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Basic Guidance for Step 1.3

Biodiversity Targets

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Resources for Implementing the WWF Standards

Contents

This document is intended as a guidance resource to support the implementation of the *WWF Standards of Conservation Project and Programme Management.* Although each step in these *Standards* must be completed, the level of detail depends on the circumstances of individual projects and programmes. Accordingly, each team will have to decide whether and to what level of detail they want to apply the guidance in this document.

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Biodiversity Targets

What Are Biodiversity Targets?

Biodiversity targets (sometimes called conservation targets) are features of the biodiversity of a place that a conservation project uses to focus actions and to monitor as an indication of progress (or lack thereof). Targets can be habitats, focal species, or ecological processes. Site-specific projects generally select a limited number of biodiversity targets across these three categories to represent and encompass the full suite of biodiversity in the project area (thematic projects can either choose biodiversity targets or other thematic targets):

- **Key Habitats** – Habitats are the ecological systems that characterize the terrestrial, aquatic, and marine biodiversity of the project site. A small site may have only a few habitat types, in which case they can all be included as targets. A large complex site might have many different habitat types, in which case a subset will have to be selected as targets to represent the whole.
- **Focal Species** – These include species endemic to the ecoregion, area-sensitive (umbrella) species, commercially exploited species, flagship species, keystone species, or imperilled species. Thus, mountain gorillas, humphead wrasse, tigers, snow leopards, Mekong catfish, minke whales, or Himalayan poppies, however unrelated taxonomically, all fit under the heading of focal species whose population structure and trajectories may be selected to measure your success (or again, lack thereof). Species selected as focal targets are typically those that are not represented by the key habitats because they require multiple habitats or have special conservation requirements.
- **Ecological Processes** – There are ecological processes in every ecoregion, which create and maintain biodiversity, and many are threatened. These could include pollination, seed dispersal, dispersal of large mammals between protected areas, movements of migratory fish, nursery and recruitment areas for coastal fisheries; or altitudinal migrations by birds. In some ecoregions, maintaining or restoring particular ecological processes (e.g. hydrologic or fire regime) may be the single most important biological target to address and measure. Some of the above may alternatively be considered as indicators for focal species – as long as they are considered.

In theory – and hopefully in practice – conservation of the biodiversity targets will ensure the conservation of all native biodiversity within the project site. Selection of biodiversity targets typically requires input from experts and analysis of spatial data. No project is compelled to include examples of all of the above (e.g., in some areas, information on focal species is quite difficult to obtain).

Box 1. Clarifying the Definitions of "Targets" vs "Goals"

The use of the terms "target" and "goal" have had multiple meanings in various WWF planning frameworks and thus have caused some confusion. In WWF, "targets" were traditionally the domain of the Target-driven Activities (*TDAs ca mid-late 1990s*) and Target-driven Programmes (*TDPs- late 1990s and early 2000s).* However, Ecoregion Action Programmes were also asked to develop targets by the Ecoregion Task Force in 2002-2004. In these cases, the term "target" was used to describe either the focus of the project (e.g., orangutan population, global CO_2 levels) or the desired future status of these focal entities (e.g., 2000 orangutans, a defined level of CO_2 in the atmosphere), or both.

In order to avoid confusion and to be consistent with the way other organizations (both in the conservation world and in other fields) use terms, the *WWF Standards* define the following:

- **Thematic Target –** The focus of a non-biodiversity oriented project. For example, average global temperature for a project dealing with global warming.
- **Biodiversity Target –** An element of biodiversity at a project site, which can be a species, habitat/ecological system, or ecological process that a project has chosen to focus on.

Targets are thus restricted to focal entities for a project or programme. The *WWF Standards* then go on to define a goal as the desired future status of these focal entities:

- **Goal –** A formal statement detailing a desired impact of a project, such as the desired future status of a target. A good goal meets the criteria of being *linked to targets, impact oriented, measurable, time limited,* and *specific.*

This is a shift from the traditional definition of the term "goal" which is more akin to vision statement in this new system.

Although these terminology changes may cause some problems in the short-term, over the long-term they will hopefully allow for clearer communication both within the WWF Network and beyond.

Why Are Biodiversity Targets Important?

The biodiversity at all conservation sites is a complex combination of genes, species, and ecological systems. Conservation practitioners thus often find it useful to select a handful of targets that can represent this overall biodiversity so that they assess whether conservation efforts are effective in the long term. This holds whether you are currently engaged in spatial planning for an ecoregion or a priority landscape, or in the process of developing strategies for a small conservation area. Biodiversity targets are a suite of things that are representative of the biodiversity of a region as a whole. As such, they form the basis for a practical and focused threats analysis, strategy development, and long term monitoring program.

When to Develop Biodiversity Targets

As outlined in the *WWF Standards of Project and Programme Management*, every biodiversity conservation project should identify a representative suite of biodiversity targets that they intend to follow over the long term during Step 1.3 of the initial planning work for their project. The project should then initially and periodically measure the status of these targets so that, after several years of work, it will be clear whether or not the work has been effective.

How to Develop and Use Biodiversity Targets

1. List Potential Targets and Select Limited Number

There is no prescribed way to develop a list of biodiversity targets – the critical thing is to develop a list of biological entities (habitats, species, processes) that are representative of the area as a whole. How many targets to identify depends on the size of your project site, its ecological complexity, and whether you are engaged in spatial planning and priority setting or strategy and monitoring plan development. When trying to conserve the "full expression of biodiversity of an ecoregion or priority landscape," there is the tendency to include too many biodiversity targets to realistically be measured. Since most conservation programs lack the resources to measure so many indicators, it is important to keep the overall number of targets to a manageable level.

For the strategy and monitoring plan development of a typical site-based project, a succinct list of four to eight targets can almost always be selected that best capture both the biodiversity of the project site, as well as important threats and key conditions for success. For a project focused on an entire ecoregion, we use the following working assumption or hypothesis: you can select eight to twelve biodiversity targets in any ecoregion, whose successful conservation will reflect overall success in ecoregion conservation. Usually, these targets, be they umbrella species or keystone habitats, representative habitat types in protected areas, or a fundamental ecological process, are vital to your efforts because they also have a disproportionately greater umbrella effect in determining conservation success; conserving or restoring these targets will allow you to conserve many other targets not listed in the chart.

Given that you are attempting to simplify the biodiversity of an entire ecoregion down to a limited set of targets, it is only natural that you might wish to nest more specific targets within this set. This nesting is already implied when the targets are as broad as "coral reefs," "tropical lowland forest," or "estuaries." However, if there are particular components of those systems that need to be highlighted, especially if indicators will be identified and monitored for those components, by all means list the important components. Habitats are not the only option for developing sets of nested targets. Examples include ecological guilds such as "sea-ice communities," "insectivores," "top predators," etc. Habitats will generally have the most umbrella effect, but there will often be umbrella or keystone species to complement these. Additionally, it may be necessary to include endemic or threatened species whose conservation is not adequately covered by habitat representation or other species.

2. Develop Key Ecological Attributes and Indicators

Once you have identified a target, the next step is to think about what indicators you might measure to assess the "health" of this target over time (technically speaking, the viability of species populations or the integrity of habitats). Indicators should be chosen based on those key ecological attributes of the targets considered to be most indicative of the status of the habitat, species, or ecological process in question (see the TNC material cited in the references if you want an exhaustive definition of key ecological attributes and viability analysis). Examples of key ecological attributes include the area, stem density, or connectivity of a habitat, the population size or fecundity of a species, or the fire return interval or flood regime of an ecological process. Each biological target can have multiple chosen indicators. However, every indicator that you choose will require effort to measure it, both now and in the future. Thus the number of indicators selected needs to be balanced by a dose of realism. The key is to select the minimum number of indicators for the minimum number of targets that can truly be considered to be representative of the biodiversity of the conservation area.

For each indicator, goals will ultimately need to be set (this will occur in Step 2.1 of the *WWF Standards of Conservation Project and Programme Management*). Final goals, which represent the desired level, are perhaps most important. These represent powerful statements of where the overall effort is going for each indicator. Final goals can be based on historical levels (if available), population viability analysis, or the best guess of the conservation team – they can always be improved over time. They can start out qualitative (e.g. viable population, more fire, increased stream flow) but must eventually be made quantitative in order to be truly useful. Interim goals are also helpful, as they represent waypoints toward final goals. Interim goals will often be used as programmatic benchmarks of effectiveness. (For more information on developing goals, see Basic Guidance for Action Plans).

For spatial planning, there is not necessarily a reason to limit the number of targets identified – computer assisted decision support tools like Marxan or C-Plan can handle hundreds of targets (as long as they can be mapped comprehensively (and relatively accurately) across the area in a GIS. Groups of experts may not be able to consider hundreds of targets simultaneously, but they can probably deal with twenty to thirty. Indicators are not needed for spatial planning.

Selecting biodiversity targets is almost always a group effort. One person is rarely knowledgeable enough to develop a robust list of representative targets on their own. Whether facilitated or not, a group of people with broad ecological knowledge of the region should discuss and reach agreement on some limited combination of biodiversity targets that are representative of the region as a whole and endeavour to specify indicators that capture the key ecological attributes of those targets. A facilitator can certainly be helpful with this process. This will set up the next step in the process of strategy development – threat identification.

Examples

Two examples of targets are shown below. Figure 1 is an example of a real world WWF island marine reserve site. First, the team identified the scope of their project as encompassing the entire island marine reserve. They then thought about both habitats and species that encompassed the full expression of biodiversity at their site. Taking into account the need to keep the process feasible, they identified a total of 9 biodiversity targets, which they grouped by habitats and species. To the right is another real-world WWF project team example. As in the first example, the project team tried to keep the overall number of targets to a reasonable level, although they did identify some specific nested targets they wanted to emphasize.

Figure 1. Scope and targets for island marine reserve area

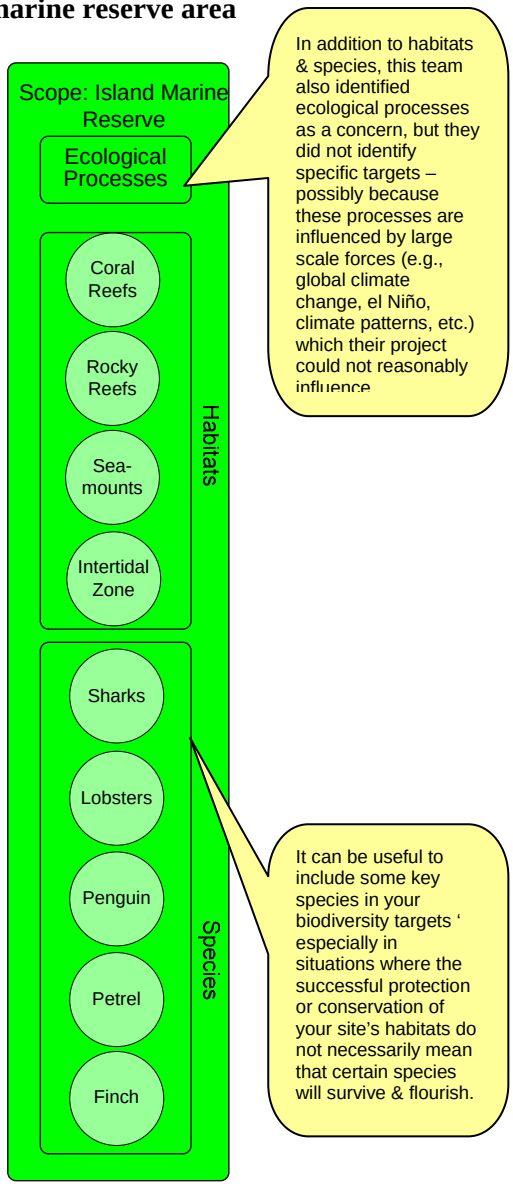
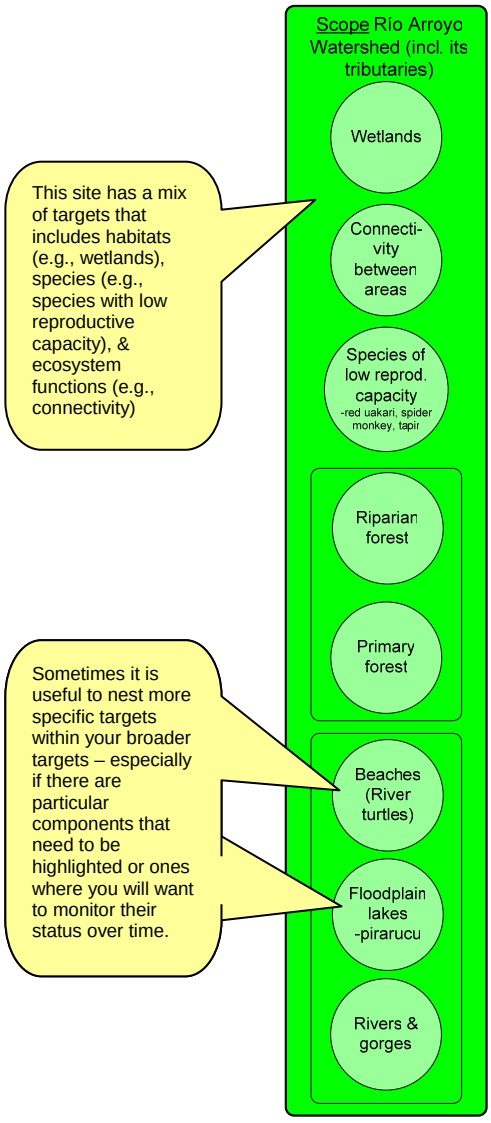


Figure 2. Scope and targets for tropical forest site



If the team in the Island Marine Reserve site described above had identified key ecological attributes (KEAs) and associated indicators for them, they would have produced a table similar to Figure 2 below but inclusive of all their targets. Note that this table just presents some sample KEAs and does not necessarily represent the best choice of KEAs for these targets. That would vary by site.

Figure 2. Sample KEAs for Select Targets in the Island Marine Reserve Site

Biodiversity Target	Key ecological attribute	Indicators
Coral reefs	Coral reef size	# has of continuous live coral cover
	Species composition	Presence & abundance of key indicator fish species
Intertidal zone	Vegetative community types	Presence of characteristic vegetative communities; # has of continuous coverage of vegetative communities
	Invasive species presence	# of invasive species in transect areas
Sharks	Individual size	Average length of sharks (by species)
	Reproductive success	# of sharks of reproductive age in transect areas (by species)
	Population size	# of total sharks found in transect areas (by species)
Penguins	Reproductive success	# of pairs of nesting penguins in breeding areas
	Population size	# total penguins in transect areas
	Population structure	% of penguins by juvenile, reproductive age, and gender

Right now, this indicator is still vague. This team will need to consult with marine biologists & specialists to more narrowly define which fish species are indicator species and what would be the desired abundance.

As above, this team will need to define what characteristic vegetative communities are.

In some case, you may be interested in only one or two species, & it would be better to set your indicator to look at those species, rather than all species.

References

The most extensive work about target selection comes from The Nature Conservancy. Key resources include:

TNC. 2003. The 5S Framework for Site Conservation: A Practitioner's Handbook for Site Conservation Planning, Chapter 4. http://conserveonline.org/docs/2000/11/5-SVOL1.pdf.

Parrish, Jeffrey D., David P. Braun, and Robert S. Unnasch. 2003. Are We Conserving What We Say We Are? Measuring Ecological Integrity within Protected Areas. *Bioscience* 53: 851-860. http://conserveonline.org/workspaces/cap/BioScience_TNC_Integrity_Assessments.pdf/download.

Good presentations about target selection and viability analysis are also available at:

http://conserveonline.org/workspaces/cap/1_Targets_3_10_05.ppt/download

http://conserveonline.org/workspaces/cap/3_Viability_Assessment_simplified_4_5_05.ppt/download