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## Towards Integrated Species Conservation



The endangered African wild dog (*Lycaon pictus*) has been restored in South Africa using an integrated species conservation approach, including active metapopulation management. | © Rob Till

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## The One Plan Approach: The Philosophy and Implementation of CBSG's Approach to Integrated Species Conservation Planning

### Summary

An increasing number of threatened species are dependent on continuing management for their survival. For these species, it makes little sense to conduct separate and independent conservation planning efforts based on whether these interventions take place in the wild, in increasingly managed parks and reserves or in zoos. The One Plan approach proposed by the IUCN SSC Conservation Breeding Specialist Group (CBSG) promotes integrated species conservation planning, which considers all populations of the species, inside

and outside their natural range, under all conditions of management, engaging all responsible parties and all available resources from the very start of any species conservation planning initiative. The One Plan approach aims to: establish new partnerships; ensure that intensively managed populations are as useful as possible to species conservation; increase the level of trust and understanding among conservationists across all conditions of management of a species; accelerate the evolution of species planning tools; and ultimately lead species conservation towards the aspirations embodied in the Aichi Biodiversity Targets.

### The Need

As habitats are increasingly altered and wild animal and plant populations impacted by human activities, a growing number of the world's species are dependent on continuing management for their survival and ultimate conservation. Scott *et al.* (2010) stated that 84% of the species listed under the US Endangered Species Act could be classified as "conservation reliant" and will require continuing, species-specific interventions. Widespread threats such as habitat loss, poaching, invasive species and disease often lead to smaller, isolated populations that require conservation action, not only to avoid extinction but to achieve conservation as defined by WAZA (2005): "securing, for the long term, populations of species in natural ecosystems and habitats", and more specifically by Redford *et al.* (2011): "maintaining multiple populations across the range of the species in representative ecological settings, with replicate populations in each setting. These populations should be self-sustaining, healthy, and genetically robust – and therefore resilient to climate and other environmental changes".

These threats are not only impacting currently endangered species. In their recent analysis of the effects of climate change on biodiversity loss, Warren *et al.* (2013) found that without mitigation, large range contractions can be expected even among common and widespread species, amounting to a substantial global reduction in biodiversity and ecosystem services by the end of this century. Effective integration of planning, and the optimal use of limited resources, across the spectrum of management is essential if we hope to contribute to achieving the global biodiversity targets agreed upon by the Conference of the Parties to the Convention on Biological Diversity in Nagoya, Japan, in 2010, commonly referred to as the Aichi Biodiversity Targets.

### Two Plans Are Not Better Than One

An obstacle to this, however, is that species conservation planning has traditionally followed two parallel but separate tracks. Field biologists, wildlife managers and conservationists monitor wild populations, evaluate threats and develop conservation strategies and actions to conserve threatened species in the wild. Meanwhile, the zoo and aquarium community develops long-term goals for *ex situ* populations, sometimes without full access to information about the threats faced by the species' wild counterparts and the opportunities for supporting those populations. While each management plan strives for viability of a particular population, too seldom are these plans developed together to maximise the conservation benefits to the species.

The international zoo community has made tremendous progress recently on the design and development of Global Species Management Plans (GSMPs). However, this label is a misnomer, as the population being planned for is the global captive population, not the global population as a whole. These programmes are designed to general principles usually aimed at retaining conservation value through close management of demographic health and genetic diversity. However, their planning lacks the comprehensive input from *in situ* conservation managers that would enable customisation towards the specific management needs of the species as a whole. Without this input, GSMPs, or indeed any captive breeding programmes, will not necessarily be large enough, genetically diverse enough, productive enough, in the right kinds of facilities or in the right place at the right time to provide the support that they could to wild populations.

On the other hand, too many conservation planning and Red Listing workshops take place without sufficient active involvement from the international zoo community. Species conservationists working to conserve unmanaged wild populations often do not see the potential contribution from intensively managed populations; intensively managed populations are rarely considered as part of wider meta-populations from the start, if at all. Redford *et al.* (2011) stated that "we must view captive management as only a stop-gap measure in efforts to move species up the continuum" towards a fully conserved state.

The IUCN Red List of Threatened Species recognises the impact of captive stocks on a species' conservation status in its distinction between Extinct and Extinct in the Wild. However, it makes no attempt to quantify this contribution, either at any point prior to the complete loss of the species in the wild or at any point after, despite the fact that, as a species approaches extinction in the wild, the chances of establishing a healthy captive programme or of reshaping an existing one into an appropriate programme of management become increasingly small. When existence in the wild is threatened, then populations of that species, wherever they are, are potentially of conservation value. A status assessment that includes and evaluates all populations of a species, inside and outside their natural range, would thus be a useful aid to planning and prioritisation.

We are all trying desperately to save species, and the definition of conservation is, for the most part, agreed upon. What differentiates the captive community from other conservation entities is its ability to buy time. It can do this by securing populations from threatening processes in the wild, while concurrent conservation activities battle these threats *in situ*. In the majority of cases there is no consensus on how to remove these threats, and in many instances (e.g. for species threatened by amphibian chytrid fungus) we do not have the technical ability to do so. For a number of species, captive populations could well provide a critical and ongoing conservation resource for the foreseeable future.

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Where there are populations in captivity, we must consider those populations when developing a conservation plan. CBSG is placed at the interface between the zoo community and the global species conservation community, has over 30 years of experience with species conservation planning, and can therefore potentially bridge this gap and facilitate an improved contribution of the zoo community to successful species conservation globally. (Fig. 1)

### The One Plan Approach Defined

Population management across a continuum that bridges wild and intensively managed conditions can serve as an important tool to progress species "up the ladder", towards fully conserved status. CBSG, through its One Plan approach, supports integrated species conservation planning through the joint development of management strategies and conservation actions by all responsible parties to produce one comprehensive conservation plan for the species. Integrated species planning is not a new concept: such holistic conservation efforts have led to several well-known conservation successes, from golden lion tamarins in Brazil to Puerto Rican crested toads in the Caribbean to Arabian oryx in the Middle East. Previous CBSG workshops for species such as the Okinawa rail (Figs 1 and 2), red-headed wood pigeon and black-footed ferret developed integrated species conservation plans across an interactive wild-ex situ spectrum. Other examples include African penguins (Schwitzer *et al.*, this issue) and Tasmanian devils (Lees *et al.*, this issue). Our vision is to make comprehensive conservation planning more commonplace and effective. (Fig. 2)



Fig. 1  
Captive Okinawa rail with radio-transmitter.  
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### The Benefits of Implementation

Assessment of threats to wild populations and evaluation of potential strategies to address those threats should consider the wide array of options offered by intensive population management, and if and how these tools might promote conservation of the species in the wild. Options include: source populations for demographic or genetic supplementation; assurance populations against imminent threats such as disease or invasive species; research populations to develop monitoring or management techniques; and head-start programmes that temporarily shelter juveniles from high mortality and promote population growth. In turn, wild populations will boost the long-term viability of *ex situ* populations by supplying genetic founders that can or must be removed from the wild, such as excess offspring, nuisance or injured individuals that cannot be released or non-viable population fragments.

The CBSG workshop process is ideally suited to implementation of the One Plan approach. As Redford *et al.* (2011) note, "developing such a positive vision with a broad range of stakeholders produces a positive atmosphere, facilitates cooperation, and allows for development of essential partnerships and political support". In addition, the newly revised *IUCN SSC Guidelines on the Use of Ex Situ Management for Species Conservation* (IUCN SSC, in prep.), in essence, call for just such an approach, and the SSC/Global Species Programme strategic plan, which guides the work of CBSG and all other SSC Specialist Groups, includes among species conservation planning targets the application of the One Plan approach over the next quadrennium.

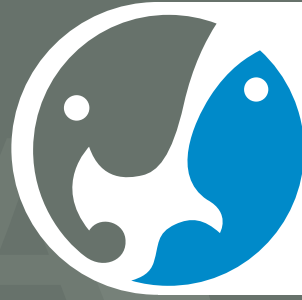


Fig. 2  
Wild Okinawa rail.  
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The zoo and aquarium community is actively building links with the SSC Specialist Groups and field conservation agencies. Its members are committed to making available to their conservation colleagues the captive community's specialised skills and valuable resources to assist in conservation. The One Plan approach is a working model of how the benefits of this conservation opportunity can be fully realised. Our goal is to promote and routinely apply the One Plan approach in the coming years. The result should be integrated conservation plans that mobilise the full suite of skills and resources available to species in trouble, giving them a better chance at a future in the wild.

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