



# Strategic Planning for Species Conservation: An Overview

The Species Conservation Planning Task Force  
Species Survival Commission, IUCN

Version 1.0





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**A scorpion fish (Scorpaenidae) in the Mediterranean sea, near Escala, Spain**  
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*IUCN/Species Survival Commission  
September 2008*



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Production of this document was made possible by the generous support of the Wildlife Conservation Society in providing editorial and production services.



Support for the work of the IUCN/SSC Species Conservation Planning Task Force was provided by grants from the Forestry Bureau of the Taiwan Council of Agriculture, the Chicago Board of Trade Endangered Species Fund, administered by the Chicago Zoological Society, and the IUCN Species Survival Commission. Working meetings of the Task Force were generously hosted by the Wildlife Conservation Society, Budapest Zoo, and the WildCRU of the University of Oxford.



Chicago Zoological Society

Published by: IUCN, Gland, Switzerland.

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Citation: IUCN/Species Survival Commission. 2008 *Strategic Planning for Species Conservation: An Overview. Version 1.0*. Gland, Switzerland: IUCN. 22pp.

ISBN: 978-2-8317-1123-2

Cover design and Layout by: Karin Svadlenak-Gomez.

Cover photo: Red-eyed tree frog, Costa Rica, IUCN Photo Library © IUCN / Julián Orozco Badilla.

Document available online at: <http://intranet.iucn.org/webfiles/doc/SSC/SCSOOverview.pdf>



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## Preface

The global community recognises the importance of conserving nature. Species and their interrelationships – including their relationship to people – are the very fabric of nature. In an effort to save species and overall biodiversity, a number of approaches to conservation have been suggested. Some focus on protected areas, ecosystems, or other area-based classifications such as hotspots, ecoregions, Important Bird Areas, Important Plant Areas, and so on. Some such approaches also seek to ensure that the ecosystem processes and structures which support nature are maintained. Although critical to nature conservation, area-based approaches are insufficient on their own. Many species, and species groups, need special attention, requiring species-focused conservation strategies.

The Species Survival Commission (SSC), created in 1949, is the largest of IUCN's six volunteer commissions. With some 8,000 scientists, government officials, and conservation leaders worldwide, the SSC membership is an unmatched source of information about species conservation. SSC members provide technical and scientific advice to governments, international conventions, and conservation organizations throughout the world. SSC also provides the best available information critical to the development of tools for species conservation such as the IUCN Red List of Threatened Species<sup>TM</sup>. SSC works primarily through its 120 Specialist Groups, which focus on a wide range of plants and animals, or on issues such as the effects of invasive species and the sustainable use of wildlife. In addition, the IUCN Species Programme implements global species conservation initiatives with and in support of SSC. This Species Programme's support role includes coordinating the Red List, conducting communications work, and facilitating inputs to conventions (Web: [www.iucn.org/species](http://www.iucn.org/species)).

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. Following a series of meetings and discussions, the Task Force members' efforts to identify and describe best practices in strategic planning for species conservation have now led to the publication of *Strategic Planning for Species Conservation: A Handbook*.

This Overview is a much shortened version of the new Handbook, in which we provide guidance to SSC Specialist Groups on when and how to prepare and promote what we call Species Conservation Strategies (SCS). This includes advice on how to conduct a thorough Status Review, how to develop, through broad consultation with stakeholders, a Vision and Goals for the conservation of a species or species group, how to set Objectives for achieving the Vision and Goals, and how to address those Objectives through geographically and thematically specific Actions. For more details, including some recommended tools and methods, we refer the reader to the Handbook.

We expect the Handbook to be an evolving document, with further explanations and links to reference materials, and possible alternative ways of going about some of the steps, added over time as more is learned about the best ways to achieve effective species conservation. We hope that it will inspire conservation practitioners and partners in the private and public sectors to use the methods we recommend for developing SCSs, and through that mechanism to achieve our shared need for a world where people and the rest of nature thrive together for generations to come.



## Acknowledgements

The guidelines presented in this document were developed through the work of SSC's Species Conservation Planning Task Force (the members are listed below). The Task Force would like to express our thanks to the SSC Chair Holly Dublin and to the SSC Steering Committee for envisioning and then creating the Task Force, and for their support and guidance throughout. Other members of the Commission and of the IUCN Species Programme also provided insights and feedback both on the work of the Task Force generally and on this document in particular.

Funding for the work of the Task Force was provided by SSC and by grants from the Forestry Bureau of the Taiwan Council of Agriculture and the Chicago Board of Trade Endangered Species Fund. Working meetings of the Task Force were generously hosted by the Wildlife Conservation Society, Budapest Zoo, and the Wildlife Conservation Research Unit (WildCRU) of the University of Oxford. The organizations of the Task Force members provided not only the substantial expertise and time of those members, but also often funded the costs of their travel to Task Force meetings.

Funding for professional editing and production of this document was provided by the Wildlife Conservation Society. Without the skilled and very dedicated copy editing by Karin Svadlenak-Gomez, this document would not have been produced. The Task Force is grateful for her assistance.

Finally, the ideas and guidelines in this document arose from the experience and insights of the many people who have worked to develop effective Species Conservation Strategies and Action Plans, both within IUCN/SSC Specialist Groups and within many governmental agencies and non-governmental conservation organizations. We thank all who have worked diligently and with passion to conserve species diversity in the past and especially those who will use these guidelines to help achieve more successful conservation of species for the future.

### ***SSC Species Conservation Planning Task Force: Editorial Team***

- Simon Hedges, Wildlife Conservation Society; Co-chair, IUCN/SSC Asian Elephant Specialist Group; Large Bovini Coordinator, IUCN/SSC Asian Wild Cattle Specialist Group
- Robert Lacy, Chicago Zoological Society; Chair, IUCN/SSC Conservation Breeding Specialist Group
- David Mallon, Dept of Biological Sciences, Manchester Metropolitan University; Co-chair, IUCN/SSC Antelope Specialist Group
- Philip McGowan, Director, World Pheasant Association; Co-ordinator, WPA-IUCN/SSC Galliformes Specialist Groups
- Philip Miller, Senior Program Officer, IUCN/SSC Conservation Breeding Specialist Group
- Eric Sanderson, Wildlife Conservation Society
- Claudio Sillero-Zubiri, Wildlife Conservation Research Unit (WildCRU), University of Oxford; Chair, IUCN/SSC Canid Specialist Group
- Karin Svadlenak-Gomez, Wildlife Conservation Society (Copy Editor)
- Rosie Woodroffe, Zoological Society of London; Coordinator, African Wild Dog Working Group, IUCN/SSC Canid Specialist Group

***Other members of the SSC Species Conservation Planning Task Force***

- Julian Blanc, CITES MIKE (Monitoring the Illegal Killing of Elephants) Programme
- Urs Breitenmoser, University of Bern; Co-chair, IUCN/SSC Cat Specialist Group; Large Carnivore Initiative for Europe Working Group
- Dena Cator, IUCN Species Programme
- Philippe Chardonnet, International Foundation for the Conservation of Wildlife; Co-chair, IUCN/SSC Antelope Specialist Group
- Holly Dublin, Chair, IUCN Species Survival Commission; Chair, IUCN/SSC African Elephant Specialist Group
- Richard Emslie, Scientific Officer, IUCN/SSC African Rhino Specialist Group
- David Garshelis, Minnesota Department of Natural Resources; Co-chair, IUCN/SSC Bear Specialist Group
- John Haslett, Department of Organismal Biology, University of Salzburg
- Margaret Kinnaird, Mpala Research Centre and Conservancy and the Wildlife Conservation Society
- Susan Lieberman, World Wide Fund For Nature (WWF)
- Michael Maunder, Fairchild Tropical Botanic Garden; IUCN/SSC Plant Conservation Sub-Committee
- Patricia Medici, Chair, IUCN/SSC Tapir Specialist Group
- Russel Mittermeier, Conservation International; Chair, IUCN/SSC Primate Specialist Group
- Deborah Procter, IUCN/SSC Invertebrate Conservation Sub-Committee
- John Robinson, Wildlife Conservation Society
- Pritpal Soorae, Environment Agency, Abu Dhabi; Program Officer and Reptiles and Amphibians Section Chair, IUCN/SSC Re-introduction Specialist Group

# 1. 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 published in a series that is now well recognised<sup>1</sup>. The majority of the Action Plans 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 (for example, cranes, parrots, and pheasants), fishes, and other groups. 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 2002).

Action Plans have proved very successful in collating large quantities of useful information on the distribution, status, and habitats of species or groups of species, and in identifying (typically biological) priorities and gaps in knowledge. Most of these Plans, however, have stimulated only limited conservation effort. Whilst the standard of biological information contained in the Plans attracted widespread admiration, their relevance to practical conservation programmes was often not clear, because:

- *It was not clear who the target audience was;*
- *They were mostly compiled by Specialist Groups with limited resources;*
- *There were no clear guidelines on what the Plans should contain;*
- *There was rarely a clear link to action* (IUCN/SSC 2002).

We intend the guidelines in this document to address these issues and to accommodate other developments in species conservation planning. The concept of a Species Conservation Strategy (SCS) that we outline here has a taxonomic focus that is narrow enough to allow development of the specific Actions needed to ensure conservation of the species. This contrasts with, but builds upon, the broader assessment of all species within a group that was undertaken in many of the earlier Action Plans. It also means that a number of Strategies might be developed to cover many (but often not all) of the species that were included within existing Action Plans.

However good these guidelines may be, we emphasise that the resulting SCSs will only be successful if they are implemented. As with Action Plans, SCSs must be based on sound conservation science, but in contrast with the way past Action Plans have often been prepared, they should be prepared through inclusive, participatory processes that lead to broad ownership. This will improve prospects for implementation and, ultimately, sustained conservation successes. Both SCSs and Action Plans are only tools and are of no use without effective implementation.

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<sup>1</sup> For online access to published IUCN/SSA Species Action Plans see <http://www.iucn.org/about/work/programmes/species/resources/publications/index.cfm> (accessed 16 September 2008)

## 2. A framework for strategic planning for species conservation

A SCS, as described in this document, is a range-wide (or in some cases a regional) blueprint for saving a species or group of species. The approach we outline here is one of a number of possible forms that a SCS could take and it should not be misunderstood as an inflexible prescription. The process we recommend has been tried successfully in a number of instances, though sometimes the terminology and definitions used by conservation planners may have been slightly different even if they may have referred to essentially the same elements of the SCS process we discuss here. In this Overview, and in the Handbook, we have explained the principal terms used to clarify our meaning; but we readily admit that ours are not the only valid definitions.

With these qualifications in mind, we recommend that a SCS contain a **Status Review**, with a **Vision** and **Goals** for saving the species, **Objectives** that need to be met to achieve the Goals, and **Actions** that will accomplish those Objectives. The steps involved in preparing a SCS follow a logical framework approach, and can be summarised as follows:

- Compile and refine a range-wide Status Review (incorporating a threat analysis), both in preparation for and at a workshop (or workshops) involving species specialists and other stakeholders (see Chapter 6). This Status Review defines the historical and current distribution of the species, states population sizes (or at least gives some measure of relative abundance), evaluates population trends, and identifies losses and threats. The Status Review should, where available, be informed by the appropriate Red List Assessment(s) and supporting documentation from the Red List Unit of the IUCN Species Programme and the Species Information Service (SIS). The completed Status Review should also in turn feed back into the Red List process.
- Formulate a range-wide (or in some cases a regional) Vision, which is an inspirational description of what participants want to achieve (a description of “the desired future state” for the species) and a set of associated Goals. The Goals capture in greater detail what needs to be achieved, and where, to save the species (see Chapter 7). The Goals are the Vision rephrased in operational terms. Both the Vision and the Goals have the same broad, long-term, spatio-temporal scale. The Goals should have concrete Targets<sup>2</sup> associated with them, which are a medium-term (typically 5–10 years) subset of the Goals. Goal Targets represent those Goals (and/or the necessary steps towards those Goals) that can realistically be achieved over the lifetime of the Strategy. Like all targets, Goal Targets should be SMART<sup>3</sup>
- Compile a set of Objectives needed to achieve the Goal(s) over the stated time-span. Objectives must address the main threats identified in the Status Review process and each Objective should also have one or more SMART Targets (see above). This part of the process further identifies the obstacles to achieving the Vision and Goals. In fact, Objectives can be thought of as the inverse of threats, problems, and constraints. They are statements of what would need to be accomplished to result in a reversal of or halt to the

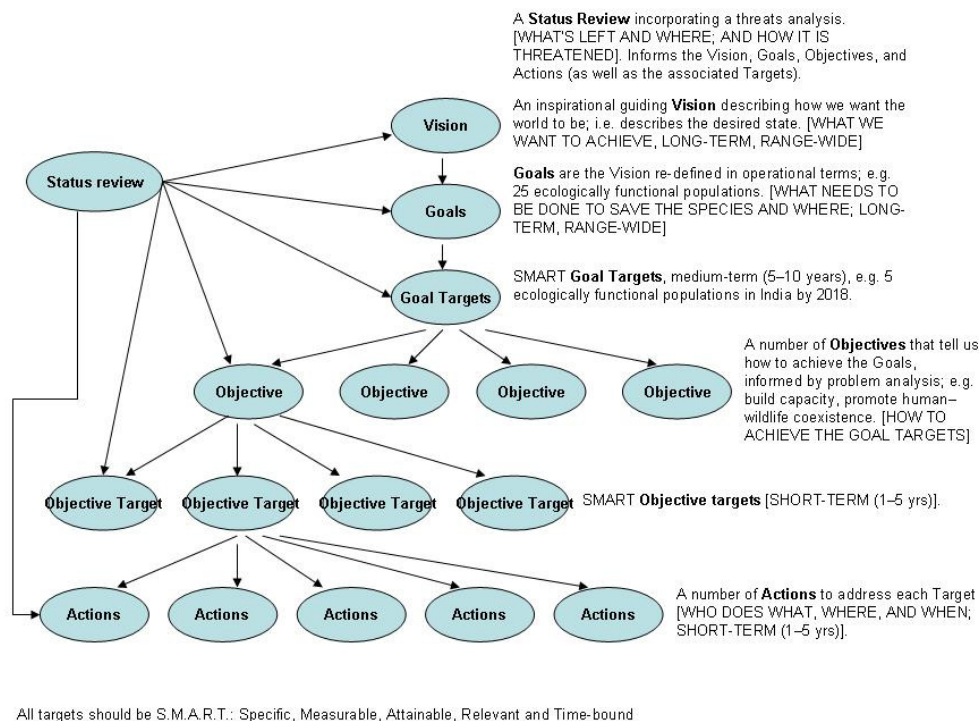
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<sup>3</sup> The acronym “SMART” refers to targets and indicates that they should be Specific, Measurable, Achievable, Realistic, and Time-bound.

threats (see Chapter 8). Objectives are typically developed using a combined threat analysis and a broader problem analysis (see Chapter 8).

- Decide on Actions to address each Objective Target. Actions are the detailed steps that lay out what needs to be done, where, and when (see Chapter 9). They are short-term (typically 1–5 years).

The hierarchy of the components of a SCS are graphically displayed in Figure 2.1.



**Figure 2.1 Relationships between components of the SCS**

Our recommended approach differs from the earlier Action Planning process in its **requirement to explicitly define what it would mean to save a species**, development of a plan that is judged sufficient to achieve that end, and an **emphasis on multi-stakeholder participation** with (as applicable) species specialists, range State government staff responsible for implementation, members of local communities and social movements, regional politicians (if relevant), and so on, explicitly included in all steps.

We have attempted to design a set of suggested guidelines for the preparation of comprehensive and practical Species Conservation Strategies, while 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 strategies that are based on sound biological approaches, and prepared through inclusive, participatory processes to generate the sense of ownership needed to improve prospects for implementation and, ultimately, successful conservation.

The SCS process delineated here sets out a simple, robust conceptual framework that can be applied at all taxonomic or spatial levels of strategic planning. These levels could include single species (whether restricted range endemics or widespread generalists), groups or suites of species, and individual subspecies, as well as at global, regional, or national scales.

Importantly, the process needs to include ongoing compilation and review of data on species status and distribution for the Status Review, implementation of the recommended Actions, monitoring of Targets at the Goals, Objectives, and Actions level, and a process for continuing review and refinement. Rarely, if ever, will the data and participants' ability to predict and control the future be adequate to give us much confidence that a strategy, when first developed, will guarantee the desired future for the species. Adaptive management has to be integral to the SCS philosophy. A SCS therefore needs to include a monitoring framework alongside implementation of its Actions. One useful component of such an approach is to publish the SCS as an electronic or other living document rather than in print, subject to continual refinement (but with adequate version control so that it can be properly referenced and progress can be traced).

### 3. When should a Species Conservation Strategy be developed?

Species-focused SCSs are appropriate when the relevant SSC Specialist Group or other authority for a species or a group of species deems coordinated conservation attention necessary. The need for coordination may arise because the geographic range of the species or species group straddles political boundaries or multiple ecological zones and so requires different political entities and groups of scientists, conservationists, managers, and policy-makers to act in concert, or it may arise because the level of threat is endangering the viability of key populations, their ecological functions, and/or their habitat. The completion of a Red List assessment (see Baillie *et al.* 2004; and <http://www.iucnredlist.org>) or an updated species assessment may be an opportune time to initiate the development of a SCS for those species that are listed as threatened.

Before embarking on the preparation of a new SCS, it should be clear that the process requires substantial effort, and that time, funds and personnel have to be available to develop the strategy. Dedicated staff and resources will often be needed to implement the resulting SCSs. One of the first steps required for strategic planning, therefore, will usually be to **raise funds** to support the process, although this can coincide with the equally necessary step of identifying and gaining the support of key stakeholders (see Chapter 4), as both governments and non-governmental organizations are likely to support a process both financially and with their participation if they expect that it will meet their needs. A well-developed and broadly endorsed Strategy can be a great help in raising the funds and getting the agency and institutional commitments to implement the Actions needed to achieve the desired Goals and Objectives.

Another consideration is the **taxonomic scope** and **geographic range** for which a SCS may be prepared. Our proposed approach can be applied to the spectrum of taxonomic groupings, from a single or a small number of species to highly speciose groups. They can also be applied across the spatial range, from taxa having wide geographic distributions across many countries, to those with extremely restricted geographic ranges. Regardless of species, all the components of a SCS, as outlined in this document, can be included.



However, the details of conservation planning and the emphasis, nature, and level of detail for the various components of the strategy may be quite different.



**Photo 3.1 A rhinoceros beetle (*Dynastes sp.*) in Nosara, Costa Rica**  
IUCN Photo Library © Joëlle Dufour

In some instances, a SCS may cover a multitude of species and still appropriately have species-focused Goals, Objectives, and Actions, if groups of species face similar threats and hence require similar conservation responses. For example, some invertebrate groups may require planning for thousands of poorly known species. Developing individual species-by-species Strategies would be impossible for such groups. Yet it might be valuable to conduct Status Reviews that consider range, habitat requirements, threats, changes in abundance and distribution (and possibly species richness) for a group of similar species within an area; stakeholders

might agree to a common Vision and Goals for the set of species; Objectives might define what needs to be accomplished to ensure protection of the suite of species; and Actions could be determined that would result in meeting those Objectives.

Multi-species SCSs would most commonly be prepared for a group of related species, but it might also be beneficial to design such Strategies for a group of species that have common ecological roles (for example pollinators), share habitat types (such as reef fish), are linked by strong ecological relationships (for instance, a predator and its prey), or face similar threats in similar areas and at similar spatial scales (such as cheetahs (*Acinonyx jubatus*) and African wild dogs (*Lycaon pictus*)). It may also be appropriate to develop a higher-level SCS for a group of species, with more detailed species-specific SCSs for a few representative, particularly threatened, or focal species from the group.

## 4. Who should be involved in developing a Species Conservation Strategy?

To ensure that SCSs have the best chance of being implemented, the SCS process emphasises multi-stakeholder participation. Range State government staff and conservation NGO staff, species conservation specialists (some of whom may of course work for government agencies and NGOs), representatives of local communities or local authorities (when appropriate), the private sector (for example, logging or mining company representatives, or tourism operators), and other key stakeholders should be explicitly included in all steps. Stakeholders are all those individuals who demonstrate some combination of *concern* (about the outcome of a SCS process), *expertise* (anyone who has information or resources required to participate in a SCS process), and/or *power* (anyone who is able to either block or facilitate recommendations which result from the SCS process). That is to say, representatives from all these stakeholder groups should participate in the Status Review part of the process as well as in defining the Vision, Goals, Objectives, and Actions.

Clearly, the relevant specialists for the species concerned have to be involved in developing the Vision, Goals, Objectives, and Actions. In addition to being stakeholders in their own right, such species specialists are often best placed to formulate the “species’ eye view” that the overall SCS should promote in order to best conserve the species. However, it bears repeating that it is also vitally important for range State stakeholders to be involved in this

process because of their understanding of the context in which the conservation activities will be conducted, and because their participation is a prerequisite for the necessary ownership and sense of responsibility for the SCS that leads to an enabling political environment and to action.

SSC Specialist Groups can and, in most cases, should play a number of roles in the SCS process. For example, a Specialist Group will, as a result of its Red Listing activities, have a clear idea of priority species for which to prepare a SCS. The Specialist Group will also be an appropriate body to organize the collation of data for the Status Review, and convene the workshop in which the Status Review will be reviewed and/or revised and the rest of the SCS developed. Specialist Group Chairs and other members should be involved in identifying the most appropriate participants, ensuring good representation from range State governments and other key stakeholder groups. Another role that particularly lends itself to Specialist Groups is maintaining an up-to-date database on the species' status and distribution following the Status Review. IUCN's neutral inter-governmental status has in the past given governments the confidence to submit data to SSC-maintained databases, which is something that they may not be willing to do if the databases are maintained by an NGO.

## 5. Status Review

The Status Review is a summary of information about the current biological, socio-economic, and cultural status of the species. Status Reviews are time-bound and geographically scaled to the range of the species; they are also spatially explicit, ideally 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 populations, population trends, threats, socio-economic and cultural importance, and already ongoing conservation efforts. In other contexts, Status Reviews might be called status reports or species profiles and have been an important part of IUCN/SSC 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 array of stakeholders necessary for participation in the larger SCS process. However, the information collected in the Status Review needs to be reliable, which means that it should be well documented, attributed according to quality and source, and, where possible, subjected to peer-review. To the extent possible, the information collected during this review should be placed in the public domain.

The Status Review mechanism we describe draws on protocols well-established in the scientific literature and in conservation planning practice, including past IUCN Status Survey and Conservation Action Plans and procedures from the Range-wide Priority-Setting process (Sanderson *et al.* 2002), species recovery planning (Crouse *et al.* 2002), and the Population and Habitat Viability Assessment (PHVA) process (Westley and Miller 2003). It differs from past IUCN guidelines in placing emphases on demographic and spatial data at various relevant scales (such as range-wide, ecosystems, populations), and on the factors affecting population dynamics, including threats from human activity.

The Status Review should consist of seven subsections, as outlined below. The mechanisms to assemble this information will probably include a combination of workshops, meetings, literature synthesis, correspondence, document preparation, and peer review.



### **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 SCS. 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 national and international recognition (for example, CITES listing).

### **2. Values**

This subsection answers the question: Why save the species? It should summarise the values of the species to people, including ecosystem services connected to the species (such as pollination and seed dispersal), human consumptive (for example, food and decoration) and non-consumptive (for example, tourism) uses of the species, and important cultural and spiritual values (such as cultural symbolism and group-identity), both within the species' geographic range and outside that range (see Chapter 10). The subsection should also describe ecosystem functionality that is not of direct benefit to people, but important for how the species acts in nature, including predator-prey dynamics, competition, mutualisms, and roles in creating, changing, or destroying habitat (for example, beavers creating dams, elephants' destruction of trees).



**Photo 5.1 Hadzabe Bushmen hunting, Lake Eyasi region, Tanzania** IUCN Photo Library © Alicia Wirz

### **3. Historical account**

This subsection answers the question: How did the current status arise? It should provide a summary of the species' history, including its historical distribution, and explain briefly how the species came to be of conservation concern and what major threats there have been. A well-documented historical distribution of the species would include maps (and corresponding GIS layers) which provide an outer bound of the conservation planning area. The historical distribution map can provide the basis for evaluating a species' present and potential range; it need not, however, necessarily be the same as the target area for species conservation that will be defined in a SCS. This subsection should also cite any major planning efforts related to the species in the past, including previous Action Plans.

### **4. Current distribution and demography**

This subsection answers the question: What is the current status of the species? It should provide a summary of that status, including synthesised 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 (for example, definite, probable, doubtful, extirpated, unknown); (c) major boundaries between populations, and former, potentially still suitable, range areas that are currently not occupied by the species, which could be appropriate for basing 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 are the species' habitat and resource requirements (including food, water, shelter, reproductive resources)? Typically this section will also include specific key resources used/needed by the species (for example, prey for predators) and describe a map of the major ecological settings, where the species occurs, including a review of land type and land-use. For migratory or other highly-mobile species, this section should also include an assessment of ecological linkages between disjunct population areas.

### **6. Threats**

This subsection answers the question: What are the major threats to the species across the current geographic range? It should diagnose the processes threatening the species as accurately and comprehensively as possible to ensure that proposed Actions actually result in a reversal of population decline and where appropriate increases in population size and range area. Identification of threats therefore needs to be a rigorous, participatory, peer-reviewed, process, involving critical analysis of the best available data.

For many species, it will be helpful to distinguish proximate and ultimate threats to wild populations. Proximate threats are immediate causes of population decline, and are often but not always anthropogenic (e.g., conversion of habitat to cultivation, or hunting for bushmeat). Ultimate threats are the root causes of proximate threats, and are almost always anthropogenic. For example, conversion of forest to cultivation (a proximate threat) may be driven by human population growth, poverty, or people's inability to realize economic benefits by sustainable use of uncultivated areas (all ultimate threats).

### **7. Conservation and management**

This subsection answers the question: What current conservation measures are in place? It should also provide a summary of any prior assessments of how well the current conservation plans are working.

**Dealing with data uncertainty:** The nature and reliability of data in the Status Review will depend on the particular circumstances and nature of the species or group of species. In many cases, information on trends and threats will be unavailable or inadequate, so the Objectives that will be developed in response to the threats will reflect the opinions of specialists on the current situation, with at least one Objective addressing the need for more information (research). In such cases, especially, the SCS should include an update of the Status Review as soon as data can be obtained. So the SCS's 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 solutions. In such a case, the best strategy might be to develop approaches experimentally in a small portion of the range, using adaptive management.

### Box 5.1 *Conducting a Threat Analysis*

Like many other aspects of strategic planning for species conservation, threat analyses are likely to be most useful when conducted by interdisciplinary teams of stakeholders with a diverse array of expertise and experience. This should ensure that all of the key threats are identified by the analysis.



**Photo 7.2** Wildebeest (*Connochaetes taurinus*) migration in the Masai Mara, Kenya

© Karin Svadlenak-Gomez

### *Example of a Threat Analysis*

*Causes of decline of resident wildebeest (Connochaetes taurinus) in the Masai Mara ecosystem, Kenya.*

Problem: Resident wildebeest declined by 81% between 1977 and 1997.

Threat analysis: Ottichilo *et al.* (2001) used spatial and temporal analyses to compare changes in wildebeest density with rainfall, the conversion of wildebeest habitat to cultivation, and the density of livestock. Their results showed that loss of wildebeest was associated with conversion of wet season grazing and calving areas from savannah to cultivation.

## 6. Vision and Goals

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

### **Box 6.1 A typical Vision Statement**

*“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. 2008).*

While the Vision is an inspiring encapsulation of what is required in broad terms, a more detailed set of range-wide high-level Goals are also needed to capture the substance of the “visioning” process described below. Goals might specify, for example, the desired number of ecologically functional populations to achieve replication per major habitat type, or whether restoration (reintroduction) is needed. Goals have the same long-term time frame and broad (range-wide or regional) spatial scale as the Vision, and they use the same criteria for what it means to save a species that were agreed when developing the Vision.

A Vision and its associated Goals should derive from a high-level analysis of a species’ status and a detailed presentation of the long-term conservation needs of the species, informed by the Status Review, with clear Targets for the Goals, and explicit justifications.

A number of principles are commonly asserted in Vision statements. We recommend, without being prescriptive, that when writing conservation strategies, the following be considered: (a) ecological and genetic 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 needs and aspirations.

It will also be necessary to decide, among other things (a) whether the most appropriate approach is to focus on ecological, behavioural, and/or genetic variability within the species or species group and how to maximize representation, complementarity, and redundancy across these categories; (b) the vision’s time scale; (c) its spatial scale; and (d) the best approaches for setting target population sizes, densities, and range area (see, for example, Sanderson 2006).

The Vision and associated Goals should be as ambitious and inclusive as possible. A species’ ecological interactions change across eco-geographic settings, so for a species with a broad geographic range, therefore, these statements must explicitly address conservation of all (or as many as possible) of these settings and interactions (Sanderson *et al.* 2008). Similar concerns apply to the values (e.g., cultural and socio-economic) the species has to humans, since these will also vary across a species’ geographic range.

It should be noted that the Vision and associated Goals must be suitable for implementation and the teams developing the Vision should therefore not get mired in endless refinements of systematic assessment and/or “visioning” methods (see, for example, Knight, Cowling and Campbell 2006).

As for all parts of SCS planning, the process of defining Vision and Goals should be broadly participatory and as inclusive as possible, for the reasons discussed earlier.

## 7. Objectives

Attaining the Vision and Goals of a SCS will inevitably require overcoming a number of obstacles. The Strategy's Objectives summarise the approaches to be taken in overcoming those obstacles. The obstacles to be overcome are identified using some form of problem analysis (described below) which builds on the threat analysis conducted as part of the Status Review (see Chapter 5) but also identifies a broader array of constraints on achieving the Vision and Goals. Once these threats and constraints have been agreed, the ways to tackle them are summarised as the Objectives. Broadly speaking, Objectives outline how the Vision and Goals of the SCS will be turned into reality: the Vision and Goals describe a future scenario that the participants would like to achieve and the Objectives signpost the multiple routes to achieving that scenario.

Objectives are most readily developed by building on a problem analysis. This problem analysis builds on the narrower threat analysis conducted as part of the Status Review, identifying constraints to achievement of the Goals (e.g., lack of capacity, inappropriate wildlife policies). When all the major threats and constraints have been identified, one way of organizing them is to construct a "problem tree", a method that is explained step by step and illustrated in the SCS Handbook. The problem tree links proximate threats with their ultimate causes and constraints, which provides a useful way to visualize the threats and constraints, and hence helps to ensure that no important issues have been omitted.

Typically, strategic planners recommend a relatively small number of Objectives (usually 4–12). For species conservation, Objectives will often address such needs as building capacity, reducing poaching, ensuring appropriate policies are established and implemented, raising public awareness, or filling information gaps. Objectives should be clear and understandable, allow Actions to be derived from them, be realistic, and should be capable of being tracked (using Objective Targets, see below).

### **Box 7.1      *Examples of Objectives taken from a variety of conservation strategies***

- Raise awareness for the conservation of the Arabian leopard at all levels (Arabian leopard 2007)
- Reinforce and re-establish populations where appropriate (Arabian leopard 2007)
- Build adequate region-wide capacity for all aspects of Arabian oryx conservation (Arabian oryx 2007)
- Secure coordination between range States (Arabian oryx 2007)
- Maintain and, where appropriate, expand the area of wild cattle and buffalo habitat, and increase the proportion of that habitat that is well managed, to ensure the viability and ecological functionality of wild cattle and buffalo populations (Asian wild cattle and buffaloes 2008)
- Inform effective conservation and management of wild cattle and buffaloes by collecting, analysing, interpreting and exchanging high-quality and timely data, in collaboration with key stakeholders locally, nationally and internationally (Asian wild cattle and buffaloes 2008)
- Undertake research activities designed to better understand predation as it relates to mortality of Greater Sage Grouse populations at all life stages (Colorado Greater Sage Grouse 2006)
- Develop protocols to equally and fairly share costs of species and habitat management among all stakeholder groups (Butler's gartersnake 2007)
- Regular communication between representatives of the livestock industry and environmental organizations should be initiated to more effectively discuss prairie dog biology and its relationship to livestock grazing management (Gunnison's and white-tailed prairie dog, 2006)

In general, implementation of SCSs and Action Plans is greatly facilitated if Targets are set. It is also useful to set Objective Targets within each Objective. Objectives summarise what needs to be done to achieve a Strategy's Vision and Goals, while Objective Targets provide



more detailed definitions of what needs to be done, and by what date. Setting Objective Targets can also help to group related Actions into logically related clusters, which can help to promote implementation (see Chapter 8). The timelines associated with Objective Targets can also be used as a way of prioritizing different clusters of Actions. For example, if a particular threat requires urgent Action, its associated Objective Targets might have short timelines. Like all targets, Objective Targets should be SMART.

**Box 7.2      *An Example of an Objective and its associated Objective Targets***

*Extracted from the strategic plan for conservation of African wild dogs and cheetah in eastern Africa (IUCN/SSC, in press).*

**Objective:**

4      Review and harmonize existing legislation, and, where necessary, develop new legislation, for conservation across cheetah and wild dog range at national and international levels

**Objective Targets:**

4.1      Gaps in information on positive and negative effects of hunting on cheetah and wild dog conservation which can assist in policy evaluation and development are identified within one to three years

4.2      Information on the extent of illegal wildlife related activities within cheetah and wild dog ranges for relevant authorities to strengthen policy/law enforcement and quality tourism provided within one to three years

4.3      Explicit information provided to the management authorities to support identification and prioritization of corridor and dispersal areas for improved connectivity of cheetah and wild dog ranges within one to three years

4.4      A memorandum of understanding to co-ordinate eastern African country management and its enforcement relevant to cheetah and wild dog conservation developed within one to three years.

## 8. Actions

Actions are the activities which need to be implemented to achieve the Strategy's Objectives and, ultimately, its Goals and Vision. Proposed Actions are likely to be diverse, including activities such as the protection of populations and their habitats, surveys of distribution and status, captive breeding, and research, as well as capacity development, education, policy development, advocacy, and fundraising.

It is almost inevitable that information and experience will be gained in the course of implementing a SCS: Some Actions may succeed and others may fail. It is important that the Strategy be devised in a way that allows managers to learn from these successes and failures and to modify future Actions accordingly. Hence, where possible, all management Actions should be developed and implemented in association with appropriate monitoring programmes. Indeed, monitoring should be listed as an Action in most or all SCSs.

It is important to bear in mind that, while many species inhabit landscapes or seascapes administered by multiple countries and therefore require conservation across or beyond international boundaries, the majority of Actions will be governed by national policies. Developing national Action Plans (or Action Plans at the sub-national or regional level if these are the scales at which policy is determined) will be vital under such circumstances.



**Photo 8.1 A cactus flower on Peninsula Valdés, Argentina**  
IUCN Photo Library © Imène Meliane

Within the framework of the SCS, Actions fall below Objectives (see Figure 2.1). However, because Objectives can be rather broad in their scope, whereas Actions are often most useful if very specifically defined, it is helpful to group Actions under a number of Objective Targets associated with each Objective (see Table 8.1). Each of the Actions proposed should be necessary to achieve the Objective Target with which it is associated. Additionally, the Actions listed under an Objective Target should, together, be

sufficient to reach that Target.

**Table 8.1 – An example of Actions grouped under an Objective Target**

(Note that only one of several Objective Targets is listed here.)

Objective	Objective Target	Action
1. Develop and implement strategies to promote coexistence of cheetah and wild dogs with people and domestic animals	1.1 Sustainable tools to reduce wild dog and cheetah impacts on livestock developed and disseminated across the region within three years	1.1.1 Identify areas where cheetah and wild dog populations are significantly threatened by conflict with livestock farmers
		1.1.2 Identify the circumstances that contribute to livestock depredation by cheetah and wild dogs in the identified areas
		1.1.3 Develop effective strategies for disseminating existing information on reducing cheetah and wild dog impacts on livestock to relevant parties across eastern Africa

Source: *Regional Strategy for the conservation of African wild dogs and cheetahs in eastern Africa (IUCN/SSC, in press).*

Strategies will vary in how specifically Actions are defined. Range-wide or regional SCSs that are likely to involve implementation by diverse management authorities, or those which concern multiple species, may include recommended Actions that are fairly broad in their scope. By contrast, national or local Action Plans, or those concerning single species, may include Actions that are much more specific. Inappropriately detailed strategies can appear daunting or prescriptive, and are likely to alienate stakeholders who were not involved in the strategy's development. It will often be appropriate to add detail at the national or local level, especially since planning workshops at the national (or local) level can accommodate many more key stakeholders than can be involved in range-wide or regional workshops.

Once possible management approaches have been identified, but before any Actions are definitively recommended in the SCS, their likely effectiveness should be evaluated and documented. This is critically important: ineffective Actions waste money and other resources without contributing to the conservation of the species concerned. Evidence of the effectiveness of particular management approaches should be provided, or cited, in the narrative sections of the SCS, to give managers and decision-makers confidence that recommended Actions will work. Tests of particular management approaches may be recommended as Actions, if (as will often be the case) they have not been conducted prior to the development of the SCS.

Methods that can be used to evaluate potential Actions include, in approximate order of data quality, experimental field tests of management actions, correlational studies to interpret “natural variation” in management practices, case studies, experiences from and tests on similar species, tests on captive animals, and tests based on model simulation. Details of how to conduct such evaluations are provided in the Handbook.

In recognition of the need for continual evaluation of progress and success, each Action within a SCS should ideally be associated with one or more indicators of success. An indicator is a description of the conditions that would show that a particular Action had been implemented successfully. Good indicators are measurable, precise, consistent, and sensitive. Determining whether such indicators have been achieved will usually require some form of monitoring. In developing SCSs, participants should ideally discuss, review, and present not only methods for collecting monitoring data but also approaches to data analysis and interpretation. Note that in many cases these can be very simple and non-technical. In most SCSs, monitoring is likely to be specified as an Action in itself, as well as providing an indicator of the success of multiple other Actions.

Ultimately, it will be important to decide not only what Actions should be performed, but also where they should be conducted, and on what timescale. Whether or not it is appropriate to specify the sites where Action should be carried out will depend on the scope of the SCS. Sites might be specified for some, but not all, Actions within a SCS. The amount of detail associated with each recommended Action should be determined by what is appropriate under particular circumstances.

Where possible, a SCS should also specify who should undertake Actions. To the extent feasible, individuals (usually workshop participants) should be identified to assume primary responsibility for initiating particular Actions, even if their primary role is to ensure that other individuals take responsibility for implementing the Action.

In deciding which Actions to recommend, it may be helpful to consider multiple Actions to ameliorate the same threat or constraint. Many threats will be multi-faceted and several Actions will be required to reduce their impact (see Box 8.1 for some examples).



### **Box 8.1      Real-world examples of threats addressed using multiple approaches**

**Threat:** Wild populations of seahorses declining due to over-harvest for traditional medicines, curios and the aquarium trade.

**Actions taken** include:

- Encouraging the designation of marine protected areas;
- Helping to develop alternative livelihoods for seahorse fishers;
- Regulating international trade through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- Developing aquaculture methods to reduce pressure on wild populations;
- Educating local and global communities about the impacts of the seahorse trade;

(Source: Forrest *et al.* 2007)

**Threat:** Ethiopian wolves at risk of extinction due to infectious diseases caught from domestic dogs.

**Actions taken** include:

- Vaccination of domestic dogs;
- Emergency vaccination of Ethiopian wolves;
- Testing of methods to reduce domestic dog ranging in Ethiopian wolf habitat;
- Strengthening the capacity of authorities charged with protecting Ethiopian wolf habitat;
- Outreach to local communities in and around Ethiopian wolf habitat.

(Sources: Sillero-Zubiri and Macdonald 1997; Laurenson *et al.* 1998; Haydon *et al.* 2006)

**Threat:** Asian elephant population in Indonesia's Way Kambas National Park threatened as a result of conflict with farmers on neighbouring land.

**Actions taken** include:

- Surveys and monitoring to assess population size and to identify and quantify threats;
- Mathematical modelling to quantify impact of poaching;
- Human–elephant conflict mitigation methods tested and demonstration sites established;
- Training in law enforcement methods provided in collaboration with the CITES/MIKE Programme;
- Legal support for prosecution of poachers provided to the park authorities by NGO-run "Wildlife Crimes Unit";
- Lobbying to overturn national policy on capturing elephants as a response to conflict with farmers;
- Outreach/education work conducted in local communities.

(Sources: Hedges *et al.* 2005; Hedges and Gunaryadi (in press); Tyson *et al.* (in review); Wildlife Conservation Society, unpublished data.)

**Threat:** Florida manatees threatened by collisions with boats.

**Actions taken** include:

- Establishment of manatee protected areas and no-boat zones;
- Boat slow-speed zones established in areas of high manatee use;
- Marinas harbouring fast-moving large-propeller boats relocated away from areas of high manatee use;
- Awareness campaign throughout Florida spearheaded by regional groups and celebrities.

(Source: Marine Mammal Commission 2003)

Even in a well-designed SCS, it is highly likely that some Actions will make a greater contribution towards achieving the Goals than will others, and may thus be considered to have higher priority. In some cases, groups engaged in developing SCSs may choose to classify Actions according to their priority, perhaps ranking them as 'high', 'medium', and 'low' priority. Priorities may also be attached to Actions through their timelines, or through the timelines attached to their associated Objective Targets. Any such priority-setting should recognise that threats vary between sites, and over time, so that priorities may need to vary accordingly. Another important consideration in prioritizing Actions is that different organizations and individuals have different expertise, and hence different capacities to

conduct management Actions. Therefore, different organizations may work to implement different Actions, not always in sequence with any defined set of priorities. This is in fact useful, as it would be problematic if all actors focused only on the top priority Actions and left unattended the lower priority, but still necessary, Actions.

## **9. Using a Species Conservation Strategy to develop national or local Action Plans**

Although species conservation requires planning at the range-wide or regional level, almost all conservation Action is conducted under the authority of national or local governments. However, many species' geographic ranges overlap areas administered by multiple authorities. For these species, it is essential that range-wide (or regional) Strategies can be readily translated into a number of Action Plans that can be implemented under the authority of particular governments. In most cases, this will entail developing national Action Plans; however, in some cases it may be more appropriate to develop such Action Plans at the state or provincial level, or at the supra-national level.

If a range-wide or regional SCS is to be acceptable for use as a template to develop national Action Plans, it is essential that it be developed with participation from key stakeholders from each range State (particularly range State wildlife authorities). Such participation in the range-wide or regional process should ensure that the resulting SCS takes into account the species' status in each range State, and also that it tackles key issues affecting species conservation in each range State. Participation also instils a sense of national ownership of the range-wide or regional SCS which is extremely important for fostering acceptance at the national level.

A first step in conducting a national Action Planning workshop is to present the best available data on the species' distribution and status and, where appropriate, to provide an opportunity to update this information. In many cases, the "best available data" will be those collated in developing the range-wide or regional Status Review.

It is rarely necessary or appropriate to develop a national Vision for conservation of a species, since many of the usual components of a Vision (e.g., representation across ecological settings) can only be achieved at the range-wide level. It is, however, useful to review the range-wide or regional Vision, asking national participants to consider and register their national interpretation of all aspects of the range-wide or regional SCS; this enables national participants to claim ownership of the strategy

Like the Vision, the Goals of a range-wide SCS cannot meaningfully be modified for use in a national Action Plan, although registering the national interpretation is appropriate. In contrast with the Goals, the Goal Targets for a range-wide or regional Strategy may be modified for a national Action Plan. Where range-wide or regional Goal Targets are site-specific, it may be possible to extract those that apply to the range State in question, and consider these as a first draft of the national Goal Targets.

The Objectives are usually framed sufficiently broadly that they can be adopted for use at the national level with relatively few adjustments. However, sometimes entire Objectives may be irrelevant at the national level, and can be dropped. Occasionally, it might be appropriate to add one or more Objectives to the national Action Plan, to address problems not considered at the range-wide or regional level. However, this should rarely be necessary

if the range-wide or regional SCS was well constructed using inputs from all the range States. In most cases the original Objectives can be used in their original wording; it is rarely useful to take up time re-drafting them, but a national interpretation can be registered where necessary.

The majority of work at a national planning workshop is usually concerned with adapting the range-wide or regional Objective Targets and Actions to the national context. Particular Objective Targets may be dropped or, less commonly, added, to address particular threats or constraints operating at the national level. Likewise, Actions may be added, dropped, or clarified. In addition to selecting the appropriate Actions for the national Action Plan, participants in the national workshop should also add to the detail associated with each Action, specifying actors, timelines, sites, and indicators of success.

Lastly, it may be useful to include talks or other presentations in the agenda for national workshops. This may provide an opportunity to share experiences of particular conservation tools.

## **10. Integration of Species Conservation Strategies with other conservation planning efforts**

The conservation of biological diversity encompasses both species-focused and ecosystem- or area-based approaches (also formally referred to as “systematic conservation planning” – see, for example, Margules and Pressey 2000). However, most conservation practitioners agree that these represent different sides of the same coin, and thus complement each other. While it is recognised that many species require conservation action the question of how to use limited and usually inadequate human and financial resources most effectively remains a critical issue when designing practical conservation strategies. Should funds be used to pursue the conservation of particular species or to invest in the management and protection of areas that are of notable biological value? Within IUCN, the Species Survival Commission (SSC) and the World Commission on Protected Areas (WCPA) represent the two different, but closely inter-related sets of interests. Both approaches are critical to saving the world’s biodiversity.

The integration of species-focused and area-based and/or ecosystem-based approaches is reflected within the present SCS 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. The necessity of area-based conservation for species has long been an integral part of the activities of SSC, though mainly in relation to the specific demands of the particular species, since protection of species populations requires protection of the habitat in which they occur. The threat criteria for red-listing species include “extent of occurrence” and “area of occupancy”, both explicitly reflecting spatial requirements important for continued survival of species populations (IUCN 2001; IUCN 2008).

Species-oriented conservation has also changed from simply considering species numbers to recognising the huge variety of functional roles that they play within ecosystems. This realization has developed to encompass the idea of ecosystem services – acknowledging what biodiversity does for humans either directly or indirectly. Many of these ideas are referred to in earlier chapters of the Handbook (see Chapter 5 and Chapter 6).

A similar situation has arisen for conservation centred on protected areas. During the 20<sup>th</sup> Century, effort has gradually been shifting from an emphasis on designing protected areas

and identifying the species within them, to more emphasis on effective management of protected areas for various purposes, including for the benefit of people, as evidenced by the IUCN Protected Areas Management Categories (IUCN 1994). While their core function remains the conservation of biodiversity, other roles may include the maintenance of ecosystem services, links to livelihoods through the sustainable use of natural resources, and the preservation of cultural values. Management of landscapes to include the protection of ecosystem services as a “value-added strategy” to support and complement existing conservation efforts based on species and their habitats, may offer a potentially highly effective means of improving overall conservation success, both within and outside designated protected areas (Haslett, Berry, and Zobel 2007).

Given these trends, IUCN, and SSC in particular, have to take full account of and ensure close co-ordination with the planning activities of the different IUCN Commissions. For example, while the Species Conservation Planning Task Force has been preparing this document, a separate task force, co-convened by SSC and WCPA, has been preparing a new set of guidelines on Systematic Conservation Planning (Bottrill and Pressey in press).

### ***Some additional approaches and tools that can support SCS planning***

A variety of different tools and processes exist for developing strategies for endangered species conservation. We mention only some of them below.

To produce an effective SCS, the planning process should combine both biological and human social dynamics into a comprehensive package. The **Population Habitat Viability Analysis (PHVA)** workshop process, designed and primarily implemented by SSC’s Conservation Breeding Specialist Group (CBSG), is a clear example of this integrated approach to species Conservation Planning (Westley and Miller 2003).

Another useful approach is **Range-wide Priority-Setting (RWPS)**, an expert-based, geographically-explicit planning methodology for widely distributed species, which leans strongly on GIS-based analysis. It was first applied to jaguars (*Panthera onca*) in 1999 and subsequently used for other species (Sanderson *et al.* 2002). RWPS is based on the premise that saving species requires consideration of the species across its historical range; recognition that populations exist in different ecological settings, that capture not only genetic distinctiveness, but also ecological and behavioural distinctions; and identifying those populations and/or opportunities for restoration where the potential for long-term conservation is greatest based on population factors and threats. These considerations overlap significantly with the recommendations made in Chapter 6 on Vision and Goals.

IUCN through its Species Survival Commission (SSC) and Species Programme has for more than four decades been assessing the conservation status of species, subspecies, varieties, and even selected subpopulations on a global scale in order to highlight taxa threatened with extinction, and therefore promote their conservation. As mentioned in earlier chapters, the result is the **IUCN Red List**, which provides taxonomic, conservation status, and distribution information on taxa that have been globally evaluated using the Red List Categories and Criteria. Many of the data required for the Red List process are similar in kind to those required for the SCS process, particularly for the Status Review component (see Chapter 5). In fact, the Status Review guidelines suggest explicit reference to the Red List status of species under consideration.

Many countries around the world have **legislation** related to the **protection of endangered species**. Similar to Species Conservation Strategies as outlined here, laws often mandate the preparation of **recovery plans**, which typically include delineating those aspects of the

species' biology, life history and threats that are pertinent to its endangerment and recovery (comparable to the Status Review process, see Chapter 5); and they identify goals and criteria by which to measure the species' achievement of recovery (comparable to Vision and Goals, see Chapter 6), and outline a Strategy, including site-specific Actions to achieve recovery (comparable to Actions, see Chapter 8).

There are also some area-based or landscape approaches to conservation planning with an explicit species component. One of these is **Conservation Action Planning (CAP)**, developed by The Nature Conservancy (TNC) to help conservation project staff develop strategies, take action, and measure success over time in an adaptive framework (TNC 2007). It is the most recent development in a long series of project-level planning approaches prepared by TNC, including Site Conservation Planning, Conservation Area Planning, and the 5-S Framework. CAP integrates with SCSs most closely at the level of Objective-setting (see Chapter 7) and Action-planning (see Chapter 8), particularly when the species featured in the SCS are selected as a focal conservation target for an area. CAP also includes a qualitative viability analysis and identification process for critical threats, which can feed directly into the Status Review (see Chapter 5).

In the United States, under the Endangered Species Act, a **Habitat Conservation Plan (HCP)** is prepared to form partnerships between private individuals and the government to "minimize or mitigate" reductions in endangered species populations. HCPs relate mainly to setting Objectives, as they require a threat-based analysis (Chapters 5 and 7) and to determining Actions that alleviate those threats (see Chapter 8) as described here.

Yet another tool, developed by the Wildlife Conservation Society, is the **Landscape Species Approach (LSA)**. This is a landscape Conservation Planning tool which builds conservation efforts around "landscape species," that is species which use large, ecologically diverse areas and have a significant impact on the structure and function of natural ecosystems (Sanderson *et al.* 2002). By conserving the entire suite of landscape species, the Conservation Planning team hopes to conserve not only those species, and the species on which they directly depend, but also the landscape as a whole. The LSA process could be used to plan Actions for species conservation (see Chapter 8). The landscape species selection process and the landscape planning maps may also provide information relevant to the Status Review (see Chapter 5) and Objective-setting (see Chapter 7); and the mechanisms for establishing population target levels developed initially for landscape species can be used to set Goal Targets (see Chapter 6).

It is important to recognise that the various approaches to species conservation being developed and employed by governments and NGOs are neither contradictory to nor full substitutes for the approach to developing species-based conservation strategies that we describe in this document. The process for and the product of the planning described in this document are not fully encompassed by any one of the other species conservation planning methodologies; but they are complementary and elements from various tools and approaches can be combined when preparing SCSs.

## 11. Conclusion

In conclusion, SCSs are a key tool for conserving biodiversity. By synthesising the expertise and concerns of all stakeholders and thoroughly analysing the relevant problems and threats, a properly-formulated SCS should set out a coherent set of Goals, Objectives, associated Targets, and Actions; and thereby help to galvanize resources and catalyse the preparation and implementation of detailed Action Plans.

When all is said and done, the worth of a SCS can only be judged by whether it achieves its Goals, no matter how good it looks on paper. The crucial challenge therefore is to translate the efforts expended on preparing it into effective action. Strategies and Action Plans alone do not save species, only action does.

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## Lead authors and contributors

This document should be seen as a product of the SSC Species Conservation Planning Task Force as a whole. However, within that group, a number of lead writers spearheaded individual chapters, supported by several others who contributed through comments on numerous drafts, examples, and sections of chapters. We sincerely thank the dedicated individuals from the writing team, who, despite otherwise full schedules, spent many days writing, fine-tuning, and trying to accommodate diverging or additional views on the approach we propose here.

The lead authors and substantive contributors for each chapter were as follows:

Preface:	Eric Sanderson, Robert Lacy, and Simon Hedges.
Chapter 1:	Philip McGowan and David Mallon.
Chapter 2:	Simon Hedges, with significant contributions from Holly Dublin, Dave Garshelis, Robert Lacy, David Mallon, Philip Miller, Philip McGowan, Eric Sanderson, Claudio Sillero-Zubiri, and Rosie Woodroffe.
Chapter 3:	Robert Lacy, Simon Hedges, with significant contributions from David Mallon, Philip McGowan, Patricia Medici, John Haslett, and Claudio Sillero-Zubiri.
Chapter 4:	Simon Hedges, with contributions from Richard Emslie, David Mallon, Patricia Medici, and Rosie Woodroffe.
Chapter 5:	Eric Sanderson, with significant contributions from Rosie Woodroffe, Simon Hedges, David Mallon, Philip McGowan, and Dave Garshelis.
Chapter 6:	Simon Hedges, with significant contributions from Eric Sanderson, Rosie Woodroffe and David Mallon.
Chapter 7:	Rosie Woodroffe and Simon Hedges, with significant contributions from David Mallon, Philip Miller, Robert Lacy, Philip McGowan, Claudio Sillero-Zubiri, Holly Dublin, and Dave Garshelis.
Chapter 8:	Rosie Woodroffe, with significant contributions from Simon Hedges, Margaret Kinnaird, Claudio Sillero-Zubiri, and Philip Miller.
Chapter 9:	Rosie Woodroffe and Sarah Durant.
Chapter 10:	Philip Miller and Eric Sanderson.





### **IUCN, International Union for Conservation of Nature**

Founded in 1948, IUCN brings together States, government agencies and a diverse range of non-governmental organizations in a unique world partnership: over 1000 members in all, spread across some 140 countries.

As a Union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. A central Secretariat coordinates the IUCN Programme and serves the Union membership, representing their views on the world stage and providing them with the strategies, services, scientific knowledge and technical support they need to achieve their goals. Through its six Commissions, IUCN draws together over 10,000 expert volunteers in project teams and action groups, focusing in particular on species and biodiversity conservation and the management of habitats and natural resources. The Union has helped many countries to prepare National Conservation Strategies, and demonstrates the application of its knowledge through the field projects it supervises. Operations are increasingly decentralized and are carried forward by an expanding network of regional and country offices, located principally in developing countries.

IUCN builds on the strengths of its members, networks and partners to enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels.

The **IUCN Species Survival Commission (SSC)** is a science-based network of close to 8,000 volunteer experts from almost every country of the world, all working together towards achieving the vision of, *"A world that values and conserves present levels of biodiversity."*



**INTERNATIONAL UNION  
FOR CONSERVATION OF NATURE**

WORLD HEADQUARTERS

Rue Mauverney 28

1196 Gland

Switzerland

mail@iucn.org

Tel: + 41 22 999 00 00

Fax: + 41 22 999 00 15

www.iucn.org

Document available for downloading at:

<http://intranet.iucn.org/webfiles/doc/SSC/SCSOoverview.pdf>

