



Ex Situ Population Management Tools Working Group

2009 CBSG Annual Meeting, St. Louis, MO, USA

Participants

Brad Andrews, Cheri Asa, Anne Baker, Jonathan Ballou, Karen Bauman, Evan Blumer, Amy Camacho, Luis Carrillo, Nancy Clum, William Conway, Bob Cook, Juan Cornejo, Adrienne Crosier, Gerald Dick, Lesley Dickie, Jackie Fallon, Lisa Faust, Nate Flesness, Greg Geise, Jack Grisham, Bengt Holst, Hidemasa Hori, Jamie Ivy, Bosook Kim, Bjarne Klausen, Robert Lacy, Kristin Leus, Lena Linden, Sarah Long, Yolanda Matamoros, Patty McGill, Kanako Nishimoto, Paul Pearce-Kelly, David Reed, Jorge Rodriguez, Kate Rodriguez Clark, Allison Rogers, Alex Rubel, Oliver Ryder, Christian Schmidt, Karin Schwartz, Lee Simmons, Edward Spevak, Brandie Smith, Kelley Snodgrass, Miranda Stevenson, Gloria Svampa-Garibaldi, Yasumasa Tomita, Kathy Traylor-Holzer, Eric Tsao, Kris Vehrs, Sally Walker, Dan Wharton, Jonathan Wilcken

Background

Several recent assessments of the status and sustainability of mammalian and avian ex situ populations managed through studbooks and cooperative programs such as the AZA Species Survival Plans®, EAZA European Endangered Species Programmes, and ARAZPA Australasian Species Management Plans have drawn attention to the inability of many programs to be able to achieve their population goals. The likely causes are multi-fold, and may include technical limitations as well as biological, logistic and socioeconomic factors. With the increasing pressures of climate change, habitat loss, disease and other pressures on wildlife populations, the need for effective ex situ management will likely increase. Now is the time to re-evaluate current methods, tools and data, and develop a strategy for addressing the continuing challenges of ex situ population management.

To address these issues, a working group was convened at the 2008 CBSG annual meeting in Adelaide to begin collaborative global discussion of these issues. The working group developed a list of issues (conceptual, technical and people-related) on the complexities, constraints and challenges of ex situ population management (PM). A list of current PM tools and those under construction (primarily ZIMS and PMx) was generated to identify which tools might be able to address some of the PM issues. The working group discussed some initial action steps to address a few of these issues, and a progress report has been developed and distributed electronically to begin compilation of past, current and planned projects.


This working group was reconvened in Saint Louis to continue discussion of these issues and to consider CBSG's role in potential recommended actions, projects and collaborations to address these issues. This discussion will help provide direction for further, more detail discussion at the CBSG strategic planning workshop for intensively managed populations scheduled for April 2010.

Sustainability Concerns and Potential Factors

Recent assessments of ex situ population sustainability by several zoo associations has led to increasing concern regarding the apparent ineffectiveness of current population management efforts. A quick summary of these analyses were given by working group participants:

AZA: Managed populations are too small; 80% of SSPs have fewer than 80 animals, and 85% are far below their target population size. Bird species are particularly at risk of being lost. Is the Regional Collection Plan (RCP) the right process? Programs are not working with the current guidelines and barriers, and so change is needed. Space surveys may indicate spaces that in reality are not available. One challenge is how to get the correct information, or how to coerce people into doing what they said that they would do. A small working group is working on this issue now but wants to expand. Bill Conway is an advisor to this group.

EAZA: The bird import ban placed an emphasis on the importance of the existing ex situ population and prompted an examination of the data. Data are lacking for many species. Many populations have 15 or fewer individuals, with poor breeding and low gene diversity. Mammal populations were also examined and are in slightly better condition, but are still poor. A primary problem is the lack of targets in the RCP, or the existence of unreasonable targets (ones



that are not what they want or are not achievable). Priorities are set without complete integration with in situ conservation needs. There is a need to set better priorities among species and to concentrate resources there, perhaps foregoing other species.


ARAZPA: A similar assessment as those by AZA and EAZA was performed. ARAZPA has always known that the number of available spaces in the region is too small to be self-sustainable for most species. Emphasis has been placed on population health rather than sustainability. The focus has been on barriers to animal acquisition, not on the source itself, with the presumption that barriers (e.g. legislative) were the problem. Over time population goals have changed from 90% GD for 200 years to 100 years to now 80 or even 50 years. Arbitrary goals are based on what we can achieve, not on what is needed. We need to examine what we mean by sustainability, and how we can achieve it. We may need to aim for an “infinite” timeline, as we do not know how long these programs will be needed (manage with open endpoints).

In light of these concerns, the working group was asked to consider the major, high-level issues that are leading to these sustainability issues. Specifically, working group participants were asked to respond to the following question:

Why are we not making effective use of intensively managed populations for conservation?

- Demography and genetics are secondary issues. The primary problem is how zoos are designed – too little space and too many species. Zoos are built to exhibit animals, not save species. They need to become committed conservation organizations and make hard decisions. Zoos lack integrated and scientific-based governance. A possible role for CBSG is to help change this. Accreditation can be used as a bargaining chip (e.g., no accreditation if you do not build new exhibits for the future). There is a need for a governing body to oversee new exhibits in light of what is necessary for vanishing species. Focusing only on demography and genetics will not achieve what we need to do.
- Zoos are still building identical exhibits with species that do not need conservation (e.g., gray wolves); they often build for species that are available or perceived as desirable, not ones that have a conservation need. Some zoos believe that they cannot sustain attendance with only “needy” species; others think you can if you are imaginative. Accredited zoos are still holding and breeding non-genetically valuable animals such as white tigers that they believe boost attendance. There is also the ongoing desire and promotion of cute baby animals – zoos do not want to give this up.
- We need to know why we have the species we have. There should be clear knowledge of the purpose and goals, whether it be for conservation or education value.
- Fear of surplus animals: there is a difference between surplus due to irresponsible management vs the sometimes unavoidable surplus in managed programs.
- Homogenization of zoos in terms of species for non-conservation purposes is bad, but there is a potential danger that this will occur when conservation needs are considered (high priority species).
- The typical model of zoo population (i.e., populations spread thinly across many facilities) is not working. There is a need to move to conservation in large conservation breeding centers, not zoos.
- All space is not the same (species differences, social requirements). When assessing space, the area must be converted to what it means in terms of space and management for that species.
- The Snow Leopard SSP focuses on institutions’ commitment to the species, not a particular amount of space, which has worked better. Information is provided on the proper necessary space for breeding; however, the SSP still does not know what is being built and why.
- Is there a difference in sustainability between regional and global programs? There is some evidence that global programs help (larger N).
- Part of the solution is to have intensively managed reserves or facilities in range countries. This can provide many advantages, such as cost effectiveness, ability to reintroduce, overcoming barriers to exportation/importation, etc.
- Multi-species exhibits are another possibility. Typically they involved small territorial birds, but could work for other species, such as colonial birds.
- Another possibility is specialization (e.g., geographic specialization), or clusters of zoos dealing with groups of animals that are demographically and genetically viable.

- What we don't have is an overall direction or plan – this will be challenging but may be possible.
- This is a multi-faceted problem and needs multi-faceted solutions. We need to use existing spaces effectively, and also need to create new spaces. Perhaps the time has come for extractive reserves (with zoos going in together on a reserve).
- We need to be frank about the implications of these proposals and our decisions (e.g., some species will no longer exist in zoos, animals may need to be brought in more frequently).
- We are sometimes our own enemies (e.g., Public Relations promoting baby animals). All breeding is being associated with conservation. We need to turn this around and promote the conservation stories.
- How much of the problem is that animals are not reproducing? There are many steps in the breeding process. One solution is more natural habitat, space, hands-off management and off display breeding. We don't understand reproduction in our species, and we don't monitor reproductive phases to know what the problem is. [Many of these more detailed concerns were outlined during the 2008 working group session.]
- We routinely ignore life history and social behavior and expect them to breed, and do not apply good science (evidence-based husbandry). We should not wait for peer-reviewed papers, but should apply what we know.
- There is some concern over contraception in species in some regions in which reproduction needs to be limited, but may be a species for which individuals are needed in other regions.
- How much conservation are we really doing? Most of the conservation programs that are working do not involve zoo exhibits (e.g., peninsular bighorn sheep) Conservation and management is easier when you are not working with lots of institutions, do not need to fill exhibits, etc. Need to think about what will really be needed in the future.
- How do we make this idea attractive? The top down approach does not work well in regional zoo associations. We need to make it: 1) attractive; 2) easy to do; and 3) easier to work in small groups (e.g. C2S2 model). A bottom up approach may be needed.
- We are too focused on what we think are visitors' preferences. Norden's Ark has only endangered species. Zoos can focus on good conservation and explain what they are doing to the visitors. People understand and like this.
- We need to pay attention to what is going on in the wild; right now, we are just assuming that habitat will be available in the future. People should be tracking what is going on in the country with wild habitat, which of course will become worse with climate change.
- There is the possibility of using the Field Project Prioritization (FPP) tool to prioritize species for ex situ conservation. USFWS has used something like that for assessing ex situ needs for California condors, whooping cranes, and beach mice. This is done somewhat in RCPs as well. However, such prioritization is not applied systematically and is done separately for ex situ and in situ situations, by Taxon Advisory Groups (TAGs) and by Specialist Groups (SGs). These assessments need better integration. The default tool now for ex situ prioritization is that the species will disappear in the wild and therefore needs an ex situ program.
- Have there been any successes? Yes, there are some programs that have met their short-term goals (e.g., giant pandas, tamarins, condors). In these cases there were lots of animals distributed among a relatively small number of facilities. Common themes were a focus on research and opportunities to try pairing lots of animals.
- Golden lion tamarins are a success story. Goals include high levels of gene diversity goal and to save the species in the wild. Animals are concentrated in multiple breeding facilities. The population was increased to 500 animals, and includes a buffer to be able to send individuals to other programs and to the wild. There is husbandry knowledge and research in these collections. The species is managed globally. Ownership by the reintroducing body is helpful. These are common themes. We need to look at successful programs and see what made them successful. We need to define success.
- There is a challenge of needing to reabsorb animals from the wild due to problems with recovery.
- In some regions, the situation is very different. Animals are brought to zoos by private individuals or placed there by the government (e.g., problem animals coming into urban areas). Such animals become part of the collection and are a threat to effective conservation (e.g., Mesoamerica).
- Often the problems are due to internal facility communications, not biology or exhibit needs. This can be addressed.
- Data quality issues affect population management. ISIS measures data quality, congratulating "good" zoos and encouraging the rest to improve. Reward systems are missing and could help. ARAZPA does this to



some extent with its annual ASMP reports.

- For many populations, the current downward trend could be turned around through improved management. For many, the problem is not insufficient founder base or population size, but bad/ ineffective management. There is a tendency to make space-based decisions. Dealing with surplus animals (e.g., surplus males) is a problem, and management euthanasia often is not considered an option. On the other hand, there are also problems related to stopping breeding and potential physiologically and behavioral impacts. We need to change the model and change management for sustainability.
- CBSG has effective collaborative tools that could help with issues of non-compliance. There is a problem with getting institutional representatives to management meetings to get their buy-in and commitment. It helps to have everyone in the room, but this is not always feasible.
- ARAZPA utilizes compliance officers in its institutions. This has helped a lot to reduce internal communication issues and other problems (which accounts for 60% of the non-compliance).
- Some of these suggestions are relatively easy to do and are common sense, and some are complex issues. We need common solutions across regions, perhaps under the banner of WAZA. We need a clearly articulated picture of what we are going to do.

Strategies for More Effective Management

The above discussion was reviewed and consolidated. Primary themes were the selection of species (integrated with in situ needs), differences and similarities among regions, and many suggestions of how zoos need to change how they work. These issues are summarized below.

In order to make effective use of intensively managed populations for conservation, we need:

1. Species prioritization and integrated global ex situ plans and goals into an overall conservation plan for the species (recognizing that there may be programs whose purpose is not conservation)
2. Zoos with a different way of thinking and operating and/or something different than zoos (intensively managed population facilities)
3. Assessment and tackling of all factors affecting viability:
 - a. biological
 - b. technical
 - c. human (socio-political, legislative), including involuntary placement of confiscated animals
4. Cooperation with authorities

The third issue (factors affecting viability) was discussed in some detail at the 2008 working group session. The working group decided to focus on the first two issues (development of integrated conservation plans for prioritized species, and alternative ways of how zoos work) for the rest of the discussion.

Species Prioritization and Integrated Plans

Linking to the Species Survival Commission's (SSC) Species Conservation Strategy (SCS)

First ensure that the scope and role of ex situ, or better termed intensively management populations (IMPs), is understood.

- Recognize that this will be an iterative process (will need to make some progress on points 2 and 3 above before this point can be achieved).
- Make sure that IMP-type people are part of the SCS process (e.g., amphibians), because now it is often hard for SGs to think about this openly with no preconceived ideas. [The Species Conservation Planning working group also made this recommendation.]
- Recognize that field people often are mistrustful of IMP people.
- Need to think about when it is the time to decommission the program and be more flexible.
- IUCN Ex Situ Guidelines gives milestones regarding when to establish a captive population, which could be helpful.
- Need to connect the two processes of what we can successfully keep and breed, and what is needed.
- Iterative process:
 - Use risk assessment tools to assess the viability of zoo populations rigorously.
 - Pay attention to assessments done for wild populations.

- Conduct prioritization independent of species/programs we already have.
- Bring in colleagues to help in our zoo processes.
- Recognize that zoos have information and expertise that federal agencies don't in terms of maintaining and breeding species.
- When used correctly, even non-reintroduction programs can still have conservation benefits (ideally part of the SCS for the species).
- Recognize that there may be some species that don't need intensive management now but may need it later. We need a process that can rapidly adapt to changing situations.
- How long will it take for an institution or region to change its collection in response to new needs (time lag between need and ability to meet that need); may require new spaces on non-zoo grounds.
- Scale is huge – many species need to be assessed; global and regional approach is needed.
- Within a global plan, the focus should be on the regional plan within the species' range. Regions need to take responsible for their own threatened species.
- There are some existing good examples (e.g., tapirs); good links between in situ and ex situ teams is important (e.g., TAGs and SGs).

CBSG's Role

- Help identify factors and concrete methods and processes for prioritization and development of an integrated plan.
- Stimulate “out of the box” creative thinking.
- Fill in the knowledge gaps in the SSC re: ex situ management (e.g., misconception that every animal in captivity is one less in the wild).
- Improve credibility with the SSC (since CBSG is part of the SSC).
- Bring the right people together, with CBSG facilitating.
- Assess sustainability and harvest rates if regular supplementation from the wild is needed. (e.g., as part of a PHVA).
- Providing concrete tools (software, workshops).
- Evaluate the viability of captive populations at a global level.

Different Way of Operating for Zoos

- One zoo or a collaboration of zoos become the focal point / be responsible for a species.
- CBSG create a process to examine the conservation need, the options, the facilities needed, and the business plan: create a “SimIMP” tool for this.
- There are already some zoos that are more specialized that can serve as models: e.g., Laramie, Arizona Sonoran Desert Museum, International Crane Foundation, Wild Fowl Trust in UK
- We need creative energy: how would we construct a facility to meet conservation needs?
- Way to do this could be to specialize on:
 - Species linked with nature vs species that have lost their habitat (“homeless species”)
 - Species based on social behavior
 - Geography
 - Climates
 - Institutions that act as corridors
 - Zoos that exclusively focus on breeding of rare animals
- Need new thinking among zoo directors on the kinds of animals we keep (our public will no longer accept the way we keep and manage animals now).
- Read existing (old) articles.
- Emphasize managing animals in their own region (regional and global approach).
- Need guidelines on how non-breeding (not appropriate) facilities can contribute to conservation and awareness (use of spaces unsuitable for breeding); e.g. holding non-breeders.
- Be honest and transparent and do what we preach (hard to be bunny huggers and do effective conservation).
- May be difficult to change attitudes if institutions are government-run (may be more limited in how they can adapt).
- Need to ensure that habitat is protected (places to put animals back).

- Also need to ensure public buy-in to tolerate animals in that habitat (address human-animal conflict).
- The need to explain the reason why we have this animal in this enclosure will increase; the only good reason is conservation (in some cases, the “wild” is changing and increasingly needs management also).
- One step: an annual institutional collection plan (ICP) that acts as a strategic plan (explains why each species is kept in the zoo, and needs approval of board of trustees).

Steps Forward

- Species-specific approach: bring stakeholders together and get buy-in (“PHVA-like”, facilitated by CBSG).
- What if CBSG asked zoos to explain the purpose for each species in their collections (multi-choice); would get little response.
- Identify existing zoo alliances and give some of these challenges to them and learn [go to the innovative groups/alliances (e.g., C2S2) with requests and how they could do that; come back to our group with suggestions].
- However, we don’t have much time and so need to be pragmatic
- Changing of minds needs to come from within the zoo community. These are important discussions and should go on at the regional zoo associations and WAZA. Regional associations need to make this a priority. The relevant zoo people (those with influence) should be invited to the meeting in April 2010.
- We have to change how we talk (e.g., “collections” is museum-speak; “captivity” implies prison).
- Use CBSG’s strength of calling on various fields of expertise; pull in business world, etc. on how to change people’s attitudes and behavior (“change” experts).
- WAZA needs to be a key partner; CBSG potential role to get this on WAZA’s radar screen.
- Most of these same issues and recommendations were made 30 years ago; there is an urgency to do this now for some species and not wait for another 30 year experiment to get institutions to change; perhaps use scare tactics (e.g., sustainability projections) as an eye-opener.
- For each species we should ask how it can best contribute to conservation; may not always be intensive management (for long term); maybe just development of a new technology.
- Need a parallel track for urgent action for those species on the edge that we will lose if we don’t act quickly; pursue the idea of large breeding facilities.
- Do we need different group of people in the room to make these types of decisions (e.g., marketing, business, PR)?
- Possible strategy
 - Taxon by taxon workshops (PHVA-type process) with non-biologists included in the process;
 - “Big shift” workshops with SSC people, etc.
- Need structured decision making – all objectives from all corners of the zoo world at the table.
- Need to create a sense of urgency. Last Child in the Woods indicates urgency doesn’t always work – rather, positive interaction with nature does (but urgency may work for zoo directors).
- Most animals in zoos are not in AZA, EAZA or ARAZPA institutions. Most zoos in the world, especially in other regions, are very far from this type of thinking; in some cases, they have different priorities than conservation, and need charismatic animals that will bring in visitors.
- All zoos have these problems: need to bring people in the gate, and not doing good conservation; and so may really need to move away from traditional zoos.
- Some regions are where we were 30 years ago; would be good for them to bypass our mistakes so that other regions can benefit and learn from us.

2010 Strategic Planning Workshop for Intensive Managed Populations

The focus of the strategic planning workshop scheduled for April 2010 will be what CBSG and our partners can do to move toward points 1-3 above. The goal is to identify how to make (more) effective use of intensively managed populations (IMPs) for conservation and to involve stakeholder participation.

Participants

- Zoo associations; representatives from countries without zoo associations
- Ex situ population managers (species coordinators/TAGs/PM advisors)
- IUCN/SSC Specialist Groups
- Other kinds of breeding centers



Content

- Build upon 2009 working group (provide as background document), and identify more detailed actions
- Define already identified needs:
 - Prioritization tool (e.g., top 10 species to work on and how)
 - Paradigm shift (characteristics of hypothetical zoo of the future)
- Define goals (not all conservation goals) and come up with series of different management strategies for different goals.
- Identify next steps and who will do them.
- Have participants take these ideas back to their own institutions for reactions / feedback.

Preparations before workshop

- Briefing materials
 - 2008 and 2009 working group notes
 - Relevant publications and reports
 - List of ex situ-related activities (from the CBSG mission map) along with individuals who have indicated that they want to work on these
- Develop a white paper on what needs to be done; may be able to initiate this through various working groups on the CBSG Member Site (forum for good ideas that can evolve into a white paper, such as the multiple roles of zoos, new types of facilities, prioritization tools, viability assessment of captive populations).
- Use CBSG Member Site to identify skills/expertise of members of the group.
- Use group email to distribute notes and to identify who wants to work on which topics (e.g., Nate is interested in using ISIS data to do a rough assessment of viability (maybe 10,000 species); this could be a small focus group on MySite to provide advice to ISIS).
- Other potential working/focus groups:
 - Envisioning the institution of the future
 - Identification of emergency species
- Email participants of this working group to identify interest in working on these topics

Since the conclusion of the CBSG Annual Meeting, the dates and venue for this workshop have been identified. The workshop will be held in San Diego on 26-29 April 2010. Contact Bob Lacy (rlacy@ix.netcom.com) for more information.

