Reducing negative implications of COVID-19-related economic challenges for Members on population management in EAZA

EAZA Executive Office, 1 May 2020

Executive summary

Despite recent optimistic news of the first zoos partially reopening after the lockdown, EAZA's contingency planning continues in case of worst-case scenarios where some Members close down or need to significantly reduce their collection. The main messages of this document are:

1. The animal collections held by EAZA Members have important conservation, education and research roles. Collection planning and population management are complex and interwoven processes, and their success depends on cooperation among Members. If multiple Members close down or significantly reduce their collection, the remaining Members may not be able to achieve the goals defined for the populations. See examples on pages 8-9.
2. If many Member institutions are affected, EAZA may have to apply triage to prioritise (individuals within) populations in light of the roles and goals of the populations. This will need to take a community-wide perspective; other EAZA Members may be required to make space available to prevent the priority populations from going extinct.
3. If a Member zoo or aquarium is no longer able to care for its animals, EAZA will respond as a community to find suitable solutions in cooperation with other Member institutions'in other Member institutions, whether the species is managed as an EAZA Ex Situ Programme (EEP) or not. A 'COVID-19 subgroup' of the EEP Committee will work together with EEP coordinators and TAG Chairs to respond to emergencies in a tailor-made way.

Introduction

This document aims to outline the impact that economic challenges, such as severely cut budgets and even bankruptcies, might have on population management activities in EAZA. It emphasizes the importance and the strength of the EAZA zoo and aquarium community and the strong belief we can weather the COVID-19 pandemic storm together. It furthermore demonstrates that as professional zoo and aquarium community in Europe, Western Asia and beyond, EAZA Members must cooperate to limit (long-term) negative impact on our collective animal populations as much as possible.

EAZA: a strong community of professional zoos and aquariums

The European Association of Zoos and Aquaria (EAZA) is the **largest professional zoo and aquarium association in the world**, with over 400 Members in 48 countries throughout Europe, Western Asia and beyond, including Members in 25 of the 27 EU Member States.

The EAZA community is diverse, dynamic and committed to bringing the wonder of nature to our visiting public, a **public that spans young and old, all social and ethnic groups, religions, education levels and incomes**. We are socially inclusive, and our members host an approximate **140 million visits annually**.

Within the European Union, the **EU Zoos Directive (1999/22/EC) provides the legal mandate for zoos and aquariums to prioritise conservation action**. The Zoos Directive seeks to promote the protection and conservation of wild animal species by strengthening the role of zoos in the conservation of biodiversity. EAZA strongly supports its implementation and **sets Standards that go above and beyond these legal requirements** as are outlined for example in the 'EAZA Standards for the Accommodation and Care of Animals in Zoos and Aquaria', the 'EAZA Conservation Standards' and the 'EAZA Conservation Education Standards'. A system of **cyclical accreditation is in place to measure implementation** of Standards across the EAZA Membership.

The EAZA Conservation Database shows that, annually some 25% of members recorded their data in the period 2015-2019, showcasing an average annual contribution of €19.5 million and 70 thousand staff hours to conservation projects across the globe.

According to the most recent Social Economic Impact Assessment (2010), EAZA Members:

- collectively contribute **2.5 billion to the European economy** per annum;
- directly **employ 32.000 European citizens**, and create further employment for an additional 9.000 citizens that supply good and services to our zoos and aquariums;
- annually **contribute more than €100 million to biodiversity conservation**;
- **formally teach 5 million children** annually about biodiversity, animal welfare and conservation with tens of millions more receiving information education;
- conduct and fund biodiversity and welfare **research amounting to €30 million invested annually**;
- through **EAZA Conservation Campaigns have, since 2000, reached millions of Europeans**, raising awareness and funding for a range of species and habitats, including most recently a two-year campaign focusing sustainable use of our ocean resources.

The live collections of wild animals that are on display for visitors are what differentiates our zoos and aquariums from other organisations and therefore population management programmes lie at the heart of the activities of EAZA.

EAZA Members and the impact of COVID-19

At its highest point to date, **96% of EAZA Members were closed to the public** due to the COVID-19 pandemic resulting in a (close to) 100% loss of income for most institutions. Ownership structures of zoos and aquariums across the EAZA Membership are different and can roughly be divided into: government (city, state) zoos, private zoos and charity or foundations zoos.

The **majority of EAZA Members are not run for profit** and might by their nature not be allowed to have extensive reserves. In addition to typical costs of organisations (salary, rent, loans, etc.), the **hundreds of thousands of animals held across the EAZA Membership rely on the zoo staff for their food and daily care**. Life support systems and enclosures need to stay functional. Many EAZA Members that are closed therefore have no, or severely reduced, income but **still have high expenses**.

Across the EAZA region national governments have put measures in place towards supporting organisations during the COVID-19 pandemic and to avoid staff unemployment. Despite national differences in the support packages, and indeed also in severity of the pandemic, EAZA Members are able to use such **government support to avoid immediate severe financial impact and bankruptcy**.

Whilst all are faced with negative economic impact due to COVID-19, on the whole, EAZA Members are able to weather the COVID-19 pandemic storm with the immediate help as outlined above. It is **important that zoos and aquariums reopen as soon as is safely possible** to avoid the situation whereby loss of income and ongoing costs continue impacting beyond the point of repair. **EAZA believes that zoos and aquariums can put measures in place to provide for a safe and social distanced visitor experience**. It is positive that several European governments are planning for (partial) reopening of zoos and aquariums at the end of April and during the course of May.

Despite some reason for optimism **EAZA also must consider scenarios where some Members are not able to get through this storm, or only when considering significantly cutting costs including those relating to the management of the animal collection.** The next section outlines the importance of animal populations at a community level including for species conservation and will also highlight the complexities of assessing impact on a collection level, leading to the need for a community response in case of such scenarios.

Animal collections held by EAZA Members: carefully curated to serve conservation roles

The EU Zoos Directive calls upon zoos and aquariums to prioritise conservation action. This is achieved through a variety of pathways including, but not limited to,: re-connecting people with nature through immersion exhibits; education about the importance of ecosystems, ecosystem services and sustainable resource use; teaching basic biological disciplines; engaging in and facilitating basic and applied research; as well as through very species specific ex situ conservation management programmes. To achieve this, **EAZA Members care for close to two million individual animals of more than 7.800 species** (Table 1), with high standards of welfare employed throughout.

Table 1: Total number of individuals and total number of species held in EAZA Member institutions, as recorded in ZIMS for Husbandry (Species360) and downloaded on 16 April 2020.

Held by EAZA Members		
	Total individuals	**Total species**
Invertebrates	*821.486	1.983
Fish	*729.402	2.278
Amphibians	37.594	267
Reptiles	40.010	926
Birds	119.463	1.627
Mammals	100.005	728
Totals	**1.847.960**	**7.809**

*** underestimated due to holdings often being recorded as groups rather than individuals and not all animals entered in ZIMS**

In order to make the most efficient use of space and other resources, and to ensure that conservation, education and research goals are met, groups of species specialists (so called Taxon Advisory Groups (TAGs)) from EAZA Members and their partners engage in a **comprehensive cooperative planning process**. They carefully determine which species are recommended to be held in the community and proactively managed towards very species specific roles; which species Members can chose to hold for less species specific reasons

and/or only require general monitoring to fulfil their roles; and which should not be obtained or indeed phased out to make space for higher priority taxa. This process is called **Regional Collection Planning**.

Until recently, EAZA, like its fellow regional and national zoo associations, largely followed a "one size fits all" approach, whereby the default goal for most species programmes in zoos was to create a regional self-sustaining population that functioned as insurance for the wild population and/or formed a sustainable source of animals for exhibit in order to fulfil the many roles of zoos and aquaria. These programmes fell into two different intensities of management: the European Endangered species Programme (EEP) (highest intensity) and the European Studbook (ESB) (lower intensity).

In 2018, **EAZA launched a new population management structure** (see IUCN Quarterly Report, September 2018, page 17). Rather than make decisions in relative isolation, we now partner consistently with a range of field conservation counterparts, stakeholders and colleague zoo and aquarium associations in the spirit of the **One Plan Approach to species conservation**. And rather than assume a default role of 'insurance' for zoo *ex situ* programmes in the form of a closed, self-sustainable population, we and our partners now jointly **use the 'IUCN Species Survival Commission Guidelines on the Use of Ex situ Management for Species Conservation'** to determine if and which *ex situ* conservation role(s) would make an effective contribution to the overall conservation strategy for a species. The same thinking process is also be used to decide on non-(direct)conservation roles of populations and **forms the basis for our new RCP process**.

Any populations that require active management in order to fulfil the roles selected for it (regardless of whether these are conservation roles or other roles), become subject to management under a new style EAZA Ex situ Programme (EEP). We thus now use one single term for all programmes, but **each EAZA Ex situ Programme has its own tailormade management strategy (in terms of biology and governance) and comprehensive action plan towards meeting the set goals**.

Case example:

In 2018 a Regional Collection Planning Workshop was held for **Asian songbirds**, focusing on 145 taxa that are threatened by unstainable trade. Participants from different regions and with varying backgrounds in conservation of Asian songbirds (*in situ* and *ex situ*), assessed that in total twenty-four species require active management in order to fulfil the roles, and proposed these species for new style EEPs.

For example, the EEP for the Critically Endangered **Javan green magpie** (*Cissa thalassina*) works with rescue and breeding centres inside the species' range to be able to rapidly setup a rescue population in case of extinction of the species in the wild. Meanwhile, an insurance population will be established in EAZA to ensure long-term survival, following the recommendation of experts from the field.

In 2015 the first small number of birds were transferred to EAZA zoos and they now form the basis of this backup population, which is now composed of 22 birds in 4 EAZA zoos, aiming to grow it in the next few years. The insurance population will be used to build knowledge on the species and provide training for the staff working with the rescue population in Indonesia. The Javan green magpie was a flagship species of the EAZA Silent Forest Campaign; EAZA Member zoos that keep any Asian songbird species could use these species to educate visitors about the Asian songbird crisis and tell the story of the Javan green magpie.

EAZA is in a transition phase between the old and new population management structure. **So far, 18 of the 42 TAGs have created new style RCPs and hence both old and new style programmes are simultaneously running**. Currently, the 42 TAGs are administering a total of 413 officially approved EAZA programmes, of which 259 EEPs (a mix of old and new style) and 154 ESBs, distributed over the different taxa as indicated in Table 2. This amounts to a total of approximately 63.714 individuals. While this number may appear small in comparison to the total number of species and individuals kept, bear in mind that these only represent species with species specific roles and goals that require proactive management to achieve these. This does not diminish the importance of the other species and individuals which are being managed in other ways for other reasons, as explained above.

Table 2: EAZA Ex situ Programmes (EEPs) divided per taxonomic class

		TAG	EEP	ESB	#Ind.*
Invertebrates	Aquatic invertebrates	2	0	0	9,600
	Terrestrial invertebrates	1	6	0	
Fish		3	0	8	321
Amphibians		1	3	2	679
Reptiles		1	16	24	4,506
Birds		13	53	64	16,520
Mammal	Primates	6	80	1	37,409
	Carnivores	4	41	8	
	Hoofstock	7	45	25	
	Other	4	15	21	
Total		**42**	**259**	**154**	**63,714**

*From ZIMS for Husbandry (Species360) – downloaded 14 April 2020

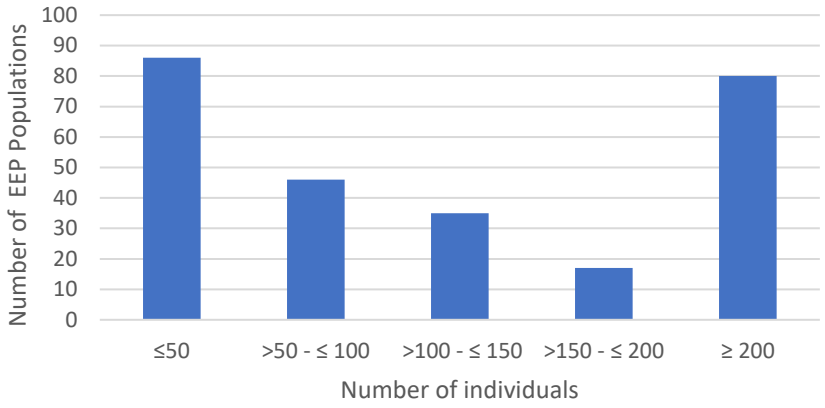
New style EEPs

A closer look at the new style EEPs illustrates how EAZA's new system allocates specific roles for each EEP. Eighteen of the currently 42 TAGs have created a new style RCP for (parts of) the taxa under their umbrella in which they recommended 258 EAZA Ex situ Programmes (EEPs) (some of these are still being formalised and are not yet included in the totals of table 2 above).

Two hundred and thirty-nine (239) of these EEPs manage a total of 266 species (some EEPs manage more than one species), representing a total of 39.374 individuals *(the remaining 19 Freshwater fish EEPs cover a maximum of 1.469 taxa in a somewhat different approach).*

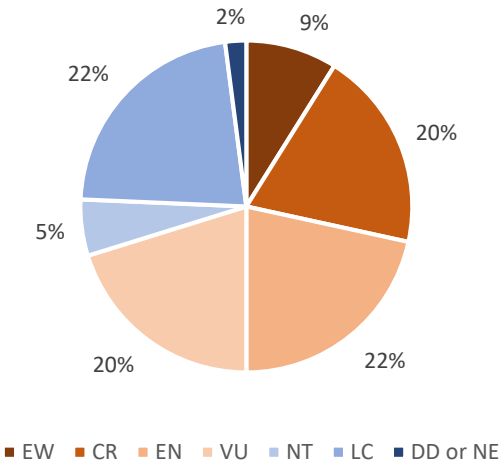
About 50% of these new style EEP populations count more than 100 individuals and 30% count more than 200 individuals (Figure 1).

Figure 1: Number of animals in new style EAZA Ex situ Programmes (categorised)



Seventy-one percent of the new style EEPs concern taxa that are in the IUCN threatened grouping (EW, CR, EN or VU). Some of the remaining may not be globally threatened but are however regionally or locally threatened in Europe.

Figure 2: Category of extinction risk of species managed in new style EEPs, according to the IUCN Red-list categories of threat



The fact that a species is threatened does not necessarily mean it also requires *ex situ* management as a component of its overall conservation strategy, or that *ex situ* management is best delivered (in part) by EAZA Member institutions. Similarly, not all EEPs are created for conservation reasons – the designation EEP means that a taxon requires proactive management to fulfil its assigned species level roles, whether these are conservation roles and/or non-conservation roles.

A total of 214 out of 258 EEPs new style (83%) were assigned at least one direct conservation role (meaning the role is a critical component of a species' conservation strategy – for a definition and role descriptions see IUCN SSC Ex situ Guidelines). Furthermore, 158 EEPs were assigned at least one indirect conservation role (less critical but still helpful) and 123 EEPs were given at least one non-conservation role. A single EEP can have multiple roles in some, or all, of the categories. Thirty-two EEPs (15%) were only assigned non-conservation roles.

Table 3: Number of EEPs that had a certain direct, indirect or non-conservation role assigned. Note: one EEP can be assigned multiple roles in some or all categories

	Conservation		Non-conservation
Roles (as per IUCN *ex situ* guidelines)	**Direct (214 EEPs)**	**Indirect (158 EEPs)**	**(123 EEPs)**
ARK (extinct in the wild)	26*		
Rescue	15		
Insurance	209**		
Source for population restoration	67		
Education	80	130	44
Research	128	59	12
Training	57	17	6
Capacity Building	15	2	
Fundraising	8	85	
Advocacy	8	7	
Ambassador		4	4
Model for other species		12	5
Exhibit			101

* Includes 13 Partula snail taxa. Excludes freshwater fish, for which there might be tens of species that are kept and that are already extinct in the wild but for which recent assessments in the wild are lacking. This may also be the case for several tortoise species and other taxa.

** Excluding freshwater fish species, for which more work is needed to determine for how many species insurance populations can be established

The above illustrates that the collections of EAZA zoos and aquariums at a community level fulfil very important functions, which would become compromised if a number of EAZA Members were not able to battle **through potential COVID-19 related financial troubles,** or only when considering significantly cutting costs including those relating to the management of the animal collection. This would not only eliminate or compromise the contributions of these Members themselves, but as the section below will illustrate, would also **compromise the success of the remaining Members with reaching some of the roles and goals for the species and biodiversity conservation.**

Careful and tailor-made management of EEP populations

In order to ensure that their EEP can fulfil its assigned role(s), EEP coordinators carefully determine the population size, growth rate, age/sex structure, pairing combinations and animal transfers required to make this possible. Should a sustained loss of income due to the COVID-19 pandemic require some EAZA Members to significantly cut animal management costs, or in the worst scenario not be able to weather the storm altogether, **the interconnected and cooperative nature of the EEPs will necessitate a community response** to accommodate a potential relocation of (some of) the animals/species in these collections.

The following examples illustrate an array of ways in which EEPs could be impacted by such events. **Because every EEP has its own specific roles, goals and situation these examples show that while the impacts will be profound, they are difficult to quantify across all EEPs or across all taxa.**

1. Impact on population size

A proportion of EEP populations have small population sizes (e.g. ~32% of new style EEPs have less than 50 individuals) and/or are held by only a small number of institutions. If just a few of these institutions need to stop holding the species and there is no space of sufficient quality in other EAZA institutions, this can ultimately lead to a population crash.

For example, if the **Iberian wolf EEP** population were to lose just a few young females, there may be too few births next year to prevent a negative spiral. As such, this important programme that aims to raise awareness among zoo visitors to stop the persecution of the species in the wild, would be lost.

2. Loss of genetically valuable individuals

For the success of many EEPs, it is vital that the population remains genetically healthy in the long-term. To achieve this, EEPs prioritise breeding of the most genetically valuable individuals, which are those that have few or even no family members in the population.

For example, while there are over 700 **Northern bald ibises** within EAZA, there are a few genetically unique colonies which are vital for the long-term health of the EEP. If colonies need to be relocated from Members in financial difficulty and if there is, in the short term, insufficient suitable space in other EAZA Member institutions, this could eventually significantly reduce the chance of success of future reintroductions.

3. Delay in transfers

The COVID-19 prevention measures also prevent the EEP coordinated transfers of animals between institutions. These delays in transfers decrease the reproductive success of EEPs by leaving some animals without a (new) mate. Furthermore, for many species the previous offspring needs to be transferred elsewhere before a pair can breed again. This can ultimately lead to a population crash if there are too few births to maintain the population size and to unique genetic variation being lost to the next generation, if this stops genetically valuable pairs from breeding.

Both are realistic possibilities for the **Pileated gibbon EEP** for example, which has important insurance and conservation education and research roles for this endangered species.

4. Loss of successful breeders

Certain EEPs are still in the process of determining how to breed the species successfully. This is for example the case for several **hornbill EEPs**.

Some institutions have managed to create the right conditions for breeding, but replication of such conditions to other institution has not (yet) resulted in similar success in other institutions. If the institutions with breeding success need to stop holding hornbills, or close all together, the hatching success could suddenly drop to zero. Without hatches, the age structure becomes compromised and the population may collapse.

5. Immediate extinction

Should specific zoos or aquariums need to close certain exhibits, or close the whole institutions, this could lead to the immediate and definitive extinction of some species.

For example, the **Potosi pupfish** population, which is extinct in the wild, is maintained only by one EAZA Member institution.

Photo credits: Paignton Zoo (pileated gibbon), ZSL/Heiko Karst (Potosi pupfish).
The other images are credit-free.

Tailor-made responses to the emergency

EAZA's collections fulfil very important conservation, education and research functions. Collection planning at community level, as well as the management of individual populations, are complex, cooperative and interwoven issues. Hence, while losing partial or whole collections of certain Members would certainly have a very significant impact, it is difficult the quantify what exactly the impact would be across all EEPs, or across certain taxa. **The above examples clearly illustrate the need for a tailor-made and detailed assessment when considering measures to manage costs related to the animal collection, or in case of bankruptcy, due to the COVID-19 pandemic.**

Regardless of whether the species in question is managed as an EEP or not, EAZA would respond as a community and attempt to relocate as many of the individuals as possible within other EAZA Member institutions. **The EAZA EEP Committee has therefore set up a 'COVID-19 subgroup' that will work together with the EEP coordinators and TAG Chairs to respond to emergency situations.**

Space allocation is normally carefully planned through the RCP process and it is therefore often not possible to find good quality space (i.e. ensuring good welfare) at relatively short notice for a significant number of animals in other EAZA zoos or aquariums. In these unprecedented COVID-19 times it will also be severely more complex to transport animals as all Members are working to get through the storm more or less simultaneously, and due to, for example, human safety measures in place, smaller animal teams, closed borders and largely grounded airlines.

Given these circumstances, it will not be straightforward to find solutions. The more institutions get affected the more complex finding solutions will get and, fairly quickly, EAZA would need to apply a level of triage to prioritise (individuals within) populations in light of the roles and goals of the populations as explained above. This will need to take a community wide perspective and it would be unavoidable to call upon all EAZA Members to make space available to prevent the priority populations from going extinct.

Whilst recognising that there are cultural and regional differences in relation to the application of culling, it is an agreed population management tool in EAZA as described in our Culling Statement. We are strongly committed to maximising the cooperative power of the EAZA community and avoid culling of animals due to COVID-19 related economic consequences. We would thus like to stress again the importance of zoos and aquariums reopening as soon as is safely possible to avoid situations where loss of income upon continuing costs reach an impact beyond the point of repair. EAZA believes that zoos and aquariums can put measures in place to provide for a safe and social distanced visitor experience. It is seen as positive that several European governments are planning for (partial) reopening of zoos at the end of April and during the course of May.