Conservation Landscapes

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1. What is the tool?

Conservation Landscapes: This is a process that integrates Biological and Human Activity [Threat] Landscapes to identify and prioritize areas for conservation actions which target individual wildlife species (your Conservation Targets). The Conservation Landscape should illustrate the way in which each target species' biological potential within the landscape is affected by the local threats impacting their population.

Ideally, the Conservation Landscape can help to spatially define where conflicts are located and where there are opportunities for you to make an impact.

This process involves the estimation of the numbers of animals that you hope to conserve, and the relationship between their current abundance and what you hope to achieve in terms of the status of your Conservation Targets (i.e., the wildlife species that you want to conserve). The process of estimating numbers can be complicated, and has been completed more successfully for some projects than for others.

This process can help to set priorities for where to work depending on the threats occurring in particular areas (WCS/Tanzania used the tool in this way). At other sites, the process can be used in a slightly different way, more to develop strategic actions and identify which groups to work with politically (The WCS Sea and Sky site in Patagonia used

this approach). This process can also be useful to help verify the current strategies and actions already being used at your site. The process of building Conservation Landscape for various sites highlighted the significant differences between terrestrial systems and marine systems.

2. What will this tool do for your project (or what conservation challenges will using this tool help you solve)?

Direct benefits

♦ It provides identification of spatial priorities for taking conservation action.

♦ It provides a great visual tool for communicating with different actors in the landscape and for evaluating natural resource conflicts between them.

♦ It allows you to evaluate whether you are really working where the potential impacts are greatest; and, if not, it clearly suggests new priority sites.

♦ It provides a transparent and objective process for setting priorities and actions and for communicating that justification to others.

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- It forces you to think about the distribution of your potential conservation impact in relation to the distribution of threats and landscape species:

  - It allows you to measure the (estimated) potential gains of certain actions in terms of numbers or biomass of animals that can be conserved in different parts of the landscape if certain threats are successful abated.
  - You can use the landscapes generated to explore the cost of implementing conservation actions in relation to the gains.
  - It gives you a tool to explore different strategies and scenarios via modeling, without having to implement them in the field first.

- It allows you to demonstrate the umbrella effect of your Landscape Species (e.g., this process showed that hippos were an effective umbrella for fish in Ruaha, Tanzania).

- It can help force you to think about the cumulative effect of multiple threats on a species.

Indirect benefits

- The participatory approach, if used, is a good way to involve various stakeholders and other researchers and conservationists. Using this tool makes them a part of the project, and is a great benefit in terms of expanding your network of collaborators and engaging them in conservation action.

- It can enable you to demonstrate new concepts/tools in some landscapes.

- It can help to raise the profile of your site(s) when used to communicate with people outside your landscape.

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- This process can lead to an important internal discussion and evaluation of current efforts within your individual program; and can help to identify whether or not you are working with the critical partners in your landscape.

- It can be very helpful in identifying knowledge gaps and directing applied research.

Material products

- A map that shows the interaction of the Human and Biological Landscapes, and can thus suggest where you should focus your conservation efforts.

- A list of critical partners can be generated (as you think about what you need to do, it clarifies whom you have to work with).

- A database of threats, biological data, management zones, etc., and:

  - Priority sites for intervention actions (linked to maps).
  - Information that is needed to develop the action plan for your site.
  - Background for a cost/benefit analysis and efficiency/budget for activities.
  - Information which could help to validate (via modeling) current species distributions.

The Landscape Species Approach

The Landscape Species Approach is a wildlife-based strategy to define ecologically meaningful conservation areas, recognizing the complexity of the biological and social landscape in which conservation occurs (see **Living Landscapes Bulletin 2**). The Landscape Species Approach depends on selecting a set of species with complementary ecological needs (a suite of Landscape Species which collectively represents the biodiversity of the landscape as a whole) (see **Living Landscapes Bulletin 3**). The goal of the approach is for conservation of the suite of Landscape Species to lead to conservation of not only those species, but of all biodiversity in the landscape.

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3. What will this tool NOT do for your Project?

♦ It may not be comprehensive or serve to provide the entire solution to all of the conservation challenges in your landscapes. Because this is a tool, it is not THE total answer and it leaves some important questions, so recognize that more thinking will be necessary.

♦ Although it provides a clear picture of where to work, it may not convince anyone to fund your work. Of course, this depends on where you're located; for example, WCS/Adirondacks and other North American sites have found that there is not a lot of funding available for conservation planning exercises, but this may be different in developing countries.

  ♦ Likewise, the tool itself won't necessarily help you to deal with people although it will likely help you to identify who you should work with (e.g., partner organizations, local stakeholders).

♦ It won't help you to address external threats (those arising outside your landscape).

♦ It cannot help you mitigate threats to your species when they are outside of your landscape (e.g., migratory species).

♦ It will not verify the quality of your assumptions about your population targets, species distributions, or impact of threats. It will only help you in mapping and ranking the assumptions that you have already made.

♦ It does not integrate opportunities for conservation – you may need to think about where special opportunities exist beyond what the Conservation Landscapes process suggests.

♦ It does not tell you *how* to address the threats; rather, it helps identify *where* the effects of each threat have the greatest impact on each target species.

Field examples

Staff at *WCS/Congo* realized they needed to better understand the way in which a specific threat (logging) impacts and reduces populations of their conservation targets. As a result of mapping their Conservation Landscapes, they began to study these effects.

Use of the Conservation Landscapes process allowed scientists in the *WCS Eastern Steppe Program* in Mongolia to demonstrate Saker falcon/vole modeling to the Mongolian science community).

In *Ruaha Tanzania*, local populations use fire as a tool but sought out WCS to determine a fire frequency that was appropriate. The process of modeling Conservation Landscapes provided the necessary understanding of the impacts of threats on abundance of Landscape Species.

The process gave *WCS/Patagonia* staff an understanding of the language of relevant actors, enabling them to speak to fishermen in terms of dollars lost every time an albatross is hooked.

4. What are the requisites for using this tool?

Project type and stage of development

♦ It is best to do this at the beginning of a long-term project, although the time required may be significant

　♦ First, complete all Biological and Threat Landscapes.

♦ If you have already been working for a long time at your site, this process can certainly inform the future direction of your conservation planning (especially if it illustrates new priority sites within your landscape), but it may not necessarily change the strategies which you have already implemented or the actions which you currently undertake. Many WCS sites who implemented this process have found this to be true; they found the process to be informative but noted that it often did not change their current, on-the-ground conservation strategies.

Information and data

♦ You need to complete Biological and Threats Landscapes for your conservation targets; and, therefore, you will need all necessary data to complete this task.

♦ You should be prepared to set Population Target Levels for each Landscape Species.

♦ An idea of the process by which threats are acting in your landscape.

♦ An understanding of local jurisdictions, who the key decision makers are, legal frameworks, the motivations of local people, and the positions of local politicians.

♦ A list of stakeholders and partners (although this may be developed through this process).

♦ An understanding of the impacts of threats in terms of numerical effect on abundance or biomass of Landscape Species. Often this can require further research.

♦ Access to the scientific literature as relates to your location, target species, and local threats.

♦ If you want to use the maps to complete cost/benefit analyses, you'll need estimates of the likely cost of different interventions.

Technical staff skills

♦ Advanced GIS skills

♦ A full-time staff person available to undertake the analysis

♦ Basic ecological expertise of staff (or available through outside experts)

♦ An understanding of landscape ecology and population biology

♦ An understanding of the language of relevant actors (e.g., mining companies, industry, government, fishermen).

♦ Database management skills.

♦ If completing in a participatory way, skilled facilitators and/or conflict resolution expertise will be useful.

♦ Significant funds (to cover required staff time and necessary software).

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Living Landscapes Program—Conservation Landscapes

LLP tools

- Landscape Species Selection (useful but not essential)

- Biological Landscape (requisite)

- Threats Landscape (requisite)

- Population Targets (important, but maybe not essential- these can be generated by LSS or by other means)

5. How to use the tool:

- Read the upcoming **Technical Manual**.

- View the **LLP PowerPoint presentation** with narration.

6. Who should be involved in using the tool, and why?

- The project manager and project staff- to enhance the process with their understanding of the dynamics at your site as well as to learn from the results of the mapping.

- You should involve a combination of people with GIS technical expertise as well as biological understanding, as both of these aspects are critical to the process.

- Ideally, you can involve a variety of stakeholders in both developing and using the tool (e.g., land use planners, resource users, etc).

7. How long will it take?

- Combining Biological and Threats Landscapes for a single species can be done in 1 to 3 days.

- If the cost of implementing conservation interventions is incorporated into your maps, the process can be done in 1-2 weeks total (depending on your understanding and knowledge of the landscape).

- Involving other stakeholders in the development of your Conservation Landscape can take 1 to 2 months (of staff time).

Living Landscapes Program Manuals

WCS-International saves wildlife and wildlands by understanding and resolving critical problems that threaten key species and large, wild ecosystems around the world. Simply put, our field staff make decisions about what causes the needs of wildlife and of people to clash, and take action with their partners to avoid or mitigate these conflicts that threaten wildlife and their habitat. Helping our field staff to make the best decisions is a core objective of the Living Landscapes Program.

We believe that if conservation projects are to be truly effective, we must: (1) be explicit about what we want to conserve, (2) identify the most important threats and where they occur within the landscape, (3) strategically plan our interventions so we are confident that they will help abate the most critical threats, and (4) put in place a process for measuring the effectiveness of our conservation actions, and use this information to guide our decisions. The Living Landscapes Program is developing and testing, with our field programs, a set of decision support tools designed to help field staff select targets, map key threats, prepare conservation strategies, and develop monitoring frameworks.

We describe the application of these tools in a series of brief technical manuals which are available by email from llp@wcs.org.

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