

**An Overview of
Species Conservation Strategic Planning
(SCSP)**

DRAFT

Document prepared by:
The Species Conservation Planning Task Force
Species Survival Commission, IUCN – The World Conservation Union

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A Framework for Species Conservation Strategic Planning

The global community recognizes the importance of conserving nature on planet Earth. The natural systems of the planet make human life possible, by providing food, water, energy and material resources; nature makes life worth living by providing beauty, inspiration and context for human life, as demonstrated in the cultural traditions of human societies from around the world and everyone every day who admires a bird or takes a walk in the woods. The intrinsic and extrinsic values of nature have been recognized in international treaties and conventions including the Convention on Biological Diversity, Convention on Migratory Species, the Kyoto Treaty, and the formation of the World Union for the Conservation of Nature (IUCN), where nations and non-governmental entities have banded together to ensure that nature is conserved for humanity forever.

Biological species – tigers, butterflies, trees, frogs, whales, etc. – are integral to nature; they are the players on the stage; species and their interrelationships, including the relationship to people, are the fabric of nature, as evolved and established over millennia. Many of the closest relationships human beings have established with nature are based on species – the species we eat, the species we fear, the species we love. As we have learned more about the biological diversity of the planet, we have increasingly come to appreciate the roles of species in ecosystem services, and the profound diversity and wonderful strangeness of life on Earth. At the same time many of us feel that modern humanity has become impoverished as the natural world has declined with the stunning success of the human population, which today is more populous and richer than ever before.

The sheer diversity of species on Earth is extraordinary, almost beyond imagination. More than 1.7 million species have been identified; estimates of the total number of species, including those we do not know, on the planet have ranged from 8 million to 100 million. (Tudge 2000) Even more daunting are the predictions of how many species are being lost each year. Some 16,000 species of animals and plants are threatened with extinction and many ecosystems – particularly wetlands and forests – are being degraded and destroyed, even though natural ecosystems provide humans with a wide range of valuable services.

In an effort to save species and overall biodiversity, a number of approaches to conservation have been suggested that focus on habitats, ecosystems and ecological regions, such as hot spots, ecoregions (biologically important areas), important bird areas, etc. These supra-organismal approaches seek to save nature in a place or region in one fell swoop by ensuring that first the ecosystem processes and structures which support nature are in place.

Although these supra-organismal approaches are critical to conservation to nature, they are insufficient on their own. Protecting forests alone does not stop the hunting of animals within forests; the protection of tiger habitat alone does not stop the trade in tiger parts. Saving grassland habitats does not make up for the indiscriminate use of insecticides impacting grassland insects. As a result, conservationists have learned that some species, and species groups, need particular attention based on directed species conservation strategies.

The IUCN Species Survival Commission (SSC) is a science-based network of some 7,000 volunteer experts from almost every country of the world, working together towards achieving the vision of “A world that values and conserves present levels of biodiversity.” SSC is charged by the IUCN with providing information to IUCN and the conservation community at large on biodiversity conservation, the inherent value of species, their role in ecosystem health and functioning, the provision of ecosystem services, and their support to human livelihoods. Under this mandate, the SSC forms Species Specialist Groups focused on the conservation of species, often defined in taxonomic groups. Species Specialist Groups (SSGs) exist for a multitude of species and higher taxonomic levels, and on major modalities of

conservation, including restoration, conservation breeding, and veterinary medicine; there are currently more than 100 Specialist Groups, Disciplinary Groups, Task Forces, and Working Groups. The majority of the groups are taxon based, and groups exist for major taxonomic groups such as mammals, birds, amphibians and reptiles, fishes, invertebrates, and plants, although the numbers of specialist groups are rather uneven across different taxonomic groups¹. These voluntary assemblies of the world's experts on particular species conduct assessments on the conservation status of species, they provide unbiased, scientific advice to governments on species conservation, and they convene groups of people to plan actions for the conservation of species.

IUCN Species Specialist Group status reviews and Action Plans prepared over the last decades have addressed the conservation of biodiversity world-wide. These “white” and “black” books have been critical in documenting the status of species and suggesting conservation actions that will improve their status. For many species, they are the key references on where species can be found and the threats that they face.

Unfortunately, many of these action plans have been less successful in carrying out the planned actions than was once hoped (Fuller et al. 2003). A plan that does not lead to action, and a status review that documents the continuing decline of a species group without raising additional effort to conserve it, are fundamentally unsatisfying to all involved. As a result, in 2006, the Steering Committee of the Species Survival Commission authorized a Species Conservation Planning Task Force to review the existing and continually expanding experience on species-focused conservation planning and to prepare a revised set of guidelines, focused not only on the planning process, but also recommending how to motivate greater levels of conservation investment through species-level strategic planning.

In the following guidelines, the reader will find a draft of the advice of the Task Force on when the implementation of species conservation strategies is most useful, how to group species into functional units for conservation planning, how to develop a vision for conservation of a species or species group, how to conduct a thorough-going status review, how to set conservation objectives through broad consultation with stakeholders, and how to address those objectives through geographically and thematically specific actions.

These guidelines will not halt the decline of species in the absence of attention from the rest of the world; however, they will enable IUCN SSC Species Specialist Groups, and partners in the private and public sectors, to use recommended best practices in species conservation planning, and through that mechanism to achieve our shared vision of a world where people and nature thrive together.

The Evolution of SSC's Planning for Species Conservation

Since the first SSC Action Plan was published in 1987, more than 60 Plans have been compiled, edited or authored and printed in a series of publications that is now well recognised². In April 1991 a joint meeting on Action Plans and their implementation was held by the Fauna and Flora Preservation Society (now Fauna and Flora International, FFI) and SSC. By then, only four years after the first Plan appeared, 16 Plans had already been published, and many more were in draft stages. A message from the SSC

¹ There are, as of today, 29 plant specialist groups; 29 different mammal specialist groups, most of them on large charismatic mammals such as African elephants, bears and cats; 20 bird specialist groups; 5 amphibian and reptile specialist groups; 6 fish specialist groups; but only 2 invertebrate specialist groups, in addition to the Disciplinary Groups, Task Forces and Working Groups. (IUCN Website, <http://www.iucn.org/themes/ssc/sgs/sgs.htm>, accessed Jan 22, 2008)

² For a list of published Action Plans see <http://www.iucn.org/themes/ssc/sgs/equid/docs/publist.pdf>

Chairman, George Rabb, stated that “The subject of Action Plans and their implementation is at the core of the Species Survival Commission’s work.” At the time of the meeting, SSC had just received a donation of US\$1 million for the preparation of Action Plans and promotion of their implementation.

The majority of the Plans have covered mammals, especially the larger charismatic species, such as primates and wild cats, but there are also Action Plans for orchids, conifers, dragonflies, several groups of birds (e.g. cranes; parrots; and pheasants), fishes, and other groups, containing a wealth of information on these species. According to SSC, this series “... assesses the conservation status of species and their habitats, and specifies conservation priorities. The series is one of the world’s most authoritative sources of species conservation information available to natural resources managers, conservationists, and government officials around the world.” (IUCN/SSC, 2006)

At a relatively early stage, the SSC Action Plan guidelines recognised that simply publishing information on species was not sufficient to ensure conservation results, and therefore recommended that action plans should “make prioritised recommendations **specifically designed for key players**”. Other purposes of the Plans were considered to include:

- To serve the interests of the Specialist Group members;
- To provide a baseline record against which to measure change;
- To expand on the IUCN Red Lists of Threatened Species;
- To provide scientifically-based recommendations for those who can promote and support species conservation;
- To provide a common framework and focus for a wide range of players;
- To provide a convenient and accessible conservation resource;
- To establish priorities in species conservation; and
- To aid fundraising.

All Plans have been compiled by Specialist Groups with the single exception of the Parrot Action Plan, for which there was no Specialist Group in existence at the time. The effort expended by the groups in synthesising information and assessing needs was considerable and the majority of compilation work was carried out voluntarily. The cost of editing and printing the Plans was also significant.

The world now, however, is very different from the late 1980s and early 1990s, when these Plans were the only sources of information on species in many cases. Now, there are both many other sources of information on some of these species and the places where they live, and there is much greater demand for species-related information. Furthermore, the great complexity of implementing realistic and sustainable conservation programmes has become increasingly clear. In view of all these changes it is clear that SSC’s species conservation planning activities need to evolve to reflect the changing world. In particular, there is a need to draw on new approaches and techniques from a variety of fields and to identify clearly and then engage with a much wider community of stakeholders.

Given the current dynamic environment, we have attempted to design a set of suggested guidelines for the preparation of comprehensive and practical Species Conservation Strategic Plans (SCSPs), always bearing in mind the need to tailor approaches to particular target groups and scenarios. While there cannot be a one-size fits all method, we believe that conservation planners will benefit from being able to refer to these guidelines when preparing conservation plans. It is hoped that our suggestions will lead to conservation strategic plans that are based on sound conservation biology approaches, and prepared through inclusive, participatory processes to the sense of ownership, improve prospects for implementation and, ultimately, sustainability of results.

The role of the IUCN/SSC Specialist Groups in species conservation planning

The IUCN/SSC Specialist Groups' role is both to promote and monitor conservation actions that will help realize the Conservation Vision and associated Goals that form an integral part of the SCSP.

In theory, the IUCN/SSC Specialist Groups are best positioned to undertake this action-promoting and monitoring role because of the IUCN's status as an intergovernmental organization and the Specialist Groups' broad membership. Typically this encompasses members from all range states, all or most of the big international NGOs, and a range of specialities from taxonomy and ecology to practical wildlife management and law enforcement, and (often) it includes range state resource managers. However, it will usually be necessary to invite additional stakeholders from outside the Specialist Groups to help play this action-promoting and monitoring role, especially if they were involved in developing the wider SCSP.³

When to do a Species Conservation Strategic Plan

SCSPs are necessary when a species or group of species⁴ are deemed by their Species Specialist Group to require coordinated conservation attention. The need for coordination may arise because the range of the species straddles political boundaries or multiple ecological zones and so requires different political entities and groups of scientists, managers and policy-makers to act in concert; or it may arise because the level of threat is endangering the viability of a particular population of a species, its ecological functions, and/or its habitat.

Once the need for a coordinated conservation effort has been established, it is useful to ask if there is also a need for a new Plan. Species conservation strategic planning is arduous and in nearly all cases will require dedicated staff and resources to be implemented. Species Specialist Groups should not take on the task of planning unless they have the resources – time, financial, and personnel – to complete the task. Although this may seem obvious, the enthusiasm of specialists and the increased scope of conservation planning suggested here, warrants caution when embarking on a planning process. Species Specialist Groups should also not embark on the preparation of a new Plan if an adequate Plan already exists, even if it is not perfect. Finally, a Plan should not be prepared if the necessary information (such as distribution of the species, nature of threats, species status) is unavailable.

Implicit in these requirements is a functioning and representative Species Specialist Group that conforms to the IUCN SSC guidelines and agrees to work together on the task as a unit.

Taxonomic Scope: single, few, or many species

Different SSGs focus on different numbers of species. Some SSGs focus on only one or a few well-known species (e.g. African Elephant Specialist Group); other SSGs take on huge numbers of individual species (e.g. Plants Specialist Group.) In a conservation planning context, this distinctions of taxonomic scope require careful consideration and in some cases will require different methods. An SCSP might have a focus on a single species or closely related group of species, or might encompass a larger number of different species within a broader taxon, within a common habitat, or with similar or interacting ecological relationships. In some instances such a Plan may cover a multitude of species. For example, some invertebrate groups may require planning for thousands of poorly known species for which individual species-by-species conservation planning would be impractical and impossible.

³ This could be achieved through the creation of Conservation Strategy Working Groups within the Specialist Groups, for example.

⁴ See the following section on taxonomic scope.

Guidelines for an SCSP must cover both kinds of taxonomic groupings: the “single or few” species and the “many or speciose” taxonomic group. In both cases the overall set of species conservation planning steps, as outlined below, will be similar. However, we also foresee that the details of conservation planning for the two tracks may be quite different. A major dividing point in the species conservation planning process therefore is the number of species being considered. Although it is not clear exactly how many species constitutes “a few” or “many,” and, given different species characteristics, a rigid rule would not seem sensible, we believe that when a group has more than 10-20 species, it is more likely to follow the “many species” than the “single or few species” track.

Factors or species characteristics that would indicate that a “single or few” species could be the appropriate focus for a SCSP include:

- Data on the distribution and threats facing that species are available
- Wide or unique distribution
- Major ecological role, such as a “keystone” species
- Special ecological needs or unique threats
- Economic or cultural importance

In contrast, factors that could lead to a multi- or speciose SCSP include:

- Limited data on the distribution and threats for each species
- Multiple species sharing largely overlapping ranges and habitats
- A guild of species with similar ecological roles
- Common threats to a group of species
- Limited resources for or interest in multiple plans for a group of species

Multi-species Conservation Plans would most commonly be conducted on a group of related species (for example, those in a speciose genus or family), but it might also be beneficial to design such Plans for a group of species that have common ecological roles, share habitat, or are linked by strong ecological relationships, such as a predator and its prey. It should also be noted that within one “umbrella Plan”, there might be multiple discrete SCSPs, as is often the case in the existing SSC Action Plans. It may also be appropriate to develop a SCSP for a group of species, with more detailed Plans for a few representative or focal species from the group.

As more species are included, the SCSP will likely take on more of the characteristics of an area-based Plan, and there is not a rigid demarcation between species conservation planning, area-based Plans, and threat-based Plans.

The Basic Components of a Species Conservation Strategic Plan

We propose that an SCSP should have four inter-linked components that cross scales, engage diverse constituencies, and that lead from vision to concrete conservation action. These four steps are (I) a status review of the current status of the species or group of species⁵ in question, (II) a conservation vision statement respecting the desired long-term state of the species across the species range, (III) a set of conservation objectives reflecting national or regional priorities in the context of the range-wide vision and over shorter time frames, and (IV) a series of conservation actions for specific places which *in toto* combine to save the species.

⁵ Note: In the following, “species” can refer to a single species or groups of species. See the section on “taxonomic scope”.

I. Status Review

The **Status Review** for the species is a peer-reviewed summary of information about the current ecological, socio-economic, and cultural status of the species, made in reference to the **Conservation Vision and Goals**. Status Reviews are time-bound and geographically scaled to the range of the species; they are also spatially explicit, supported by appropriate geographic information system (GIS) analyses and metadata, and conducted according to standardized protocols. They include summaries of recent observations, ranging patterns, important population units, population trends, threats and constraints, socio-economic and cultural importance, and existing conservation actions, as described below. In other contexts, status reviews might be called status reports or species profiles and have been an important part of Action Plans in the past.

The Status Review should rely on a thoughtful and inclusive analysis of scientific and traditional knowledge and be inclusive of the major stakeholders with information and concern for the species. The review process often provides a neutral venue for including the range of stakeholders necessary for participation in the larger process. However, the information collected in the Status Review needs to be reliable, which means that it should be subjected to peer-review, well-documented, and attributed according to quality and source. To the extent possible, the information collected during this review should be placed in the public domain.

The status review mechanism⁶ should consist of protocols for conducting a range-wide consultative workshop, drawing on procedures from the Range-wide Priority-Setting process (Sanderson et al. 2002) and the Population and Habitat Viability Assessment process (Westley and Miller 2003). The product should be a set of GIS layers and summary information that will allow stakeholders and the world community at large to judge the conservation status of the species against the conservation vision.

The Status Review should consist of seven subsections, as outlined below:

1. Species description

This subsection answers the question: What is the species? It provides a summary of the relevant systematic and phylogenetic information related to the species, including (for groups of species) a list of the species included in the SCSP. It should include a photograph or drawing of the species (or representative examples, in the case of multi-taxa groups), information on Red List status and/or other international recognition (e.g. CITES listing).

2. Values

This subsection answers the question: Why save the species? It should summarize the values of the species to people, including cultural, socio-economic, religious, ecological and other significance. This section should highlight ecosystem services connected to the species (e.g. pollination, seed dispersal), human consumptive (e.g. food, decoration) and non-consumptive (e.g. tourism) uses of the species, and important cultural values (e.g. cultural symbolism, group-identity.), both within the species' geographic range and outside that range.

3. Historical account

This subsection answers the question: How did the current status of the species arise? It should provide a summary of the history of the species, its historical distribution, and explain briefly how it has become of conservation concern and what have been major threats in the past. The section should include a well-documented historical distribution of the species, including a map (and corresponding GIS layer) which

⁶ The mechanism is detailed in a separate conservation strategy manual.

provides an outer bound of the planning area. This section should also cite any major planning efforts for the species in the past, including previous action plans.

4. Current distribution and trend

This subsection answers the question: What is the current status of the species? It should provide a summary of the current status of the species, including synthesized map layers documenting (a) recent survey locations for the species, and their results; (b) the current distribution, categorized by level of confidence according to standardized categories (e.g. definite, probable, doubtful, extirpated, unknown, etc.); (c) important population units, suitable for basing conservation actions on, including identification of possible restoration areas where relevant. Each of these data should be attributed by their source, date, and method of observation, with standardized metadata.

5. Habitat and resource assessment

This subsection answers the question: What is the capacity of the Earth systems to support the species? This section should provide a summary of the current potential of the Earth to support the species, particularly with respect to its habitat requirements (including food, water, shelter and reproductive resources.) Typically this section should include a review of land-use across the species' range, key resources used/needed by the species (e.g. prey for predators), and describe a map of the major ecological settings where the species occurs (particularly if the vision statement includes a "representation" value.) For migratory or other highly-mobile species, this section should also include an assessment of ecological linkages between important population areas, as described in subsection 3. It should also review predictions of the impact of current climate change on habitat and resources as well as ecological relationships which may be disrupted as part of a changing climate..

6. Threats

This subsection answers the question: What are the major threats to species persistence across its/their current geographic range? It should diagnose the processes threatening the species as accurately and comprehensively as possible to ensure that proposed management actions respond to them and actually result in a reversal of population decline. Identification of threats therefore needs to be a rigorous peer-reviewed process, involving critical analysis of the best available data.

In evaluating threats to population or species persistence, it is important to distinguish true threats (drivers of population decline and/or geographic range contraction) from the processes that would limit population size and distribution in the absence of human activity.

For many species, it will also be helpful to distinguish proximate and ultimate threats to wild populations to help guide management action.

7. Conservation and management

This subsection answers the question: How can we address and mitigate the threats to species persistence and ensure long-term population viability over the species' current geographic range? It should identify current conservation measures in place that contribute to the conservation vision for the species at the site level and at the range-wide (policy) level, identify best practices in conservation, management and (if necessary) restoration of the species, and recommend appropriate conservation and management strategies. These might be a continuation of already ongoing conservation measures, and/or the introduction of new and additional measures, as needed.

II. Conservation Vision

1. Content of the Conservation Vision

An over-arching, range-wide **Conservation Vision** outlines, in an inspirational and relatively short statement, what will be the envisioned status (including range, ecological role, and relationship with humans) of the species or group of species over a given period (which should be long-term).

A typical **Conservation Vision Statement** might state, for example:

“Over the next century, the ecological recovery of the North American bison will occur when multiple large herds move freely across extensive landscapes within all major habitats of their historic range, interacting in ecologically significant ways with the fullest possible set of other native species, and inspiring, sustaining and connecting human cultures” (Sanderson et al. in press).

While this is an inspiring encapsulation of what is required in broad terms, a more detailed set of range-wide high-level **Conservation Goals** are also needed to capture the substance of the “visioning” process described below. Such Conservation Goals would, for example, specify the desired number of ecologically-functional populations to achieve redundancy per major habitat type.

A Conservation Vision and its associated Conservation Goals should derive from a range-wide/high-level analysis of a taxon’s status and a detailed presentation of the long-term range-wide conservation needs of the taxon, informed by the status report, with clear targets, and explicit justifications.

A number of principles or values are commonly asserted in vision statements. We recommend, without being prescriptive, that when writing Strategic Plans, the following be considered: (a) ecological representation; (b) redundancy - having multiple instances; (c) resiliency - populations big enough to perform the desired functions and be resilient to calamity; and (d) human cultural and economic values.

It will also be necessary to decide, among other things (a) the most appropriate approach, i.e. whether to focus on ecological, behavioural, and/or genetic variability within the species/species group and how to maximize representation, complementarity, and redundancy across these categories; (b) the vision’s time scale (it should be long-term unless a convincing explicit justification for another time scale is presented); (c) the vision’s spatial scale (it should be range-wide unless a convincing explicit justification for another spatial scale is presented); and (d) the best approaches for setting target population sizes, densities, and range area (e.g. viable populations, ecological functionality, restoring population sizes and/or distribution to some previous historical level predating human expansion into the species’ range, permitting sustainable exploitation of the species; (see, e.g., Sanderson 2006.). Multi-purpose approaches should be encouraged, as these best reflect the fact that people have many different reasons to conserve wildlife species and different approaches to doing so.

The Conservation Vision and associated Conservation Goals should be as ambitious and inclusive as possible. A species’ ecological interactions change across eco-geographic settings as ecosystem dynamics, vegetation types, and competitors, predators, and commensals vary from setting to setting. For a wide-ranging species, therefore, these statements must explicitly address conservation of all (or as many as possible) of these settings and interactions (Sanderson et al. in press). Similar concerns apply to socio-economic and cultural values, since these will also vary across a species’ range.

Since it is clearly imperative to strongly emphasize “on the ground” implementation in the SSC’s SCSPs, the Conservation Vision and associated Conservation Goals devised must be suitable for implementation

and the teams responsible for developing the vision must not get mired in endless refinements of systematic assessment and/or “visioning” methods (see, e.g., Knight et al. 2005).

Process

The relevant specialists for the taxon concerned need to be involved in developing the Conservation Vision because, in addition to being stakeholders in their own right, such species specialists are often best-placed to formulate the “big picture view” that the overall Strategic Plan should promote in order to best conserve the taxon across its range. In addition to species specialists, range-state stakeholders should be involved in developing the Vision, both because of their understanding of the context in which the conservation activities will be conducted and because their participation in the process will promote the necessary sense of ownership and responsibility for the Strategic Plan that leads to action on the ground.

The process of developing the Conservation Vision and associated Conservation Goals should be as inclusive as possible, and the “highest common denominator” approach should be adopted as the guiding principle. We recommend that, in this type of workshop, participants not only develop the Conservation Vision and associated Conservation Goals, but also the overall SCSP.

III. Conservation Objectives

The elaboration of **Conservation Objectives** is the part of the strategic planning process where the biological needs of the species meet the real world. Ideally, they should not only be a statement of what the species or group of species needs for its/their long-term conservation, but they should also have wide agreement from the non-biologists who will help achieve the objectives. The Conservation Objectives should flow from the Conservation Vision and should provide the framework to achieve it. Crucially, they should aim to help inform, persuade and encourage decision-makers, conservation managers and other stakeholders to undertake appropriate conservation action. This stage of the process therefore should aim to maximise buy-in by stakeholders and conservation agencies that will be key to its implementation.

1. Issues of scale

Given the huge diversity of scales at which species conservation planning is likely to take place, Conservation Objectives may take a tremendous variety of forms. For example, a wide-ranging species that inhabits many countries (e.g. the brown bear *Ursus arctos*, which occupies 46 countries on three continents) will have completely different strategic requirements from a suite of geographically restricted and ecologically similar species (e.g. several species of lemurs on Madagascar or pheasants of China).

The first step in developing Conservation Objectives is, therefore, to identify the appropriate landscape, taxonomic, and political scales for the strategy to address at scales below the range-wide scale. These three scales cover a vast array of possibilities for strategic conservation planning and identifying the most meaningful and appropriate limits to each will be key to galvanising ecologists, managers and other stakeholders to best effect. In any case, the “sub-scales” of Conservation Objectives must completely cover the species range, so that objectives add up to addressing the conservation vision.

2. Data uncertainty

Development of Conservation Objectives should entail a critical evaluation of the data comprising the Status Review. The nature and reliability of such data will depend on the particular circumstances and nature of the species or group of species (e.g. animal vs. plant, migratory vs. sedentary, terrestrial vs. marine, large vs. small geographic range, prolific vs. low reproductive rate, hunted vs. unhunted). In many cases, information on trends and threats will be unavailable or inadequate, so Conservation Objectives will reflect the opinions of specialists on the current situation, with at least one objective addressing the need for more information (research). In some cases, the situation may be so complex as to defy a clear understanding and obvious solution (e.g. sea otters *Enhydra lutris* along the Aleutian Islands

of Alaska declined by more than 90% in a decade, reportedly due to increased predation by killer whales *Orcinus orca*; killer whales may have been prompted to switch to this non-preferred prey because of drastic but as yet unexplained declines in their preferred pinniped prey). In such a case the best strategy might be to develop approaches experimentally in a small portion of the range (using adaptive management).

3. Participation

As previously mentioned, for all phases of the development of the SCSP, including developing Conservation Objectives, inclusion of all relevant parties is of utmost importance. This is essential both in terms of gaining a broad range of perspectives and contexts, as well as in attaining endorsement — from government officials, from those who will implement the Plan, and from those who will affect or be affected by the actions recommended by the Plan. It is possible that the best biological strategy for the rapid recovery of a species (or population) is impractical because it will too severely affect local people; thus, a compromise strategy may actually be more effective. Given the diversity of scales and thus contexts in which Species Conservation Strategic Planning may be carried out, very careful thought must be given to the individuals and agencies that can enhance the development of the Conservation Objectives and the chances that it will be implemented. Some strategic objectives may primarily involve traditional Specialist Group members (e.g. research to fill critical information gaps), whereas others may rely substantially on community groups or protected area managers.

4. Goals and solutions

Effective problem analysis is the key to designing effective objectives. Indeed, conservation is at its essence a problem-solving endeavour. Challenges to achieving conservation goals can occur at a variety of levels, some of which may not even be anticipated (e.g. a new disease, drought, fire, food failure, increased poaching spurred by new market incentives). The inputs from a diversity of people are useful in ascertaining what the problems are likely to be, and in brainstorming solutions. To enhance capacity development, at least some of the same people that develop the Conservation Objectives should be involved in strategy implementation.

5. Resources

Monetary and other resource constraints may be a chief obstacle to developing appropriate Conservation Objectives and actions to achieve them. The optimal objectives may be too expensive to implement. Alternative objectives may be more attainable and hence more effective in practice. In some instances a mix of objectives may, in combination, be more efficient than what might seem to be the best single objective. People familiar with costs and funding opportunities should be involved in strategic planning. While financial issues should not completely dictate the Conservation Objectives, those that cannot be implemented due to inadequate funding are of little value. It should be recognised that near-term achievable targets may fall far short of the ultimate vision for the conservation of the species, but that these targets may be stepping stones in the process leading toward that vision.

IV. Conservation Actions

This section of the Strategic Plan for species conservation should describe the **Conservation Actions** necessary to achieve the Conservation Objectives.

Proposed Conservation Actions are likely to be diverse, including activities such as protection, habitat restoration, surveys of distribution and status, captive propagation, and research, as well as capacity building, environmental education, policy development, advocacy, and fundraising. Based on the information available at the time the plan is developed, the actions proposed should be considered both necessary and (if implemented in combination) sufficient, to achieve the Conservation Objectives.

1. Issues of scale

The level of detail associated with the recommended actions is likely to be determined by the number of species concerned, and the geographic range covered. For small numbers of species in restricted areas, very specific actions may be proposed (e.g. concerning particular populations or sites). In contrast, where strategic plans are intended to cover multiple species, or broad geographic areas, recommendations may be more generic.

It is important to bear in mind that, while many species inhabit landscapes or seascapes administered by multiple countries, and require conservation across or beyond international boundaries, the majority of Conservation Actions will be governed by national policies, and under such circumstances national conservation strategies should be developed by, or in close partnership with, national conservation authorities. The Species Conservation Strategic Plans developed by IUCN/SSC at a range-wide or regional scale and described in this document, can provide excellent templates for national strategies. Using IUCN/SSC Strategic Plans in this way can help ensure that national strategies adopted by neighbouring countries complement one another.

2. Recommending Conservation Actions

The proposed actions must be clearly related to the proximate and ultimate threats identified in the Status Review. Some ultimate threats may not feasibly be mitigated by those responsible for developing or implementing the Strategic Plan (e.g. climate change, human population growth); in these cases actions will necessarily focus on proximate threats. However, the need to address the ultimate threats should still be clearly stated.

Each proposed action should have a reasonable expectation of reducing the impact of one or more identified threat(s). For example, if a species' persistence was threatened by widespread habitat destruction, taking measures to secure or restore habitat would be appropriate actions; in contrast, captive breeding might not be appropriate. In deciding which actions to recommend, it may be helpful to consider multiple actions to ameliorate the same threat. Many threats will be multi-faceted and several actions will be required to reduce their impact.

Once possible management approaches have been identified, before they are recommended in the Strategic Plan, their likely effectiveness should be evaluated and documented. There are several ways of doing this. In some cases, there may be prior experience of implementing the management approach on the same or a similar species, and this experience can be collated and presented. Documenting management approaches that have failed is as important as describing those which have been successful, to avoid repetition of the same mistakes. Web-based information sharing resources⁷ may be useful in this regard, and planners should draw on such resources, and, importantly, also contribute to them.

Identifying information needs

In developing almost any Action Plan, it will become clear that knowledge is imperfect, and that better information would foster more effective conservation. Such data needs are likely to be diverse, and may relate to knowledge of distribution and status (e.g. does habitat remain to allow passage between two protected areas?), the effectiveness of particular management approaches (e.g. what strategies will reduce threats?), and how to measure effectiveness (e.g. how can managers know if the population is increasing?). Means of satisfying important information needs should be specified among the recommended actions.

⁷ See, for example, www.conservationevidence.com.

1. Identifying actors

Where possible, a strategic plan should specify not only what actions need to be taken, but by whom. Nominated actors (whether individuals or organisations) will be much more likely to carry out the recommended actions if they were involved in developing the recommendations. For this reason, participatory workshops (as recommended for developing a vision, above) play an essential role in developing management recommendations.

2. Determining timelines for action

Where possible, a Strategic Plan should specify not only what actions need to be taken, but on what timescale. Nominated timelines should be appropriate to the actions proposed and the biology of the species. For example, a Plan with an objective of increasing population size would be expected to take longer for rhinos than for beetles. Likewise, a Plan for a poorly-known species in a developing country might involve a great deal of capacity building and data collection and hence might achieve its objectives more slowly than a Plan involving a well-studied species in a developed country.

3. Prioritising conservation actions

In many cases, it will be appropriate to prioritise management actions within strategic plans (e.g. for lowland gorilla conservation, tackling hunting for the bushmeat trade might be considered more urgent than addressing habitat loss if the threat analysis conducted as part of the Status Review indicated that the former was a more immediate threat). However, any such prioritisation should recognise that threats vary between sites, and over time, so that priorities need to vary accordingly. Moreover, different organisations and individuals have different expertise, and hence different capacities to conduct management actions (e.g. a zoo may have the capacity to conduct captive breeding but not habitat restoration, even if the latter is considered a higher priority activity). For these reasons, in many Strategic Plans it may not be appropriate to set ordinal lists of priorities, although it could still be helpful to classify actions as high, medium or low priority.

V. Monitoring & Evaluation for Adaptive Management

It is vital that conservation targets be achievable in the short-term so as to (1) yield immediate aid for the species (or population or group of species); (2) provide a means of assessing accomplishments; and (3) attract continued or enhanced support for the Conservation Actions. Planners should think of and establish indicators by which the success toward accomplishing these targets can be measured. To that end, SCSPs should include a monitoring and evaluation component. Wherever possible, monitoring approaches should be developed alongside the management intervention to be proposed. Such methods will be highly specific to the species or management intervention concerned. In developing conservation plans, participants should review and present not only methods for collecting monitoring data but also approaches to data analysis and interpretation; note that these may be very simple and non-technical.

The objectives should be clearly stated and a timeline provided. Moreover, one or more individuals in charge of monitoring results should be identified. It is at the level of implementation that monitoring becomes an important tool. Information on the implementation of the plan should be collected routinely and systematically to make it useful for evaluation purposes.

Normally, plans should be reassessed after 5–10 years, although the appropriate time-frame will vary with the species under consideration. Monitoring the management approach for its effectiveness will allow refinement of successful approaches and abandonment of unsuccessful ones. Such monitoring is especially important for novel approaches which have not previously been evaluated for a particular species or set of circumstances.

Monitoring may address intermediate steps on the path to achieving conservation success, but should also evaluate progress towards the conservation target itself. When new information and feedback from monitoring results becomes available, or if the species' status changes, or capacity needs are altered, the original strategic plan may become obsolete. At this point, the plan should be adapted or, in extreme cases, an entirely new one developed.

After a project's life monitoring and evaluation can assist in evaluating its success and provide a feedback loop to further improve the outcome if a similar activity is replicated in the future.

General Considerations and Follow-up

Integration of SCSP with Other IUCN Planning Efforts

Protecting species from threats of extinction, whether locally or globally, has been central to conservation biology since our first recognition that "nature conservation" is something worthwhile. Our earlier efforts reflected a primary concern for species that we somehow regard as rare and also charismatic, mainly birds, furry animals or flowers. Protecting nature was thus equated with protecting beautiful and aesthetically appealing species.

Independently, but in a somewhat similar vein, we also recognised the aesthetic appeal of spectacular and unusual landscapes - 'wonders of nature'. This gave rise to the creation of the parks that would be the first National Parks. These, together with areas protected and managed for hunting, became the foundation for present nature conservation effort focused on Protected Area designation and management.

Today, conservation effort remains largely split between these two priorities - protecting species or protecting areas of habitat. While it is now recognised that most species are under threat because their habitats are being destroyed by human activities, the dilemma as to whether to use limited and usually inadequate human and financial resources to pursue the conservation of particular species or whether to invest in the management and protection of habitats that are of notable biological value remains a critical issue in practical conservation strategy. Within IUCN, the Species Survival Commission and the World Commission for Protected Areas (WCPA) represent the two different, but closely inter-related sets of interests.

Fortunately, the importance of integrating species and habitat conservation is now beginning to be fully appreciated at the global level. Since 1992, the global Convention on Biodiversity has led the way in promoting an integrated approach by including "diversity within species, between species and of ecosystems" in its definition of biological diversity, thus implying a spatial axis (CBD 2001, Article 2).

Within IUCN, the area/habitat aspect of species protection has long been an integral part of the activities of the SSC, though mainly in relation to the specific demands of the particular species: Protection of populations of a species requires protection of the habitat in which they occur. More recently, quantification of the threat criteria for species' red-listing now includes 'extent of occurrence' and 'area of occupancy', both explicitly reflecting spatial requirements important for continued survival of species populations (IUCN 2001).

The rapidly changing demands of practical biodiversity conservation in the 21st Century arising from global warming and other environmental change mean that it is particularly important to continue efforts to increase integration of species protection strategies with area-oriented and other conservation planning activities. There have been recent major shifts of conservation emphasis worldwide. Species-oriented conservation has changed from considering simply the numbers of types of organism to recognising the

huge variety of functional roles that they play within ecosystems. This direction has been further developed to encompass the idea of ecosystem services – acknowledging what biodiversity does for humans, directly (e.g. food and fibre production) or indirectly (e.g. pollination, erosion control). This may include placing economic values on different aspects of nature, and the different grounds for being able to do so. The recent United Nations-sponsored Millennium Ecosystem Assessment (MA) distinguishes four broad groups of services – provisioning, regulating, cultural and supporting, with further categories and subcategories (Hassan et al. 2005). Previously, nature conservation was undertaken solely for reasons of moral, ethical, or aesthetic issues, - the “cultural values” of the MA. Now, however, there is also a strong interplay between conservation and economics in all of the other MA service groups.

A similar situation has arisen for conservation centred on Protected Areas and habitats. During the 20th Century effort was concentrated on designing protected areas and inventorising the species within them, but now there is much more orientation to effective management of Protected Areas for sustainable development (e.g. see commentary by Haslett 2002). Managing Protected Areas to ensure service provision, while at the same time encompassing the needs of biodiversity conservation, may offer a potentially highly effective means of improving present management strategies for biodiversity maintenance (Haslett *et al*, in prep.).

The consequences of all this for IUCN in general, and the Species Survival Commission in particular, include a necessity to take into full account and also ensure close co-ordination between the planning activities of the different IUCN Commissions. This is reflected within the present SCSP initiative in a variety of ways. For example, species protection is no longer confined to single species, but may refer to groups of species of similar phylogeny, geographic occurrence, or ecological function as appropriate. This is of general importance, but is particularly beneficial when considering the high diversity and overall importance of invertebrate animals. Use of species groups links closely with the interests of the WCPA, particularly in assessing the biodiversity value of particular sites, their management, and the creation of protected area networks. It is worth remembering here that under a warming climate, species and groups of species are being forced to move – locally upwards, regionally towards the poles, so that present protected areas are unlikely to be in the correct places for future species protection needs. Further, managing Protected Areas for sustainable provision of ecosystem services by particular species or species groups also envelops the activities of the Commission on Environmental, Economic and Social Policy (CEESP), which provides expertise on economic and social factors for the conservation and sustainable use of biodiversity, and the Commission on Ecosystem Management (CEM) that provides expertise on integrated ecosystem approaches to management of natural and modified ecosystems. These and related issues are likely to come to the fore in many new ways in the near future with the recent advent of “Community Conserved Areas” (CCAs), which are “natural and modified ecosystems with significant biodiversity, ecological and related cultural values, voluntarily conserved by indigenous peoples and local communities through customary laws or other effective means” (Kothari 2006). Here ecosystem service provision and socio-economics play central roles.

Conclusion

SCSPs are a key tool for conserving biodiversity. By synthesizing the expertise of all stakeholders and thoroughly analyzing the relevant problems and threats, a properly-formulated plan should set out a coherent set of medium and long term goals, help to prioritize resources and catalyze detailed action plans. However, no matter how profound and insightful the analyses and conclusions contained in them may be, all such plans remain in essence only tools, and like all tools, their effectiveness is revealed by the outcome.

The value of a Species Conservation Strategic Plan can only be judged by whether it achieves its goals and not on the basis of its intrinsic qualities. The crucial challenge therefore is to translate the efforts made in compiling the status review and conservation strategy into effective action on the ground and to ensure that a constant focus on enacting and implementing the recommended conservation measures is maintained throughout the plan's timeframe. It is axiomatic that Strategies and Action Plans alone do not save species, only action does!

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