially approved as new style EEPs.

An online check-in call with the EAZA Population Management Centre (PMC) was conducted for the EEP for Red-fronted macaw (*Ara rubrogenys*). This species was up listed to Critically Endangered in 2018. The EEP has the largest *ex situ* population and therefore an important insurance population.

A veterinary student from the National Veterinary School of Nantes (France) began work on BPG for macaws (*Ara spp.*) under the primary supervision of the Great green macaw EEP and Zoo des Sables d'Olonne (France) with support from all macaw programme Coordinators.

ACHIEVEMENTS DURING THE YEAR

One of the first tasks of the new Education Advisor, Stephan Worm (Serengeti-Park Hodenhagen, Germany) was to promote World Parrot Day among EAZA Members. It is held on the 31 May each year. A wide range of open-source educational materials was developed and placed on the joint EAZA/AZA Parrot TAG website (www.parrotttag.org) as well as on the Parrot TAG page on the Member Area. EAZA Members were also requested to raise funds for parrot conservation with the TAG recommending the Limbe Rescue Centre in Cameroon. As many zoos around Europe were closed to the public due to the pandemic, a "Corona Virus Supplement" was added to the list of resources including many alternatives to celebrate World Parrot Day online.

In March, the TAG held a meeting at the Bird TAG mid-year meeting in Royal Burgers' Zoo (the Netherlands). The focus of the meeting was parrots and education. Avifauna Birdpark

(the Netherlands) gave a presentation on using birds in public demonstrations. Royal Burgers' Zoo provided an overview on how they inspire education using birds and Stephen Worm gave a presentation on the upcoming World Parrot Day.

In September, Stephen Worm gave a presentation on using World Parrot Day as an educational tool at the online EAZA Annual Conference. Later in the year he distributed a questionnaire to get an overview of the extent to which parrots are included in the conservation education work of zoo educators.

A survey was circulated by Anthony Dabadie (Parc Animalier de Branféré, France), Studbook keeper for the Ochre-marked parakeet (*Pyrrhura cruentata*) in collaboration with Akongo (France) to investigate mixed-exhibit holdings with parakeets and callitrichids.

With support of the Veterinary Advisors, the TAG submitted a final draft of the guidelines for virus management in parrots to the EAZA Veterinary Committee, for approval before distribution in 2021.

COLLABORATIONS

The Parrot TAG was contacted by the Centre Suisse de Recherche Scientifique in Abidjan (Ivory Coast) that was looking for data on artificial nest-boxes. This organisation was planning on using them to help wild Timneh parrots (*Psittacus timneh*). Detailed information was provided by the TAG Chair.



Red-vented cockatoos (*Cacatua haematuropygia*) © Katala Foundation



Ecuadorian amazon (*Amazona lilacina*) © Rebecca Biddle

The AZA Parrot TAG shared their recently produced RCP. Later in the year, the EAZA and AZA Parrot TAGs launched a joint website to share resources in the spirit of the cancelled joint TAG Chair meeting.

Members of the Parrot TAG assisted different government authorities for CITES on welfare issues with advice on housing and husbandry requirements in cases of investigation or confiscations in the Netherlands, Italy and Germany.

CONSERVATION AND RESEARCH

The TAG contacted holders of African grey parrots (*Psittacus erithacus*) to raise funds for the Limbe Wildlife Centre to help care for hundreds of these birds which had been rescued from the illegal wildlife trade. The project was supported by Marlow Birdpark (Germany), Zoological Society for the Conservation of Species and Populations (ZGAP, Germany), Parrot World (France) and Parc Animalier de Branféré who even send staff as technical support to Cameroon.

Becca Biddle (Chester Zoo, UK), EEP Coordinator for Ecuadorian amazon (*Amazona lilacina*) was the lead author on a conservation status overview for this species. This paper provided evidence for the recent up-listing to Critically Endangered. Chester Zoo continued the *in situ* conservation work in Ecuador involving local people to conduct conservation research and provide protection measures. ZGAP and Marlow Birdpark also provided funding for other Ecuadorian project partners on this species.

Eight EAZA Members provided substantial funding to the Katala Foundation (Philippines) which spearheads *in situ* conservation for the Critically Endangered red-vented cockatoos (*Cacatua haematuropygia*).

A conservation crisis was flagged by BirdLife International on the recent taxonomical changes, splitting the blue-backed parrot (*Tanygnathus everetti*) from the Philippines as a separate species. The TAG now collaborates in a working group on this species and other *Tanygnathus spp.* together with BirdLife International, Katala Foundation, Talarak Foundation (Philippines) and ZGAP.

Overall, based on reports directly to the TAG or entries in the EAZA Conservation Database, ten EAZA institutions supported *in situ* projects involving 17 parrot species. We believe this is an under-representation of the actual shared picture with major contributors not having reported their support during 2020.

The TAG supported the plans to organise a conservation planning workshop facilitated by Conservation Planning Specialist Group (CPSG) encouraging the Bolivian environmental authorities to support a One Plan Approach for the blue-throated macaw (*Ara glaucogularis*).

Six students (three PhD, two MSc and one BSc) were reported to be supported directly by the TAG or relevant EEPs in the fields of welfare, population dynamics, genetics, and conservation management. These efforts have included collaborations with the following institutions: University of Sheffield (UK), Macaw Recovery Network (Costa Rica), Nottingham Trent University (UK), Akongo, National Veterinary School of Nantes, Goethe-Universität Frankfurt (Germany), Max Planck Institute (Germany), University of Southern Denmark (Denmark) and University of Copenhagen (Denmark).

ADDITIONAL COMMENTS

The Parrot TAG was deeply saddened to hear of the death of Tobias Rahde (Berlin Zoo, Germany) who was the programme Coordinator for the White cockatoo. His contribution to bird conservation will be greatly missed.

Jo Gregson (Paignton Zoo, UK) retired. Jo was the population monitor for Princess of Wales parrot (*Polytelis alexandrae*) and the TAG would like to thank her for her work on this species.

Publications co-authored by members of the TAG and collaborators this year:

- Bents, A. (2020). *Eine verhaltensbiologische Studie an Gelbwangenkakadus (Cacatua sulphurea) im Zoo Neuwied*. Bachelor's Thesis Goethe-Universität Frankfurt
- Biddle, R. et al. (2020). *Conservation status of the recently described Ecuadorian Amazon parrot Amazona lilacina*. Bird conservation international, 30(4): 586-598
- Birkendorf, M. (2020). *Haltung und Zucht des Gelbwangenkakadus im Zoo Neuwied (Teil 1)*. PAPAGEIEN, 8: 262-265
- Birkendorf, M. (2020). *Haltung und Zucht des Gelbwangenkakadus im Zoo Neuwied (Teil 2)*. PAPAGEIEN, 9: 300-304
- Schardt, T. (2020). *Yellow-Crested Cockatoos Pose Challenges At Neuwied Zoo*. Zooquaria 108: 8-9

19 TOUCAN AND TURACO

Due to the current lack of Chair and Vice Chair in the EAZA Toucan and Turaco TAG, no report was submitted by the TAG for 2020.

20 HORNBILL

TAG Chair: Koen Brouwer (Attica Zoo, Athens, Greece)
• Vice Chair: Joost Lammers (Avifauna Birdpark, Alphen aan den Rijn, the Netherlands)

INTRODUCTION

The EAZA Hornbill TAG achieved an important milestone in 2020: the finalisation, approval and publication of the EAZA Hornbill RCP in June 2020. Further editing was done on the draft BPG for the *Bucorvus* hornbills which will hopefully be ready for publication in 2021. The TAG hosted a Bird TAGs mid-year meeting in Royal Burgers' Zoo (the Netherlands) in March 2020, where it was decided that the EAZA Toucan and Turaco TAG would temporarily be placed under the guidance of the EAZA Hornbill TAG. The Chair of the Hornbill TAG was also invited to present a talk on "How can parrots and primates perhaps contribute to conservation of African hornbills?" at the online EAZA Annual Conference in September. He also participated in the annual three-day meeting of the IUCN SSC Hornbill SG in October. Finally, the TAG, and specifically the new RCP, was featured in an article in the winter 2020 issue of Zooquaria.

POPULATION MANGEMENT PROGRAMME DEVELOPMENTS

One of the highlights of 2020 was the successful breeding of a great hornbill (*Buceros bicornis*) at Zlín-Lešná Zoo (Czechia). The pair also successfully bred in 2018 but lost their chick in 2019. In 2020 it was decided not to take any risks and the only fertilised egg was removed for artificial incubation. The chick that hatched was hand-reared in full sight of the breeding pair, in the hope that next year they will be successful in parent rearing, and also to minimise the risk of imprinting in the chick.

Wrocław Zoo (Poland) again managed to breed three Palawan hornbill (*Anthracoceros marchei*) chicks in 2020. This species is monitored by the TAG, and there are currently four EAZA collections keeping a total of 11 birds (7.2.2). Cooperation with successful private holders and with institutions in the Philippines will be needed in this species.

ACHIEVEMENTS DURING THE YEAR

Following the publication of the new Hornbill RCP, 15 species will be managed as an EEP, each with its own clearly defined role.

The approval of the EAZA Hornbill RCP led to the initiation of several new EEPs:

- Silvery-cheeked hornbill (*Bycanistes brevis*) coordinated by Paulo Figueiras (Lagos Zoo, Portugal)
- Trumpeter hornbill (*Bycanistes bucinator*) coordinated by Flemming Nielsen (Copenhagen Zoo, Denmark)
- Rufous hornbills (*Buceros hydrocorax* and *B. mindanensis*) coordinated by Anton Vaidl (Prague Zoo, Czechia)
- Red-knobbed hornbill (*Aceros cassidix*) coordinated by Luis Neves (Singapore Zoo, Singapore)
- Black-casqued hornbill (*Ceratogymna atrata*) coordinated by Andreia Pinto (Lourosa Bird Park, Portugal)

The Trumpeter hornbill EEP Coordinator will make sure that the population is as genetically healthy as possible and at the

same time will prevent the population from increasing to avoid space competition with other RCP species.

The Rufous and Mindanao hornbills EEP will focus on establishing a viable population in the EAZA region for the rufous hornbills and seek to work together with colleagues in the Philippines on further management of an *in situ* breeding programme for the Mindanao hornbill (*Penelopides affinis*). It will be investigated if it is possible to send the last specimens of this species in Europe back to the Philippines.

New Coordinators were also approved for several existing EEPs:

- Mark Rusli (Singapore Zoo, Singapore) – Malayan black hornbill (*Anthracoceros malayanus*)
- Sarah Lavin (Paignton Zoo, UK) – Sunda wrinkled hornbill (*Rhabdotorrhinus corrugatus*)
- Baptiste Chenet (Montpellier Zoo, France) - Northern ground hornbill (*Bucorvus abyssinicus*)

The Hornbill TAG would like to thank Jo Gregson (Paignton Zoo), Adrian Walls (ZSL London Zoo, UK) and Marion Poupé-Laurent (Zoo Boissière du Doré, France) for the time and passion they dedicated to managing hornbills over the past years.



Great hornbill (*Buceros bicornis*) chick at age of 42 days, © Zlín-Lešná Zoo

CONSERVATION AND RESEARCH

Five Biology students from Utrecht University (the Netherlands) have been working on hornbill research, especially pair behaviour, stress and personality, under supervision of the Hornbill TAG Vice Chair since late 2018. Their research is focused on the question: *Are stress, environment and mate choice having an influence on the poor breeding results (of especially great hornbills) in EAZA zoos?* Although the research is based on small numbers of birds, there does seem to be a significant result for stress. It appears that unsuccessful pairs show more stress behaviours than successful pairs. The corticosterone pilot study did not show significant results (yet) but successful pairs seem to have lower levels of stress hormones. This however does not explain why stress behaviour and levels are higher in unsuccessful pairs.

Personality studies were also conducted and showed that it is likely that birds with the same personality will have a better chance in becoming a breeding pair than birds that have different personalities. However, more data is still needed to verify these preliminary results.

21 SONGBIRD

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

• Vice Chair: Simon Bruslund (Marlow Birdpark, Marlow, Germany)

INTRODUCTION

During the year the name of the TAG changed from the EAZA Passeriformes TAG, always a bit of a mouthful, to the EAZA Songbird TAG, far more user friendly and generally more understandable. The TAG's Asian species focus subgroup also further refined its name and its official title is now the EAZA Silent Forest Group. We believe that as a result of the conservation campaign, "Silent Forest" is now recognisable as associated with songbird conservation in Southeast Asia.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Seven new style EEPs were approved in 2020, all of which are recommended in the TAG's Asian Songbird RCP. Two are for existing old style programmes, Sumatran laughingthrush (*Garrulax bicolor*) and King bird-of-paradise (*Cicinnurus regius*). The others, all new programmes, are for the Grosbeak starling (*Scissirostrum dubium*), Hill mynas (*Gracula spp.*), Orange-headed thrush (*Geokichla citrina*), Black-winged myna (*Acridotheres melanopterus*), Straw-headed bulbul (*Pycnonotus*

zeylanicus) and Asian fairy-bluebird (*Irena puella*).

The BPG for Straw-headed bulbul was published. They are based on the experiences with these bulbuls in Jurong Bird Park (Singapore), one of very few institutions, and the only EAZA Member, holding this species.

Not surprisingly, the planned Global Species Management Plan (GSMP) in-person workshop on the Blue-crowned laughingthrush (*Garrulax courtoisi*) was cancelled due to the COVID-19 situation and took place online instead. As a result, the Blue-crowned laughingthrush GSMP for 2021 was produced. This programme continued to make good progress. At the end of 2020, the global population in human care consisted of 311 individuals, of which 174 were within EAZA.

ACHIEVEMENTS DURING THE YEAR

The TAG held a session during the Joint Bird TAGs meeting in Arnhem (the Netherlands) in March, where presentations were given on the plans for the Asian fairy-bluebird EEP, the progress with the Grosbeak starling EEP and on the potential of an EEP for Red siskin (*Spinus cucullatus*), an Endangered songbird with a fragmented range in Northern South America.

In December, the Silent Forest Group held an online meeting and had periodical email exchange throughout the year.

The Silent Forest website (www.silentforest.eu) and social media portals were regularly updated with news, under the Silent Forest Facebook page a group called "World Songbirds (Passeriformes) - Research and Conservation" was created accumulating 320 members during 2020.

The Songbird TAG workspace on the Member Area was updated with several new files in the species section and a folder on Silent Forest relevant publications harbours more than 260 files available for EAZA Members.

COLLABORATIONS

The Silent Forest Group signed up as a partner of the IUCN SSC Asian Species Action Partnership (ASAP). There was also an agreement for the Silent Forest Group to work more closely with the Oriental Bird Club (OBC) and as part of this the chair of OBC's Conservation Committee was invited to join the group as an external liaison.

Simon Bruslund (Marlow Birdpark, Germany) collaborated with Species360, the Conservation Science Alliance and the University of Southern Denmark in developing the Songbird Species Knowledge Index. This initiative will lead to several publications during 2021.

The IUCN Motion 120 Action against Asian songbird trafficking, developed in close cooperation with the TAG and the Silent Forest Group and co-sponsored by 20 institutions, was approved and published on the IUCN Congress website (www.iucncongress2020.org/motion/120).

CONSERVATION AND RESEARCH

Helping to mitigate the effects of the songbird crisis, caused by unsustainable trade in many Asian species, continues to be the focus of the TAG's conservation activities. While the Silent Forest campaign officially ended, it continues to raise



Nias hill myna (*Gracula robusta*), German Zoo Animal of the Year 2020
© Simon Bruslund



Rufous-fronted laughingthrush (*Garrulax rufifrons*) © Cikananga conservation breeding centre

funds, used to support *in situ* conservation projects. So far, this enabled eight projects to be funded, in addition to the campaign's six preselected projects. Of the eight projects, three were funded in late 2020 and the remaining are due for funding in early 2021. A brief run-through of these will illustrate their diversity and how they are contributing to *in situ* projects so vital to the efforts to conserve these songbirds. These projects, all vetted by the IUCN SSC Asian Songbird SG, address aspects of the conservation of several of the most threatened Asian songbirds.

- *Additional breeding facilities at Cikananga Conservation Breeding Centre, for some of Indonesia's most threatened songbirds:* This centre is developing conservation breeding programmes for some of Indonesia's most threatened songbirds with an emphasis on those from Java, including black-winged myna, rufous-fronted laughingthrush (*Garrulax rufifrons*) and Javan green magpie (*Cissa thalassina*), all listed by IUCN as Critically Endangered.
- *Additional aviaries at the Prigen Conservation Breeding Ark:* This centre continues to expand so it can work with an increasing number of Indonesia's threatened songbird species. These include Javan pied starling (*Gracupica jalla*), several species of white-eye (*Zosterops sp.*) and the extremely rare shama from the island of Maratua (*Kittacincla malabarica barbouri*).
- *Planet Indonesia, Wak Gatak Songbird rehab and rescue centre – tackling the songbird trade:* This enables the construction of additional facilities to deal with confiscated songbirds in Borneo.

The ongoing efforts for the Bali myna through the pre-selected project of the Silent Forest Campaign received additional funding, not least thanks to a grant from Woodland Park Zoo (US).

Finally, members of the Silent Forest Group have engaged with the Ecosystems Impact Foundation, supporting their work in saving the endemic taxa of shama and hill myna of the Western Sumatran Islands. This project also received direct

financial support from EAZA Members.

These projects demonstrate the range of conservation measures enabled through Silent Forest and just how valuable this support is in bringing to an end the unsustainable trade in so many of Asian songbirds. The fund is still open, and the Silent Forest Group hopes to continue to raise considerable sums, 100% of which go to the projects. For more information visit www.silentforest.eu.

Following the Silent Forest Campaign, German zoos selected the Nias hill myna (*Gracula robusta*) as their Zoo Animal of the Year 2020. This campaign raised some € 60,000 for hill myna conservation in Indonesia.

Regarding research activities, an MSc thesis on the Silent Forest Campaign was successful through the University of Cologne (Germany) and a paper is being prepared.

ADDITIONAL COMMENTS

Relevant publications of 2020 include:

- Bruslund, S. et al. (2020). *A bright future for songbirds*. Zooquaria, Issue 108: 12-13
- Bruslund, S. (2020). *Bedrohte Beos und das Save-Magiao-Project in Nias*. ZGAP Mitteilungen 1: 8-11

22 MONOTREME AND MARSUPIAL

TAG Chair: Flemming Nielsen (Copenhagen Zoo, Copenhagen, Denmark) • Vice Chairs: Achim Winkler (Copenhagen Zoo, Copenhagen, Denmark) and Matthias Papies (Berlin Tierpark, Berlin, Germany)

INTRODUCTION

The focus of the year 2020 was on the RCP for the EAZA Monotreme and Marsupial TAG (M&M TAG), which – due to COVID-19 restrictions – was held in a digital format.



Tasmanian devils (*Sarcophilus harrisii*) © Copenhagen Zoo

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Here are the developments and challenges for the M&M TAG species in 2020:

- EEP for Tasmanian devil (*Sarcophilus harrisii*): Restocking of Copenhagen Zoo's population (Denmark) with animals from ZAA. Plans to establish other breeding situations in Europe in addition to Copenhagen Zoo. Population and Habitat Viability Assessment planned for 2021
- EEP for Koala (*Phascolarctos cinereus*): Continued focus on the Koala Retrovirus (KoRV). Proposed shifting of koala ownership from San Diego Zoo (US) to the Koala EEP. BPG for the koala due to be published
- EEP for Common wombat (*Vombatus ursinus*): Small population in European zoos. Continued need for new animals. Possibility to obtain Tasmanian subspecies from Tasmanian zoos. Possible opportunity to obtain mainland subspecies from orphanages in Australia
- EEP for Brush-tailed bettong (*Bettongia penicillata*): stable population in human care. Need for new holders. Breed and cull as possible management strategy. Model species for other *Bettongia* species
- EEP for Greater bilby (*Macrotis lagotis*): So far, no animals available for EAZA. Species declining in the wild
- ESB for Kowari (*Dasyuroides byrnei*): Kerstin Ludmann (Wilhelma Zoo, Germany) confirmed as new ESB keeper
- EEP for Goodfellow's tree kangaroo (*Dendrolagus goodfellowi*): Small population with limited breeding. Few founders. Flagship species for conservation in Papua New Guinea
- EEP for Yellow-footed rock wallaby (*Petrogale xanthopus xanthopus*): Need for new holders. Suitable species for mixed exhibits
- ESB for Swamp wallaby (*Wallabia bicolor*): Only 31% of pedigree known. A new keeper is needed as Matthias Papies (Berlin Tierpark, Germany) wants to step down due to work pressure
- ESB for Tammar wallaby (*Macropus eugenii*): Proposal to discontinue the ESB for this species after the RCP is reviewed, approved and published
- ESB for Red kangaroo (*Macropus rufus*): Large population. Problem of placing surplus animals
- ESB for Eastern grey kangaroo (*Macropus giganteus*) and MON-P for Western grey kangaroo (*Macropus fuliginosus*): Surplus males
- MON-P for Short-beaked echidna (*Tachyglossus aculeatus*): Recent breeding successes in EAZA. Proposal for genetic studies in cooperation with ZAA
- MON-P for Ground cuscus (*Phalanger gymnotis*): Heavy population decline. Breeding successes urgently needed

ACHIEVEMENTS DURING THE YEAR

The proposed meeting for the RCP of the M&M TAG, due to be held at Wrocław Zoo (Poland), had to be cancelled due to the COVID-19 restrictions. Instead, an online meeting was organised at the end of the year. Over a three-day period, a total of 23 people attended the meeting, including all members of the M&M TAG, as well as members of ZAA and the IUCN SGs. The meeting was kindly hosted by Kelly van Leeuwen and Nora Hausen from the EEO, with the help of

Katharina Herrmann (Berlin Zoo). Despite the novelty of the format, and with people joining in from around the globe, the meeting was a huge success. All topics on the agenda were discussed in appropriate details with valuable input from all participants. The RCP is due to be published in 2021.

As part of the online EAZA Annual Conference, Flemming Nielsen (Copenhagen Zoo, Denmark) and Matthias Papies attended the EAZA TAG Chair meeting, while Volker Grün (Duisburg Zoo, Germany) provided an update on the Koala EEP in the Animal Sessions.

COLLABORATIONS

The M&M TAG continued to cooperate with the IUCN M&M SG and established a closer link to ZAA.

CONSERVATION AND RESEARCH

Koala holders with animals belonging to the San Diego Zoo stock continue to pay an annual contribution fee to support the koala conservation and research projects coordinated by San Diego Zoo.

Research is under way in conjunction with the Leipzig Institute for Zoo and Wildlife Medicine in Berlin (IZW), the Robert Koch Institute in Hamburg (both Germany) and the University of Nottingham (UK) to gain a better understanding of the effects of the various strains of the KoRV on the health status of the koala.

The Tree kangaroo GSMP supports the “Tenkile Conservation Alliance”, which works for the conservation of the Tenkile tree kangaroo (*Dendrolagus scottae*) in Papua New Guinea.

23 PROSIMIAN

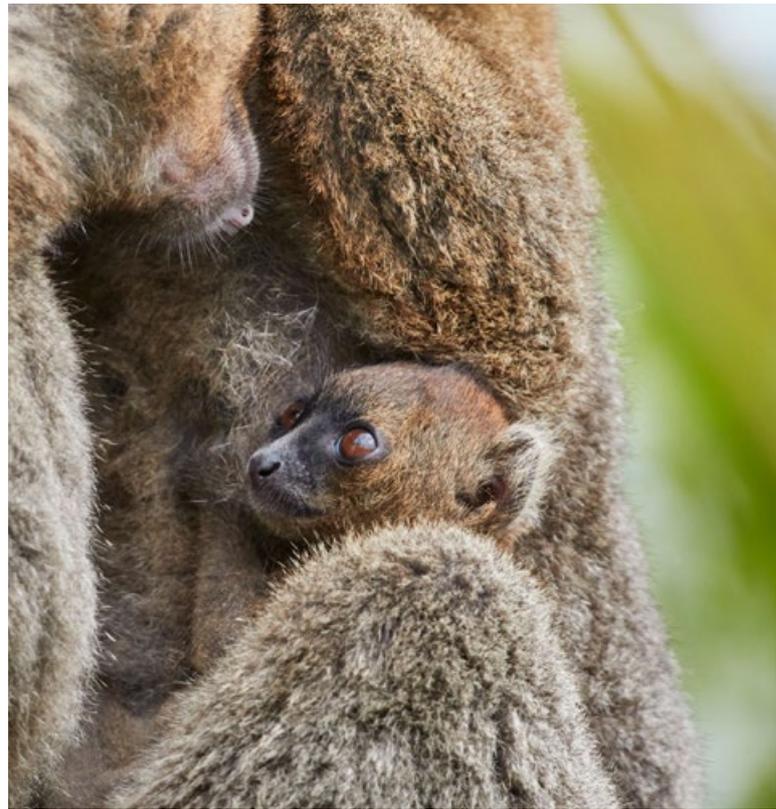
TAG Chair: Achim Johann (NaturZoo Rheine, Rheine, Germany) • Vice Chair: Delphine Roulet (Cotswold Wildlife Park, Burford, United Kingdom)

INTRODUCTION

The COVID-19 pandemic has an impact on everyone and everything, and therefore also on the EAZA Prosimian TAG and its activities *ex situ* and *in situ*. The TAG's work in 2020 can be best described as “acting on demand”. As face-to-face meetings could not take place, and TAG members have had to focus on other professional tasks, there is a current slowing of the strategic working process. However, the RCP is in place and must be followed as a guideline for individual programmes and the zoo community. While doing so, EEP Coordinators and participants are reminded and assured that their work and contribution is more valuable now than ever to ensure quality of the *ex situ* populations and their conservation impact. A review of the performance of the EEPs in the plight of the pandemic will be essential for the year 2021.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

A LTMP was initiated for the slender (*Loris* sp.) and slow (*Nycticebus* sp.) loris species managed in EEPs. The process



A record of 85 greater bamboo lemur (*Hapalemur simus*) births were counted at the Helpsimus *in situ* site © Sébastien Meys

revealed the need of further prioritising the species for EEPs and to keep in mind the roles and goals for these individual programmes. It is obvious that the space capacities in zoos are not sufficient to maintain sustainable populations of more than one taxon of *Nycticebus*.

BPG for Slow lorises are under development.

Effective *in situ* conservation and research initiatives “Little Fireface” and “Kukang” must be mentioned, due to their work in rescuing and rehabilitating slow lorises and raising awareness of the plight of these nocturnal prosimians caused by pet trade and use as photo props. The Slow loris EEP's roles and goals can only get fulfilled and achieved in connection with such initiatives and by supporting these.

For some EEPs, as for example the Black lemur EEP, “check-ins” - a “light version” of an LTMP - were held. These are helpful tools to assist the EEPs in defining strategies to achieve the goals.

An internal peer-review of the TAG's EEPs is planned for 2021, which will also reveal issues caused by the pandemic.

After five years of preparation, the transfer of the Coquerel's sifakas (*Propithecus coquereli*) from the AZA Species Survival Plan (SSP) to EAZA was scheduled for late spring 2020. However, due to bureaucratic obstacles caused by authorities in the US, it was delayed once more. All hope is now for a transport date in spring 2021.

Another scheduled transfer of two belted ruffed lemurs (*Varecia variegata subcincta*) to Tsimbazaza Zoo (Madagascar) could not take place due to the pandemic-caused restrictions. This cooperation would be a very important step for this EEP

to broaden the founder basis, as this taxon is kept in the national zoo in Antananarivo.

CONSERVATION AND RESEARCH

The TAG sent out an appeal to its members and to the wider zoo community to ensure support of the endorsed *in situ* conservation and research projects as much as possible. For most, if not all, species in focus under the helm of the Prosimian TAG, the *in situ* activities are essential to crucial for their survival.

For example, supporting Helpsimus made it possible to provide communities at the greater bamboo lemur (*Hapalemur simus*) conservation site with supplies to keep a basic hygiene standard and to prevent the spread of COVID-19.

The travel bans and legal restrictions on contacts limited on site guidance by the leading partners. This might lead to struggles for maintaining the quality and quantity of the practical *in situ* work. However, the local Kukang conservation team in Sumatra took the challenge and ensured continuity in the conservation activities for the slow loris.

The TAG continued to financially and practically support *ex situ* facilities in Madagascar, which have been reliable partners for the EEP and play an important role for conservation and animal welfare initiatives as well as for single species, such as the crowned sifaka (*Propithecus coronatus*) and the ruffed lemurs (*Varecia sp.*). As it was the case for EAZA zoos, these institutions lost their visitors - tourists and locals - and in this way their main source of income. As they cannot count on any governmental support they depend completely on donations. Comparatively small amounts mean a great help for them – and for the maintenance of Critically Endangered species.

International workshops on the conservation of greater bamboo lemurs and red-bellied lemurs (*Eulemur rubriventer*) were scheduled to take place in Madagascar in 2020. These important conferences, with involvement of the Ministry of Environment in Madagascar and the IUCN, were regarded essential to develop strategic plans for safeguarding the mentioned species but had to be postponed because of the pandemic.

ADDITIONAL COMMENTS

No less than five “Prosimian TAG Newsletters” were edited over the year and circulated to a wide audience, including to conservation NGOs and key contacts in Madagascar. The newsletter is regarded as a worthwhile tool for internal and external communication and is proof of the activities and achievements both *ex situ* and *in situ* of individual zoos, conservationists and the TAG.

Further notes in Zooquaria and in the EAZA eNews were helpful in raising awareness of the TAG's work.

The “Prosimian TAG compendium” was updated and is the basic source of information about the individual EEPs, the people behind them, as well as about the *in situ* conservation projects which are endorsed and supported by the TAG.

24 CALLITRICHID

TAG Chair: Eric Bairrão Ruivo (Beauval Zoo, St Aignan, France) • **Vice Chairs:** Dominic Wormell (Jersey Zoo, Jersey, United Kingdom) and Miranda Stevenson (Bristol Zoo, Bristol, United Kingdom)

INTRODUCTION

The EAZA Callitrichid TAG managed to have a mid-year meeting in Amsterdam (the Netherlands) in March. After that everything was done remotely. Two remote meetings were held, one in June and one in October.

At the end of 2020 the TAG had 17 new style EEPs and five monitored species.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

At the start of the year, Dave Rich (Newquay Zoo, UK) took over from Aude Haelewyn-Desmoulins (Reynou Zoo, France) as Coordinator of the EEP for the Red-bellied tamarin (*Saguinus labiatus*).

Christoph Schwitzer retired from the TAG due to his move to Dublin Zoo (Ireland) as Zoo Director. The TAG is most grateful to Christoph for his work over the years, particularly on nutrition and red listing.

The TAG also bade farewell to Katharina Hermann, who provided support from the EEO and did a tremendous amount for us over the years. Her position was competently taken over by Kelly van Leeuwen, who we hope to meet in person before the end of 2021!

Kelly-Anne Kelleher (Zoolokal, UK) took on the role of TAG liaison to the EAZA Animal Training Working Group.

As there were no EAZA training workshops from March, many of our members took part in the new ‘Check-in’ sessions. These were completed for common marmoset (*Callithrix jacchus*), pied tamarin (*Saguinus bicolor*), red-bellied tamarin, red-handed tamarin (*Saguinus midas*), and emperor tamarin (*Saguinus imperator subgriseus*). All Studbooks have now migrated to ZIMS, except those that use the group facility in SPARKS.

A lot of work was carried out by all EEP Coordinators to ensure that all non-EAZA participants in their programmes had approval from the EEP Committee.



Mid-year meeting in Amsterdam and farewell to Katharina Hermann
© EAZA Callitrichid TAG

One issue highlighted during the year was problems in migrating ESB programmes to the new style EEPs. Coordinators have been working hard to inform holders of the change of status for their respective species and the implications of this change. However, some ESB programmes have about 50% of non-EAZA holders, and it may not be possible to reach the population goals of these EEPs. This issue is being investigated, and will be reviewed at a later stage.

ACHIEVEMENTS DURING THE YEAR

A major achievement was the production of our 'compendium' which gives a short summary (of the RCP) for each species. It is a nice quick way to check each programme and is available on the Member Area. One useful innovation in this document is to link each species to an appropriate field project. For example, the red-handed tamarin, which is an invasive species in the habitat of the pied tamarin, has a suggestion to support the pied tamarin field project.

Articles on the TAG's Integrated Collection and Assessment Planning (ICAP) and RCP workshops were published in the IUCN and WAZA magazines. The TAG is proud of these outcomes.

A new communications strategy was produced and will be used for annual communication plans. However, the plan for 2020 was put on hold due to COVID-19 and a lack of events, although some zoos managed to hold species days when they were allowed to open.

Four editions of our newsletter were published. More training videos were produced and added to the Member Area. The Callitrichid Facebook page reached over 1,400 members and included videos and discussion topics to encourage debate.

The updates for the BPG progressed but will not be completed until 2021.

Warner Jens (Apenheul, the Netherlands), in collaboration with Kiezenbrink, a Dutch feed supplier, had a very successful fundraising campaign. For every unit of marmoset and tamarin diet they sell, they donate € 1 or 3.50 to a field conservation project, determined by the TAG. In 2020, their donation was around € 1,600.

Due to the pandemic, many meetings were cancelled or held online. The global joint TAG Chairs meeting, scheduled for April in the USA, was cancelled. However, Miranda Stevenson (Bristol Zoo, UK) gave a virtual presentation on behalf of the TAG at the AZA TAG meeting in autumn. Nic Dunn (Monkey World, UK) gave a presentation called 'Raising awareness of conservation education using the RCP as a tool', on behalf of the TAG, at the 'Education to the rescue' session of the online EAZA Annual Conference.

CONSERVATION AND RESEARCH

Research publications and listings are on the TAG section of the Member Area under 'research' and also reported in the newsletters.

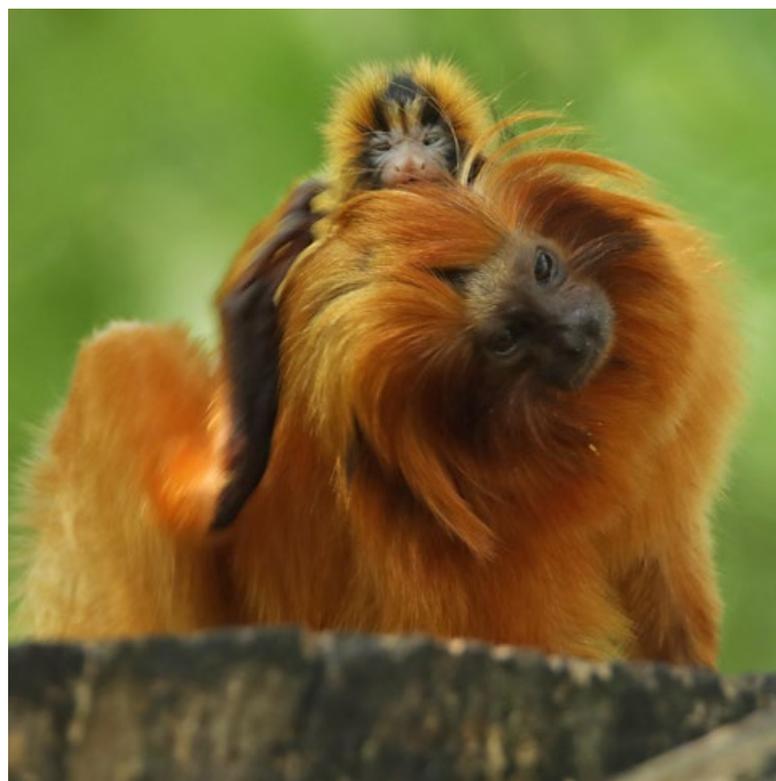
The TAG continued to support field projects for eight species in Brazil and Colombia. All of these species have EEPs. Unsurprisingly, the planned meetings and workshops there were cancelled. The preparation of our fundraising plan also got delayed, but we hope to produce this in 2021.

The construction of the new centre for the conservation of mountain marmosets in Viçosa (Brazil) continued even during the pandemic. Some initial support came from a few EAZA Members and with the full funding from Beauval Nature (France), the centre will become operational in 2021.

The TAG was very preoccupied with issues surrounding zoo finances and support of field projects. There was excellent news from the golden lion tamarin (*Leontopithecus rosalia*) project: a road bridge was built, and soil and trees are being put in place to allow the tamarins a safe passage across the motorway that bisects their territory. A yellow fever vaccination programme for the species started with a goal of vaccinating 500 animals.

The report of the Strategic Planning Workshop for the golden-headed lion tamarin (*Leontopithecus chrysomelas*) held in 2019 was published. This very comprehensive report covers all aspects of the conservation of the species.

One area of great concern during the year was the loss of conservation funding to field projects due to COVID-19. We therefore decided to have feedback from our field project coordinators on how COVID-19 was affecting them and how we could further assist. This resulted in an article for Zooquaria, to be published in early 2021.



Golden lion tamarins (*Leontopithecus rosalia*)
© Miriam Haas - Bristol Zoo

25 LARGER NEW WORLD MONKEY

TAG Chair: Jan Vermeer (Parc Animalier de Sainte-Croix, Rhodes, France) • **Vice Chair:** Adrian Baumeyer (Basel Zoo, Basel, Switzerland)

INTRODUCTION

The EAZA Larger New World Monkey (LNWM) TAG manages all species of New World Monkeys, with the exception of tamarins and marmosets. Some species have small populations in human care, while there are some 1,750 squirrel monkeys managed in two large EEPs of up to 1,000 individuals. Some of the smaller programmes may be more difficult to manage than the larger ones, due to demographic problems or lack of interest from zoos.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

There were not many developments in the TAG due to COVID-19 restrictions. The planned mid-year meeting had to be cancelled and for some Coordinators it was difficult to invest enough time in their EEP. Fortunately, most programmes remained active and the others will produce their Studbook in spring 2021.

Work has started on the BPG for the spider monkeys, howler monkeys, night monkeys and squirrel monkeys, and the final draft of the BPGs for the saki monkeys will be presented to the EEP Committee for approval at the beginning of 2021.

ACHIEVEMENTS DURING THE YEAR

The Studbook for the Critically Endangered Colombian black spider monkeys (*Ateles fusciceps rubriventris*) has finally been migrated to ZIMS and the population of around 250 individuals will now be managed again. As with many other EEPs there is a surplus of males, and it may be difficult to find a solution for each individual.

The population of the other Critically Endangered spider monkey, the white-bellied spider monkey (*Ateles hybridus*), is small but stable. The EEP received the last two fertile males from the AZA population; one of them already has surviving offspring while the other fathered a stillborn offspring. These males are a great genetic addition to the EEP population.

For many species, such as the white-faced saki monkey (*Pithecia pithecia*), the yellow-breasted capuchin monkey (*Sapajus xanthosternos*) and the black-capped squirrel monkey (*Saimiri boliviensis*), breeding must be limited to prevent space problems. Fortunately, most holders are respecting the non-breeding recommendations.

COLLABORATIONS

The black-capped squirrel monkeys in Australia originate from Europe and are included in the EEP Studbook to keep track of the bloodlines.

CONSERVATION AND RESEARCH

Holders of several EEPs are requested (and urged!) to take samples from their animals for DNA research. In some of the programmes, there are some doubts about the purity



Black-capped squirrel monkey (*Saimiri boliviensis peruvienis*)
© Jan Vermeer

of animals, and if there are hybrids in the population it is important to solve this issue before the situation becomes out of control.

The Coordinator of the Colombian black spider monkey EEP, Nick Davis (Chester Zoo, UK), attended a workshop in Colombia for the development of the national action plan of this Critically Endangered species. European zoos can support the conservation of this species through local conservation NGOs.

Several holders of white-bellied spider monkeys support the "Spider Monkey Project" in Venezuela, where the species still survives in low numbers with an almost complete lack of conservation efforts from the government.

Since the start of the EEP, European zoos have supported research and conservation work for the yellow-breasted capuchin monkeys and continue to do so. A new wild population was found, and there is more evidence of the importance of nut-cracking for this species, that lives in habitats where it can be difficult to find enough food during the dry season.

A new study is evaluating the impacts of chemical contraception in male Colombian black-faced spider monkeys (*Ateles fusciceps rufiventris*).

Although COVID-19 made their activities difficult, Proyecto Mono Tocón continued its important work for the Critically Endangered San Martín titi monkey (*Plecturocebus oenanthe*) in Peru. Research had to be limited to the analysis of earlier fieldwork, but environmental education could be continued by shifting to online workshops and developing support for the governmental online learning platforms that was developed during the very long lockdown in Peru. Several EAZA holders support this project that has been adopted by the EEP for Red titi monkey (*Plecturocebus cupreus*).

Not all species managed through the LNWM TAG are of direct

conservation value. However, considering the large number of Endangered New World species, there is a wide array of conservation projects that can (and should) be supported by EAZA Members.

ADDITIONAL COMMENTS

The TAG Chair contributed to several species assessments that are now published on the updated IUCN Red List.

26 AFRO-EURASIAN MONKEY

TAG Chair: Tjerk ter Meulen (Artis Zoo, Amsterdam, the Netherlands) • Vice Chair: Andrea Dempsey (Heidelberg Zoo, Heidelberg, Germany)

INTRODUCTION

The EAZA Afro-Eurasian Monkey TAG continued to manage its 27 programmes throughout 2020. We are grateful to all institutions for continuing their support during this difficult year. As a TAG, we have made use of the online platforms to stay connected and remain productive. The main challenges have been transport delays (both COVID-19- and Brexit-related), furloughed EEP Coordinators, slow communication due to other furloughed staff, financial constraints on institutions which resulted in delayed or postponed enclosure construction and a general increase in constraints due to new and changing COVID-19 regulations on day-to-day management.

The TAG would encourage all institutions to consider adding Afro-Eurasian monkeys recommended in the RCP to their collection plans; they mix very well with other species of primate and hoofstock for which there are guidelines available. Many of our managed programmes have *in situ* project partners that link directly to the species in the wild, which your institution could support, promoting the One Plan Approach. The RCP was completed in 2019, which can guide you on your collection planning. The Chair and Vice Chair are also both happy to discuss possibilities.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Before the world stopped turning, the Mangabey EEP Coordinators came together to draft an LTMP for all three species managed in zoological collections: white-naped mangabey (*Cercocebus lunulatus*), cherry-crowned mangabey (*Cercocebus torquatus*) and the black-crested mangabey (*Lophocebus aterrimus*). Over two days at the EEO (the Netherlands), the Coordinators, TAG Chair, Vice Chair and EEO team were able to produce a comprehensive document detailing the management strategy for the three species including incorporating *ex situ* populations in range countries, reintroduction programmes and a day to promote the species – Mangabey Awareness Day on 1 August.

A virtual meeting was held this year to develop the LTMP for all baboon species. This is a complicated and difficult plan to develop, with a number of challenges to overcome. However, the Baboon Species Committee, led by Luca Morino (Paris

Zoo, France) has been working with holders to manage the large populations of baboons in EAZA collections. As part of the RCP outcomes, it was agreed that some species of baboon will be phased out, namely olive baboons (*Papio anubis*), yellow baboons (*Papio cynocephalus*) and Hamadryas baboons (*Papio hamadryas*). Those institutions holding these species are asked to reach out to Luca for future management.

The Barbary macaque EEP Coordinator changed this year. Taide Pérez (Barcelona Zoo, Spain) is now managing this programme.

ACHIEVEMENTS DURING THE YEAR

2020 saw a major change for the TAG – its name! In order to support the decolonisation of primatology movement among researchers, conservationists and academics, the TAG changed its name from Old World to Afro-Eurasian. Old World and New World are a reference to colonial times and terminology, the dominating perspective of the European explorer – new or old to whom? In our part to rectify this historical injustice, the TAG felt it was more appropriate to use a geographical description. In consultation with Jo Setchell, Editor in Chief of the International Journal of Primatology and President of the Primate Society of Great Britain, the name Afro-Eurasian was adopted and recognised by the EEP Committee.

COLLABORATIONS

The TAG was delighted to continue its collaboration with our colleagues across the globe, and was sad that the global joint TAG Chairs meeting in Palm Springs (US) in 2020 was cancelled. However, active communication maintained, and future collaborations are in discussion.

Thank you to Gregg Tully, Executive Director of the Pan-African Sanctuary Alliance (PASA), for his continued collaboration. In particular, this year the TAG and many EAZA Members supported the confiscation of 25 monkeys being smuggled from the Democratic Republic of the Congo to South Africa. The wild-caught animals, including golden-bellied mangabeys (*Cercocebus chrysogaster*) are now being cared for by a PASA sanctuary, J.A.C.K., with a hope to release them back to the wild.



Black-crested mangabey (*Lophocebus aterrimus*) © GaiaZOO

CONSERVATION AND RESEARCH

The TAG Chair and Vice Chair have continued to support the development of the Mangadri Conservation Action Plan, coordinated by Bristol Zoo, the University of the West of England and West African Primate Conservation Action (WAPCA; all UK). The action plan including all taxa within the *Cercocebus* and *Mandrillus* genera is planned to be published later in 2021.

The TAG continued to support a number of conservation programmes, and encourages all holders of Afro-Eurasian monkeys to do so. It is recommended, for example, that all mangabey species and rolway monkey (*Cercopithecus rolway*) holders support WAPCA (www.wapca.org), Sulawesi crested macaques (*Macaca nigra*) holders support the Selamatkan Yaki project (www.selamatkanyaki.ngo), Barbary macaques (*Macaca sylvanus*) holders support Barbary Macaque Awareness and Education (www.barbarymacaque.org), and drill holders support Save The Drill (www.save-the-drill.org).

Yedra Feltrer, TAG Veterinary Advisor, has undertaken research in mangabey mortality. Yedra collected 123 reports from 22 collections, analysing data between 1989 to 2018. The study is ongoing and welcomes further reports from holders. Yedra is also developing import/export protocols, as well as standardising post-mortem data collection.

ADDITIONAL COMMENTS

Sian Waters, Conservation Advisor to the TAG, co-authored the [BPG for Responsible Imagery of Non-Human Primates](#). Sian is vice chair of the Primate SG Section for Human Primate Interactions, who developed these guidelines with colleagues to explain why we must reconsider our collective use of images especially close to, or holding primates, and what negative impact they can have on the pet trade when

taken out of context or misunderstood. The TAG supports and recommends these guidelines unreservedly.

The Red List Assessment for white-naped mangabeys was published in 2020, for which the TAG Vice Chair was lead author. The assessment for the species remained at Endangered. Dempsey, A. et al. (2020). *Cercocebus lunulatus*. *The IUCN Red List of Threatened Species 2020*: e.T4206A92247733.

27 GIBBON

TAG Chair: Brice Lefaux (Mulhouse Zoo, Mulhouse, France) • Vice Chair: Vacant

INTRODUCTION

The EAZA Gibbon TAG manages six EEPs including the Siamang (*Symphalangus syndactylus*), two Crested gibbons (*Nomascus leucogenys* and *N. gabriellae*) and three Hylobates (*Hylobates moloch*, *H. pileatus* and *H. lar*). All of these species in the wild are threatened by deforestation and poaching. They are all listed as Endangered or Critically Endangered species on the IUCN Red List. The Gibbon TAG is composed of the EEP Coordinators, the TAG Chair, one Veterinary Advisor, one Research Advisor, one Communication Advisor and the vice chair of the Small Ape Section of the IUCN Primate SG as the liaison to *in situ* conservation.

2020 was a very productive year in terms of population management with the edition of the new style RCP and LTMP for five of the six new style EEPs. Research programmes and the EAZA Biobank development on gibbon species were also notable in 2020.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

2020 saw some EEP Coordinators stepping down, and newly appointed ones coming up. Sarah Gedman from Bristol Zoo (UK) took over from Robert Zingg (Zürich Zoo, Switzerland), who initiated the Pileated gibbon EEP. Karolin Albig from Halle Zoo (Germany) took over from Matt Ford (Howletts Wild Animal Park, UK) to coordinate the Javan gibbon EEP. Héléne Birot took over the position of Tony Souvignet (both from Mulhouse Zoo, France) for the two Crested gibbon EEPs. The TAG thanks very much the former EEP Coordinators for all their involvement and welcomes warmly the new ones.

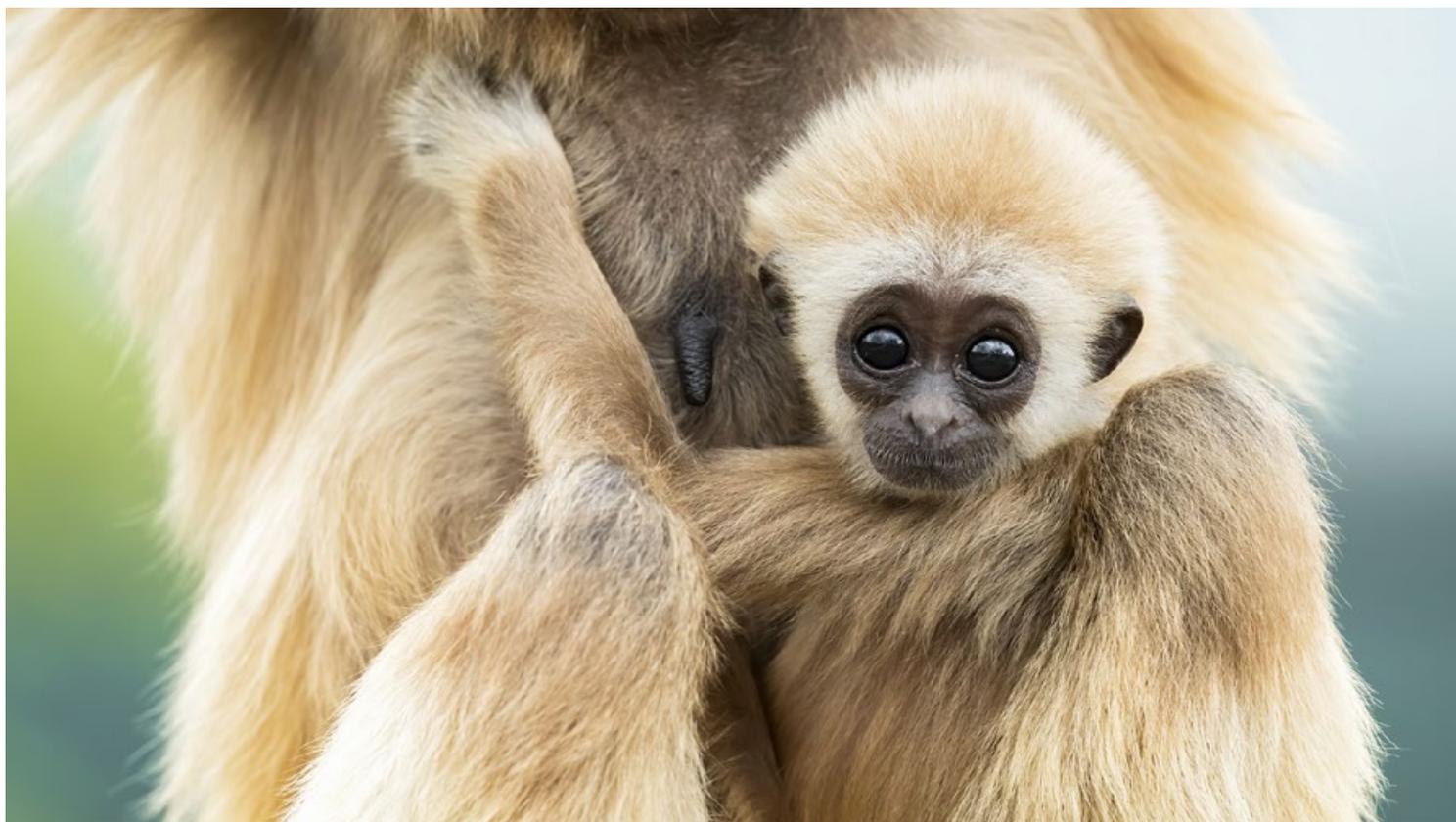
Lagos Zoo in Portugal, our fabulous host, welcomed us in February 2020 for a three-day meeting where the TAG, as well as the Gibbon TAG liaison and population biologists from the EEO, developed the RCP, evaluating the 20 gibbon species in the world. We tried to answer the question "how can the EAZA gibbon population help the wild ones?" when fixing goals and roles for the five new style EEPs. The LTMP allowed us to describe how we could reach these goals.

ACHIEVEMENTS DURING THE YEAR

The roles of the Gibbon EEPs are similar for all. Because extinction in the wild is deemed realistic considering the *in situ* status, they function as insurance populations, as well



White-naped mangabey (*Cercocebus lunulatus*) group, at the Forested Enclosure at WAPCA in Ghana © WAPCA



Young lar gibbon (*Hylobates lar*) at Vienna Zoo © Daniel Zupanc

as to raise awareness of the threats to the species and to educate on the use of primates as photo-props. EEPs enable research that may benefit the *in situ* population and fundraise for identified projects. There is a shortage of structurally appropriate institutional space for all Gibbon EEPs and most species have a skewed (birth) sex-ratio. Each EEP aims to improve their potential to fulfil their insurance role, while at the same time normalising the space situation and improving the sex-ratio.

The important components of the LTMP strategies are increasing the available institutional space, continuing to work with institutions to find options to house males, to potentially influence the birth sex-ratio, to investigate the use of cryopreservation to maintain genetic diversity, and to collaborate with rescue centres and other regions to complement the EEP and place individuals.

We discovered in 2020 that gibbons, like great apes, are sensitive to the SARS-Cov-2, although no clinical case has been published. Protection when performing medical training and cleaning procedures appear essential.

Unfortunately, the COVID-19 pandemic impacted zoos by delaying transfers of animals and reducing support to *in situ* conservation, even though most of the zoos succeeded in confirming their support by the end of 2020. As a TAG we thank them all very much.

CONSERVATION AND RESEARCH

The Gibbon TAG needs all gibbon holders to enter their data in the [EAZA Conservation Database](#) in order to assess and promote the conservation contribution of EEP members. We encourage members to contact and support the following gibbon *in situ* conservation programmes:

- Association Anoulak, Nakai Nam Theun National Park in Laos (www.conservationlaos.com)
- Endangered Primate Rescue Centre, Cuoc Phong National Park in Vietnam (www.eprc.asia)
- Angkor Centre for Conservation of Biodiversity, Cambodia (www.accb-cambodia.org)
- Cao Vit Gibbon Project, Flora and Fauna International, Vietnam Borneo Nature Foundation, Indonesia (www.borneonaturefoundation.org)
- Frankfurt Zoological Society and Stiftung Artenschutz, Germany Huro, India

The Gibbon TAG established a template for research collaboration demands. It participated in several genetic, song, veterinary and ecological research projects in 2020.



Regional Collection Plan workshop participants in Lagos Zoo © Brice Lefaux

28 GREAT APE

TAG Chair: María Teresa Abelló (Barcelona Zoo, Barcelona, Spain) • **Vice Chair:** Sandra Reichler (Heidelberg Zoo, Heidelberg, Germany)

INTRODUCTION

This has been a difficult year for all zoos around the world because of the coronavirus pandemic.

The mid-year meeting - usually organised in spring - was cancelled. During the online EAZA Annual Conference, the EAZA Great Ape TAG contributed with the presentation of "Best Practice Guidelines - Improving Great Ape Welfare".

An online TAG meeting at the end of the year was well attended. This allowed us to give an update on the main Great Ape TAG matters, and to review the situation of the EEPs for the four species managed under the TAG's umbrella: orang-utans (*Pongo pygmaeus* and *P. abelli*), gorillas (*Gorilla gorilla gorilla*), chimpanzees (*Pan troglodytes verus* and *P. t. troglodytes*) and bonobos (*Pan paniscus*).

We deeply regret that Frands Carlsen left Copenhagen Zoo (Denmark) and resigned as Chimpanzee EEP Coordinator, and that Zjef Pereboom stepped down as Vice Coordinator for the Bonobo EEP. New colleagues have been appointed and are very welcomed to the TAG: Jana Pluháčková (Ostrava Zoo, Czechia) as the new Chimpanzee EEP Coordinator, Sarah Lafaut (Planckendael Zoo, Belgium) as the new Bonobo EEP Vice Coordinator and Bonobo International Studbook keeper, and Sabrina Linn (Frankfurt Zoo, Germany) as the new Gorilla International Studbook keeper. Thomas Bionda (Apenheul, the Netherlands) has been proposed as the second Vice Coordinator for the Gorilla EEP.

With this new team the TAG will continue working with the same strength and commitment for the conservation of great apes.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In the previous years, the Chimpanzee EEP (2018) and the Orang-utan EEP (2019) Species Committees were elected. The Gorilla EEP will have a new Species Committee election in 2021.

In September 2020, the BPG for bonobos were approved and published on the EAZA website alongside the ones for gorillas and orang-utans. In 2021, the Chimpanzee BPG will be finished as well.

The LTMP for gorillas was initiated in December, to be finalised in 2021, while the Bonobo LTMP is planned for 2021 as well. The intention of the TAG is to develop the new RCP for EAZA Great Apes during 2021, when the four species have their LTMP.

ACHIEVEMENTS DURING THE YEAR

The Veterinary Advisor of the TAG, Hanspeter Steinmetz (Hellabrunn Zoo, Germany), in collaboration with the species Veterinary Advisors, proactively developed, in record time, a clear and helpful document that was ready at the beginning of March 2020, giving the necessary advice for the most secure great ape handling during the pandemic. They have been advising all the EAZA institutions that required their assistance very effectively.



Chimpanzee (*Pan troglodytes*) Vieja died in 2020 after more than 55 years of living in Barcelona Zoo © J. Fábregas

Ania Brown (EEO, the Netherlands) and Christina Hvilsom (Copenhagen Zoo) did an enormous and excellent work in involving the Great Ape Biobank into the EAZA Biobank. All samples in the Great Ape TAG Biobank have already been transferred to the EAZA Biobank.

COLLABORATIONS

Great Ape Cryopreservation Action Plan: a Cryopreservation Network for all species is being developed under the EAZA Reproduction Management Group (RMG) and the EAZA Biobank. As part of this effort, great ape gamete and banking possibilities are being explored, developed and coordinated in collaboration with the EAZA RMG (Veronica Cowl, EEO), EAZA Biobank (Ania Brown) and the GATAG Reproduction Advisors (Imke Lueders (Allwetterzoo Münster, Germany) and Manel López (UAB, Spain).

The TAG has intensified communication and collaboration with organisations as Great Apes Survival Partnership (GRASP) and PASA, and other regional associations like SEAZA. A Great Ape SEAZA Workshop in collaboration with the EAZA Great Ape TAG - supposed to be hosted by Taipei Zoo (Taiwan) in July 2020 - was postponed to 2021 due to the pandemic.

Genetic Determination: in 2020, we had the possibility to genetically analyse ape samples for free thanks to the Illumina grant. This grant has been extended to 2021 and we will keep proactively asking all great ape species holders to participate

by providing at least hair samples, when tissues or blood is not possible. This is coordinated by Ania Brown, EAZA Biobank Coordinator.

CONSERVATION AND RESEARCH

In order to support and encourage institutions to participate with *in situ* conservation projects, the document *Great Ape TAG "in situ" Conservation Action* has been developed and uploaded on the EAZA Member Area. It includes a list of recommended projects explaining their needs and provides contact addresses. Each EEP works in collaboration with their own *in situ* Conservation Advisors to get the best knowledge about the *in situ* situation: Willie Smits (Borneo Orangutan Survival, Indonesia) for Borneo orang-utan and Ian Singleton (PanEco Foundation/Sumatran Orangutan Conservation Programme, Indonesia) for Sumatra orang-utan, Angela Meder (Berggorilla und Regenwald Direkthilfe, Germany) for gorilla, and Johannes Refisch (GRASP) for chimpanzee.

ADDITIONAL COMMENTS

A summary report for each species, provided by the EEP Coordinators, is available on the Great Ape TAG section of the EAZA Member Area.

Other articles published in 2020 are indicated below:

- Moittié, S. et al. (2020). *Comparison of 25-hydroxyvitamin D concentration in chimpanzee dried blood spots and serum*. *Vet Clin Pathol* 49(2):299-306
- Mitchel, D. (2020). *Bonobo paradise: A new exhibit in Belgium is a success for bonobos, visitors and conservation researchers alike*. *Zooquaria* 110



Great Ape TAG Meeting online December 2020 © Kelly van Leeuwen

29 SMALL MAMMAL

TAG Chair: Richard Viduna (Jihlava Zoo, Jihlava, Czechia)
• Vice Chairs: Dijana Beneta (Zagreb Zoo, Zagreb, Croatia), Dorota Gremlicová (Liberec Zoo, Liberec, Czechia), Jutta Heuer (Halle Zoo, Halle, Germany), Johannes Pfliederer (Zoo Duisburg, Duisburg, Germany) and David White (Chester Zoo, Chester, United Kingdom)

INTRODUCTION

Despite the unexpected, tough and sometimes even crazy COVID-19 pandemic situation, the EAZA Small Mammal TAG still constantly tried to support and promote the conservation of small mammal species within our scope around the world: through management in human care, conservation education, engagement in *in situ* management and conservation programmes, and advocacy for these species both in human care and in the wild.

There are six subgroups with their own responsible persons within this TAG: the subgroup Afrosoricida, Macroscelidea, Tubulidentata and Hyracoidea (golden moles and tenrecs, elephant shrews, aardvarks, hyraxes) is managed by Richard Viduna; the subgroup Pangolins and Xenarthra (sloths, anteaters, armadillos) is managed by Jutta Heuer; the subgroup Erinaceomorpha, Soricomorpha and Scandentia (hedgehogs, moles and shrews, treeshrews) is managed by Dijana Beneta; the subgroup Hystricomorph rodents (cavies and porcupines) is managed by Dorota Gremlicová; the subgroup Lagomorphs, Myomorph, Sciuromorph, Anomaluromorph and Sciuravid rodents (mice and rats, squirrels, springhares, gundis) is managed by Johannes Pfliederer; and the subgroup Bats is managed by David White (see affiliations in header).

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The ESBs for Two-toed sloths (*Choloepus didactylus* and *C. hoffmanni*) were successfully migrated into ZIMS for Studbooks and overseas EAZA institutions in Asia were also integrated. The final husbandry questionnaire was prepared and after being circulated within the Population Management Programme, members will serve as the initial data source for future BPG. Armadillo species kept in Europe - nine-banded (*Dasyus novemcinctus*), six-banded (*Euphractus sexinctus*), large hairy (*Chaetophractus villosus*) and Southern three-banded (*Tolypeutes matacus*) armadillos - were also included in ZIMS for Studbooks.

The Palawan crested porcupine (*Hystrix pumila*) population in EAZA, monitored by Christian Andres (Papiliorama, Switzerland), saw one new holder in 2020. The pair in Neunkirchen Zoo (Germany) successfully reproduced for the first time and the total number of individuals kept in EAZA now exceeds 20.

The ESB population of Livingstone's fruit bats (*Pteropus livingstonii*) continued to grow, although very slowly, which is to be expected given females only produce one pup a year and the generation length for this species is seven months. The January 2021 census showed 78 individuals (39.39.0)



Wild European souslik (*Spermophilus citellus*) at Mladá Boleslav, Czechia
© Richard Viduna

in three institutions (Jersey Zoo and Bristol Zoo, UK, and Biotropica, France), which is an increase of four individuals from the 2020 census. 2020 was another good breeding season with 11 pups born (8 in Jersey Zoo and 1 pup in Bristol Zoo successfully reared). All but two females are in a breeding age class, so there is lots of hope for population growth in the coming years. Early male mortality presenting cardiomyopathy remains a concern and additional efforts will be placed on further research into this condition in 2021. A remote weighing device is being developed in Jersey Zoo to enable continuous monitoring of bats health, diet and pregnancies. The weight device reads microchips and records weight when the animal steps onto it. The preliminary results for a PhD on the genetics of the population in human care and initial results are nearly completed and showed the pedigree is looking strong. We continue to look for new holders, looking for enclosure designs or exhibits that will provide for the specific needs of these amazing creatures.

ACHIEVEMENTS DURING THE YEAR

Unfortunately, most meetings were cancelled or held online with very limited content. The TAG members participated to the EAZA Annual Conference 2020 Online with the following presentations: *The common hamster (Cricetus cricetus) in the Netherlands, From pest species to icon of a biodiverse agricultural landscape* by Maurice La Haye (Radboud University Nijmegen, the Netherlands); *The Balkan snow vole (Dinaromys bogdanovi); an overview of in situ and ex situ activities* by Dijana Beneta, Zagreb Zoo and Ivan Budinski (BIOM, Croatia); and *Saving your local species, examples of the common hamster (Germany) and the European souslik (Czechia)* by Klaus Wunnemann (Heidelberg Zoo, Germany) and Markéta Jariabková (Hluboká Zoo, Czechia).

In November 2020, Jutta Heuer, Ilona Schappert (Giant anteater EEP Coordinator, Zoo Dortmund, Germany) and Cornelia Bernhard (Tamandua ESB keeper, Krefeld Zoo, Germany) took part in the online Brazilian First International Congress on *Xenarthra* Conservation with presentations about the European *ex situ* management of *Xenarthra*.

COLLABORATIONS

Many times, when requested, the TAG provided advice on proposed taxonomic updates for different small mammal species for Species360.

Two further species were proposed for the EU Invasive Alien Species (IAS) list and entered the process of risk assessment in 2019. Canadian beaver (*Castor canadensis*) listing on the IAS list was supported by the TAG and the Finlayson's squirrel (*Callosciurus finlaysonii*) was not. The final decision on these IAS review processes has not been concluded.

CONSERVATION AND RESEARCH

Jutta Heuer and Ilona Schappert were reappointed as members of the IUCN SSC Anteater, Sloth and Armadillo SG for the next four years.

The first dissertation on Balkan snow vole was published by Maša Ljuština (State Institute for Nature Protection, Croatia) and describes species behaviour in human care including the exploration of a differently complex environment, novel object reaction, presence of scents or conspecific, heterospecific and predator, ultrasound vocalisation, food choice and storage. Habitat characteristics were also researched in the wild.

Lola Lemee, a fourth-year student at Oniris, a French veterinary school, produced the thesis on fruit bat diets in human care in association with Rudy Wedlarski (Bioparc Doué la Fontaine, France).

A paper is currently being drafted by Chester Zoo's veterinary team and members of the EAZA Reproductive Management Group on the use of Etonogestrel and Aglepristone for population management in a colony of Rodrigues fruit bats (*Pteropus rodricensis*).

ADDITIONAL COMMENTS

The first edition of the bat e-newsletter was published and circulated within the EAZA community and even reached Australia. The feedback received was positive and articles are being received for future editions.



Wild common hamster (*Cricetus cricetus*) in Vienna, Austria
© Richard Viduna

30 CANID AND HYAENID

TAG Chair: Simon Marsh (Knowsley Safari Park, Preston, United Kingdom) • **Vice Chairs:** Mike Woolham (Banham Zoo, Banham, United Kingdom) and Sarah Forsyth (Colchester Zoo, Colchester, United Kingdom)

INTRODUCTION

The EAZA Canid and Hyaenid TAG activities in 2020 have been limited due to the ongoing pandemic, as it has affected all aspects of our personal and professional lives. Even though TAG members, Advisors and EEP Coordinators have faced the challenges imposed on them and their institutions, we have managed to keep the same level of professionalism. The TAG members attended the EAZA TAG Chairs and EEP Coordinators virtual meetings, as well as the online EAZA Annual Conference. As we could not meet face to face this year, the TAG held a video call with Coordinators and Advisors to discuss the challenges in managing the programmes during the pandemic and were able to update each other on our activities.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

During 2020 we saw three EEP Coordinators changes. Marc Enderby (Manor Wildlife Park, UK) was able to take on the role of EEP Coordinator for the Grey wolf (*Canis lupus*) again at the start of 2020. He was the original Coordinator of the new Grey wolf EEP established in 2019. As it is the largest and one of the most complex of the TAG's EEPs, we happily accepted Marc back.

The other two changes occurred in the last days of 2020.

We were pleased to announce that Gabriela Linhart (Zoo Dvůr Králové, Czechia) joined the TAG as Painted dog EEP Coordinator. Gabriela brings many years' experience working with painted dogs and the zoo has managed painted dogs in their collection for over 60 years.

We were also happy that Philipp Tumasian (Moscow Zoo, Russia) joined the TAG as Bush dog EEP Coordinator. Philipp brings with him an excellent research background and experience of managing and working with TAGs and EEPs.

This year, four of the EEPs completed a review of their programmes with the EAZA Population Management Centre (PMC), most recently the EEP for Bat-eared fox (*Otocyon megalotis*). These were carried out online and allowed the Coordinators not only to access valuable expertise in Studbook management but prepared the ground for upcoming LTMP meetings in 2021. The rest of the EEPs are scheduled to carry out a programme review in 2021, starting with the EEP for Dhole (*Cuon alpinus*).

ACHIEVEMENTS DURING THE YEAR

Through the EAZA Conservation Education Committee, we were pleased to engage Andrew Moore (Learning Manager at Colchester Zoo, UK) as our first TAG Education Advisor. Andrew will be developing the TAG's education strategy and collating education resources. This is to support the Coordinators in achieving the education goals for their EEPs and to assist EEP participants in their education activities. This is particularly important in the two hyena EEPs, the Spotted



Online Canid and Hyaenid TAG Meeting 2020 © EAZA

hyena (*Crocuta crocuta*) and the Striped hyena (*Hyaena hyaena*), addressing the negative attitudes towards hyenas and focusing on the positive aspects of hyena intelligence, social life, and their role in the ecosystem. Andrew will also be helping to highlight issues on the impact of the pet trade through the EEP for Fennec fox (*Vulpes zerda*) and human-wildlife conflicts through the EEP for Iberian wolf (*Canis lupus signatus*).

We paused our TAG newsletter for 2020, but will look at initiating it again in 2021.

To counter this, we created a EAZA Canid and Hyaenid TAG Facebook group to help disseminate TAG news and all other canid and hyaenid research, conservation and husbandry news. By the end of 2020, we had nearly 2,000 subscribers.

COLLABORATIONS

During 2020, we held meetings with the IUCN Canid SG and Hyaenid SG. The focus was on how we can collaborate and complement our respective activities. The discussion with the Canid SG led to a draft proposal to assist with grassroot conservation funding. This would be where the SG and TAG would identify new or relatively small *in situ* conservation projects which have a limited budget and might not be able to access funds through traditional avenues. The SG and TAG will set up a fundraising platform to promote the project and help secure funds. This initiative will be launched in 2021. We also had a productive meeting with the Hyaenid SG which led to the agreement to share and disseminate contacts and



Bush dog (*Speothos veneticus*) © Knowsley Safari Park

resources to improve education outputs in range countries projects as well as across EAZA Members. This is to help dispel the myths around hyenas, particularly in the wild, to mitigate human-wildlife conflicts, to place hyenas as keystone species in the ecosystem and to improve their persona to the public.

CONSERVATION AND RESEARCH

2020 saw several Canid and Hyaenid research projects completed or being continued. These were looking at social aspects of grey wolf pack behaviour and formation and how enclosure design influences this. We also have an ongoing project looking at diet and nutrition in grey wolves, which will help in the completion of the BPG for the grey and Iberian wolf. The TAG has been assisting with PhD research projects with painted dogs (*Lycoan pictus*) and maned wolf (*Chrysocyon brachyurus*), focusing on longitudinal studies of the species. There are several neonatal mortality projects underway across the TAG species, as well as vaccination research to benefit *in situ* conservation. A gap analysis project was launched to help the TAG develop its research strategy and prioritise areas of research. It is being led by Kerry Hunt (Sparsholt College, UK).

While many of the research projects will or are contributing to *ex situ* conservation, the TAG and the EEPs are still directly supporting conservation projects in the field. Most recently the partnership between the Maned wolf EEP and the Friends of the Maned Wolf was re-established, as well as between the Brazilian Association of Zoos and Aquariums (AZAB) and the National Centre for Research and Conservation (CENAP/ICMBio) in Brazil. This partnership will help support maned wolf and bush dog (*Speothos venaticus*) conservation efforts.

31 BEAR

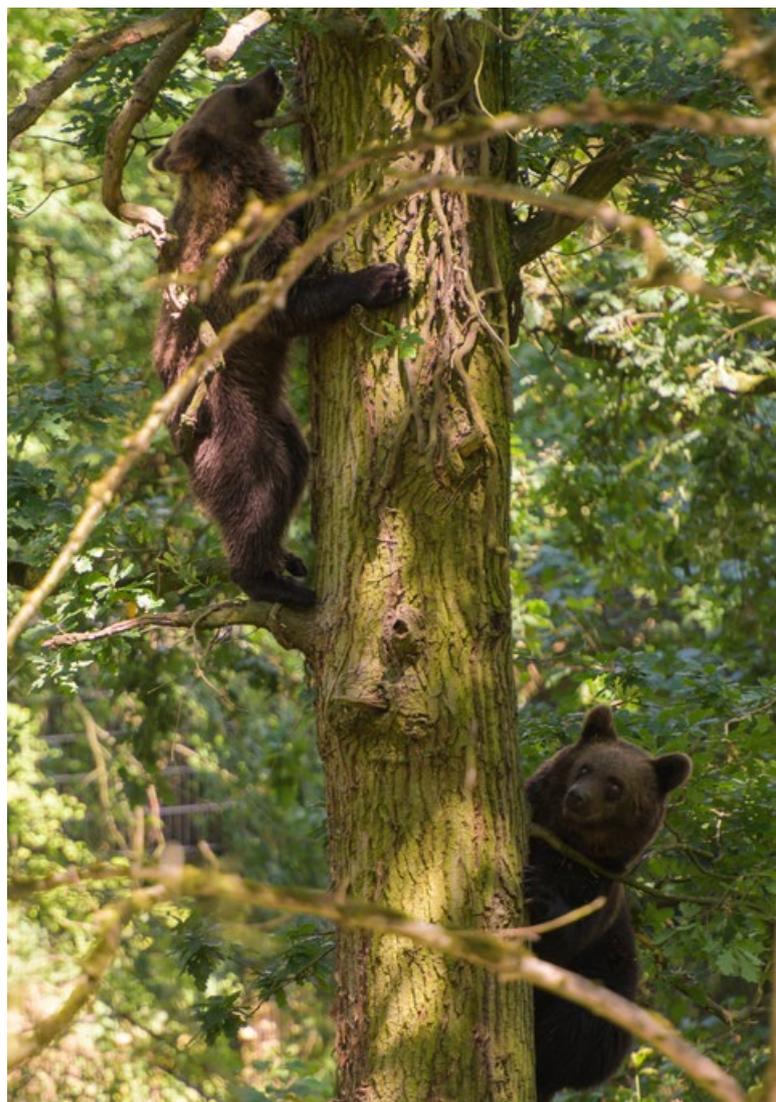
TAG Chair: José Kok (Ouwehands Zoo, Rhenen, the Netherlands) • Vice Chair: Will Walker (Wild Place, Bristol, United Kingdom)

INTRODUCTION

2020 has been a challenging year for the EAZA Bear TAG. COVID-19 meant we had to adapt and evolve to a new way of working and communicating. With our annual TAG meeting postponed at the start of the year, we held a virtual conference later in the year. We have made the most of video conferencing and have all 'met up' more in 2020 than we have in previous years. 2020 saw a change in the Vice Chair, as Lydia Kolter (formerly Cologne Zoo, Germany) stepped down as Vice Chair and Will Walker (Wild Place, UK) took over this position. We are very fortunate that Lydia is still having an active role within the TAG as a Research Advisor. Marion Schneider (educator and research consultant for Free the Bears) joined the Bear TAG as an additional Research Advisor.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The Polar bear EEP has changed hands as János Szánthó (formerly Artis Zoo, the Netherlands) stepped down. We are delighted to welcome joint management of the Polar bear EEP with Marina Galeshuk (Moscow Zoo, Russia) as the new EEP



Young brown bears (*Ursus arctos*) climbing at Wild Place, UK
© Andre Pattenden

Coordinator and Florian Sicks (Tierpark Berlin, Germany) as the new Vice Coordinator. We have also welcomed Douglas Richardson (Jersey Zoo, UK) as the Strategic, Communications and Husbandry Advisor to the Polar bear EEP.

We look forward to our RCP meetings at the start of 2021.

ACHIEVEMENTS DURING THE YEAR

The Bear TAG had a number of successful online meetings in 2020, with delegates attending from all over Europe and America. We focussed a lot on assessing welfare in 2020, with discussions on welfare auditing, visual assessments of welfare and welfare assessment tools.

COLLABORATIONS

Lydia Kolter is co-chair of the Captive Bear Expert Team (CBET). This is a subgroup of the IUCN SSC Bear Specialist Group (BSG), which is structured in seven species-specific and two topical groups. The CBET is a topical group with global representation and members from zoos and rehab facilities, which aims to promote conservation roles of *ex situ* bears for the sake of their wild peers. José Kok (Ouwehands Zoo, the Netherlands), Marcel Alaze (Münster Zoo, Germany) and

Zsuzsa Petró (Sóstó Zoo, Hungary) are also members of the CBET and have been involved in giving input for the CBET page of the BSG website.

CONSERVATION AND RESEARCH

We published the Sloth Bear booklet *Living in a Sloth Bear Landscape* in India. This is a collaboration between the Sloth bear EEP and Nishith Dharaiya (IUCN SSC BSG - Sloth Bear Expert Team) on a new conservation project for sloth bear (*Melursus ursinus*) in Gujarat, India to sensitise the local population for sloth bears and reduce the human bear conflict.

During the TAG's annual meetings in 2020, we spoke about the development of the brown bear (*Ursus arctos*) population in Trentino (Italy) and were joined by Claudio Groff (Provincia Autonoma di Trento – Forest and Wildlife Department, Large Carnivores Division). Trento management team closely cooperates with European and North American bear experts of the International Association for Bear Research and Management (IBA) and the BSG regarding a variety of issues. These include removing bears from the population or discouraging bears which come too close to settlements and humans. Zsuzsa Petró has also been putting her amazing artistic talents to use by designing a 'How to behave in bear country' leaflet after the talk we had from Claudio Groff.

The *Ex situ* Sun bear Conservation Research Prospectus was published in May. It was funded by Ouwehands Zoo Foundation. Lydia Kolter provided information on the first steps and results regarding conservation relevant *ex situ* research priorities for sun bears during the online EAZA Annual Conference.

The TAG also advised on Heather Bacon's 'Welfare assessment tool' which aims to aid in identifying welfare issues within bears in human care, and on a survey by Leen Verbist (University of Edinburgh, UK) about the "Interplay between husbandry, diet, winter dormancy and behaviour of brown bears". This survey was endorsed by the Bear TAG.

ADDITIONAL COMMENTS

The second "Happy Bears Day" took place, unfortunately whilst most zoos were closed due to the pandemic. Despite this, many zoos still got involved and helped to highlight the eight species of bears and the threats they face.

32 SMALL CARNIVORE

TAG Chair: Aude Haelewyn-Desmoulins (Reynou Zoo, Le Vigen, France) • **Vice Chairs:** Janno Weerman (Rotterdam Zoo, Rotterdam, the Netherlands) and Peggy Rüegg-van den Broek (Papillorama, Kerzers, Switzerland)

INTRODUCTION

The EAZA Small Carnivore TAG (SC TAG) has 37 members and covers eight EEPs, three ESBs and monitors 21 species and subspecies.

The TAG activities are communicated on a Facebook group with over 4,500 members. In 2020, Christopher Davies (Jersey



Female red panda (*Ailurus fulgens*) fitted with GPS collar joined by her cubs © Red Panda Network

Zoo, UK) joined the TAG as administrator of this group.

The TAG also welcomed Előd Szanati (Budapest Zoo, Hungary) as monitoring person for the African civet (*Civettictis civetta*) and Christian Andres (Papillorama, Switzerland) as the first Education Advisor of the TAG.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In 2017, the EEPs for European mink (*Mustela lutreola*), European otter (*Lutra lutra lutra*) and Wolverine (*Gulo gulo gulo*) benefitted from a LTMP, thanks to the European Union LIFE NGO funding programme. Since then, each Coordinator has focused on the actions highlighted in these strategies. For example, the European otter population has now reached the size defined in the LTMP, the European mink EEP Coordinator has led a research on the genetic diversity of the founders of the population in human care, as well as on the genetic status of the introduced Hiiumaa island (Estonia) population. More details are available in the species' annual reports on the EAZA Member Area.

The EEP for Fossa (*Cryptoprocta ferox*) marked a new record with a population of 76 individuals: the size is half-way to the preliminary population goal defined in the quick population assessment (QPA) in 2015 (goal: 90; population at the end of 2015: 60).

The EEP for Giant otter (*Pteronura brasiliensis*) initiated a collaboration with Fundación Rewilding Argentina.

ACHIEVEMENTS DURING THE YEAR

The TAG was proud that one of its programmes was selected as an example in the "Saving species!" session during the online EAZA Annual Conference. Janno Weerman (Rotterdam Zoo, the Netherlands), Red panda EEP Coordinator and TAG Vice Chair, gave a presentation about the link between *in situ* and *ex situ* conservation.

The RCP had to be postponed because of COVID-19. However, the preparatory work was done in the second half of 2020. The TAG Chair and Vice Chairs, as well as two of the TAG Conservation Advisors, members of the IUCN SSC Small

Carnivore SG, supported by the EEO, have worked on the species preselection: 53 species out of the 167 have thus been prioritised, allowing an efficient three-day (online) RCP workshop at the beginning of 2021.

COLLABORATIONS

The TAG continues to develop links with the international *ex situ* and *in situ* communities.

Janno Weerman took over the convenor role for the Red Panda (*Ailurus fulgens*) GSMP from Angela Glatston (Red Panda Network). Jason Palmer (New Forest Wildlife Park, UK), in charge of the monitoring of the Asian short-clawed otters (*Aonyx cinerea*) for EAZA, became the IUCN Global Species Advisor. He was also nominated as IUCN / EAZA regional coordinator of the OZ taskforce, which includes otters in zoos, aquariums, rehabilitation and wildlife sanctuaries. This position involves direct contact and support to rescue centres in range countries, providing advice and husbandry support.

CONSERVATION AND RESEARCH

The research in prevalence and cause of mucoid faeces of red pandas, initiated in 2019, is ongoing. The requested samples were collected by the holders and sent to Singapore Zoo (Singapore). A local university is now doing the lab work for the microbiota determination.

A second research on the prevalence and pathological impact of Amdoparvovirus infection in red pandas is conducted by Ljubljana Zoo (Slovenia), supervised by Endre Sós (Budapest Zoo, Hungary), Veterinary Advisor to the Red panda EEP.

Thanks to Maria Díez-León (Royal Veterinary College, UK), SC TAG Research co-Coordinator, funding was secured for more research on European mink. A postdoc (2021 – 2025) is supported by the Estonian Research Council. A PhD will be funded by a Spanish university to work across European mink breeding centres to identify causes of the abnormal mating behaviour of specimens born in human care.

A PhD student continued working on 'life history' traits affecting success.

An MSc student finished the project looking at 2019 data on 'hunting' behaviour in pre-release pens and whether it predicts individual survival and distance travelled when reintroduced. Two undergraduate projects looked at factors affecting stereotypic behaviour in European mink (construction noise, enrichment use) and two others at effects of maternal behaviour and play levels on post-weaning behaviour of kits, and sex effects on behavioural time budgets.

An undergraduate student completed a project looking at preference for different types of substrates of wolverines, with the specific aim of encouraging digging behaviour. Data collection was halted due to the pandemic, but the student still gathered some pilot data.

The cooperation between the Fossa Fund and German NGO "Chances for Nature" was continued. An environmental education campaign for children - "Little Rangers" - and half of the cost for purchasing a pickup to serve in anti-deforestation patrols in the Kirindy Forest were funded thanks to the



"Little Rangers" education campaign funded by the Fossa Fund © Chances for Nature

EAZA holders of fossas. This will greatly enhance the patrols' mobility and help transporting seized equipment and gear to fight bushfires.

Additionally, Singapore Zoo funded a metabarcoding study to identify prey species from fossa faeces. The study was successful and will provide the base for further investigations on wild fossas' nutrition.

Malagasy small carnivore species are increasingly and more severely threatened with extinction. For the past three years, CERZA (France) has supported the first research on ring-tailed vontsira (*Galidia elegans*) in the wild. This investment was happily rewarded: one of the two births of this species for the year 2020 took place at CERZA!

ADDITIONAL COMMENTS

The TAG members were involved in the following publications:

- Ahmim, M. and Willcox, D. (2020). *Recent records of the Honey Badger Mellivora capensis (Schreber, 1776) in Algeria*. Small Carnivore Conservation, 58: e58002
- Bourgeois, A. et al. (2020). *Binturong Arctictis binturong conservation: the relationship between the zoo community and ABConservation for an integrated conservation programme in Palawan, Philippines*. International Zoo Yearbook 54 (1): 120-130
- Duplaix, N. and Savage, M. (2020). *The global otter conservation strategy*. eScholarship, University of California
- Glatston, A. and Duplaix, N. (2020). Introduction: *Conservation of Small Carnivores*. International Zoo Yearbook 54(1): 11-18
- Kappelhof, J. and Weerman, J. (2020). *The development of the red panda Ailurus fulgens EEP: from a failing captive population to a stable population that provides effective support to in situ conservation*. International Zoo Yearbook 54 (1): 102-112
- Loberg, J. M. et al. (2020). *Survey to identify factors affecting breeding of wolverines Gulo gulo within the EEP*. International Zoo Yearbook 54(1): 86-101
- Loy, A. and Duplaix, N. (2020). *Decline and recovery of the otter in Europe. Lessons learned and future challenges*. Journal of Mountain Ecology, 13: 1-8
- Meagher, R.K. and Díez-León, M. (2020). *Discussion of "In-depth analysis of the emotional reactivity of American mink*

(*Neovison vison*) under behavioral tests". Canadian Journal of Animal Science, 100(1): 218-219

- Schikora, T. F. (2020). *Giant otter Pteronura brasiliensis breeding programmes: challenges and current developments*. International Zoo Yearbook, 54(1): 72-79

- Willcox, D. (2020). *Conservation status, ex situ priorities and emerging threats to small carnivores*. International Zoo Yearbook 54(1): 19-34

- Willcox, D. et al. (2020). *Owston's civet Chrotogale owstoni: a priority for conservation breeding*. International Zoo Yearbook 54(1): 113-119

33 FELID

TAG Chair: Alexander Sliwa (Cologne Zoo, Cologne, Germany) • Vice Chairs: André Stadler (Alpenzoo Innsbruck, Innsbruck, Austria) and David Barclay (Highland Wildlife Park, Kingussie, United Kingdom)

INTRODUCTION

2020 was a difficult year for the EAZA Felid TAG. Despite normally coordinating the TAG via digital media and telephone calls, we were missing face-to-face meetings and discussions, which are so critical in order to come to broadly accepted joint decisions amongst an active TAG. Sadly, we had to cancel the mid-year Felid TAG meeting at Alpenzoo Innsbruck (Austria), which was so well planned by André Stadler and his team. Through the uncertain developments, we could not hold another meeting during 2020.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Despite the failure to meet in 2020, we had to find new Coordinators for several felid EEPs, namely the Amur tiger (*Panthera tigris altaica*) and Amur leopard (*Panthera pardus orientalis*) EEPs, since ZSL London Zoo (UK) expressed they couldn't coordinate these EEPs anymore as Jo Cook had to leave the institution. We were saddened by this and are highly grateful for her incredible work as long-term Coordinator of these two programmes and as a valued TAG member over all these years. We thank also ZSL London Zoo for hosting her all these years. The TAG Chairs received a number of high-quality applications and appointed Matthias Papies, curator at Tierpark Berlin (Germany) as Amur tiger EEP Coordinator and Katharina Herrmann, Conservation Coordinator at Berlin Zoo (Germany), as Amur leopard EEP Coordinator.

We also had to find a replacement EEP Coordinator for the Clouded leopard (*Neofelis nebulosa*). Within many high-quality applications, Cecilia Tang of Singapore Zoo (Singapore) was appointed as the new Coordinator.

Finally, we learned that Leandra Pörtner was leaving Walter Zoo (Switzerland), so we discussed the possible continuation of the MON-P for Serval (*Leptailurus serval*) with the zoo.

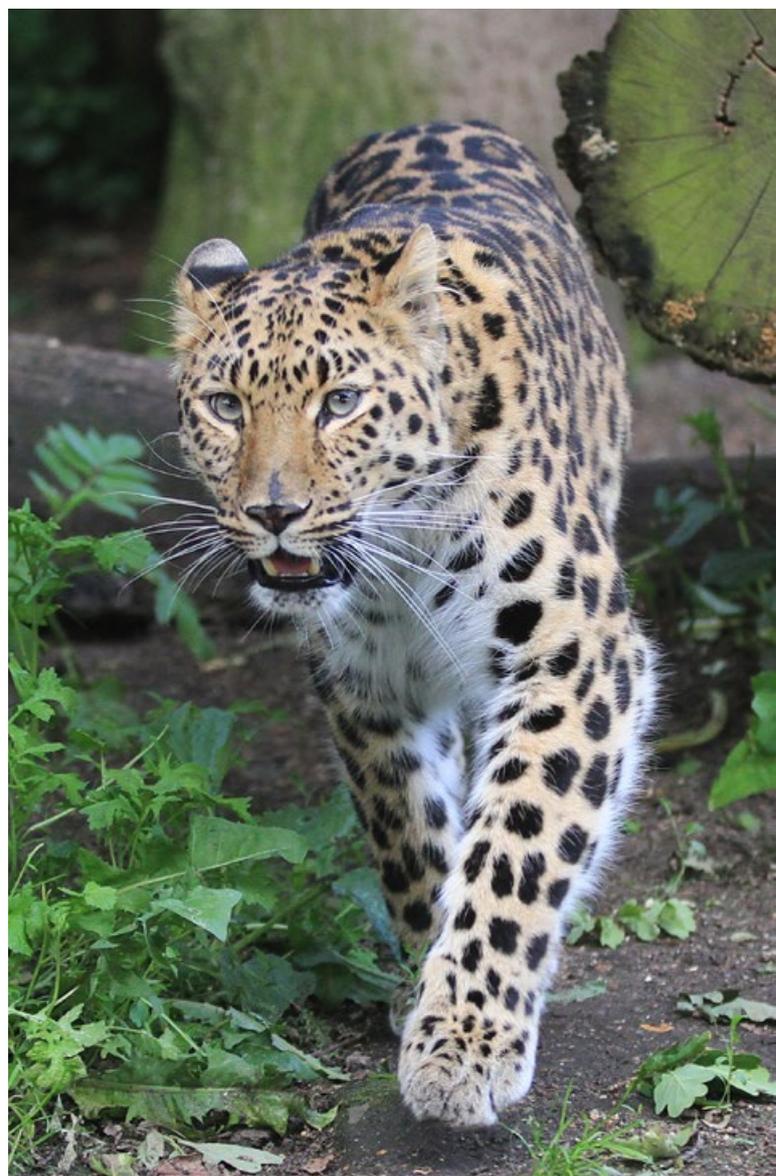
ACHIEVEMENTS DURING THE YEAR

One of the major working fields was to find new Coordinators for several EEPs, each with many EAZA holders.

We dealt with complaints coming via EEPs, trying to stimulate better collaboration.

The Motion 57 *Law enforcement regarding commercial trade in tigers and tiger parts*, developed in close cooperation with the TAG and co-sponsored by 23 institutions (EAZA Members or partners), was approved by the IUCN and voted as a Resolution (see www.iucncongress2020.org/motion/057).

The Felid TAG and tiger programmes supported the EEO with collating input for the important [report by WWF and TRAFFIC](#) investigating tiger trade in the EU where concerns are raised about inconsistencies seen in the keeping and captive breeding of tigers by private persons, and associated difficulties monitoring whether live specimens or parts and derivatives from tigers are entering illegal trade. The report called on EU countries to gather and maintain comprehensive records of tigers held in all types of captive facilities, and cooperate with relevant organisations, such as EAZA and Species360, for best practices in developing such inventories. Further encouragement was given to collaborate with EAZA regarding the collection of DNA samples via the EAZA Biobank for law enforcement purposes.



Amur leopard (*Panthera pardus orientalis*) © Alexander Sliwa



Mainland clouded leopard (*Neofelis nebulosa*) © Alexander Sliwa

COLLABORATIONS

We are closely collaborating with the IUCN Cat SG's chairs, Urs and Christine Breitenmoser (Switzerland), on many aspects regarding felids in human care and ways to collaborate currently and in future. The ongoing close collaboration with the IUCN Cat SG chairs is a valuable resource for TAG members and allows productive discussions and reviews on a regular basis

CONSERVATION AND RESEARCH

Every year, the Felid TAG receives a large number of outside institution applications for research, which are reviewed, partly receiving TAG support. As it takes quite some time to do this work, the TAG will look for support in reviewing these applications.

Each EEP has identified at least one *in situ* project that members are supporting. TAG members continue to play a valuable role in conservation and research efforts for several species.

The Felid Gamete Rescue Project (coordinated by Leibniz Institute for Zoo and Wildlife Research, Germany) remains a key support tool for the TAG for maintaining a gamete bank for several species.

Several programmes and their members, including, but not limited to, the Amur tiger, Amur leopard, Persian leopard (*Panthera pardus saxicolor*), Asiatic cheetah (*Acinonyx jubatus venaticus*), Pallas's cat (*Otocolobus manul*), wildcat (*Felis silvestris*), Sri Lankan leopard (*Panthera pardus kotiya*), and snow leopard (*Panthera uncia*) contribute directly to the *in situ* conservation efforts of the species.

In situ field research projects for black-footed cat (*Felis nigripes*), led by the TAG Chair, and sand cat (*Felis margarita*), in particular, act as models for other small cat field research.

Ongoing research with African lion taxonomy, led by Kim Skalborg Simonsen (Givskud Zoo, Denmark) supports critical decision making in relation to population management.

We collaborate with other well-supported and respected

NGOs specialising in certain felids like the Snow Leopard Trust (Seattle, USA), the Leo Foundation (the Netherlands) for African lions (*Panthera leo*) as well as universities.

ADDITIONAL COMMENTS

A very sad event in 2020 was the tragic loss of one of our longest standing and active Veterinary Advisors to the Felid TAG, John Lewis of Wildlife Vets International. He has been instrumental in establishing several veterinary programmes, especially for Amur tigers and Amur leopards both *in situ* and *ex situ*, as well as being general Veterinary Advisor to the Felid TAG and instrumental in discussions both during mid-year meetings and EAZA Annual Conferences, lately on the medical management of aging large cats. John Lewis is sorely missed, and the TAG has left its condolences in an online condolence book.

The Felid TAG continues to seek an Education Advisor to assist with key messaging, education development and awareness. A focus of this position is to support awareness, holding and management of small cat species, since many of these programmes are in need of new holders.

34 MARINE MAMMAL

TAG Chair: Claudia Gili (institutional support from Genoa Aquarium, Genoa, Italy) • Vice Chair: Agustín López Goya (Madrid Zoo Aquarium, Madrid, Spain)

INTRODUCTION

The EAZA Marine Mammal TAG oversees the running of four EEPs for the Bottlenose dolphin (*Tursiops truncatus*), Caribbean manatee (*Trichechus manatus*), Patagonian (*Otaria flavescens*) and Californian (*Zalophus californianus*) sea lions. The TAG also runs three ESBs for the South American fur seal (*Arctocephalus australis*), Grey seal (*Halichoerus grypus*) and Walrus (*Odobenus rosmarus*). There are MON-P for the South African fur seal (*Arctocephalus pusillus*) and Harbor seal (*Phoca vitulina*).



Caribbean manatee (*Trichechus manatus*) © Faunia, Ignacio Barrio

Our Veterinary Advisors are:

- Daniel García Párraga (Valencia Aquarium, Spain): TAG Advisor
- Kathrin Baumgartner (Nuremberg Zoo, Germany) and Antonio Mignucci (Puerto Rico University, USA): Caribbean manatee Veterinary Advisors
- Nicola Pussini (Genoa Aquarium, Italy) and Kerstin Terner (Duisburg Zoo, Germany): Pinniped Advisors
- Tania Monreal (International Zoo Veterinary Group, IZVG – Independent Veterinarian) is a member of our TAG as a representative between EAZA and the Accreditation Committee of the European Association for Aquatic Mammals (EAAM)

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The TAG continued working on all of the programmes and addressing the major challenges for the species targeted by either our detractors or by commercial requests from other countries.

The TAG has finished upgrading the two sea lion programmes from ESB to EEP management level. We do not foresee the need for upgrading the Walrus ESB prior to the new style RCP workshop in 2021 due to very limited number of animals.

Lindsay Rubincam (Oceanogràfic Valencia, Spain) stepped down as Vice Coordinator of the Bottlenose dolphin EEP.

Stephan Hagenbeck (Vienna Zoo, Austria) stepped down as Walrus ESB Keeper and Adriane Prah (Hamburg Zoo, Germany) took over the position.

Thanks to a close collaboration of the TAG with Ex Situ Options for Cetacean Conservation (ESOCC), there is a possibility of getting involved with conservation projects on freshwater dolphins.

Due to the pandemic and the financial difficulties it caused, Living Coasts (UK) had to close permanently. Their male South American fur seal was moved to ZooMarine (Portugal), and their females were moved to AquaZoo Friesland (the Netherlands).

Barcelona Zoo's dolphinarium (Spain) was phased out in July. The 3.0 animals were relocated to Attica Zoo in Greece.

ACHIEVEMENTS DURING THE YEAR

The TAG replied to the request of ProWildlife association following their comments to the EAZA Guidelines for Marine Mammal Demonstrations and Public Interactions.

The TAG published a Statement on Dolphin Contraception, as well as a Statement on Pinniped Tuberculosis Management in Zoo and Aquariums, that was published on the European Association of Zoo and Wildlife Veterinarians website.

COLLABORATIONS

The collaboration with the 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 and conservation of these species and their habitats. Updates on the work done within the Memorandum of Understanding between EAZA and EAAM were provided to EAZA Council in September.



Bottlenose dolphin (*Tursiops truncatus*) © Madrid Zoo Aquarium - Daniel Roldán

CONSERVATION AND RESEARCH

Despite the pandemic, some of the conservation and research activities could continue for the following projects:

- Rescue and Information Network (with EAAM support): rehabilitation, monitoring of Mediterranean monk seal (*Monachus monachus*) populations and participation in national and international fora
- Eastern Adriatic Monk seal project (partnership with Euronatur): monitoring activities in the Northern Ionian Islands (Greece)
- Mapping project: efforts to identify all suitable habitat of the Mediterranean monk seal in Greece, focusing on Crete, Cyclades and Pilio
- Participation in the monitoring of human activity (patrolling) in the National Marine Park of Alonissos, Northern Sporades (Greece)
- Completion of a major study on the genetics of the Mediterranean monk seal
- The Which Fish? Campaign promoted strong adherence in the marine mammal community

35 ELEPHANT

TAG Chair: Thomas Kölpin (Wilhelma Zoo, Stuttgart, Germany) • Vice Chair: Jana Pluháčková (Ostrava Zoo, Ostrava, Czechia)

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 and maintain sustainable populations of both species within EAZA institutions.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In 2020 the African elephant EEP had 4.3 births, 2.3 deaths and transferred 6.9 elephants.

At the end of 2020 the Population Management Programme covered 57.153 (210) elephants in 51 institutions. Additional institutions were added to the Studbook in preparation of the coming LTMP. The LTMP for African elephants had to be postponed into 2021. The African elephant EEP is still in a very challenging situation, the new LTMP will show how many births are needed for a healthy self-sustaining *ex situ* population in Europe.

In 2020 the Asian elephant EEP had 10.8 births, 3.7 deaths and transferred 12.8 elephants. At the end of 2020 the Asian elephant EEP covered 100.216 (316) elephants in 72 institutions. Foremost challenges for this EEP remain the shortage of space, the ambiguity about presence of subspecies, and the effects of the current restricted breeding protocol on the reproductive health of individuals and herds.

ACHIEVEMENTS DURING THE YEAR

BPG as well as Demonstration guidelines were approved by the EEP Committee and published.

The TAG strategy to phase out free contact systems into protected contact systems by 2030 was approved as an EAZA Standard at the Annual General Meeting (AGM).

A statement on the impact of Elephant Endotheliotropic Herpes Virus (EEHV) on elephant transfers was published.

Two TAG meetings took place during the year. The mid-year meeting took place in Ostrava (Czechia) in February and we had our first online TAG meeting in September.

Both EEPs are working on updating the list of holders contributing to *in situ* conservation of African and Asian elephants.

Achievements for the African elephant EEP coordinated by Arne Lawrenz (Wuppertal Zoo, Germany):

- Studbook conversion into ZIMS for Studbooks
- reunifications of two matrilineal groups with five more females in better breeding position
- rotation of proven breeding bulls to prevent inbreeding and improve breeding by bringing non-breeding females in new breeding situations
- finding institutions willing to take bachelor groups long term
- investigation in finding sperm donors
- initiated research on bull reproduction
- preparation of the new LTMP
- revision of CITES document and setting up reply

Achievements for the Asian elephant EEP coordinated by Harald Schmidt and Jeroen Kappelhof (Rotterdam Zoo, the Netherlands):

- start of a new bachelor male herd at La Tanière Zoo Refuge (non-EAZA EEP participant, France)
- fruitful preparatory meetings for developing the new LTMP with the first concept version to be finished at the beginning of 2021

COLLABORATIONS

The EAZA Elephant TAG and both EEPs are keen to further



African elephant (*Loxodonta africana*) in Namibia © Thomas Kölpin

improve the cooperation with conservation partners including both the African Elephant SG and the Asian Elephant SG. Male social behaviour and success of bachelor herds are important points for the TAG. Connections were established with Kate Evans (African Elephant SG) regarding these matters in 2020. The existing conservation efforts of African elephant holders were analysed with the attempt to pool and strengthen the efforts in harmony with the IUCN.

Together with Mirte Bosse from Wageningen University and Research the Asian elephant EEP worked on a proposal for a large-scale genomic study of the EEP population. In February 2021 we will be informed about whether this proposal has been granted.

The Asian elephant EEP collaborated closely with the SSP Studbook keeper Bob Lee (Oregon Zoo, US). The first pair of transfers has been arranged and planned. Furthermore, we are discussing further integration of our efforts.

CONSERVATION AND RESEARCH

Conservation and research projects of member institutions of the African elephant EEP:

Aalborg Zoo: Transfrontier Africa – Black Mamba Anti-Poaching Unit (South Africa); Basel Zoo/Beauval Zoo/Beekse Bergen/Ouwehands Zoo/Wuppertal Zoo: Big Life Foundation (Kenya/Tanzania); West Midland Safari Park: Mali Elephant Project (Mali); Bojnice Zoo: Save Elephants (Central Africa); Borås Zoo: Mara Elephant Project (Kenya); Zoo Dvůr Králové: Akagera Learning Centre (Rwanda) and Kelu Honey Organisation (Chad); Serengeti-Park Hodenhagen: Elephant Orphanage Project (Zambia); Opel-Zoo: Tawi Conservancy (Kenya); Ouwehands Zoo: Herpes Research through the EEP; Ouwehands Zoo/Vienna Zoo/Wuppertal Zoo: International Elephant Foundation (IEF).

Also, the TAG collaborates with the IEF in the following projects in Africa:

Adopting effective approaches to mitigate human-wildlife conflict in the South Katavi Ecosystem Katavi National Park and Mpimbwe Wildlife Management area, Tanzania; Behaviour-based human-elephant conflict mitigation: combining tactical and homemade strategies; Communities neighbouring the Nkala Game Management Area near Kafue National Park, Zambia; Big Tusker Project: The Tsavo Conservation Area, Kenya; Conservation of elephants in key areas of Murchison Falls Conservation Area, Uganda; Elephant deterrent effectiveness in light of ecological and agricultural variation, Kenya; Elephant utilization of the Kaifeng-Zambezi Wildlife Corridor of KAZA TFCA, Zambia; Enabling human-elephant co-existence through applied research and stakeholder engagement, Botswana; Expansion of the DNPW/CLZ detection and tracking dog unit to provide additional law enforcement support to elephants and other wildlife in the Lower Zambezi, Zambia; Mount Kenya Horse Patrol Team, Kenya; PEACE (People and Elephants Amicably Co-Existing) conflict mitigation program, Namibia; Support of the Anti-Poaching Teams 9-1 and 9-2 of Northern Rangelands Trust Conservancies, Kenya; Support to wildlife protection efforts in the Lower Zambezi National Park, Zambia; Sustaining local support for elephant conservation near Ruaha, Tanzania; The

effect of community workshops and elephant movements on human-elephant conflict, Kenya; Using social network analysis to achieve faster conservation education outcomes, Uganda.

Some of the many *in situ* conservation organisations that get support from Asian elephant EEP institutions: Elephant orphanage in the Udawalawe National Park in Sri Lanka, Asian Nature Conservation Foundation, Biodiversity and Elephant Conservation Trust in Sri Lanka, and the Thailand Elephant Conservation Centre.

Many kinds of research have been facilitated by Asian elephant EEP institutions with focus on stereotyping behaviour, tusk fractures, foot health, EEHV, usefulness of thermal early warning systems to mitigate Human Elephant Conflict, welfare assessments of elephants in human care.

ADDITIONAL COMMENTS

Four new TAG Advisors were approved in 2020: Christian Schiffmann (University of Zurich, Switzerland) as Research Advisor; Petra Bolechová (Liberec Zoo, Czechia) as Nutrition Advisor; Imke Lueders (GeoLifes, Germany) as Veterinary Advisor; Andrew Mckenzie (Chester Zoo, UK) as Husbandry Advisor.

Cordula Galeffi (Zürich Zoo, Switzerland) was appointed as Elephant TAG liaison to EAZA Training group. A new training group consisting of Cordula Galeffi, Con Mul (Ouwehands Zoo, the Netherlands) and Guy Kfir (Zoological Centre Ramat Gan, Israel) was established.

36 EQUID

TAG Chair: Ulrike Rademacher (Wilhelma Zoo, Stuttgart, Germany) • Vice Chairs: Jaroslav Šimek (Prague Zoo, Prague, Czechia); Tanya Langenhorst (Marwell Wildlife, Winchester, United Kingdom)

INTRODUCTION

A total of 12 species fall under the remit of the EAZA Equid TAG, eight of which are managed as new style EEPs: African wild ass (*Equus africanus somalicus*), Grevy's zebra (*Equus grevyi*), Turkmenian kulan (*Equus hemionus kulan*), onager (*Equus hemionus onager*), Przewalski's horse (*Equus przewalskii*), Hartmann's mountain zebra (*Equus zebra hartmannae*). Following the RCP, two completely new EEPs were proposed for the maneless zebra (*Equus quagga borensis*) and the kiang (*Equus kiang*). The latter will be for monitoring purposes only, but a Coordinator is still needed.

New holders are needed for the African wild ass, Onager, Kulan and Hartmann's mountain zebra EEPs.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

After 34 years of dedicated work by former Coordinators from Cologne Zoo (Germany), Barbora Dobiášová (Prague Zoo, Czechia) was appointed as new Przewalski's horse EEP Coordinator.

In April 2020, Adriane Prah (Hagenbeck Zoo, Germany) was approved as the new Coordinator for the Persian onager EEP.



Grevy's zebra (*Equus grevyi*) female and foal during regular foal patrol on Lewa Down, Kenya © Tanya Langenhorst - Marwell Wildlife

ACHIEVEMENTS DURING THE YEAR

In October 2020 the TAG published the new RCP, following the assessment of 12 taxa, and eight EEPs were proposed, two of them completely new.

COLLABORATIONS

The Chair and both Vice Chairs are members of the IUCN SSC Equid SG and work closely with other colleagues from this group.

Charles University (Czechia), in cooperation with Prague Zoo, has started a survey using remote satellite data for initial evaluation of habitat suitability for future reintroduction options of Przewalski's horses in eastern Mongolia.

CONSERVATION AND RESEARCH

In January 2020, the latest Grevy's zebra national survey, the Great Grevy Rally (GGR), took place in Kenya. Almost 700 people participated and took over 26,000 stripe pattern photographs across 30,000 square kilometers to individually identify zebras and assess the size of the population. Due to

the pandemic, the analysis work has been delayed and results won't be known until mid-2021.

The project "Genetic evaluation of the EEPs for wild Asiatic wild asses as a basis for future *in situ* and *ex situ* conservation strategies" was proposed by Petra Kaczensky and Ralph Kuehn (Inland Norway University of Applied Sciences). It will aim to evaluate the genetic diversity of the EEP animals (onager and kulan) and whether or not the EEP represents the right subspecies. The Onager EEP has begun sampling all individuals in the EEP; funding is still an open issue.

The reintroduced population of Przewalski's horse in Great Gobi B Strictly Protected Area in Western Mongolia reached the 300 mark in 2020. The population was supported by 30 horses from various EEP institutions in previous years, within the frame of the "Return of the wild Horses" long-term project organised by Prague Zoo. The last transport planned for 2020 was cancelled due to COVID-19 restrictions, but financial support continues.

The reintroduced population in Hustai Nuuru National Park, near Ulanbaatar, counts over 410 horses. The third of the Mongolian reintroduction sites at Khomiin Tal had over 100 horses at the end of the year.

The Eritrean PhD Student Redae Teclai Tesfai, financially supported by Zoo Basel (Switzerland), finished his PhD entitled *African wild ass (Equus africanus) key resources overlap with livestock and population viability in the Danakil Ecosystem in 2020*. All chapters of the thesis will be published in due course.

ADDITIONAL COMMENTS

A complete list of the 2020 publications can be found on the Equid TAG page in the EAZA Member Area. Here is a selection of them:

- Simek, J. et al. (2020). *The Return of the Wild Horses Project in 2019*. *Gazella* 46: 65-74
- Langenhorst, T., Mate, L. and Naanyu, E. (2020). *Grevy's zebra conservation in Kenya 2020*. Report and funding proposal prepared for supporters and members of the Grevy's zebra EEP conservation projects. Marwell Wildlife
- Simek, J., Langenhorst, T. and Rademacher, U. (2020). *Project Equid*. *Zooquaria*, 110: 18-19



A group of Przewalski's horse (*Equus przewalskii*) mares at Dolní Dobřejov © Miroslav Bobek - Prague Zoo

37 RHINOCEROS

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

INTRODUCTION

The vision and mission of the EAZA Rhinoceros TAG is to have a healthy, 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 and genetically viable and are capable of being an effective tool in support of rhino conservation in the wild.

A major aim of the TAG is to strengthen partnerships with *in situ* partners in order to tackle the ongoing poaching problems. The EAZA Rhinoceros TAG works in close cooperation with reliable partners such as Save the Rhino Intentional (SRI), International Rhino foundation (IRF) as well as the IUCN Specialist Groups for African Rhino (AfRSG) and Asian Rhino (AsRSG).

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

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

Black rhinoceros (*Diceros bicornis michaeli*)

Currently, discussions are taking place between the IUCN AfRSG and the EAZA Rhino TAG to evaluate further options to bring black rhinoceroses from EAZA zoos back to Eastern African countries for reintroduction. Due to good management and breeding successes of the black rhino population within EAZA zoos, reintroductions will continue to be possible in the future. The IUCN AfRSG supports this effort.

Greater one-horned rhinoceros (*Rhinoceros unicornis*)

In May 2019, a total breeding ban was recommended for the Greater one-horned rhinoceros EEP because it is increasingly difficult to find new holders for this species. In November 2020, Singapore Zoo (Singapore) received two males from Al Bustan Zoo (United Arab Emirates).

In 2020, the exhibit plans of Opel-Zoo (Germany) and Hodonín Zoo (Czechia) were approved.

In addition, Szeged Zoo (Hungary) joined the EEP and received two males.

In order to find new holders, cooperation was established with ALPZA and as part of this, the exhibit plans of Cotia Zoo in Brazil and Parque de Las Leyendas in Peru were approved by the Species Committee. Both zoos have been approved as non-EAZA EEP participants by the EEP Committee.

As far as the genetics is concerned, it is important to continue increasing the representation of founder animals/ underrepresented blood lines. Three potential founders have still not bred successfully and are unlikely to do so in future. Closer cooperation and intensified exchange of animals between EEP and SSP is important to improve the founder base.



Greater one-horned rhinoceros (*Rhinoceros unicornis*) © Basel Zoo

It is the hope that with the cooperation of ALPZA members, restricted breeding can be resumed in the near future. Until then, all holders are required to follow the breeding ban.

White rhinoceros (*Ceratotherium simum*)

The EEP is proud of its progress made with calf survival and successful animal transfers thanks to close cooperation, even during COVID-19 times. The programme even found some new holders. Future challenges for this programme are going to be male management, because not all males will be needed for breeding. We will depend on the success of male socialisation projects, also for adult males, to increase flexibility within the EEP. Initial trials of adult males housed with young males are needed to investigate the tolerance of young males by the adults when there are no females around. Until now all bachelor groups established are with adolescent males, but with an increasing number of bachelor groups, the number of adult bulls housed together will also increase in the future.

ACHIEVEMENTS DURING THE YEAR

In 2020, due to COVID-19, the EAZA Rhinoceros TAG did not meet at the EAZA Annual Conference in Leipzig (Germany), which was moved online. No online meeting of the TAG was held. Despite this lack of exchange, the work continued with an ongoing focus on conservation.

In 2020, the second edition of the Black Rhinoceros BPG were published. This edition was extended with extensive veterinary guidelines.

According to the EAZA Conservation Database, rhinos rank number two for receiving *in situ* support. The Rhino TAG is very grateful to all contributors.



White rhinoceroses (*Ceratotherium simum*) in a mixed exhibit
© West Midland Safari Park

CONSERVATION AND RESEARCH

Despite huge efforts to optimise breeding success in Africa, poaching still remains an ongoing threat, but the situation with COVID-19 has posed a new threat, as mentioned in the short message from SRI below (www.savetherhino.org/thorny-issues/the-impact-of-COVID-19-on-rhinos):

'Many of our conservation partners rely on income from tourism, as well as support from people around the world who care about rhinos and conservation. The global tourism industry has carried on through droughts and wildfires, terrorist threats and political unrest, but the COVID-19 pandemic has closed it down almost overnight. Conservation teams that were planning long-term projects are suddenly focussed on securing salaries, covering unexpected costs like litres of hand sanitiser and ensuring regular bills, like those for fuel, can be paid. The economic impacts of his pandemic are likely to extend much further than country-specific lockdowns. There are challenging times ahead...'

According to information from Save the Rhino (www.savetherhino.org/rhino-info/poaching-stats) the number of African rhinos killed by poachers in 2020 in South Africa were less than in 2019. But it seems that 'unfortunately, this positive – and very welcome – decrease does not mean rhinos are now thriving. On average in the country, a rhino is killed every 15 hours. This is a significant downward trend since 2015, when more than three rhinos were poached every 24 hours. But, despite the good news, the long-term impact of the poaching crisis is taking its toll, as well as the prolonged drought affecting food and water resources. One of the challenges that the ongoing poaching crisis brings is that it diverts attention from other actions that are important for rhinos to thrive in the future. While anti-poaching measures are still a high priority, it's important that we don't forget the other tools in the box: biological management, community engagement, capacity building, national and international coordination, and putting in place the long-term sustainable financing needed for important rhino conservation programmes.'

Current wild rhino population:

- Africa: 17,212 - 18,915 white rhinos and 5,366 – 5,627 black rhinos
- Asia: 3,588 greater one-horned rhinos, 74 Javan rhinos (*Rhinoceros sondaicus*) and less than 80 Sumatran rhinos (*Dicerorhinus sumatrensis*)

Several research studies in 2020 are on hold due to COVID-19. Franziska Elsner-Gearing (University of Manchester, UK) continued her PhD thesis on quantifying the genetic diversity of the population of Critically Endangered Eastern black rhino in the EAZA EEP to inform meta-population management strategies.

The support to Save the Rhino International and International Rhino Foundation is stimulated as much as possible especially because the funding of the conservation projects is under enormous pressure. As tourism has almost completely come to a halt because of COVID-19, the conservation projects need all the help they can get.

COLLABORATIONS

The partnerships with IUCN SSC AfRSG, IUCN SSC AsRSG, SRI and International Rhino foundation and the EAZA Rhino TAG are well established.

38 TAPIR AND SUIFORM

TAG Chair: Bengt Holst (Copenhagen Zoo, Copenhagen, Denmark) • Vice Chair: Jörg Beckmann (Nuremberg Zoo, Nuremberg, 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.

Due to the global COVID-19 restrictions during most of 2020, the activities of the TAG were limited to those that could be conducted virtually.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In November, the TAG conducted a virtual RCP workshop with the aim of developing a new RCP. Prior to the workshop the following documents were prepared:

- a list of species relevant for the TAG
- preliminary statement on the impact of potential diseases on *in* and *ex situ* populations
- preliminary statement on how to deal with domestic species in the RCP
- specific species sheets describing *in* and *ex situ* status of the respective species, distribution, threats etc. relevant for the RCP discussions



Common hippopotamus (*Hippopotamus amphibius*) © Jan Pluháček

The workshop was attended by the entire core group of the TAG, as well as relevant Advisors from other regions and IUCN SSC SGs, and the final report will be published in spring 2021.

Eight EEPs were identified by the TAG and will be proposed to the EEP Committee for final approval.

In 2020 Jörg Beckmann took over the Coordinator role for the Malayan Tapir EEP from Helmut Mägdefrau (both from Nuremberg Zoo, Germany), who entered his retirement during 2020.

ACHIEVEMENTS DURING THE YEAR

There was no Tapir and Suiform TAG meeting during the 2020 EAZA Annual Conference but most of the programmes have continued their important work despite temporary lockdowns and other restrictions. I hereby want to thank them all for their dedication and for making sure their respective programmes could continue during the very difficult year. Furthermore, all Coordinators gave their important input both to the preparatory documents for the RCP workshop and during the workshop. That, again, is very much appreciated and means that we can enter 2021 with well-functioning EEPs!

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 2020.

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

The conservation and research activities were all impacted by the pandemic and had to follow local restrictions. For several

projects that meant a temporary shutdown of the projects, whereas for other projects, activities could continue at a smaller scale.

ADDITIONAL COMMENTS

Lists of publications are published in the respective Studbooks. The following are especially highlighted:

- Baker, L. R. et al. (2020). *Common hippopotamus in Nigeria: New census data and literature review confirm the conservation importance of sites outside protected areas*. Aquatic Conservation-Marine and Freshwater Ecosystems, 30: 1996-2003
- Fritsch, C. J. and Downs, C. T. (2020). *Evaluation of low-cost consumer-grade UAVs for conducting comprehensive high-frequency population censuses of hippopotamus populations*. Conservation Science and Practice, 2: e281
- Klećkowska-Nawrot, J. E.; Goździewska-Harłajczuk, K. and Paszta, W. (2020). *Gross anatomy, histological, and histochemical analysis of the eyelids and orbital glands of the neonate pygmy hippopotamus (Suina: Choeropsis liberiensis or Hexaprotodon liberiensis, Morton 1 849) with reference to its habitat*. The Anatomical Record, Anat Rec (Hoboken). 304(2):437-455
- Naples, V. and Haji-Sheik, M. (2020). *Looking the River Horse in the Mouth: New Insights on Incisors, Canine Curvatures and Mulling the Molars*. The FASEB Journal, 34: 1-1
- Utete, B. (2020). *A review of some aspects of the ecology, population trends, threats and conservation strategies for the common hippopotamus, Hippopotamus amphibius L, in Zimbabwe*. African Zoology, 55: 187-200
- von Houwald, F. et al. (2020). *EAZA Best Practice Guidelines for the Pygmy Hippopotamus (Choeropsis liberiensis)*. First edition. European Association of Zoos and Aquaria, Amsterdam, the Netherlands

39 CATTLE AND CAMELID

TAG Chair: Terry Hornsey (Africa Alive!, Lowestoft, United Kingdom) • **Vice Chair:** James Burton (IUCN SSC, Chester, United Kingdom)

INTRODUCTION

Despite the enormous negative impact that COVID-19 has had, and is still having, on the world, some progress was made in a variety of areas which is testament to the hard work, initiative and dedication of everyone involved.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

Due to Tim Rowlands leaving Chester Zoo (UK), Amy Humphreys (Chester Zoo) took over as temporary Coordinator of the EEP for Banteng (*Bos javanicus*). Amy was already assisting Tim with this programme.

Matthias Hendel (Dresden Zoo, Germany) was officially appointed as the new EEP Coordinator for African buffalo (*Syncerus caffer*) as due to her workload increasing, Merel Zimmermann (EEO, the Netherlands) could no longer continue running the programme.

Fokko Klip (Beekse Bergen Safari Park, the Netherlands) joined the Banteng Species Committee as Veterinary Advisor.

The EEP for Anoa (*Bubalus depressicornis*) managed to carry out some transfer recommendations and Łódź Zoo (Poland) became a new participant to the programme.

The EEP for European bison (*Bison bonasus*) continued to grow with increases in herd sizes. There were a few new holders from within the EAZA community and there was also a steady stream of enquiries from collections and landowners from outside of the EAZA community.

ACHIEVEMENTS DURING THE YEAR

The first edition of the Banteng Studbook (including historical data) was published.

The first draft of the Banteng BPG was done and will be sent to the Species Committee for review and comment at the beginning of 2021.

The 2019 International Studbook and EEP transfer recommendations for the vicuna (*Vicugna vicugna*), delayed due to COVID-19, were published.

The Anoa and Banteng GSMP for 2018 - 2021 was approved by the World Association of Zoos and Aquariums (WAZA).

COLLABORATIONS

European bison EEP Coordinator Douglas Richardson (Jersey Zoo, UK), Danny de Man (EEO) and Katharina Herrmann (Tierpark Berlin and Berlin Zoo, Germany) were part of the working group chaired by the chair of IUCN SSC Bison SG which is looking to develop a long-term conservation plan for European bison.

The second 'Action Indonesia Day' was held on 16 August to raise awareness for GSMP species including anoa and banteng. Over 30 organisations got involved for a successful day of virtual events and activities.



Female banteng and calf (*Bos javanicus*) © West Midland Safari Park

CONSERVATION AND RESEARCH

Probably the most important role for the European bison EEP population is to act as a source of animals for a number of reintroduction projects. The EEP is the sole source of animals for the project that is concerned with the return of the species to Azerbaijan, in partnership with World Wide Fund for Nature (WWF) Germany. In November 2020, the third group of bison was sent out with animals donated by Berlin Tierpark, Berlin Zoo, Rostock Zoo (Germany), and Han-sur-Lesse Zoo (Belgium). Tierpark Berlin has been the collection site for the Azerbaijan project animals and their active participation has been and will continue to be crucial.

Anoa EEP participants were involved in the morphology study for the GSMP.

The permit allowing Perhimpunan Kebun Binatang Seluruh Indonesia (PKBSI) and Lembaga Ilmu Pengetahuan Indonesia (Indonesian Institute of Sciences, LIPI) to conduct genetic sampling of anoa, banteng and babirusa (*Babirusa babirusa*) was issued in November 2020 and sampling can now begin in the first quarter of 2021.

ADDITIONAL COMMENTS

An interim report was produced on how to improve the handling of rescued and confiscated anoa and babirusa following assessments of regional forestry offices and national parks in Sulawesi in 2019.

The GSMP and the PKBSI Education Division planned and delivered ten virtual husbandry training webinars to Indonesian zoo staff.

40 DEER

TAG Chair: Noam Werner (Jerusalem Zoo, Jerusalem, Israel) • Vice Chair: Christian Kern (Berlin Tierpark, Berlin, Germany)

INTRODUCTION

The EAZA Deer TAG is responsible for three taxonomically distinct groups: the chevrotains (mouse-deer; Tragulidae), musk deer (Moschidae) and true deer (Cervidae). Following the taxonomy currently used by the IUCN SSC Red List, a total of 73 species fall under the remit of the Deer TAG (10 Tragulidae; 7 Moschidae; 56 Cervidae).

During 2020, because of COVID-19 limitations, the Deer TAG did not have a mid-year meeting. However, the TAG Chair presented a talk during the online EAZA Annual Conference regarding the new Reeves' Muntjac EEP and the work done together with EAZA's representatives in Brussels to overcome the limitations imposed by the European Union Invasive Alien Species Regulation.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

In early 2020, the TAG's new style RCP was approved by the EEP Committee and published. After the approval of the RCP and following its recommendations, programmes were re-approved, upgraded, or newly created.

The five existing EEPs for Mesopotamian fallow deer (*Dama mesopotamica*), Indochinese sika deer (*Cervus nippon pseudaxis*), Lesser chevrotain (*Tragulid javanicus/kanchil*), Eld's deer (*Rucervus eldii thamin*), Southern pudu (*Pudu puda*), were re-approved.

Six programmes were upgraded from ESBs to new style EEPs: Bactrian deer (*Cervus hanglu bactrianus*), Forest reindeer (*Rangifer tarandus fennicus*), Michie's tufted deer (*Elaphodus cephalophus michianus*), Balabac chevrotain (*Tragulus nigricans*), Visayan spotted deer (*Rusa alfredi*) and Hog deer (*Axis porcinus*).

Four new style EEPs were either newly created or upgraded from a monitoring level programme: Reeves' muntjac (*Muntiacus reevesi*), Barasingha (*Rucervus duvaucelii*), Siberian musk-deer (*Moschus moschiferus*), Bawean deer (*Axis kuhlii*). Three of the above-mentioned programmes (Bactrian deer, Lesser chevrotain, Forest reindeer) saw a change in leadership, with the Forest reindeer EEP also moving from one institution to another.

A few programmes still need to be approved or created following the RCP recommendations and this is expected to be completed during 2021.

Despite EU rules allowing the import of hoofstock from third countries (780/2013), such imports are still very difficult and often not a realistic option for increasing the genetic diversity of programmes. Changes to the European Union veterinary legislation, through the introduction of the new Animal Health Law, will occur in 2021, so hopefully this challenge might be overcome to some degree.

The EU Invasive Alien Species Regulation (1143/2014) also presents a challenge to the TAG. The Reeves' muntjac has been included in the List of Invasive Alien Species of Union Concern, which means that the population in human care should be phased out. However, because the species is now listed as Vulnerable by conservation authorities in its native China, which resulted in the establishment of a new EEP for this species, the TAG has been collaborating with the EAZA policy team in an attempt to gain support for the harmonised issuing of *ex situ* permits (as per Article 8 of the Regulation) for EAZA holders of this species, which will allow the TAG to manage the species towards an insurance population.

Additionally, Member States can also decide to include more species in National Lists of Invasive Alien Species, which has already happened when several countries with the sika deer (*Cervus nippon*) added to their respective lists. This means that zoos in these countries will need to phase out sika deer, including the Indochinese sika deer, which is Extinct in the Wild and is an EEP species. Other species, such as water deer (*Hydropotes inermis*) and even European fallow deer (*Dama dama*), were also added to various national lists. While these species are not currently managed, the water deer is threatened in the wild (Vulnerable) and the fallow deer might also be categorised as such soon. The TAG is tracking such national-level decisions and provides assistance as necessary.

Another potentially emerging challenge is the identification of Chronic Wasting Disease (CWD) in Europe. In North America, CWD is prevalent and restricts the transfer of cervids to the point that some AZA programmes are dying out and some unmanaged species are also being phased out. In Europe CWD has only been reported in very few animals, all wild or semi-domesticated, and only in Scandinavia. Nevertheless, the TAG is monitoring the situation closely and will prepare contingency plans on this topic.

COLLABORATIONS, CONSERVATION AND RESEARCH

Cooperation with the IUCN SSC Deer Specialist Group (DSG) is ongoing. The TAG Chair is also serving as a co-chair of the DSG. Other current and past TAG members are also DSG members, including Christian Kern (Berlin Tierpark, Germany), Jan Pluháček (Ostrava Zoo, Czechia), Matt Hartley (Chester



Visayan spotted deer (*Rusa alfredi*) © Noam Werner

Zoo, UK), Roland Wirth (Zoological Society for the Conservation of Species and Populations, ZGAP, Germany) and Jens-Ove Heckel (Landau Zoo, Germany). A collaboration between the IUCN SSC Deer Specialist Group and the IUCN SSC Conservation Translocation Specialist Group has developed over the last year with the aim of writing Deer Conservation Translocation Guidelines. TAG members will be asked to contribute to the writing of this document.

The TAG members' contribution is important. Through the respective programmes they run or through their institutions, several have been involved in long term *in situ* deer conservation projects in range countries, such as the Visayan spotted deer in the Philippines, forest reindeer in Finland, and Mesopotamian fallow deer (*Dama mesopotamica*) in Israel, among others.

41 ANTELOPE AND GIRAFFID

TAG Chair: Sander Hofman (Antwerp Zoo and Planckendael Zoo, Antwerp, Belgium) • 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: To maintain healthy, genetically viable, self-sustaining, populations of okapis and a representative cross-section of antelope and giraffe taxa in human care. These populations will be: ambassadors, drawing attention to the plight of these taxa in the wild; a focus for fundraising 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

This year saw only a few changes in Population Management Programmes. Several TAG members were (temporarily) furloughed due to COVID-19 pandemic. In general, it seems the pandemic did not have a huge influence on most of the programmes. As it was a rather quiet year with Coordinators and TAG members in other roles mostly consolidating what we have, we would like to take this opportunity to highlight how the TAG is organised.

The species management of the AGTAG is divided into four subgroups: okapi and giraffe, woodland antelopes, savanna antelopes, and arid land antelopes. A leader was appointed in each subgroup and can be contacted for enquiries on species availabilities or recommendations. Contact details can be found on the EAZA Member Area. For questions on species managed in a programme, please contact the relevant Coordinator.

The AGTAG's Research and Conservation Coordinators keep the TAG up to date on these two issues. We hope to be able to continue to stimulate zoos' involvement in conservation and research, as we consider this a priority for the years to come.

The TAG also has an Education subgroup that can be very helpful with ideas on effective education on antelopes, giraffes and okapis.

Please find the latest version of the AGTAG RCP on the Member Area. Although the RCP part of this document was finalised in 2018, the document is continuously updated with the most current contact information of TAG members. Preparations for the new style RCP process have started in 2020. The workshop is scheduled towards the end of 2021.

ACHIEVEMENTS DURING THE YEAR

Though physical meetings were not possible, the TAG held several online meetings during the year. A few were on the progress of individual programmes and others were in preparation of the RCP workshop. Since the TAG covers a great number of species, a lot of thought went into the best way to structure such a process. One of the challenges is the large number of species we currently hold (managed or not), but also do not hold in the EAZA region. To help us get an updated overview and working towards a One Plan Approach, where *in situ* and *ex situ* conservation is complementary, we work closely with David Mallon, the co-chair of the IUCN SSC Antelope SG, and also a valued member of our TAG.



Bongo (*Tragelaphus eurycerus*) © Antwerp Zoo - Jonas Verhulst

COLLABORATIONS

2020 was a year of disappointment for the TAG as several interesting meetings were cancelled. We had planned our mid-year meeting in conjunction with the Sahelo-Saharan Interest Group (SSIG) meeting at La Hoya Experimental Field Station in Almeria (Spain) to boost conservation efforts for arid land antelope in an inspiring environment, but it was not meant to be. Luckily, the fine colleagues in Almeria promised to invite us again for a mid-year meeting when we can safely travel again.

The TAG leadership had also planned to participate in the global joint TAG Chairs meeting in Palm Springs (US), with a special focus on spending considerable time with our North American counterparts of the AZA Antelope, Cattle, Giraffid, and Camelid TAG. Nevertheless, the relationship was strengthened. A good development in the light of the RCP process we are in. The AZA TAG is currently wrapping up their RCP. Our aim is to align our plans with theirs, as we strive towards a global cooperation saving antelopes and giraffids under the umbrella of the One Plan Approach. We hope to keep the good contact, and hope that in-person meetings will be possible in the not so distant future.

42 CAPRINAE

TAG Chair: Pascal Damois (Parc Animalier d'Auvergne, Ardes, France) • Vice Chairs: Dennis Müller (Halle Zoo, Halle, Germany) and Marco Penello (Valcorba Zoo, Pozzonovo, Italy)

INTRODUCTION

2020 started under the best auspices as we met in Amsterdam (the Netherlands) to finalise the new RCP of the EAZA Caprinae TAG. These were truly three exciting days and we would like to thank all the participants who joined us at the workshop. Unfortunately, COVID-19 then quickly slowed all the terrific work being done within the TAG. To add to this misery, Jan Robovský (Liberec Zoo, Czechia), the Vice Chair of the TAG, had to step down to focus on other tasks in his institution and university. We would like to thank him from the bottom of our hearts for all his hard work in the last two years. We are grateful for Dennis Müller (Halle Zoo, Germany) and Marco Penello (Valcorba Zoo, Italy) who quickly agreed to help Pascal Damois (Parc Animalier d'Auvergne, France) to manage this TAG.

POPULATION MANAGEMENT PROGRAMME DEVELOPMENTS

The new style EAZA Caprinae RCP was officially validated in November 2020. The next step is to get all 12 EEPs validated individually by the EEP Committee. We are still in the middle of this process, but the following programmes have already successfully passed this procedure:

- Takins EEP: Denis Michaux (Parc Animalier d'Auvergne, France) – overall EEP Coordinator and Mishmi takins Coordinator, Luboš Melichar (Liberec Zoo) – Golden takin EEP Coordinator, Dennis Müller – Sichuan takin EEP Coordinator (phase out EEP)



Alpine ibex (*Capra ibex*) © Parc Animalier d'Auvergne

- Markhor EEP coordinated by Nina Trontti (Helsinki Zoo, Finland)
- Muskox EEP coordinated by Mikkel Stelvig (Copenhagen Zoo, Denmark)
- Nubian ibex EEP coordinated by Elly Neumann (Jerusalem Zoo, Israel)
- Urial EEP coordinated by Marco Penello
- West Caucasian tur EEP coordinated by Jitka Vokurková (Olomouc Zoo, Czechia)

The other EEPs for Alpine ibex (*Capra ibex*), Chinese goral (*Naemorhedus griseus*), Wild goat (*Capra aegagrus*), Chamois (*Rupicapra rupicapra* / *Rupicapra pyrenaica*), Aouad/Barbary sheep (*Ammotragus lervia*) and Blue sheep (*Pseudois nayaur*) should be validated in the first semester of 2021 as all Coordinators were nominated by the TAG.

ACHIEVEMENTS DURING THE YEAR

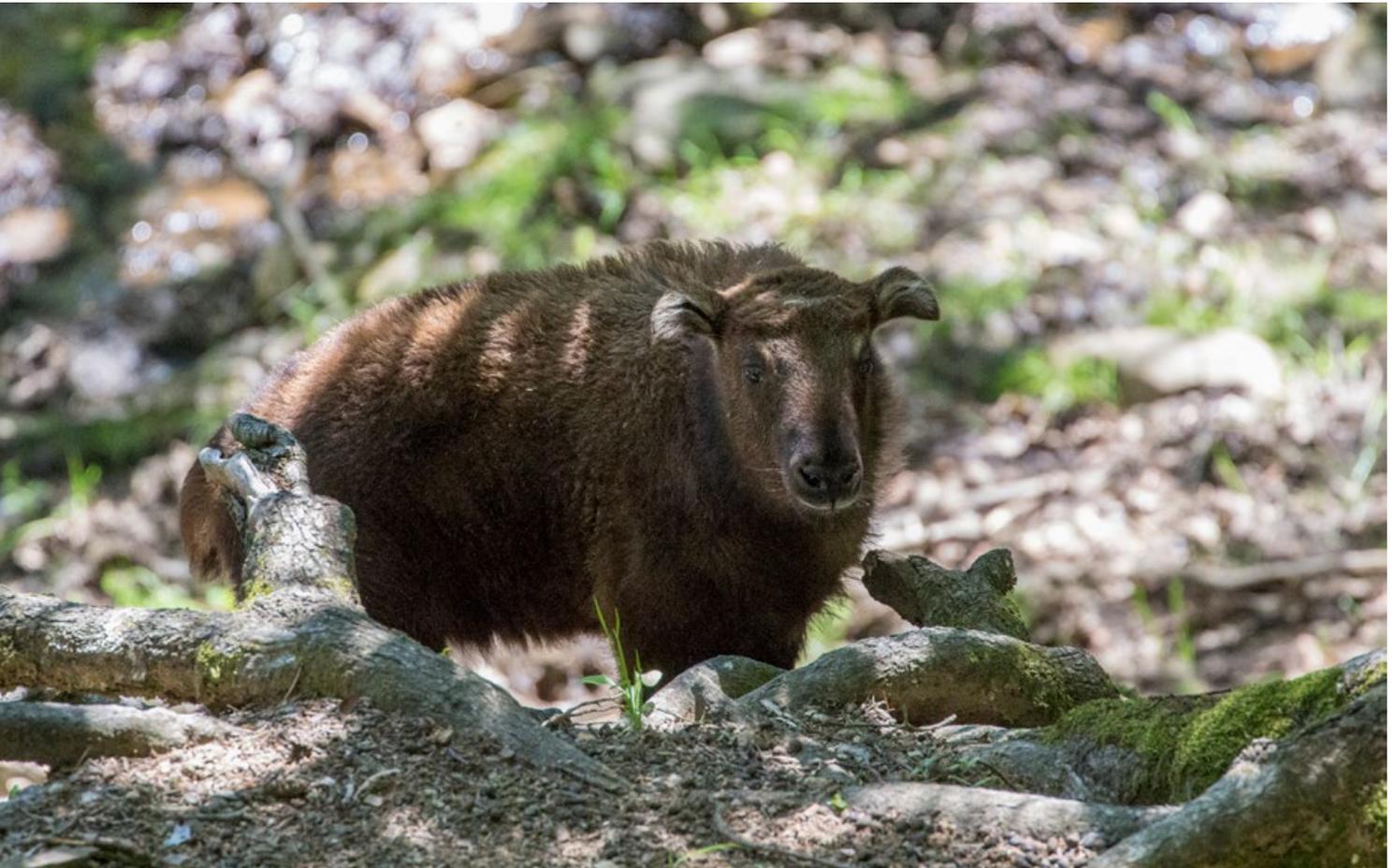
Nina Trontti and Marco Penello kept working on the educational guidelines that we hope to publish by the end of 2021. Ewa Wikberg (Nordens Ark, Sweden) and Simone Haderthauer (Vienna Zoo, Austria) were appointed during our online meeting to start working on the BPG for the husbandry of Caprines.

Despite the difficulties and COVID-19 restrictions, we managed to organise a successful annual meeting online in October. We addressed a broad audience as almost all the people involved in the TAG participated and presented their current programmes and projects.

COLLABORATIONS

We were in close contact with Gil Myers (Smithsonian National Zoo, US), chair of the AZA Caprinae TAG, while finalising our new style RCP and he participated in our annual meeting in October.

Stefan Michel (IUCN Commission on Environmental, Economic and Social Policy SSC Sustainable Use and Livelihoods and SSC Caprinae SG) participated in the RCP workshop in February and provided very important data from the wild while we were assessing the different species.



Takin (*Budorcas taxicolor*) © Parc Animalier d'Auvergne

CONSERVATION AND RESEARCH

The working group on assisted reproduction in Caprines in collaboration with our AZA colleagues stayed active. Yann Locatelli (Réserve de la Haute-Touche, France) and Budhan Pukazhenthil (Smithsonian National Zoo) are leading this group but their 2020 actions have been delayed by the COVID-19 restrictions.

ADDITIONAL COMMENTS

Marco Penello and Nina Trontti presented their work on the Educational Guidelines and the Capricards at one of the Animal Sessions of the 2020 EAZA Annual Conference.

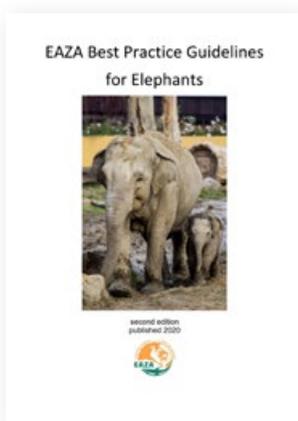
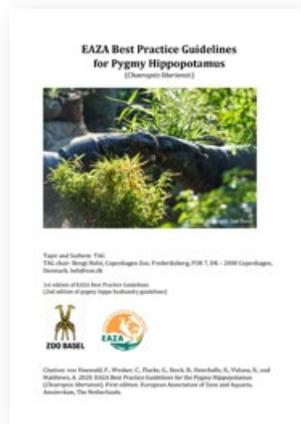
The following articles were published:

- Clauss, M. et al. (2020). *Basic considerations on seasonal breeding in mammals including their testing by comparing natural habitats and zoos*. Mammalian Biology, <https://doi.org/10.1007/s42991-020-00078-y>
- Schulz-Kornas, E. et al. (2020). *Everything matters: molar microwear texture in goats (*Capra aegagrus hircus*) fed diets of different abrasiveness*. Palaeogeography, Palaeoclimatology, Palaeoecology 552: 109783

BEST PRACTICE GUIDELINES 2020

Seven BPG, 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 2020.

Black rhinoceros • Pygmy hippopotamus • Straw headed bulbul • Bonobo • Elephants • Tufted deer • Vietnam pheasant



Visit www.eaza.net/conservation/programmes for a complete overview of the available EAZA Best Practice Guidelines.



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TAG Reports 2020

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