



## New Models for Linking *Ex situ* Populations to Species Conservation

### Participants

Amani Aly, Anne Baker (convenor), Lisa Banfield, Taylor Callicrate, Frands Carlsen, Peter Clark, Dalia Conde, Amna Al Dhaheri, Gerald Dick, Andrea Fidgett, Myfanwy Griffith, Markus Gusset, Julia Hanuliakova, Bengt Holst, Hidemasa Hori, Nian-Hong Jang-Liaw, Stacey Johnson, Mike Jordan, Reza Khan, Kristin Leus, Jansen Manansang, Kira Mileham, Sanjay Molur, Theo Pagel, Subbiah Paulraj, Paul Pearce-Kelly, Kirsten Pullen, Hessa Al Qahtani, Carlos Rojo-Solis, Oliver Ryder, Stephanie Sanderson, Akiko Shimosaka, Johanna Staerk, Kuniei Tabata, Kathy Traylor-Holzer

### Proceedings

In the introduction to the workshop Anne Baker suggested that our current focus on sustainability of captive populations might be missing the point, which is sustainability of populations in the wild. She encouraged the group to explore options for achieving the dual goals of sustaining wild populations while at the same time meeting zoos' needs for animals for exhibit, research, and education.

Two possible scenarios were presented at the outset, and the group was asked to discuss the pros and cons of each. The first scenario was one presented in a 1998 paper by Conway, that of "extractive reserves". The basic concept was that zoos would provide financial and logistical support for protected reserves in range countries and then, if and when surplus animals were available, remove some of these surplus animals to populate zoo exhibits. The second concept is a derivative of Conway's extractive reserve concept. In this concept zoos would support *ex situ* captive breeding programs in range countries and remove surplus to populate zoo exhibits.

### **Extractive Reserves (Conway, 1998), extracting surplus animals from zoo-supported reserves for zoo exhibits.**

There was a lively discussion around this concept. To clarify, the extractive reserve concept proposes that zoos support reserves in range countries that protect sustainable animal populations within the reserve boundaries. Surplus animals, which always exist in a sustainable population, would be drawn from the population for zoo exhibits.

The discussion was as follows:

- This might be better suited to some species rather than others. There shouldn't be a one-size-fits-all approach.
- An example of this might be removing eggs from wild species (reptiles, birds).
- This approach might create economic opportunities for local communities which in turn might cause them to look more favorably on reserves.
- There are good examples of this approach from the aquarium community. Many aquariums are supporting underwater reserves and then utilizing specimens from the reserve for display in their aquariums. This meets both the need to conserve habitat and the species therein, and the need for animals for exhibits.
- However, aquariums are already facing strong media scrutiny, (Hawaii, pressure to ban live fish moves, those being transparent leave themselves open to criticism)
- This idea would require monitoring to establish that harvest is sustainable.
- The challenge would be effecting cultural change, both within and outside of the zoo community.

- Zoos/aquariums would need to be proactive in taking charge of the conversation around this concept.
- Animals that came from extractive reserves would truly be ambassadors for their species and habitats.
- This would require an integrated approach working with in-situ organizations.
- Because species would be in their natural habitats, selective pressures would be those found in nature. This would alleviate issues with adaptations to captivity.
- It might be possible to take genetic material instead of taking whole animals/groups. These could be used to maintain genetic variability in captive populations.
- Legislative regulations (e.g moving Ungulates) would be a big challenge.
- It is possible that animals from an extractive reserve might be part of a managed metapopulation, where animals went both from reserve to zoos, and animals went from zoos to the wild. This might be important if the wild population was very small. However, we need to be careful not to mix metapopulation management and extracting genetic material, because they have different purposes.
- It is important to be very clear in our terminology.
- Zoos have special skills filling knowledge gaps concerning health and epidemics that might be helpful in reserve management.
- If animals from extractive reserves were not displayed but simply used to maintain genetic diversity in zoos populations, this might make the concept more palatable.
- There are examples of zoos supporting reserves. In Northern Kenya, 27 conservancies manage 3000 hectares, supported by many zoos.
- Do we want to allocate limited resources to species that are already secure in the wild (which is necessarily the case if we extract from a sustainable population in a protected area)? We might want to allocate resources to something else.
- However, in developing countries, the species might not be secure in long term (extracting species for zoos would be a long-term approach). Once we start in the wild, we would need to continue.
- What is the role of IUCN red listing in selecting species for this process?

**Table 1 Extractive Reserves: Pros and Cons**

<b>PROS</b>	<b>CONS</b>
Could provide economic opportunities for local communities	Seen as animal grab by others (conservationists, animal rights etc)
Could drive an OPA	Could create a model for bad zoo collection from wild
Health considerations	Health considerations
Could be a lasting mechanism	
Look at aquarium model	
Opportunity to redefine zoo role	
Take control of conservation	
Animals are truly ambassadors	

Natural selection will be working- eliminates  
captive selection

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### **Extractive captive programs in range countries**

This concept is derived from the Amphibian Ark's strong recommendation that captive assurance colonies be established in range countries and that animals not be removed from range countries to establish captive breeding programs in overseas zoos, and that zoos support programs in range countries. Because captive populations can very quickly go from 40 to 400 to 4000, once breeding is achieved, there can often be problems with how to deal with surplus animals. One option might be to utilize some of these surplus animals for exhibits in overseas zoos that enable those zoos to talk with their visitors about the conservation work that the zoos are doing.

The discussion was as follows:

- We are modifying our goals to what we can do with captive population sustainability. (e.g. what is a sustainable time interval: 200 years, 100, 50?)
- Developing extractive range country programs could create greater diversity for collections of zoos that support them.
- This approach might have high costs relative to benefits.
- Expertise might be lacking in range countries. We need to develop capacities, so it might in some cases be better to bring them to US/Europe.
- Many range country species are in countries that do not have strong skills and zoo affiliations.
- Selection pressures in the range country would be more similar to those found in the wild.
- Intercontinental transfers are challenging and local institutions do not have the resources to support conservation.
- One variant on this concept might be to engage with Rescue Centers in range countries. In many countries Rescue Centers are full and animals are in very poor conditions.
- If we engage in range countries, we do not have stories to tell and species to exhibit, engaging the public might be challenging.
- Just because we support a program in a range country doesn't mean that we can't exhibit the species in our zoos as well.
- This approach would provide a way to increase the diversity of zoo collections without having to maintain sustainable populations in zoos. Space is a limiting factor, and including range countries will help to meet the needs of increasing diversity and doing conservation. The approach could meet multiple goals.
- In situ programs are necessary for field research and data collection.
- Managing amphibian diversity is very difficult, even though they breed fast. We assume we have the expertise but we need not underestimate the lack of knowledge on breeding biology.
- In the Horizon Scanning exercise that WAZA conducted, sustainability of zoo populations was one of the main issues. There was a strong call to manage populations. However there seems to be opposition within this group to alternatives. Can the group propose other alternatives?
- Space, money and breeding are limiting factors.
- Metapopulation management and extraction approach are two extremes.
- Less than 25% of management recommendations are met.
- We could consider a strategy where the range country has the core assurance (primary) and then secondary populations are in our zoos.

- Political and social drivers are very different in many countries, conservation is not their priority.
- It can work if it is a win-win (linked with financial benefits).

**Table 2 Extracting range country *ex situ* populations**

<b>PROS</b>	<b>CONS</b>
Opportunity for capacity building	Would need many facilities
Could work with many facilities Same/ similar selection pressures as in wild	Difficult to see how to engage public
Encourage field research	Difficult to move animals from range countries
Conservation program near natural habitat	No range-country incentive commitment

**Summary**

There are considerable challenges to implementing either of the two strategies discussed during the workshop. These include: effecting cultural change both within and outside of the zoo and aquarium community, clear communication of potential benefits of strategies for conservation, developing an integrated approach to species management, insuring that there is long term commitment, capacity building, overcoming regulations on import/export and international transfers, improving our understanding of breeding and biology of species, and making sure that there is integrity in our story.

There also may be alternative strategies such as metapopulation management with increasing resources for in-situ conservation. Another alternative might be to support the development and maintenance of *ex situ* programs in range countries as the core assurance population, with secondary populations in overseas facilities.

**Next steps**

- Insure that full range of options is considered in collection planning.
- Examine metapopulation management more closely.
- Increased focus on the One Plan Approach within the zoo community.