



Designs for nature

Regional conservation planning, implementation and management

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Best Practice Protected Areas Guidelines Series



Executive summary

Conservation planning and a diversity of approaches

Conservation planning is the process of locating, designing and managing conservation areas to promote the persistence of biodiversity, one of the main goals of the Convention of Biological Diversity. The term “conservation areas” covers protected areas in IUCN categories I-IV but also includes other areas managed in some way or being restored for the persistence of natural values.

Conservation resources are almost always insufficient to immediately apply all the necessary conservation actions to all identified areas. Biodiversity is being reduced, degraded and lost each day. So planners often have to decide which areas should be managed for conservation first. If we spend limited conservation resources without planning, the chances are very high that we will invest in the wrong places, at the wrong times, and apply the wrong actions. If we plan, then we will maximise the chances of achieving our objectives within the limits of our resources.

National government agencies, international organisations, institutions and research groups have become committed to specific conservation planning approaches, applying them at a variety of spatial scales and in different environments. Meanwhile, there is increasing uncertainty in the conservation science community and amongst governments and donors about how to choose between apparently competing approaches, many of which are being assertively promoted as the tools needed to save biodiversity. This uncertainty creates difficulties for potential users of planning tools, impedes cooperation between organisations and scientists, constrains the effectiveness of conservation planning by failing to identify complementarities between approaches, and limits the efficiency of funding.

Distilling good practice from around the world

Recognising the need to integrate the many different approaches and provide policymakers, scientists and conservation practitioners with practical guidelines on conservation planning, two IUCN commissions: the Species Survival Commission (SSC) and the World Commission on Protected Areas (WCPA) convened a joint initiative on the integration of planning approaches at the regional scale. By regional scale, we refer to planning for geographical domains such as ecoregions, landscapes, corridors, countries, provinces and local government areas. The main purpose of this initiative was to develop a comprehensive guide to conservation planning that would describe the many tasks and decisions involved in the process of designing, implementing and managing conservation areas. The guide will become a joint SSC-WCPA publication in the WCPA Best Practice Guidelines series.

The main purpose of the guide to conservation planning is to comprehensively describe and explain the process of systematic conservation planning:

- To bring together, for the first time, ideas and techniques on conservation planning from diverse sources and case studies throughout the world;
- To show how systematic approaches can address many of the major conservation challenges facing planners and managers; and
- To guide conservation planners and managers through the entire planning process with a series of tasks and decisions, many of them optional and all of which can be approached in different ways, depending on available funds, time, information and skills.

Development and structure of the guide to conservation planning

Building on earlier frameworks by Margules & Pressey 2000¹ and Cowling & Pressey 2001², this guide describes 11 broad stages of planning (e.g., Stage 4: Setting conservation goals), each of which is unpacked into steps to describe specific tasks or decisions. The guide is generic in two ways. First, it is not a single approach by any one organisation. Second, the main stages are all necessary and applicable to any region and to terrestrial, freshwater and marine realms. To develop the guide, existing approaches were integrated together as well as lessons, methods, tools and insights from peer-reviewed articles, grey literature and case studies.

The 11 stages of the guide are broad enough that planners will have to work on every stage. The SSC-WCPA guide comprehensively describes: the reasons for including each stage in the planning process; the necessary steps for completing the stage; which steps are essential or optional; and how each stage links to other stages in the process. The steps within each stage (e.g. Step 7.6 Setting targets for natural processes) are introduced and described in terms of their rationale, key issues associated with undertaking them or adopting particular methods, challenges, and links to other steps.

¹ Margules, C. R., and R. L. Pressey. 2000. Systematic conservation planning. *Nature* **405**:243-253.

² Cowling, R. M., and R. L. Pressey. 2003. Introduction to systematic conservation planning in the Cape Floristic Region. *Biological Conservation* **112**:1-13.

Ways of using the guide to conservation planning

The guide can be used in several ways. An NGO, for example, might extend its established approach to planning to incorporate additional steps or use new methods for analysing data. A government agency might use the guide to develop or update a National Biodiversity Strategy and Action Plan (NBSAP). Among groups with limited existing capacity, the guide will serve to identify the financial resources and skills necessary to embark on a process of conservation planning. In every case, the guide is sufficiently flexible that it can be adapted to a wide variety of biological, social, economic and political circumstances.

Insights

- Greater understanding of whole process of planning – the most comprehensive description of the planning process available
- Emphasis on good practice in the application of tools and engagement with stakeholders
- Assistance to individuals, conservation groups and organisations with varying experience and capacity
- Highlights parts of the planning process that have not received much attention, including implementation of conservation actions, evaluation of actions in relation to goals, efficient use of conservation resources, involvement of stakeholders and awareness of diverse conservation values.

Note from authors

This monograph is an abridged draft version of an upcoming joint SSC-WCPA publication, “Designs for Nature: Regional conservation planning, implementation and management” in the WCPA Best Practice Protected Areas Series. Publication of the full report is anticipated in early 2009. A PDF will be available for free download from the following URL:

<http://www.iucn.org/themes/wcpa/pubs/guidelines.htm>

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Yawan village, Morobe Province, Papua New Guinea © Toby Ross

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1. Introduction

Systematic planning for effective conservation

Why conservation? Many of the natural features that we value, including species, landscapes, and clean water, will be lost unless we deliberately safeguard them from threats to their persistence. These threats include day-to-day activities such as fishing, logging, agriculture and grazing of stock. They also include changes to natural patterns of burning and flooding, the spread of alien species, and developments such as urban expansion, roads and dams.

What are conservation areas? Conservation areas, on land and in the water, are places that are managed in some way to promote the persistence of natural features. Conservation areas can be subject to a wide variety of conservation actions. Examples are the exclusion or regulation of extractive activities such as mining, logging and fishing, exclusion of infrastructure and transport, control of alien species, and management of processes such as fire and flooding. These actions are applied under many different management arrangements, including strict nature reserves, wilderness areas, other kinds of protected areas in IUCN categories I-VI, a variety of off-reserve management arrangements that do not qualify as formal protected areas, indigenous lands, community-managed areas and restoration areas.

What is conservation planning? Conservation planning is largely the process of deciding on the location and configuration of conservation areas; but it also involves decisions about when actions will be applied and how conservation areas will be managed. In some situations, planners will not have spatial choices. It might be necessary to protect all the remaining examples of extensively depleted species and habitats. In many situations, however, there will be more potential conservation areas than planners need to meet their objectives, and they will have to choose between areas. Decisions about location are partly determined by the distribution of species or other natural features that need conservation management; but location can also be influenced by attraction to opportunities (e.g. willing landholders) or avoidance of constraints (e.g. threats, high costs). Configuration refers both to individual conservation areas and whole systems of conservation areas. It covers issues such as size, shape, connectivity, replication, spacing, and directional alignment that are particularly important for the persistence of population dynamics and other natural processes. In some situations, where natural environments are extensive, planners will be able to decide on aspects of configuration. Where natural environments have been reduced and fragmented, there will be fewer choices, and it might be important to plan for restoration, for example, to enlarge and connect patches of native vegetation.

It is also likely that planners will have to make choices in time. Conservation resources are almost always insufficient to immediately apply all the necessary actions to all identified

conservation areas. So planners often have to decide which areas should be managed for conservation first. After conservation areas have been established and appropriate actions are being applied, it will be necessary to monitor areas and their features of interest to ensure that conservation actions are effective in meeting objectives and, if not, to change those actions.

What happens if we don't plan? We know that conservation resources are insufficient to achieve conservation objectives in the short term. We also know that natural features are being reduced, degraded and lost each day. If we spend limited conservation resources without planning, the chances are very high that we will invest in the wrong places, at the wrong time, and apply the wrong actions. In essence, failing to plan is planning to fail (Alan Lakein, US self-help author). If we plan, then we will maximise the chances of achieving our objectives within the limits of our resources.

Is conservation planning enough to promote the persistence of natural features?

Conservation planning is a vital part of a larger strategy for nature conservation. To be fully effective, it must be complemented by a variety of other activities that are not related to particular areas or operate outside conservation areas. These include education, policy, legislation, regulation and incentives. There are two reasons for this. First, some threats are so pervasive that they cannot be averted by the management of conservation areas and, in many cases, cross the boundaries of conservation areas to undermine their effectiveness. Examples are acid rain, ocean pollution and reduction of river flows by impoundments and extraction. Second, complementary activities can strengthen conservation areas in many ways. Pressure from illegal hunting might, for example, be reduced by regulating exports and markets for animal products. The value of wetlands within conservation areas could be enhanced through regulation that prevents the use of certain pesticides in upstream farming lands. Support for conservation areas amongst nearby communities could be increased by education about natural values and arrangements for sharing of revenue from tourism.

Are conservation plans fixed in time? Plans have to be updated, of course, as information improves, areas are unexpectedly lost, or areas not identified as conservation priorities are unexpectedly given conservation status. Not everything goes according to plan; but these changes do not undermine the importance of having a plan. A conservation plan is today's best estimate of what is required to meet conservation objectives: a strategy for effective action at a point in time. Plans are stages in a dynamic process. Any plan must be flexible and ready to be updated when information, constraints and opportunities change. United States President Dwight Eisenhower accepted this reality when he said, "Plans are useless; planning is essential". Conservation planning should provide an explicit, structured way to adjust to changing circumstances.

Why systematic conservation planning? Among the many characteristics of systematic conservation planning are two defining ones (Margules and Pressey 2000, Cowling and Pressey 2003a, Sarkar et al. 2006). The first is the use of explicit and often quantitative objectives. This means that planners and managers must be clear about what they intend to achieve and be accountable for decisions that should make progress towards their objectives. The second characteristic is the principle of complementarity (Pressey et al. 1993). Since the first publication in the field (Kirkpatrick 1983), systematic methods have identified systems of conservation areas that are complementary to one another in terms of collectively achieving objectives. Areas identified in this way will each contain, for example, different species or complementary portions of the required areas of different habitat types. This represents a major improvement on the simple scoring procedures that were used extensively before the advent of systematic methods (Pressey and Nicholls 1989). More generally, systematic conservation planning involves working through a structured, transparent and defensible process of decision making. One of the key outcomes is an integrated system of conservation areas rather than a collection of conservation areas produced by a series of ad hoc decisions, each more or less in isolation. A system of complementary conservation areas is much more effective at achieving objectives for the persistence of biodiversity and other natural values within the limits of available conservation resources.

Is systematic conservation planning just about computers and software? The process of systematic conservation planning is basically about structured, explicit decision making. Computers and software have become commonplace in the field because they allow people to quickly process large amounts of information. Computers also help to lay out options for conservation action and to guide choices about where and when to invest conservation resources. Increasingly, conservation planning software is moving toward decision-support systems in the full sense of the term. These software systems are not designed to replace people by making decisions for them; they operate interactively to facilitate decisions by people. Accompanying this trend are improved ways for involving experts and other stakeholders in decisions, thereby combining human judgement with analysis of computerized databases.

Does systematic conservation planning work? Systematic conservation planning is more than just a burgeoning field of applied science. Increasingly, it is supporting the success of nature conservation through decisions about actual conservation investments and influencing policy and legislation. Some examples are summarized below.

- Following the rezoning of the Great Barrier Reef Marine Park in 2002, 33% of the Marine Park is protected in no-take areas. Prior to the planning process, just 4.5% was fully protected. The plan has also increased the global total of marine no-take areas five-fold. Minimum protection levels of all known habitats, species and special and unique

features have been included in the final portfolio of conservation areas (Fernandes et al. 2005)

- The 1996 planning process for the Regional Forest Agreements in New South Wales was based on systematic principles and facilitated by decision-support software. The process led to nine new national parks and nature reserves, about 816, 000 ha of forest deferred from logging, extensive new wilderness areas, and agreements on the supply of hardwood for five years (Pressey 1998). Subsequent rounds of negotiation between 1996 and 2001 established about 1 million hectares of new conservation areas.
- The 2003 Cape Action Plan for the Environment has been called, “one of the most detailed and explicit conservation plans to date for any part of the developing world” (Cowling et al. 2003); (Balmford 2003). This exercise in systematic conservation planning covered the Cape Floristic Region of South Africa, a global biodiversity hotspot. It stimulated conservation funding and action in the region and motivated several detailed conservation assessments that have extended the protection of species and habitats.
- The Nature Conservancy’s 2001 ecoregional plan for the Federated States of Micronesia was adopted as Micronesia’s National Biodiversity Strategy and Action Plan for compliance with the Convention of Biological Diversity (Raynor et al.).
- Following the Nature Conservancy’s ecoregional assessment of the Sonoran Desert Ecoregion in the south-western United States, the US Department of the Interior designated two parts of the plan as federally protected national monuments (R. Marshall pers. comm.).

2. Purpose of this guide

Overview

The main purpose of this guide is to comprehensively describe and explain the process of systematic conservation planning. In doing so, we have several other important objectives:

- * To bring together, for the first time, ideas and techniques from diverse sources and case studies throughout the world;
- * To show how systematic methods can address many of the major conservation challenges facing planners and managers; and
- * To take conservation planners and managers through the entire planning process with a series of tasks and decisions, many of them optional and all of which can be approached in different ways, depending on available funds, time, information and skills.

Spatial scale

Systematic methods can be applied across a wide range of spatial scales. Some studies have been global in extent (e.g. (Rodrigues et al. 2004)). Others have been relatively restricted, covering local government areas or similarly small areas of concern (Keith 1995, Rouget 2003). Although much of this document is relevant across this range of scales, the guide specifically concerns planning at “regional” scales. By this term, we refer to planning across geographical domains that include ecoregions, countries, provinces, states and local government areas. These domains will usually contain hundreds, thousands or even tens of thousands of potential conservation areas. There are many examples of systematic conservation planning being applied at regional scales. These include ecoregional assessments by The Nature Conservancy (Groves et al. 2002), regional planning for the Cape Floristic Region of South Africa (Cowling et al. 2003), design of the Wildlands Network in North America (Noss 2003) and identification of priority areas for Brazilian biomes.

One important characteristic of planning at regional scales is that there is a more or less direct link between the areas identified initially as potential conservation areas and the areas over which conservation actions will eventually be implemented. For national or ecoregional assessments, this link might require a shift from initial planning with notional conservation areas such as regular grids, used for analytical convenience across large extents, to subsequent implementation with actual management units at a finer resolution such as ownership parcels. Usually, these different areas would be sufficiently similar in size that the regular grids could be easily related to ownership parcels. For local government assessments involving fewer potential conservation areas, the initial units of assessment and the final units of management might be the same. These examples contrast with global or continental planning exercises that typically use very large areas (e.g. whole ecoregions or half-degree grids) that cannot be related to units of implementation. Another important characteristic of regional conservation planning is that complementarity is important. Many features of conservation concern occur across many potential conservation areas, requiring planners to identify systems of areas that are complementary in the features they contain. At global or continental scales, complementarity is often less important because the areas that are assessed and compared (e.g. whole ecoregions) will differ markedly in their biotas and processes.

In principle, there should be a smooth transition from global to local scales in identifying areas for conservation action. Global and continental assessments such as biodiversity hotspots (Myers et al. 2000) or priority ecoregions (Olson and Dinerstein 1998) would direct attention to priority regions. Then, the subsequent conservation plans for these priority regions would lead to implementation at local scales. In practice, the transition is generally not this smooth, and there are important unresolved issues in moving between scales. One problem is that global or continental assessments often require generalisation of data to the resolution of

ecoregions or other very large units. This can obscure smaller high-priority areas within low-priority regions and direct resources away from them (Pressey et al. 2000, Bates and Demos 2001). Another issue is that regional assessments can be difficult to translate to local implementation where local-scale data are of higher quality and require reassessment of potential conservation areas (Rouget 2003).

Kinds of environments

Methods for systematic conservation planning are not specific to any particular environment. Although much of the scientific literature in the field and most of the applications have been in terrestrial regions, marine case studies are now common ((Leslie 2005) and there is a small but increasing number of case studies in freshwater environments (e.g. (Linke et al. 2007, Thieme et al. 2007)). Many aspects of systematic methods are common to these three realms, although approaches must obviously be adapted to address important differences between them. Within the terrestrial realm, systematic methods have been applied to environments as diverse as deserts, mountain ranges, rainforests, temperate woodlands, shrublands and grasslands. Some adaptation of approaches is also necessary when moving between these environments or, indeed, even between regions with similar environments. All planning regions will differ to some extent in their patterns of natural features, the processes underlying the persistence of those features, and the social, economic and political circumstances under which conservation action is to be implemented.

Types of available data

A perception about systematic methods for conservation planning is that they are applicable only in those few regions with very extensive, detailed data sets for biodiversity and not in the great majority of regions with relatively poor biological data (Dinerstein et al. 2000). This perception is not correct: systematic methods are applicable to any region. Three examples might serve to make the case. First, some of the early work that developed systematic methods was in regions, such as western New South Wales, with relatively poor data on biodiversity. In this region, records of species were so sparse that initial planning relied on maps of environments that served as approximations for biodiversity. A second point is that systematic conservation planning, while benefiting from very comprehensive biological data sets, still relies extensively on maps of broad environments in regions where there are few biological records. Perhaps surprisingly, one of these regions is Australia's Great Barrier Reef. Recent planning here that led to extensive new no-take zones was based on a coarse-scale map of marine habitats derived from physical variables such as substratum, depth and temperature (Fernandes et al. 2005). Similar definitions of physical environments have been used in recent planning exercises for freshwater regions (e.g. (Noss et al. 2002, Thieme et al. 2007)). It is important to recognise that these kinds of data are accessible for most parts of

the planet. Remotely sensed data and thematic maps of vegetation cover, elevation and topography, soil and geology, climate and other variables are readily available and can be assembled into informative maps of environments with advice from experts. These provide relatively consistent depictions of broad-scale variation in biodiversity and are an adequate basis for systematic conservation planning. A third point is that, even in well surveyed parts of the world, such as the Cape Floristic Region, biological data cover only some taxonomic groups and are spatially uneven, limiting their effectiveness as consistent pictures of biodiversity (Cowling et al. 2003). As a result, coarse-scale data on environmental surrogates for biodiversity, such as vegetation types or physical habitats are often used in combination with biological data (Pressey 2004).

Diversity of approaches

A diverse array of planning approaches are being independently developed and applied in regions worldwide by non-government organisations, government agencies, academic institutions and multi-lateral initiatives (Table 1). Approaches can vary from those developed for a single region to those intended for application across multiple countries and contexts.

Table 1. Selection of existing regional conservation planning approaches

Approach	Organisation
Conservation action planning	The Nature Conservancy
Ecoregional planning	The Nature Conservancy
Key biodiversity areas and corridor-scale priorities	Conservation International
Ecoregion-based conservation	World Wildlife Fund
Heartland conservation process	African Wildlife Foundation
Living landscapes approach	Wildlife Conservation Society
Wildlands network design	Wildlands project
Ecosystem approach	Convention on Biological Diversity; IUCN;
Biosphere reserves	UNESCO Man & the Biosphere
Natura 2000	European Union
Pan-European Ecological Network	Consortium of European governments
Land and resource management planning	USDA Forest Service
Baja California to Bering Sea (B2B) corridor	Marine Conservation Biology Institute (MCBI)
NSW Regional planning	NSW National Park and Wildlife Service
Cape Floristic Region planning approach	South African institutions
Priority area planning for Brazilian biomes	Brazilian government, Museu Goeldi

International conservation organisations, including Conservation International (CI), The Nature Conservancy (TNC), World Wildlife Fund (WWF) and Wildlife Conservation Society (WCS) have institutionalised their respective approaches across a global network of priority regions, engaging in-country partners and national governments. Ecoregional assessments by TNC, for example, have been applied to over 90 ecoregions worldwide in terrestrial, marine and freshwater environments leading the way in the development of tools, guidance and resources, and influencing the design of other organisational approaches (The Nature Conservancy and World Wildlife Fund 2006). Several global initiatives for conservation planning have emerged, including UNESCO biospheres (Batisse 1997) and IUCN's ecosystem approach (Shepherd 2004). Other independent approaches have been developed by national governments to support development of a National Biodiversity Strategy and Action Plan (NBSAP), a provision of the Convention of Biological Diversity (Raynor et al.). Conservation planning approaches for particular regions have also arisen through collaboration between national government agencies and academic institutions and/or non-government organisations (Cowling et al. 2003).

Why are there so many approaches?

There are a number of reasons for this broad diversity of approaches. In general, approaches have been developed to achieve specific, sometimes different, objectives related to institutional goals or missions. Assumptions about the circumstances under which objectives are met will also differ. Most approaches are developed as a response to on-going threats, but objectives based on restoration or resilience to future or emerging threats (e.g., climate change, invasive species) might also be apparent.

With respect to NGO approaches, diversity has also arisen from a desire to have a unique strategy, or brand, which can be attributed to a particular organisation, providing distinction from other approaches among donors and stakeholders. In turn, the association of an organisation with a specific approach can occur within particular geographic regions, groups of species or among certain stakeholder groups. To some extent, long-term historical association with an approach can produce an element of institutional inertia, given that substantial time and funds have likely already been invested in the development and marketing of a specific planning approach. Implementation of distinctive approaches over time also means that practitioners in the field are familiar with particular tools or strategies. Independent approaches have also arisen in response to global initiatives such as the Convention of Biological Diversity which tasked ratified member states to develop National Biodiversity Strategies (NBSAP) for biodiversity conservation.

The amount of variation in approaches can, however, raise several problems. The sheer number of approaches, often applied in overlapping parts of the world with seemingly similar

objectives, can cause confusion among practitioners, stakeholders and donors. Resources for conservation are scarce and distribution of funds between many different approaches limits the efficiency of available investment. Organisations are often working in similar regions, and different approaches might bring potential conflict or lack of cohesion between strategies working there. The multiplicity of approaches can impede cooperation between organisations and scientists. Inevitably, countless approaches are likely to constrain the effectiveness of conservation planning by failing to identify complementarities between methods and different ways of approaching the same tasks.

Time for reflection on diversity of approaches

Conservation planning is a new field and people are rightly trying out new ideas. This means that different groups will diverge. This diversity can stimulate debate and rapid progress, which can lead to improved methods that deal with a greater range of problems. This array of distinctive approaches, however, needs explanation so that conservation practitioners can understand similarities and differences and incorporate good practice from others' experiences and diffuse uncertainty among stakeholders, donors and policymakers.

A number of biases currently persist among existing approaches in particular a bias towards plans based on terrestrial, first-world and data-rich contexts, highlighting a need for plans to be applicable to all contexts, in particular in parts of the world where the capacity for conservation planning is limited. Throughout the world, the discipline of conservation planning field is also constrained by an implementation crisis, where well-developed planning is not realized in practice on the ground (Knight et al. 2006). Both of these issues point to the clear need for collaborative work with people in the rest of the world to understand the available approaches and adapt them to their circumstances (e.g., objectives, available data, constraints, opportunities and capacity).

Following the World Parks Congress (2003) and the IUCN World Conservation Congress (2004), the Species Survival Commission (SSC) and the World Commission on Protected Areas (WCPA) have identified integration of planning methods as a major priority. SSC and WCPA act in technical advisory roles to the Members and Secretariat of IUCN, thus providing guidelines on available planning methods to ensure the best possible cooperation between IUCN, its members, and the scientific community.

To this end, SSC and WCPA convened a targeted initiative which reviewed the main approaches for conservation planning and produced this guide which identifies ways in which approaches can be used together or applied in particular circumstances for particular objectives. The primary audience for this guide will be practitioners working in different contexts and environment across the world, in particular among IUCN Member governments,

and non-government organizations, Commission members and staff throughout IUCN's decentralised Secretariat and.

3. The guide to conservation planning

Structure and organization

To conceptualise the process involved in designing and implementing conservation areas in a planning region, we have structured the key components of systematic conservation planning into a guide to conservation planning (Figure 1).

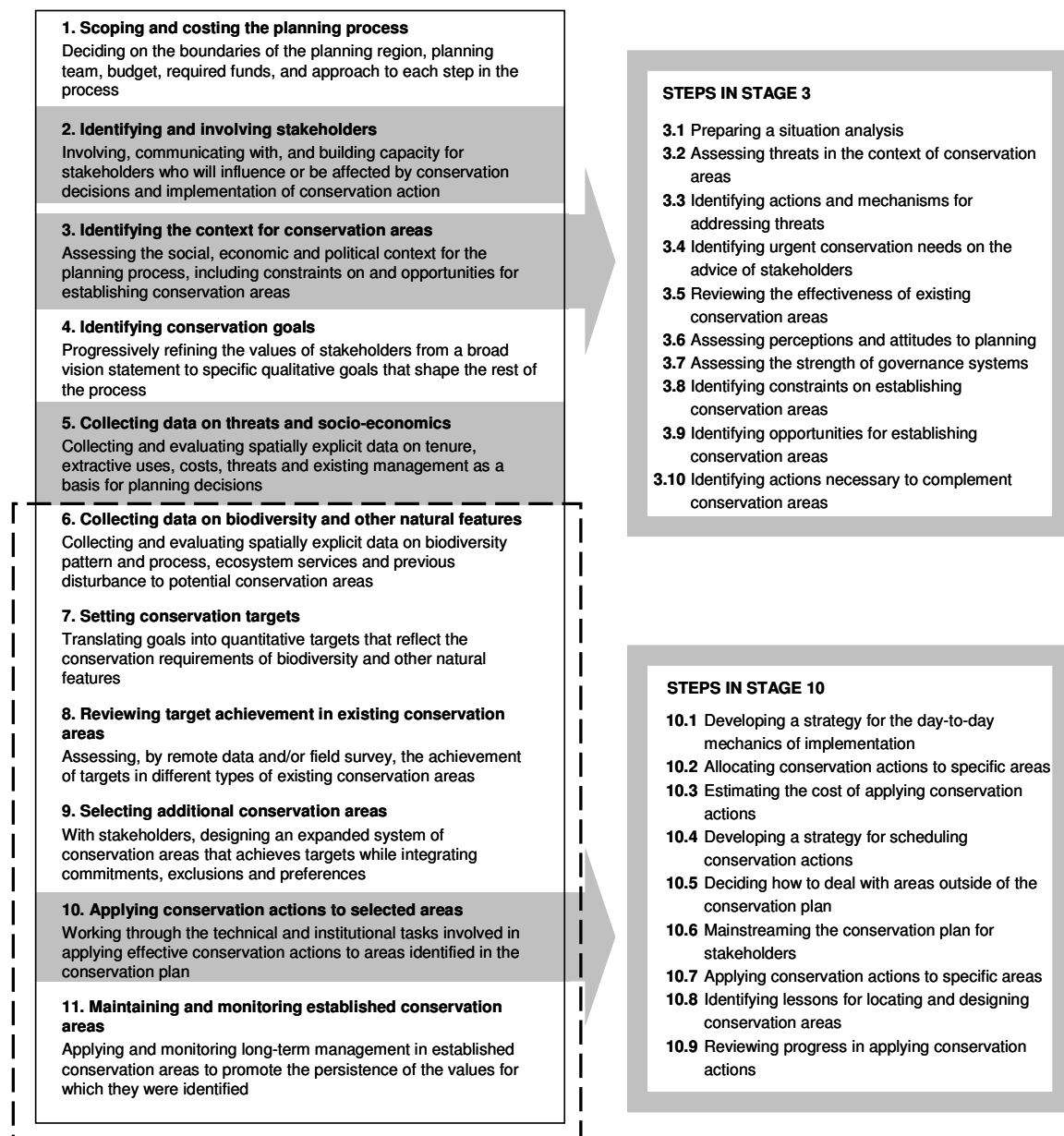


Figure 1. An evolving guide for conservation planning. This version consists of eleven main stages. Text under the heading for each stage summarizes the main issues to be addressed (see Margules and Pressey 2000, Cowling and Pressey 2003b for more detail on most stages). For convenience, the process is depicted as a linear sequence but, in reality, some stages will be undertaken simultaneously and there are many feedbacks from later to earlier stages. Among the reasons for feedbacks are revisions of earlier steps to deal with surprises, including unexpected opportunities. The dashed rectangle contains the stages described by Margules and Pressey (2000). Shaded stages are particularly important for implementation of conservation action. Shown on the right are the steps involved in stages 3 and 10.

Building on earlier frameworks (Margules and Pressey 2000, Cowling and Pressey 2003a), we have described 11 broad stages of planning, each of which can be unpacked into steps that indicate tasks or decisions for planning teams to consider. Stages are designed to be broad enough that planners will have to work on every stage. They can be tackled in different ways and not all are essential to undertake conservation planning.

For example, stage 6 relates to the collection and evaluation of data on biodiversity and other natural features. Steps in this stage relate to specific tasks which outline guidance on particular types of biological features, sources of data and tools for analysis and interpretation of data. All plans will need to evaluate data to describe the patterns and processes of biodiversity to be represented in conservation areas. Not all steps, however, will be relevant to all regions and which inclusion of steps will depend on the context of the region and the scope of stated conservation goals.

The concept of a guide to conservation planning

This guide to conservation planning is generic in two senses. Firstly, it is not compiled from a single approach of any one NGO, agency or research group. Secondly, the main stages described in the guide are all necessary and applicable to any planning region, regardless of size, environment, or type of country. Previous attempts of comparison have tended to dwell on the dichotomy of approaches, whereas this guide uses key stages of conservation planning as a common currency shared by all approaches and a building block for comparing and contrasting their diversity and similarity. Fundamentally, the guide is a neutral review, which is not promoting any single approach to be endorsed by IUCN.

The advantage of this method for understanding the diversity of approaches is that it is able to highlight certain tasks that have not been widely picked up, but perhaps merit more attention or consideration. These could also include examples of better practice than is currently being applied (e.g., integration of socio-economic data, planning for implementation). The guide

offers not only a conceptual way to represent approaches, but also provides an outlet for describing practical guidelines, such as sources for data, when to involve experts or how to integrate critical review in to day-to-day decision-making.

The challenges of this approach are based on how information is gathered on different approaches. Relying on published or grey literature might provide an incomplete assessment of a approach as a comprehensive view of an approach as little retrospective evaluation or updating exists. It can also be difficult getting a lot of people to agree on what they do and do not do in an explicit way. As a result, this is essentially a guide, it is not a prescription or series of statements about what planners must do. People can choose what tasks to tackle and what ones to ignore, but it is certainly a good idea if they understand the implications of ignoring tasks.

The current order of stages and steps reflects our best estimate of the sequence in which tasks will be undertaken, but there might be reasons to tackle them in other sequences. We emphasize that there will be a number of the feedbacks, overlaps, and intermittent or revisited tasks, e.g. costing of the planning exercise, that are implicit within the steps of the guide. We expect that evolution of particular tasks will continue, so the guide here will change. We also hope that use and discussion of this report will stimulate this process so that new ideas are developed and incorporated. As Janzen (1994) argued that biodiversity conservation “build bridges while simultaneously devising new kinds of bridges and better bridging materials”, so too does this apply to conservation planning. With this in mind, we plan with approaches that we have now, in the knowledge that our approaches will continue to improve.

Purpose of guide

The concept of a guide to conservation planning enables this report to integrate everything that has been done out there, both in terms of NGO approaches, but also from academic and agency approaches. By using the structure of the guide as a conceptual platform for discussing the full array of methods and tools used by existing approaches, this report aim to provide the most comprehensive description of the planning process.

We envisage this report might be used in several different ways, depending on the type of organization it is to be used by, and its relative contexts and capacities. A NGO with an established approach, for example, might extend their existing approach to take in some additional steps or to apply an alternative tool in a particular task. A government agency might use this as a broad guide to a more region-specific planning exercise or for adapting so appropriate to their national policies and objectives. Among groups with limited existing capacity, this report might also serve as a set of guidelines for conducting a gap analysis about what resources are needed before embarking on a conservation plan of one's own.

No matter who is involved or what their capacity is, we would recommend that within a small group, planners should go through each stage, considering what steps they can or should tackle. These decisions will rely on realistic assessment of resources available and the relevance to the overall objectives in using conservation planning.

Process of guide development

To develop the guide outlined here, we began with the basic stages of systematic conservation planning (Margules and Pressey 2000), modified by Cowling and Pressey (Cowling and Pressey 2003a) with experiences from the Cape Floristic Region planning process in South Africa. From the literature, some changes at the level of planning stages were necessary in the interest of clear organisation. Most of the work was involved in documenting explicit steps within broader stages. Steps were initially defined through knowledge of recent literature and planning exercises. We refined and re-structured the guide by reviewing different organizations' approaches (Table 1 plus others), identifying gaps in existing frameworks and making the necessary amendments. Time was also spent re-ordering steps so that their sequence was as intuitive as possible, but there is probably no "right" order. Additional ideas and information from other types of literature (e.g., reports, grey literature, and peer-reviewed journal articles) were also integrated where appropriate. Some journal articles describing actual planning exercises or discussing gaps in recent approaches were influential in highlighting the importance of particular steps in achieving steps. Following the literature review, a group of technical experts from around the world, were involved in providing review and feedback about the description of stages, steps and the guide.

Presentation of the guide

This main part of this document describes the guide for conservation planning as a process of decision-making through which particular tasks or activities are undertaken. This process is presented as unique stages – the key components of a conservation plan, and annotated steps within each stage – specific tasks or activities which contribute to the completion of the stage. Each stage is introduced and its main purpose described. The bulk of this document is text for more 100 steps in the planning process, and illustrated with appropriate figures, tables and images. The average length of each step is on average 500 words in length. This might seem overly long and complex to some readers. We have attempted to clearly define subheadings in order for readers to glance at the main points of interests within a step, so as to highlight its relevance.

Defining stages

Each of the 11 stages (Figure 1) of the planning process is introduced and described in the following subheadings within the guidelines:

- **Purpose of the stage:** What do you find out from doing this stage? What is the main outcome?
- **Reasons for this stage:** Its importance as part of the guide and key issues involved in its application
- **Overview of steps** that might be undertaken as part of this stage
- **Necessary and optional steps:** Which steps are absolutely essential to progress in the planning process? What are additional steps, what do you lose by not including these steps?
- **How different approaches consider this stage:** Brief review of how some different approaches, or previous planning exercises, have included this stage in making decisions about new conservation areas
- **Key links to other stages:** Relationships between previous and subsequent stages, what you already need to know, and what decisions made here will influence or inform future stages.

Defining steps within each stage of the planning process

Within each stage, each step is introduced and described as follows:

- **Definition:** Key terms defined and key ideas described.
- **Why do you do this step:** What will you find out by doing this step, what contribution does this step make to stage, and guide as a whole? A description of outcomes
- **Things to think about.** It is not possible to be comprehensive in this document by describing all the possible methods for each step. Whole books can and have been written about some of the individual steps in this guide. We have limited ourselves to highlighting some of the key issues associated with undertaking this task or making these decisions. When appropriate, key references to primary literature or reviews of methods have been included, as well as, some examples from actual plans where this task is considered. We also mention who might be involved in supporting this task (e.g., experts, stakeholders). Similarly, we do not describe each of the planning approaches comprehensively by mentioning all approaches to each step.
- **Challenges:** Some of the difficulties related to doing this step that might be encountered in different contexts, re: data, time, capacity or money.
- **Links to other steps in this stage:** How this task interacts with other steps in the stage – what information found in this step might inform decisions in another step of this stage.

How to use these guidelines

We recommend readers get an overview of all stages and steps. To make good decisions from the beginning, it is important to have an idea of what's ahead. Stage 1 of the guide helps the planning team to prepare for the entire planning process by thinking about fundamental issues such as the costs and staff requirements of embarking on a conservation planning exercise. To make these initial and basic decisions, it will be necessary to work through the whole guide and make some preliminary decisions about which steps will be undertaken and how. Stages and steps are prompts for when tasks are initiated in the planning process. Many will need to be reconsidered or revised as the planning process proceeds. For example, the boundaries of the planning region might change from Stage 1, as stakeholder input is considered and new data emerges).

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