



TECHNICAL MANUAL 1

September 2004

Participatory spatial assessment of human activities—a tool for conservation planning

This manual is designed as a concise but hopefully thorough explanation of how to conduct a human activity assessment workshop. This is not intended to be the best and last word on assessing and mapping human activities that are threats to biodiversity and sustainable use of natural resources. It simply offers one, relatively easy way to identify, map and quantify, through multi-party consensus, the principal activities that threaten biodiversity across a landscape. This approach is designed to allow a broad range of stakeholders with different experiences, interests and capacities to participate and share their knowledge and points-of-view.

Why do we use a workshop to assess and map human activities?

A multi-stakeholder workshop will generate a comprehensive list of human activities likely to impact the biodiversity and sustainable use of natural resources of a landscape, and will rank them in order of their perceived importance to participating stakeholders. Participants are placed in the role of experts who can help shape decisions about conservation action. Results from the workshop will indicate where within the conservation site the most important human activities that are threats to biodiversity occur, when they occur during the year, whether they have changed in intensity over time, how severe each threat is perceived to be, how long the system might take to recover if the threat were removed, and how urgent it is to take management action.

Holding a workshop will help to reach broad consensus. Bringing together various stakeholders will help characterize what roles indirect factors such as management capacity, stakeholder awareness or interest, and policies and regulatory mechanisms appear to play in mediating or mitigating primary threats to biodiversity. Holding a workshop with different actors whose interests and concerns may clash is an important first step in building trust and coordinated action among the stakeholders; it may also lay the foundation to reconcile conflicting interests. Finally, the project team can introduce its mission, objectives, and future plans.



Jeffry Oonk and Marleen Azink

Process for undertaking a human activities assessment and mapping workshop

Preparing for a workshop with 20-40 participants

Before you conduct the workshop you will need to obtain the following materials and supplies:

- 4x6 inch (10x15 cm) or larger index cards in 4 different colors (125 cards each in yellow and green, 75 in purple and light blue): participants will write one activity on each card they are given and the colors reflect the four classes of direct threats described below.
- 3 post-it page markers for each participant: Several different colors of post-its can streamline the voting when the participants are split by subregion as described below.
- 1.5 x 2.5 m sticky-tarp: If you do not have a sticky tarp, make sure that you have a large surface on which you can attach and arrange the cards using tape or pins. (See also Page 2)
- Push-pins or Masking tape: If a sticky tarp is unavailable.
- LCD Projector, laptop computer and camera (preferably digital)
- Maps (poster-sized): base maps and detailed maps of the entire region (See also Page 7).
- A black marker for each participant (bold enough to be seen from a distance and to allow no more than a few words per index card) and 10-20 colored markers to be divided among mapping subgroups.
- One flip chart and easel

You will also need a room with enough wall space to attach the sticky-tarp and all the maps, with enough room between them to allow subgroups to work in front of each map without disturbing other groups. You will also need enough chairs and tables or clipboards so that all participants have seats and a surface to write on. The room should have reliable electricity, be well lit to allow participants to write and work on the maps, yet can be dimmed so that all can easily watch a PowerPoint presentation.

Making a Sticky Tarp

To help arrange and re-arrange the index cards used to characterize and prioritize threats we suggest that you use a sticky tarp. A sticky tarp is simply a 6x7 nylon tarp that has been liberally sprayed with 3M Spray Mount Artist Adhesive (#6065) on the inside surface and allowed to air-dry. creates a tacky surface that does not dry out and allows any paper item to stick to it and yet be readily repositioned. Always remember to fold the sticky tarp onto itself (i.e., sticky surface to sticky surface) and to open it carefully not to dislodge the glue from the tarp. Over time you



may need to reapply the adhesive to the tarp.

Inviting people to the workshop

One of the primary purposes of holding the workshop is to bring together the principal actors who you expect will ultimately need to work cooperatively to reduce threats and conserve biodiversity within the landscape or seascape of interest. This means that you need to invite representatives of: a) groups that use natural resources or depend on them for their productivity b) agencies responsible for the management of biodiversity, and c) local, national and international organizations invested in the conservation of biodiversity. In most cases these groups will differ greatly in their knowledge, technical training, and authority. They also may have a history of mutual mistrust.

Co-hosting the workshop with a respected local or national group will add credibility to the process and encourage participation. In some areas, having a host-country partner issue the invitations and decide on some participants can ensure political buy-in and avoid the charge that the project team biased the results by inviting like-minded stake-holders. Personal contact with each of the participants is also key to ensuring attendance, particularly of the more marginalized actors (e.g., local communities, women, etc.).

Facilitating the workshop Introduction

Start the workshop by making explicit that WCS is interested in conserving wildlife and wild places. Then note that by so doing WCS hopes to ensure that ecologically functional and productive ecosystems provide intrinsic and economic benefits to people at local, national and global levels.

Give a brief presentation on the purpose of doing a human activities/threats assessments. Clarify that the process helps us to determine where to take action to ensure that the diversity and productivity of the ecosystem is maintained. Note explicitly that given the complexity of landscape scale conservation no single solution or actor can accomplish everything. If the diversity and productivity of the landscape is to be maintained the government, NGOs, the private sector and individuals will have to work together. WCS is helping facilitate that process by bringing interested parties together to identify the principal factors that threaten the long term diversity and productivity of the ecosystem.

Things to remember

- The word "Landscape" often does not translate well, so use a locally appropriate term.
- Avoid leaving the impression that your organization will address all threats.
- Remind participants that the workshop is the first step in a longer process and probably is building on meetings, which you should acknowledge.

Workshop outline

The tasks to be undertaken in the workshop are summarized as follows:

- Step 1: Provide a step-by-step description of the task to be completed during the workshop
- Step 2: Explain what we mean by direct and indirect threats to biodiversity
- Step 3: Ask each participant to identify the 3-7 most important human activities that are direct threats to biodiversity
- Step 4: Organize all human activities into groups
- Step 5: Vote to identify the highest priority human activities
- Step 6: Characterize and map the location of the highest ranked human activities
- Step 7: Review and present each of the maps
- Step 8: Discuss next steps and use of the results

Example of a workshop agenda

Time	Activity	
09:00	Introduction to the workshop	
09:15	Brief overview of your organization—who you are and what you do	
	Presentation on conducting a human activity assessment and mapping exercise	
	Description of how the workshop will proceed	
09:40	Coffee break and presentations by partners	
10:15	List human activities that influence the productivity and biodiversity of the landscape/ seascape through habitat loss, species depletion, pollution, or introduction of invasive spe- cies—identify indirect threats	
11:30	Rank the importance of each human activity category	
12:00	Lunch break	
13:00	Map the location of all human activities that threaten the diversity and productivity of the landscape/seascape	
15:00	Working group presentations of their maps (10 minutes each)	
15:30	Wrap up, next steps, and group picture	



Step 1: Describe the tasks to be completed during the workshop (30-35 minutes)

Give a presentation to explain each task that the participants will undertake during the workshop (we suggest that you use a PowerPoint presentation to clarify the tasks—a prototype is available by email from LLP@wcs.org or on the web at www.wcslivinglandscapes.org).

The presentation should not only allow all the tasks to be completed during the workshop, it should allow you to repeat the instructions for each task and to leave a visual prompt of what the present task is on the screen to remind participants what they are being asked to do at any given time during the workshop. Clarify that the process helps us to determine where to take action to ensure that the biodiversity and natural resources of the ecosystem are conserved. It is important not to stigmatize or disenfranchise participants whose activities may be viewed as threats. Protect anonymity defuse confrontations stakeholders.

Hint: When talking about human activities that are threats to wildlife and the diversity and productivity of ecological systems, it is important not to demonize or disenfranchise participants whose activities may be viewed as threats.

Step 2: Define direct and indirect threats to biodiversity and sustained use of natural resources (10-15 minutes)

Clearly explain how threats to biodiversity and natural resources can undermine productivity and ecosystem function. Remind people that not all human activities are threats. Some human activities, now and in the past, that intentionally or unintentionally change diversity and pro-

ductivity are not always considered threats. In the US we would not have agriculture, automobiles, pheasants, and settlements free of wolves, if at times we did not value these changes in natural systems. Rather, human activities are only a threat when they result in a decline in tangible or intangible benefits to a level that individuals or society deems undesirable.

Direct threats

Note that in the absence of human influence, plant and animal populations fluctuate in abundance between some upper and lower bounds over time. Humans alter this natural variation in species' distribution and density in four general ways: (1) habitat loss converting a cover type valuable to wildlife to another that is not; (2) species depletion - removing wild plants and animals; (3) pollution - chemical, physical, or thermal agents that alter the productivity and diversity of ecological systems, and (4) introduction of non-native plants, animals or microbes – species that supplant local species or diminish their health. We call these the four riders of the biodiversity apocalypse.

Indirect threats

Though there are only four categories of direct threat to biodiversity (habitat loss, species depletion, pollution and invasion of non-native species), these typically result from the interacting activities of users, managers and policy-makers. For example, though over-fishing is considered a direct threat to Nassau Grouper populations in the reefs of Belize and Honduras, it is indirect factors such as weak law enforcement, lack of economic alternatives for poor households, increase in the number of fishers, etc., that drive and facilitate unsustainable fishing and species depletion. Just as all direct threats can be grouped into four broad categories, we can also cluster indirect threats into three categories 1) Managers: lack of adequate intervention, monitoring or communication of rules to users; 2) Users: lack of awareness of how their activities can manifest as threats to biodiversity and sustainable use of natural resources, lack of interest in conservation, or lack of alternatives to a damaging activity, and 3) Policy-makers: inadequate laws, policy, or support for their enforcement. These three categories address not only the factors that indirectly facilitate damaging human activities, but also they identify the individuals or groups that must be engaged to promote change and effect conservation.

Identification of indirect threats is based on the assumption that some management, awareness and policy ingredients are missing or there would be sustainable use of natural resources and effective biodiversity conservation. Ask the participants to identify those missing ingredients. Multiple indirect threats may be identified.

For each category try to provide examples that are relevant to your particular area. For example:

- Users lack awareness, interest or alternatives (e.g., tourists are aware that they are not allowed to collect coral but they do so anyway, people do not know the laws, fishers do not value rays so they are discarded as by-catch, ranchers are openly hostile to predator conservation programs).
- Managers lack willingness or capacity (e.g., natural resource management agencies are unable to detect or stop rule-breakers, local communities do not have a tradition of collective management of resources so they do not enforce informal rules, there are no fish abundance or catch data to guide management decisions).
- Policy makers' laws and regulations are not appropriate, do not exist, or their enforcement is not supported (e.g., laws regulating tourism development on reefs do not exist, government departments have overlapping jurisdictions, law breakers are seldom prosecuted, land ownership laws are unclear, existing laws contain incentives that perversely result in biodiversity loss).

Make sure that your team is consistent in its use of terminology, especially biodiversity, sustainable natural resource use, natural resource productivity, human activity, direct and indirect threat (or the locally appropriate versions). This will reduce confusion among participants.

Hint: Though people tend to understand the concept of direct threats to biodiversity and natural resource productivity of an ecosystem, many find it much harder to grasp what is meant by an indirect threat, so take extra care in explaining this concept. You may want to use causal chain diagrams to show how indirect threats are causally linked to direct threats.

Steer participants away from remote or global indirect threats such as poverty, over-population and lack of infrastructure. Steer them to the specific, most proximate missing ingredients that undermine sustainable use of natural resources or biodiversity conservation.

To give participants a clear idea of what you want – fill out a card as an example and show it to everyone. It should be written on an index card of the appropriate color for the direct threat it represents. Make your written description brief (<10 words) to encourage the participants to be brief.

Step 3: Participants list the most important human activities, classify the appropriate direct threats and identify the indirect threats (30 minutes)

Once participants understand the concept that some human activities result in habitat loss, species depletion, pollution and invasion of alien species (i.e., direct threats to the biodiversity and natural resource productivity of ecosystems), then ask each participant to write the 3-7 most damaging human activities in their experience. One way to do this is to give to each participant index cards in a mixture of 4 different colors corresponding to the class of direct threat, (3) colored yellow for habitat loss, 3 colored green for species depletion, 3 colored purple for pollution and 3 colored light blue for alien species).

Ask participants to write only one activity on one index card. Be sure to explain that more cards of a specific color are available. If they wish, they may write their names on each card, but we suggest anonymity to promote candor. On the other hand, identifiable cards may help later to determine if different stakeholders focused on different human activities. Also make it clear that everyone comes at these issues from a different perspective and that one invites diverse participants precisely because they bring with them a broad range of interests, concerns, and priorities.

If some individuals appear to be confused about the process or are not writing on their index cards, one of your facilitators should approach them, ask how they are doing and provide guidance about the process, if you think that this is appropriate. Remember that not all participants will be equally comfortable about putting their ideas down on paper and not all participants will be equally comfortable writing, so be attentive and sensitive, and help participants to complete the task as best they can. If some of your stakeholders have limited literacy, assign a facilitator to write the human activities for them. Translation and, in some cases, genderappropriate facilitation may be needed.

Indirect threats and causal factors

Once participants have identified and written their top direct threats, ask them to flip each card over. On the reverse side of the card, ask them to write the single Managers (M), Users (U), or Policymakers (P) they believe is most clearly responsible for the human activity. Once they have done this they should have 1-5 cards with a single direct threat written on one side of each card and a single indirect factor written on the other side of each card.

This step should take about 30 minutes but be flexible if participants appear to need more time.

Hint: If the use of wildlife or habitats is illegal and the laws have been clearly communicated, the indirect threat is probably lack of user awareness of the impact of their actions or their unwillingness to comply with the laws.

If the activity is not illegal or the rules have not been clearly communicated or enforced, the indirect threat probably stems from a failure of policy or management.

If managers have not been monitoring, enforcing or communicating rules adequately it is a management indirect threat.

If the laws or rules do not exist or are inappropriate, or law enforcement is not supported by the government, then it is a policy indirect threat.

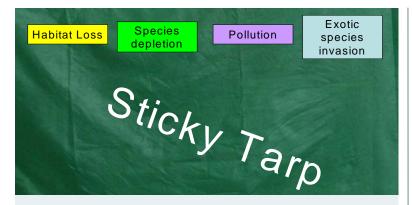
At this stage you can start a brief discussion of the indirect threats by posing the following questions and taking notes of responses:

- For cards identifying Users, ask the participants if there are laws or regulations controlling the use? If not, ask if the users do not value the biodiversity or resource? Are there conflicts over resources they do value? Are people unaware of the problem because they lack information?
- For cards identifying Managers, ask the participants if the managers are adequately trained, equipped and funded to intervene or enforce rules and regulations or to monitor the activities? Are they adequately motivated and aware to intervene?
- For cards identifying Policy-makers, ask if the existing rules and regulations are relevant to the activity, have the policy-makers communicated those rules adequately and is enforcement politically and financially supported?



WCS/David Wilkie

Hint: In this example, we focus on participants' top 5 human activities—but you may instruct your participants to identify any number of human activities. We recommend 3-7, the upper bound being harder to manage with a large number of participants, while the lower bound may exclude threats of medium importance.



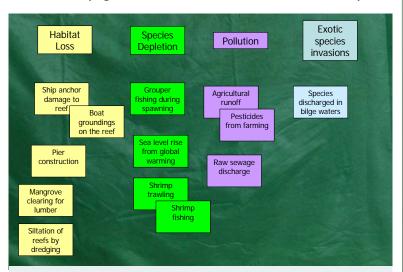
Hint: Give the participants Marker Pens (Sharpies) to write with as this encourages them to use fewer words and not to write sentences or paragraphs to describe the threat.

This discussion should be limited to 10-15 minutes.

Step 4: Organize human activities on the sticky tarp (20-30 minutes)

While participants write their activities, place an index card of the appropriate color labeled with each of the direct threat classes – habitat loss, species depletion, pollution, and invasive species – at the top of a column aligned along the top edge of the tarp. Once the participants are ready you will place their finished index cards under the appropriate column head.

Collect the participants' cards and have a facilitator read the human activity aloud (or a paraphrased version that avoids insulting or embarrassing participants). Do not read the author's name if given. If one activity poses more than one threat, it may be



REMINDER: Once you and the participants are satisfied with the groupings of threats take a photograph of the arrangement of index cards on the sticky tarp.



necessary to create a second card. For example, fire can destroy habitat and cause species loss if the organisms cannot avoid the fire. If two index cards are very similar post only one card but note the number of similar cards with a tick mark on the bottom of the one you have posted on the sticky tarp. Keep the others in case the indirect threats differ. If questions arise about classification, combining two or more cards, or the content of a card, set the card aside for later discussion. After all the unambiguous cards have been placed face up on the sticky tarp, turn to the ambiguous cases and reread them searching for a consensus as to how to classify or replace the card.

Hint: If participants appear uncomfortable about being identified with the content of their cards, you can explain that once all the cards are collected they will be shuffled and read aloud without identifying the author.

Combining similar index cards is a delicate and critically important simplifying step —but it should not be forced on the participants. For example, participants may be happy to combine HUNTING WITH SNARES and HUNTING WITH GUNS because they both involve local hunters, but may want to keep COM-MERCIAL HUNTING separate, as it is mostly non-local hunters who engage in this activity. Your facilitation team may wish to review the index cards while participants are on break and then propose further simplification or re-organization. This step will take 20-30 minutes to complete.



Step 5: Voting to prioritize threats (20-30 minutes)

As a large number of human activities are likely to have been identified as threats to sustainable use of natural resources and biodiversity, it is important to rank them so that we can focus on these considered by participants as the highest priority.

To rank the individual and grouped human activities on the sticky tarp, you should provide each participant with three post-it page markers. Ask them to use the post-its to vote for the three human activities that they believe most jeopardize the biodiversity and natural resource productivity of the region. You may also opt to give participants more votes to distribute across the activities they consider serious. After everyone has cast their three votes, rearrange the human activities on the sticky tarp with those that gained the most votes at the bottom.

Make clear that no card--not even one receiving no votes--will be thrown away. The team will record all the information and in the course of time, verify perceptions through monitoring. Nevertheless, participants' votes do provide guidance on the most damaging human activities and can help focus action.

Finally, ask explicitly if the participants agree with the results. If you can get them to agree publicly, you may be able to leverage action at a later date, in addition to having a consensus-based output to report to outside audiences.

Hint: If you feel you need to drop some low-ranked activities, look for a natural break in the voting (a gap of 2 or more votes producing a high-ranked set and a low-ranked set). Some human activities that received few or no votes should not be mapped in that case. Deciding where to split the activities is often more art than science. Let the participants give input to any such decision.

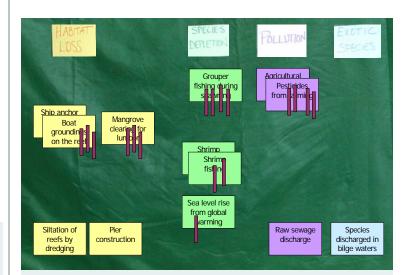


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This step will take 20-30 minutes to complete depending on number of participants.

Step 6: Map and characterize the highest ranked human activities (1-3 hours)

There are at least two choices for mapping: (i) depict different threats on different base maps or (ii) depict different subregions on different base maps that address all priority threats.



REMINDER: take a photo of the ranked arrangement of index cards on the sticky tarp. These photos can be incorporated into a presentation at the conclusion of the workshop to



Hint: Base maps should depict only coastlines, major roads, rivers and reefs, some cities or towns as landmarks and no place names. By contrast, the regional maps can be more detailed to help participants situate human activities within the conservation area.

If you are mapping different threats on copies of the same maps you will need 5-10 base maps. If you choose option (ii) above, you will need one base map for each subregion. Be aware that mapping too many threats on the same map can be confusing for participants and later for your team as you enter and analyze the data.

Allow participants to choose their subgroup after you have chosen the method of subdivision. Ask the participants to identify appropriate leaders -- not including facilitators -- to arbitrate if there are disagreements, receive peer-reviewed comments and to report in plenary on the map features.

Ask the participants to draw a feature on the map for every discrete occurrence of a human activity. They may draw a line around the area where it occurs (a polygon), a line for narrow features or simply a point. For example, roads, rivers and reefs often have human activities distributed along them in a line.

Invisible or poorly known threats -- like some pollution -- may be represented by points, if the extent of the threat is not known. Ask the participants to assign an identification number to each human activity feature (polygon, line or point) starting from 1 upwards.

A facilitator or the leader should take notes on each feature drawn on the maps. A facilitator should circulate between mapping subgroups if you cannot assign a facilitator to each subgroup. The notes for each feature should capture the human activity, feature number and the following quantitative estimates.



Living Landscapes Program—Human Activities Mapping

Map #	
Feature #	
Human activity	

When does the human activity occur (i.e., all year, only during certain months, only once every 'x' years)?

Estimate how urgent it is to intervene.

- 0 = Plan now but no action needed at present.
- 1 = Take action now Threat is ongoing.

Is the present level of the human activity greater or less than in the past– i.e., how does the level today compare to that in the year 2000 (or some other date in the past).

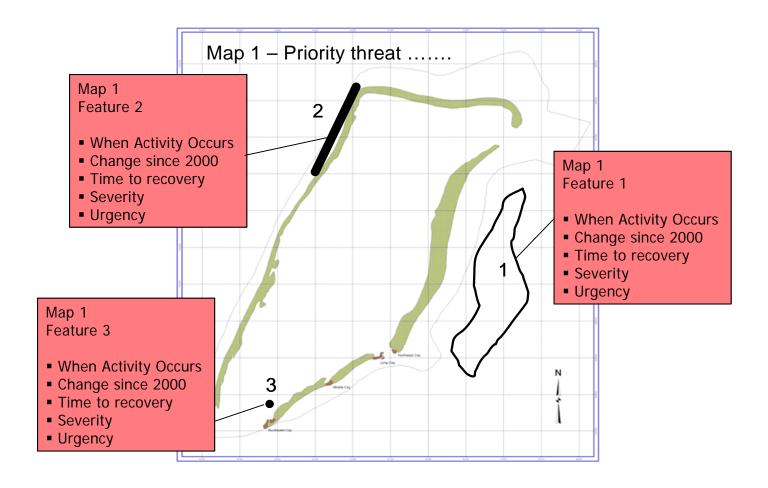
- -2 = much less than in the past.
- -1 = somewhat less than in the past.
- 0 =the same as in the past.
- 1 = somewhat greater than the past.
- 2 = much greater than in the past.

Estimate the time to recover once the threat is abated.

- 0 = Immediate recovery or less than 1 year.
- 1 = Recovery within 1-10 years.
- 2 = Recovery within 10-100 years.
- 3 = Recovery >100 years or would ever occur.

Estimate the severity of the threat to natural resource productivity and biodiversity

- 0 =None or positive.
- 1 = Little-measurable but small effect.
- 2 = Some-substantial but complete loss unlikely.
- 3 = Serious–complete destruction of region possible.



Step 7: Review and presentation of maps (10-15 minutes for each map)

Some participants may have expertise in more than one subregion or more than one threat type and may thus wish to contribute to more than one map. Allow time so that participants can visit the maps of other groups and comment on them. Ask the map leaders to remain with their map and respond to comments from other participants. This may lead to some changes on the maps.

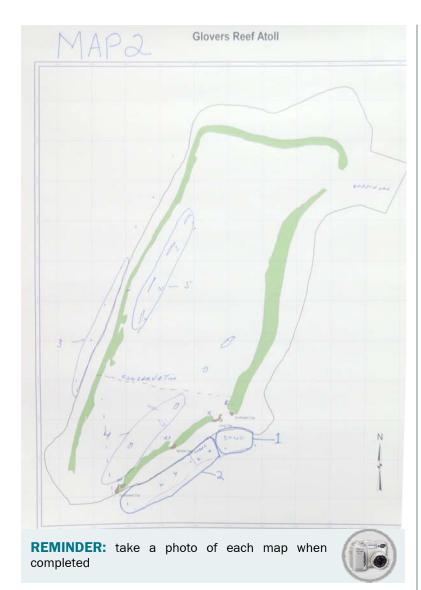
After peer review, ask all the leaders in turn to describe each mapped feature (polygon, point or line) drawn on their map and tell the participants what it signified and why it is important. Allow a brief question and answer session after each presentation.

Hint: It is helpful to identify gaps in knowledge by asking the participants to draw polygons around areas within which they have no information. This will ensure that areas left blank are not interpreted as being unthreatened.



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Living Landscapes Program—Human Activities Mapping





REMINDER: take a digital group photo and promise to send copies to everyone



REMINDER: Participants' perceptions of threats may not always match systematic, scientific measures of threats. They are nonetheless valid because they shape people's willingness to take action and interest in managing natural resources in a sustainable way.

Step 8: Discuss use of the information and next steps (30 minutes)

Ideally, your facilitation team can prepare highlights from the meeting including copies of the maps and stickytarp to distribute them to all the participants at the end of this workshop. If this is impossible, prepare a summary of results for review at the end while promoting a discussion of next steps. Some points to bring up in a discussion of next steps include the following:

- Ask participants how when and where they will report on the results to their respective constituencies.
- Reiterate that their perceptions will help shape the team's next steps.
- Ask for partners to work with you to communicate the results to other stakeholders that were not represented and to high-level decisionmakers.
- Explain how one might use the results to design interventions to abate threats. Solicit suggestions for abating threats. Recruit partners to abate and monitor threats.

Hint: Prepare summary data and a wrap-up presentation while the participants are mapping the principal threats. Showing results at the end of a workshop can leave participants with a powerful impression that action will be taken quickly and that the workshop was productive.

Make an effort to draw out the participants on how they feel about the results. Humor sometimes achieves results at this stage. Do they feel confident in the results? Do they feel the results are just a preliminary opinion by experts or a real reflection of the situation? Is anyone going to change behavior or try to persuade others to do so? How will they use the results? Ask who wants copies of the maps and why, so as to draw out your participants. Make available the methods to anyone interested.

End the meeting by thanking all the participants for their hard work and acknowledging how much you learned during the day. Have your co-host or prominent political figures make the closing statements.

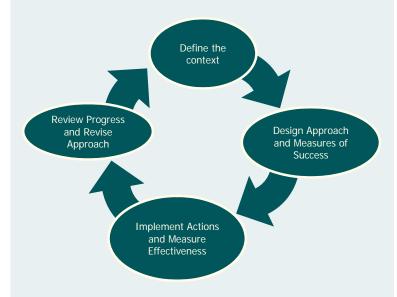




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Living Landscapes Program Manuals

WCS's Global Conservation Programs work to save 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 such that 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 using 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 a conservation strategy, and develop a monitoring framework.

The application of these tools is described in a series of brief technical manuals which are available by email from conservationsupport@wcs.org. These how-to guides are designed to provide clear and practical instructions. If after using the manual to run a strategic planning exercise you have any suggestions as to how we might improve the instructions please let us know.

Contact

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