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WWF Network Standards

Resources for Implementing the WWF Project & Programme Standards

Step 1.3 Targets and Target Viability

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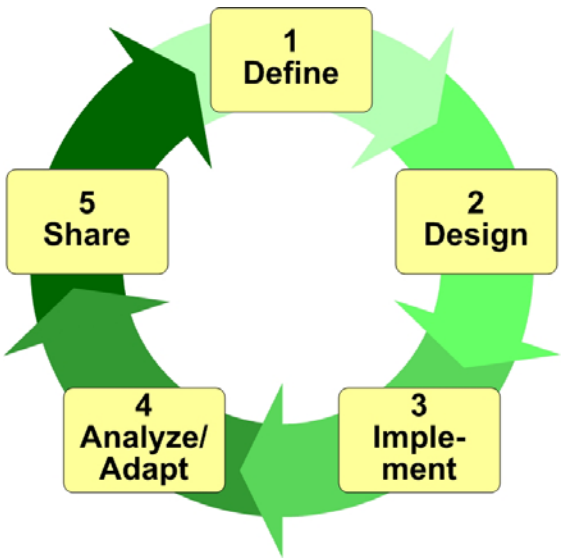

Step 1.3 Targets and Target Viability

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.

This document may change over time; the most recent version can be accessed at: https://intranet.panda.org/documents/folder.cfm?uFolderID=60976

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Targets and Target Viability

1. Terminology – What is a Target?

In WWF Standards Terminology, a Target is ***"a specific element that a project has decided to focus on and whose condition the project ultimately seeks to impact"***. These elements may be "Biodiversity Targets", "Footprint Targets", or Socio-economic "Targets".

- Biodiversity Targets can be a species or a habitat/ecological system.
- Footprint Targets relate to climate change and unsustainable consumption e.g. CO2 emissions. Guidance on this will be developed in 2009.
- Socio-economic "Targets" relate to socio-economic benefits that may be derived from healthy Biodiversity Targets. Comprehensive guidance on how to address socio-economics through the project cycle will be developed in 2009.

Note that this definition of Targets represents a change from previous usage in WWF projects and programmes, and Box 1 provides some background on the reasons for this change.

Climate Change has an impact on the way that we think about targets; guidance on Climate Adaptation will be developed in 2009.

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

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* restrict the use of the term Targets to focal entities for a project or programme:

- Biodiversity Targets can be a species or a habitat/ecological system.
- Footprint Targets relate to climate change and unsustainable consumption.
- Socio-economic Targets may also be shown to the right of Biodiversity Targets.

The term "Target" was chosen primarily to align with terminology developed for the wider conservation sector by CMP – the Conservation Measures Partnership.

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 the WWF Standards.

2. What are Biodiversity Targets and Target Viability?

Biodiversity targets (sometimes called conservation targets) are features of a place that are chosen to represent and encompass the biodiversity found in your project area. These targets should help you to focus your actions and to monitor your progress (or lack thereof). Targets can be focal species, or habitats/ ecological systems[1]. Site-specific projects generally select a limited number of biodiversity targets to represent and encompass the full suite of biodiversity in the project area.

- **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 may include species endemic to the ecoregion, commercially exploited species, flagship species, keystone species, or imperilled species. Species should be highlighted as targets if they critical to ecosystem function, are not well captured by habitat targets, and require individual attention. These targets may be rare, face unique threats, need multiple habitats, or require unique strategies. Thus, mountain gorillas, humphead wrasse, tigers, snow leopards, Mekong catfish, minke whales, 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).

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

Target Viability is the ability of a biodiversity target to withstand or recover from most natural or anthropogenic disturbances and thus to persist for many generations or over long time periods.

Key Ecological Attributes (KEAs) are aspects of a target's biology or ecology that, if missing or altered, would lead to the loss of that target over time. Identification of KEAs allows Target Viability to be clearly defined. In some cases, KEAs are critical ecological processes.

3. 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 can assess whether conservation efforts are effective in the long term. This holds at whatever scale, whether you are engaged in spatial planning for an ecoregion or a priority landscape, or developing strategies for a small conservation area. Biodiversity targets are a suite of ecological elements 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.

[1] Ecological Processes are now defined as KEAs of targets, whereas in a previous version of this document they were defined as a third category of Biodiversity Target. This change has been made to align with revisions to the CMP Open Standards.

Analysis of viability is important because it defines more precisely the current and desired condition of the biodiversity targets. This helps you to:

- Identify priorities - which of your targets are most in need of immediate attention?
- Get insight into the nature of the threats to the target.
- Identify the most scientifically-appropriate indicators.
- Define the baseline status of the targets against these indicators.
- Formulate your goals – in terms of extent, size, condition.
- Develop a realistic plan for biodiversity monitoring, thus helping you to assess the impact of your project.

4. When to Define Biodiversity Targets and Viability

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.

In principle, Viability should be assessed in Step 1.3, immediately after the Biodiversity Targets are defined. This is because the Viability assessment provides insight into the Threat Ranking that follows (Step 1.4). However since the Viability step is closely linked to the development of Goals (Step 2.1) and the Monitoring Plan (Step 2.2), it may be more realistic to assess Viability in detail at that stage. Time and resources may affect your approach; the important thing is that Viability is assessed at some stage in the Define/ Design phase in order to support impact assessment later.

5. How to Define Biodiversity Targets and Assess Viability

5.1 List Potential Targets and Select a Limited Number

The basic task in biodiversity target selection is to take the list of hundreds or even thousands of potential targets in your project area and select a limited number (usually eight or fewer) that adequately represent the biodiversity at your project area.
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.

Biodiversity targets can be focal species, or habitats/ ecological systems. From an initial list of possible targets, you should identify the eight or fewer targets that best meet the following criteria.

- **Represent the biodiversity at the site**. The focal targets should represent or capture the array of ecological systems, communities and species at the project area and the multiple spatial scales at which they occur. A target that complements other focal targets in this respect is more desirable.

- **Reflect ecoregion or other existing conservation goals.** Focal targets should reflect efforts at the regional, national or state level where they exist such as Ecoregional Assessments, State Conservation Plans, or a national biodiversity action plan. Focal targets that are grounded in the reasons for the project area's inclusion in existing plans are desirable.

- **Are viable or at least feasibly restorable**. Viability indicates the ability of a conservation target to persist for many generations. If a target is on the threshold of collapse, or conserving a proposed target requires extraordinary human intervention, it may not represent the best use of limited conservation resources.

- **Are highly threatened**. All else being equal, focusing on highly threatened targets will help ensure that critical threats are identified and addressed through conservation actions.

As an example of prioritising targets, consider a project where the deforestation of low conservation value forest is leading to the siltation of important wetlands. The wetlands would be a useful target for this project since they are the main reason for doing the project. The forests, being of low conservation value, would not be such a useful target; instead, deforestation would appear as a threat in the conceptual model.

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 in strategy and monitoring plan development. Clearly it is very important to keep the overall number of targets to a manageable level. Typically for strategy or monitoring plan development, you should aim for **eight targets or fewer.**

(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).

5.2 "Lump", "split" or "nest" targets as necessary

As a general rule, you will want to **lump** several targets into one if they meet all of the following tests:

- Co-occur on the landscape
- Require similar ecological processes
- Have similar viability
- Have similar threats
- Therefore will require similar conservation strategies

Examples include ecological guilds (communities) such as "sea-ice communities," "insectivores," "top predators," etc.

On the other hand, if an aggregate target contains species or communities that do not meet the above criteria, you may want to **split** it.

Alternatively, or in addition, you might wish to **nest** some specific targets within the set. 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 explicitly highlighted, especially if indicators will be identified and monitored for those components, by all means list them alongside the primary target as "nested targets".

Habitats will generally have the most umbrella effect for developing sets of nested targets. Conserving the "umbrella target" should in principle be sufficient to conserve the nested targets, but you may have a good reason for highlighting the nested target as well.

5.3 Identify Key Ecological Attributes (KEAs) for each Target

Steps 5.3 to 5.6 describe how to conduct a rough assessment of the overall viability rating for each target based on key ecological attributes.

For each target in turn, perhaps starting with a relatively simple target, you should identify a small set of key ecological attributes that are critical to this target's long-term viability. If necessary, brainstorm a list of attributes of the target and then try to select the essential ones.

A key ecological attribute is an aspect of a target's biology or ecology that if present, defines a healthy target and if missing or altered, would lead to the outright loss or extreme degradation of that target over time.

KEAs tell us in more detail what it is about the target that is **key** to its future viability. For example, if one of our biodiversity targets is marine turtles, it is possible to have a large number of turtles. However if these turtles have nowhere to build their nests, the population will not be viable. Thus one KEA for turtles in this case would be availability of nesting grounds.

To help identify KEAs, it can be useful to consider three possible categories:

- **Size** is a measure of the *area* or *abundance* of the target's occurrence.
- **Condition** is a measure of the biological composition, structure and biotic interactions that characterize the occurrence.
- **Landscape context** is an assessment of the target's environment including *ecological processes and regimes* that maintain the target occurrence such as flooding, fire regimes and many other kinds of natural disturbance, and *connectivity* such as species targets having access to habitats and resources or the ability to respond to environmental change through dispersal or migration.

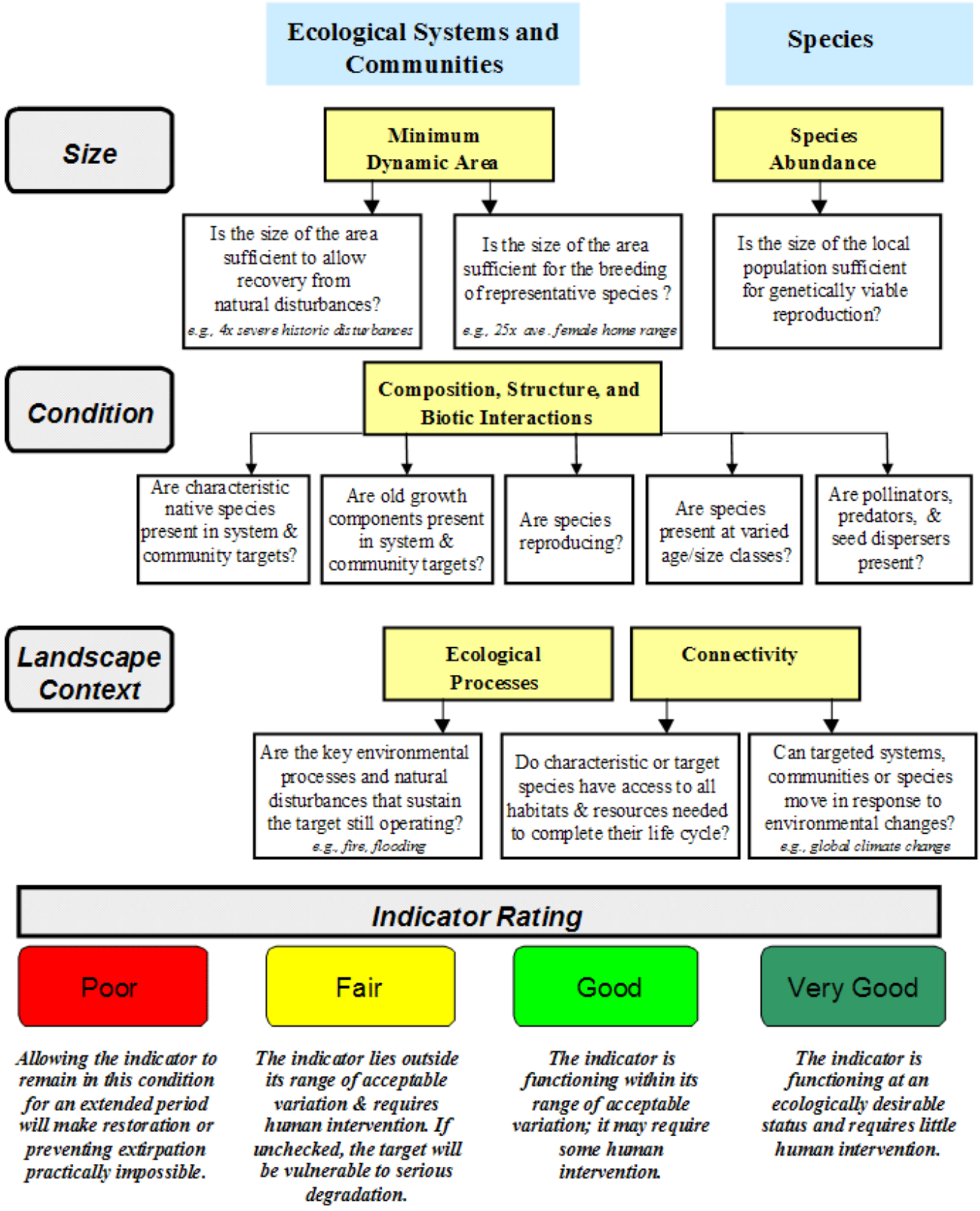
Note that not all classes necessarily apply to every target.

It is important to ensure that your final selections are – as the name implies – attributes of the target, rather than descriptions of threats to the target. For example, "compatible land use" is not a key ecological attribute for a forest target. Instead, the threat of incompatible land use presumably affects actual key attributes such as connectivity, soil stability, or the hydrologic regime. Or in the marine turtle example above, the construction of seaside hotels (direct threat) diminishes the ability of turtles to nest (KEA), which decreases the viability of the turtles (target).

The graphic below provides a flowchart that can help you in the selection of key ecological attributes. (Adapted from Low 2002, extracted from TNC's conserveonline).

Box 2. Guide to Selecting Key Ecological Attributes

Adapted from Low 2002. Sample questions below are illustrative only – they do not represent an exhaustive list.



5.4 Identify a measurable indicator for each KEA

For each of your key ecological attributes, you should determine an indicator that can be used to assess the attribute over time.
An indicator, is what you measure to keep track of the condition of something, in this case of a key ecological attribute. Generally speaking, an indicator may be either:

- a specific, measurable characteristic of the attribute, such as the total number of adults in a population;
- a collection of such characteristics combined into an index, such as a multi-species index of forest canopy composition

Indicators frequently involve some type of quantitative assessment – such as number of acres, recruitment rate, age class sizes, percent of cover, or frequency of fire of a given intensity. Other indicators may involve measurable elements that are not numerical, such as the seasonality of fire or flooding.

Indicators should be chosen based on those key ecological attributes of the targets considered to be most indicative of the status of the habitat or species in question. In many cases, you may be able to measure a key attribute using just a single indicator. However, sometimes there may be no single best indicator so you may need to track several indicators to get a better picture of what is going on. For example, field surveys and analyses of aerial photographs together may provide complementary information on forest tree composition, more accurate and reliable than either one could provide on its own.

Against this, the number of indicators selected needs to be balanced by a dose of realism – how many can you afford to measure? The aim 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.

5.5 Determine acceptable range of variation and rating scale for each attribute

Any given key ecological attribute will vary naturally over time. The range of variation of a KEA's indicators is "acceptable" when it would allow the target to persist over time.
Based on your estimate of the acceptable range of variation, you can build a viability rating scale. This scale involves establishing the following boundaries for an indicator based on your thresholds:

- **Very Good** – Ecologically desirable status; requires little intervention for maintenance.
- **Good** – Indicator within acceptable range of variation; some intervention required for maintenance.
- **Fair** – Outside acceptable range of variation; requires human intervention.
- **Poor** – Restoration increasingly difficult; may result in extirpation of target.

In effect, by establishing this rating scale, you are specifying your assumption as to what constitutes a "conserved" target versus one that is in need of management intervention. Although ideally you would define all four boxes of the rating scale, in many projects, you may find that you can only define one or two key boxes especially in early stages of your work when you have limited scientific information. The threshold between Fair and Good is the most important for determining the need for management actions; if the status of a KEA is below the threshold, then by definition the viability of the target is unsustainable. If you treat this as the first step in an iterative process, **you can almost**

always put some initial thinking down based on general ecological concepts, comparisons to other similar systems, and well-informed expert opinion. It is important not to get stuck at this step; document what you know and what you need to know, and move on.

5.6 Determine current and desired future status of each attribute

The "final" step in the viability assessment is to use the rating scale that you have constructed along with available evidence and/or expert opinion to determine the current status of your biodiversity target (where your target is today) and the desired status of your target (where you would like it to be in the future). This desired status becomes a goal for your project. In reality, this is the most important step of the Viability assessment – the full rating criteria can be completed in the fullness of time as more data becomes available.

For each indicator, goals will ultimately need to be set as part of the Action Plan (see 2.1 Basic Guidance for Action Plans). Final goals, which represent the ultimate desired level, are perhaps most important. They can be based on historical levels (if available), population viability analysis, or the best guess of the project 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 progress markers toward final goals. For example, if the current rating of an attribute is fair, the desired level may be good within 5 years, and very good within 20 years; interim and final goals can then be defined accordingly.

5.7 Tips

As you go through the process, bear in mind the following tips which are based on experience.

- **Record any assumptions -** Make sure you write down any relevant issues or comments that emerge. In particular, you should note how you arrived at your viability assessments including references and experts consulted, data analyzed, assumptions you made, your level of confidence in your assessments, and suggested research needs.
- **Your Work Does Not Have to be Perfect** – Make the best use of the information you have, document your key assumptions and uncertainties, get started, and move forward. As your knowledge and resources expand and the project progresses, you will be able to refine, expand, and improve your work.
- **Make Use of Existing Work** – Before you spend a lot of time and energy developing your analysis, see if you can find existing assessments from other groups that you can adapt to your project's situation.
- **This is a Highly Iterative Process** – Although viability assessment is presented as a linear series of steps, in reality you will have to go back and forth through these steps, for example revising your indicators and even your key ecological attributes as you start to develop your ratings.

6. Examples – Defining Targets and KEAs

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

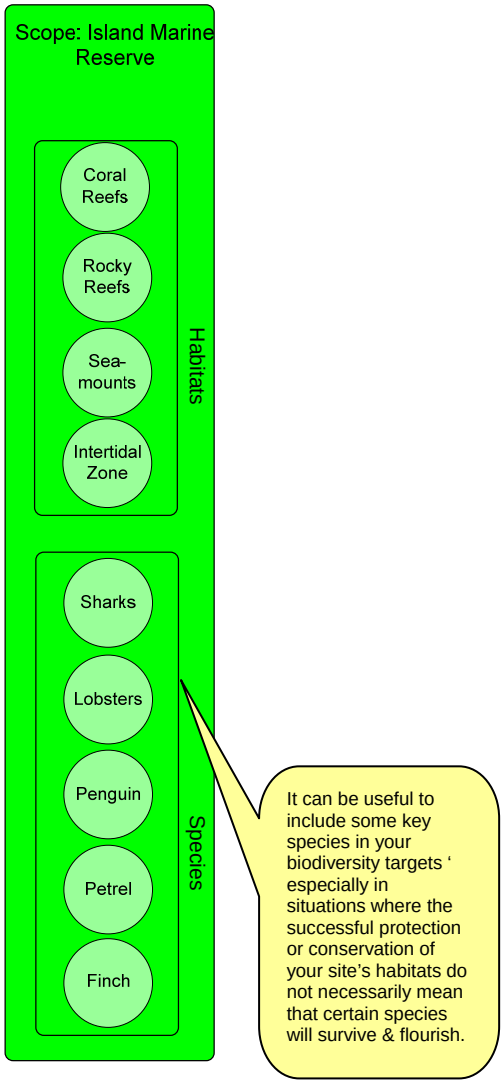
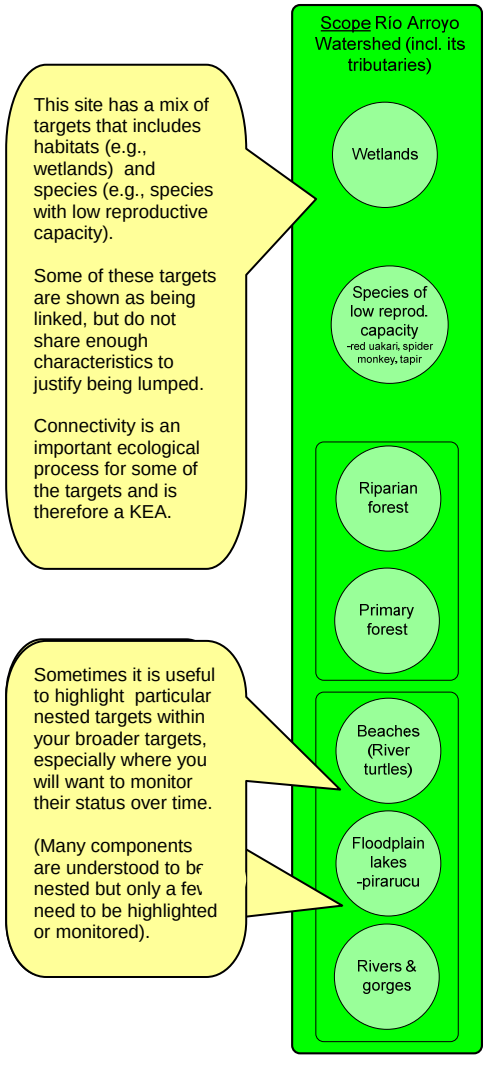


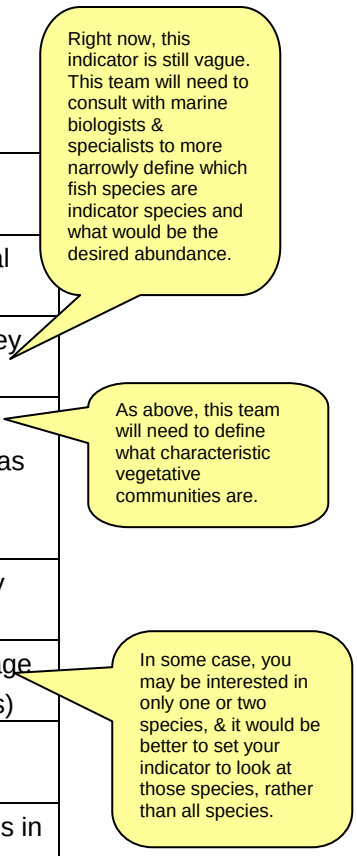
Figure 2. Scope and targets for tropical forest site



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 3. 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
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



6.1 Example – A Complete Viability Assessment

Figure 4. A Complete Viability Summary for 3 Targets (adapted from the Chico Basin Project, Colorado, USA)

N.B. Columns could be added to this table to show the current status and desired future status for each indicator.

			Indicator Ratings			
Target	**Key Attribute**	**Indicator**	**Poor**	**Fair**	**Good**	**Very Good**
Mid grass prairie	Size of ecosystem	Acres of prairie	< 10,000	10,000-20,000	20,000-30,000	***>30,000***
Mid grass prairie	Species composition	% of system in weed patches and number of patches > 5 acres	> 5% of system; some patches much > 5 acres	3-5% of system; few patches > 5 acres	1-3 % of system; no patches > 5 acres	***<1% of system; no patches >5 acres***
Mid grass prairie	Compatible land uses	% natural surrounding vegetation developed or tilled	> 50%	25 - 50%	***< 25%***	< 5%
Black-tailed prairie dog complex	Size of complex	Acres of occupied prairie dog town	< 5000	5000 - 10,000	**10,001-25,000**	> 25,000
Black-tailed prairie dog complex	Associated species abundance	Presence of key species (e.g. swift fox, ferruginous hawk, burrowing owls, etc.)	None	Some presence of a few species	**Large presence of a few species**	Large presence of many species
Black-tailed prairie dog complex	Connectivity	Average distance in km between colonies	> 10 km	7-10 km	**<7 km**	<7 km
Landscape mosaic	Intactness of landscape	Size of pronghorn population	< 2000	**2000-5000**	*2500-3000*	>3000
Landscape mosaic	Connectedness of native vegetation	Fragmentation index?	?	?	?	?

7. Socioeconomic "Targets"

As stated above, comprehensive guidance on how to address socio-economics through the project cycle will be developed in 2009. Here we simply emphasise the importance of considering the role that biodiversity plays (or could play) in providing ecosystem services that support human well being, for example water supply, flood regulation, or economic value. Ultimately your conservation strategic plan will be of interest to a broader group of stakeholders, and thus be more sustainable, if it takes into account where and how it contributes to human well-being.

The example overleaf from the UN Millennium Ecosystem Assessment shows general ecosystem services and constituents of well being for Marine and Coastal Ecosystems.

If you consider that there are important ecosystem service contributions in relation to your project, you should define specific targets associated with these contributions and show them on your conceptual model (to the right hand side of the Biodiversity Targets). Goals should be defined for the socio-economic "targets", baselines assessed, and monitoring carried out against the goals.

Box 2. Biodiversity for biodiversity sake vs. biodiversity as human service

The above does not suggest that conservation should only be focused on its contributions to human well-being. However, in many cases the existence of biodiversity will be so intimately tied to human use and livelihoods that conservation will necessarily have to take into account the impacts of conservation and biodiversity targets on human well being. When setting biodiversity targets and defining strategies you should consider whether improving human well being is a necessary component of a strategy and is perhaps necessary for long term impact of that strategy (for example, excluding a community from utilizing a natural resource they have always used for survival may result in conflict and illegal and unsustainable use of that resource).

Considering conservation of biodiversity or ecosystems **solely** for how it contributes to human well being can run you into the problem of gauging the importance of biodiversity based upon human conditions, need or value. This can result in a very narrow consideration of the "worth" of biodiversity. In addition, determining ecosystem services often means establishing the economic benefits that ecosystems provide. The problem with this exclusive approach is that if the economic value or market for ecosystem services cannot be determined or is determined to be not profitable it may mean the loss or neglect of biodiversity or ecosystem. Certainly we must always strive to maintain and instill in humanity that there is an intrinsic value to ecosystems and the biodiversity they contain.

Example Coastal and Marine Ecosystems:

Coastal

Estuaries and marshes

Mangroves Lagoon and salt ponds

Intertidal Kelp

Rock and shell reefs

Seagrass

Coral reefs

Inner shelf

Marine

Outer shelves edges slopes

Seamounts & mid-ocean ridges

Deep sea and central gyres

Coastal and Marine ECOSYSTEM SERVICES

Provisioning services

Food

Fibre, timber, fuel

Medicines, other resources

Regulating services

Biological regulation

Freshwater storage and retention

Hydrological balance

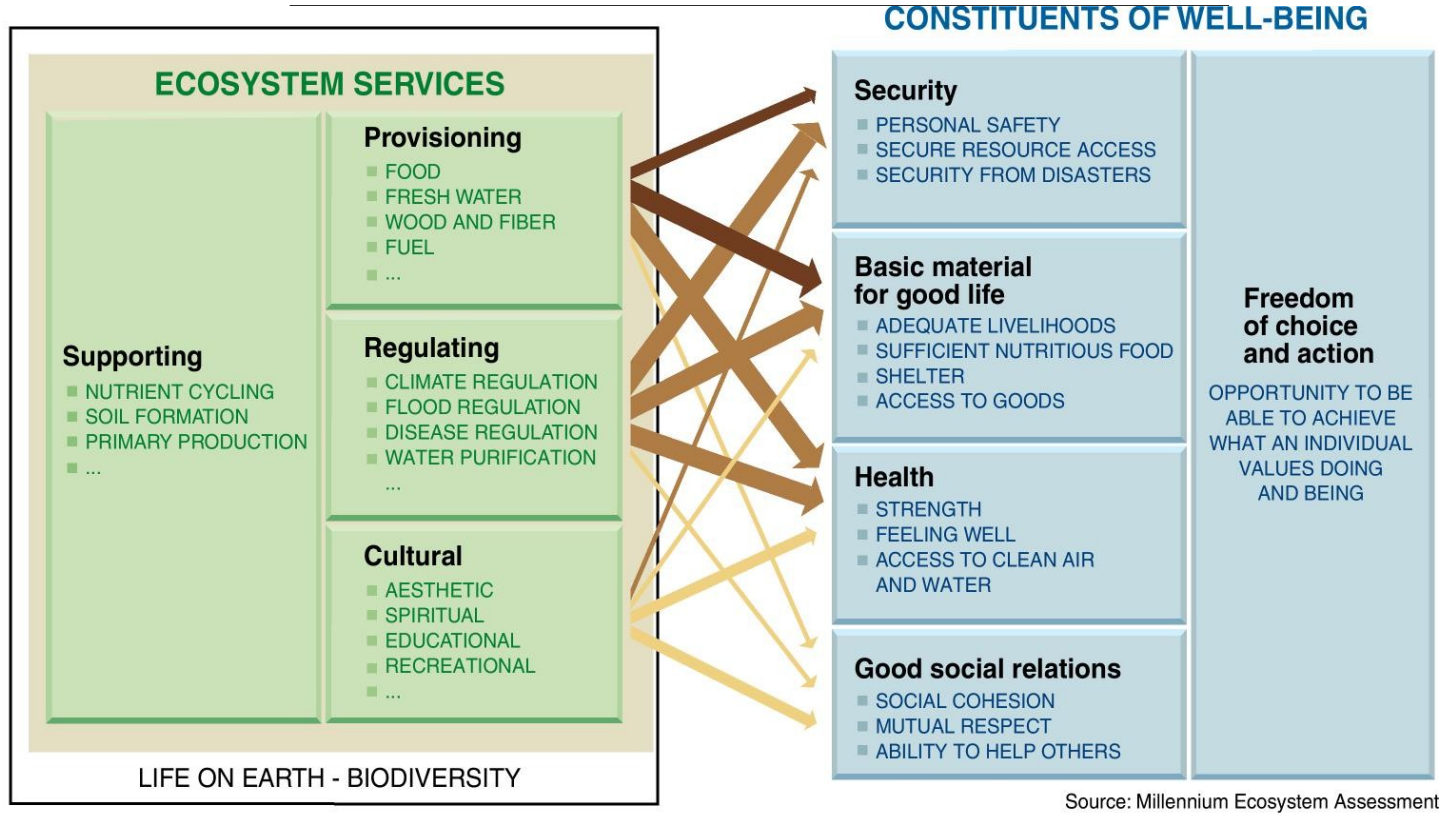
Atmospheric and climate regulation

Human disease control

Waste processing

Flood/storm protection

Erosion control



Source: Millennium Ecosystem Assessment

Source: Marine and Coastal Ecosystems & Human Well-being: Synthesis, UNEP June 2006

Acknowledgements and References

The most extensive work about target selection comes from The Nature Conservancy (TNC), and much of the text for this document is drawn from TNC's Conservation Action Planning workbook.

More detailed guidance and examples about target selection and viability analysis are available on Conserveonline at:

http://conserveonline.org/workspaces/cbdgateway/cap/practices/bp_2 and

http://conserveonline.org/workspaces/cbdgateway/cap/practices/bp_3

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