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POPULATION MANAGEMENT



Bornean orangutan
Pongo pygmaeus

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At the centre of the mission of progressive zoos and aquariums is the ability to maintain healthy populations of healthy animals over the long term and provide conditions for good welfare. Effective population management requires a holistic approach combining a wide range of professional and scientific disciplines with the aim of maximizing our ability to contribute to the long-term survival of species.

These disciplines cover ground including everything from the molecular level to the analysis of herd behaviours, and involve zookeepers, curators, population biologists, veterinarians, and many others. Since EAZA established the European system for population management in 1985, zoos and aquariums have also learned how to do it better, and how to let it shape other parts of the mission such as conservation, education and research. We set the pace for European population management, and any zoo or aquarium that aims to contribute fully to species conservation needs to be involved in our programmes – there is no other system that comes close to the effectiveness of our methods.

The core “unit” of population management at its most developed in Europe is the EEP or EAZA Ex Situ Programme. By the end of 2030, EAZA will have an EEP programme in place for over 400 species of animal; each of these programmes will have roles to play in helping meet the needs of the species as identified by experts from across the conservation community. EAZA may set up an EEP if wild populations are in serious decline, but it may equally set up an EEP to show the public that animals may be far more interesting and ecologically useful than their portrayal in our various cultures – and therefore worthy of mankind’s protection. The key aspect is that thoughtful consideration is given to which species should be included and why, so that EAZA Members can use their collective expertise in concert and increase the chances of a positive outcome for the animal and its ecosystem.

EEPs are run by EEP Coordinators with the support of Species Committees; groups of people with particular expertise and interest in the species. There will usually be a veterinarian in the group, often an educational advisor, and sometimes advisors for transport of animals or liaison with conservation groups in range states. They are responsible for knowledge of the EAZA population of

the species, at both a macro and micro level – meaning that they understand the role of each animal and how it is best able to contribute to the population and the goals of the programme. With this knowledge, they make recommendations about housing and care, pairing of breeding animals, movement of animals to meet population needs, and where appropriate, for the selection of animals for reintroduction or translocation. These recommendations are made to ensure that the population remains as diverse a collection of individuals as possible, especially from a genetic point of view. EEP Coordinators use specialist software to measure the average degree of relatedness of all the animals in a population (the Mean Kinship or MK) and use it to decide how to maintain the widest possible range of genetic diversity over the long term. Depending on the starting composition of an EEP, this should mean that the population in human care is sustainable indefinitely and should not require the introduction of new animals from outside, especially from wild habitats.

Within the context of the roles of EEPs, the goals of the programmes are as diverse as the species themselves. They may show a need for an increase, a decrease or no change in the numbers of animals in EAZA zoos and aquariums. They may also show a need for the breeding of animals that can contribute genetic diversity to a wild population that no longer has it. They will reflect breeding cycles and gestation periods that can vary from a few days to well over a year, and they need to have a clear view of the long-term future of the species in our zoos and aquariums and in the wider world. These roles and goals are set through a system administered by the Taxon Advisory Groups (TAG), committees with particular expertise in groups of species such as cats (the Felid TAG), or songbirds (Passeriformes TAG).

PRESERVING THE SAOLA

One such programme is currently being established for the saola, a species of small wild cattle found only in the Annamite mountains of Vietnam and Laos. Discovered in 1992, and observed just a handful of times since then, the species is Red Listed as Critically Endangered, with no clear picture of how many animals remain. Hunted and trapped until recently, the species is also separated into small pockets of population with each becoming progressively smaller and less genetically diverse over time. The EAZA Cattle and Camelid TAG included saola in their RCP (for more on RCPs see page 11) as they felt that zoo population management skills may be the key to saving the species. Working with the IUCN Species Survival Commission's Asian Wild Cattle Specialist Group, the TAG aims to restore a population of saola through the application of population management at a breeding facility constructed by the Vietnamese government in the Annamites. It's a species that is unlikely ever to be seen in a zoo – but our skills could be key to ensuring a future for this “Asian unicorn”.



Saola

THE STORY OF THE STRIPED HYENA: HOW EDUCATION CAN SUPPORT CONSERVATION



Far away from the Annamites in a huge range from India to Africa, the striped hyena is faced with a far less immediate threat of extinction than the saola. It does however have a terrible reputation with people both within its range and in Europe – a reputation that is ill-founded and often based on negative portrayals in popular films and traditional folklore. With such a reputation and with habitats everywhere in its range being degraded, the future for the species does not look good. The RCP for the Canid and Hyaenid TAG identified a clear role for zoos in turning this perception around: zoos are some of the most effective providers of education about animals and their habits, and education is the key to persuading people of the ecological value of striped hyena. Over the next few years, the EEP for the species will work to demonstrate the highly developed social lives of hyena, their role in clearing disease-bearing carrion from the landscape, and the balancing role they play in their habitat (for example, hyena packs can drive predators away from killed prey and force them to hunt again, ensuring that prey species are kept at levels appropriate to the habitat).

Striped hyena
Hyaena hyaena

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The goals of each programme are set out in a document called the Long-Term Management Plan (LTMP). The LTMP looks at what needs to happen for the EEP to fulfill its role over the next five to ten years and sets specific targets to ensure that it does. It includes thorough analysis of the population as it stands, assessment of the species as a whole as it appears in the IUCN Red List, populations in North America and other regions and so on, to help work out the best and most relevant goals for the programme. The LTMP follows on from a more general look at all the species within the TAG's competence, a document called the Regional Collection Plan (RCP).

The RCP sets out how zoos and aquariums can help a species that is in our care, or even, exceptionally, species that are not in our institutions. The RCP is produced following meetings which include conservationists from outside the zoo community, biologists with species expertise, EEP managers and other stakeholders. Working from a base of transparency and honesty, these scientists, conservationists and other professionals will look at which species are currently in zoos, and whether their populations are currently sustainable; they will look at the current situation of wild populations and forecast how it will change over the coming years; and they will look at whether the work of zoos can make a difference to that species.

If the group identifies that an EAZA population is in decline and that there is no real conservation or other benefit to the species from being kept in our institutions, the recommendation of the RCP may well be to phase that species out and concentrate on others where the zoo contribution is clearer. On the other hand, where there is a clear role for population management and *ex situ* conservation, a new EEP may be established. Key to this decision-making process is scientific input and the thorough understanding by everyone present of the potential of population management, not just in breeding new generations of animals, but also as a basis for educating the public at home and abroad, researching the species to help conservation efforts in range states, and so on.

From RCP to LTMP to EEP, the process of ensuring a sustainable future for all kind of species ensures that EAZA Members are making the most of their facilities and helping integrated conservation efforts in diverse ways. Population management will continue to evolve and provide valuable and unique contributions to the survival of species both in zoos and aquariums and in the wider world – and eventually to their recovery.