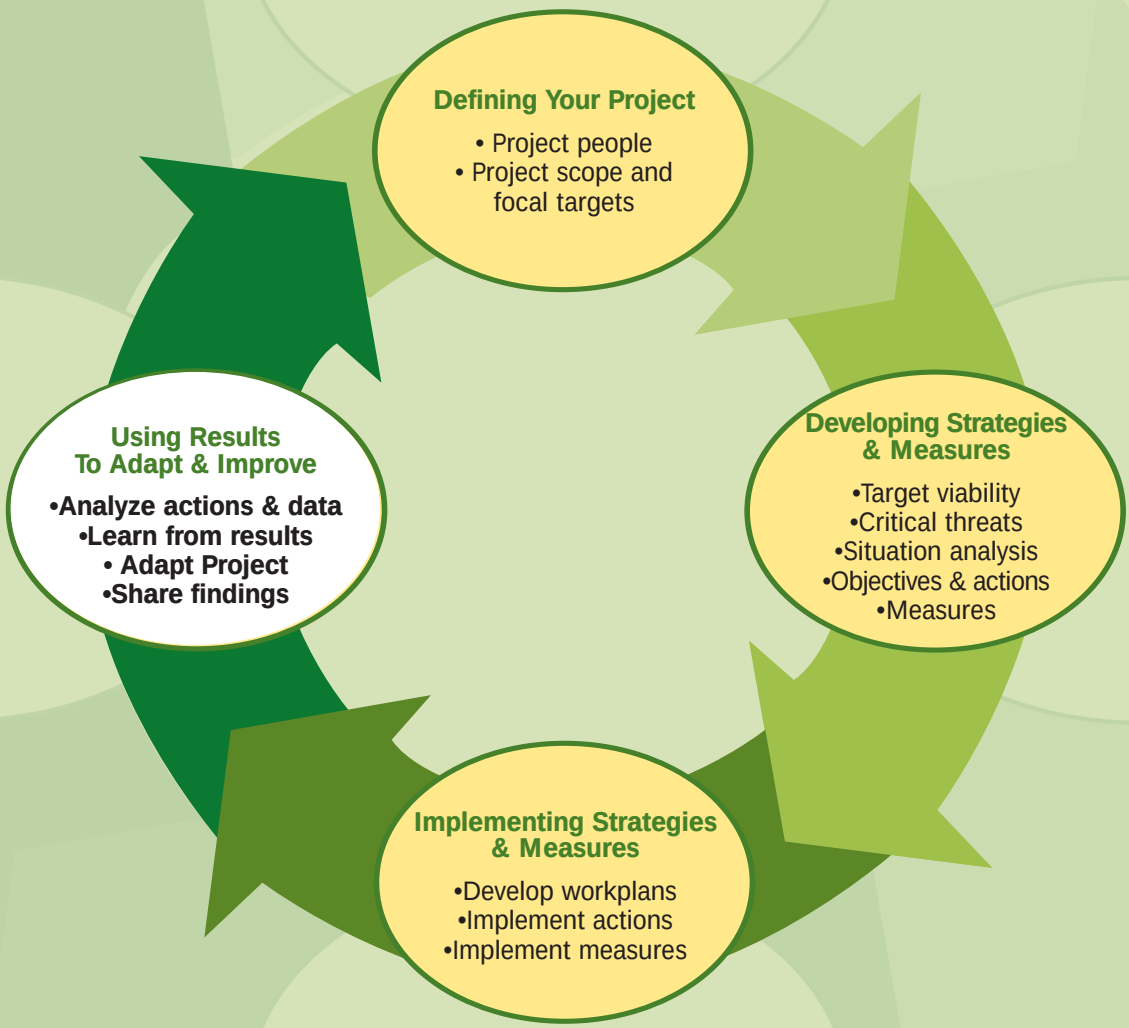
10. Analyze, learn, adapt and share



Basic Practice Ten

This document is a chapter from the Conservation Action Planning Handbook. The complete Handbook is available online at http://conserveonline.org/workspaces/cbdgateway/cap/practices.

The CAP Handbook is intended as a guidance resource to support the implementation of The Nature Conservancy's Conservation Action Planning (CAP) Process - a powerful instrument for helping practitioners get to effective conservation results. The CAP process is a key analytical method that supports Conservation by Design, the Conservancy's strategic framework for mission success.

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This is a living document that will adapt and change as new information becomes available and as we hear from you about how to improve it. The most recent version will always be available at: http://conserveonline.org/workspaces/cbdgateway/cap/practices

For more information on Conservation Action Planning visit www.conservationgateway.org/cap.

Conservation Action Planning

Step 10: Analyze, Learn, Adapt, and Share

As summarized in TNC's CAP Overview of Basic Practices:

This step first asks you to systematically take the time to evaluate the actions you have implemented, to update and refine your knowledge of your targets, and to review the results available from your monitoring data. This reflection will provide insight on how your actions are working, what may need to change, and what to emphasize next. This step then asks you to document what you have learned and to share it with other people so they can benefit from your successes and failures. Specific questions that this step answers include:

"What are our monitoring data telling us about our project?"
"What should we be doing differently?"
"How will we capture what we have learned?"
"How can we make sure other people benefit from what we have learned?"

Expected Outputs

- Appropriate and scheduled analyses of your data.
- Updated viability and threat assessments, as warranted.
- Modifications to your objectives, strategic actions, and work and monitoring plans, as warranted.
- Regular updates of project documents.
- Summaries of what you have learned, focusing on both process and results.
- Appropriate communication outputs for each key audience.
- Project's completed CAP Workbook (if available).

Importance of Analyzing, Learning, Adapting, & Sharing

Everyone working in the field of conservation faces so much uncertainty. We are often working to protect complex systems and species about which we know little. Many of our identified challenges are new things that we have not seen before or, if we have, it was in a different context. In a perfect world, we would have all the money and time we needed to do precise experimental research before we took any significant actions. But in the real world, we often lack the money or the time to experimentally test our strategies before putting them into action. If we do nothing while we wait for answers, we know that our beautiful river will continue to degrade or the rare parrot population will decline. Faced with this stark reality, we must act in the face of uncertainty.

Acting in this circumstance is absolutely defensible. But doing so without any means of evaluating whether we are making progress, or a way to learn about the best course of action for the future, is not. Two ecologists, Carl Walters and C.S. Hollings observed this dilemma in their work with large ecosystem restoration projects like the Black Sea and The Florida Everglades. What they saw prompted them to develop the concept of "adaptive management." Adaptive management recommends natural resource managers accept that they must move forward with insufficient knowledge, but that they do so in way that enables them to set up their management as a set of "testable hypotheses" based on their best understanding of the system. And that they monitor

what happens in a systematic way so that they can “evaluate their hypotheses,” learn what worked and what didn't and adjust their practice accordingly.

If you have followed the CAP process so far, you are set up to practice Adaptive Management. You have assembled the best information you have about your system. You have posited hypotheses about what your targets require to be viable over time. You have established objectives for success and identified a set of actions that are, in essence, a “hypothesis” of what it will take to achieve the objective and secure the viability of your targets. You have acted on this hypothesis by implementing your action steps and monitoring tasks.

Now what you have to do is analyze your information, relate it to your actions, make some decisions about what is or isn't working and determine how you will proceed based on this information. This is adaptive management in action.

Good analysis is one of the most important aspects of adaptive management. It allows you to systematically assess whether you are on track to achieve your stated goals and objectives, and to revisit the assumptions that you made and test whether they still hold true in light of any new information that has been gathered, and make informed decisions on any revisions that are needed. Analysis carried out at regular intervals will ensure that your project is kept on track and remains targeted towards achieving your goals and objectives.

Analysis is also the key to project team learning - the reflection and review that is undertaken leads to the identification of lessons that can add value to the next stage of your project and enable you to adapt your action and monitoring plans. It is this learning and adaptation that will enable you to capitalize on and replicate your successes and to avoid making the same mistakes over and over again.

Finally, conservation is not a one-time action, but rather a long-term endeavor. In almost all cases, conservation projects will need to last far longer than the involvement of any one person. Thus, it is critical that you capture and share the work you do and the knowledge you gain so your team and other practitioners around the world can benefit from what you have learned. Sharing what you and your team learn about good practice can magnify the impact of your project to a national or global level and can inform policy at a national and international level. Additionally, sharing your work can be a testament to your team's discipline, rigor and professional commitment and can be a way to improve your project's visibility and credibility for future funding.

Defining Analyzing, Learning, Adapting, & Sharing

Analyzing

Analysis is essentially about converting the raw “data” that your project team has collected through implementing your monitoring and or by conducting a systematic review of your actions to date into information that will provide feedback to you on progress towards your specific objectives and shed light on the fundamental questions:

- Are things moving in the right direction?
- Are the actions you have taken having the effect you had hoped for?
- Is the status of your targets improving?
- Are you reversing known threats?

Sometimes the data are descriptive or qualitative observations that the project team will need to interpret. In other cases, data are quantitative measurements that have to be summarized in some manner so your team can interpret them. Whatever the source or type of data, they will only be of value if they are summarized in some usable form and used to evaluate the actions we have taken and what we have actually accomplished to date.

The specific analyses that you undertake are largely determined by the nature of the question(s) you are asking, the monitoring design that you employed, the type(s) of data that you have collected, the degree of precision you need to have in your answer, and your analytical skills (see *Step 7: Establish Measures*). There are hundreds of techniques for analyzing different kinds of data - far more than can be covered here. To learn more about specific analyses, such as how to calculate a mean and standard deviation, or how to do a regression analysis, you will have to consult a good statistical text. But whatever type of analysis you undertake, finding a way to involve your entire project team in discussing and interpreting the results, if not actually in doing the analysis, will greatly enhance the utility of this step.

It is also important to keep in mind that ultimately, analysis is not about determining whether a result is "statistically" significant, but whether it is "programmatically" significant. For example, you might have set an objective to raise local stakeholder income by 50%. After 3 years, you may find that your analysis of a sample of households shows a statistically significant increase of 20%. But obviously, this is still not programmatically significant.

Learning

Learning, in this context, isn't just acquiring a new piece of information. What we mean by learning is the active process of using the experience that you are engaged in and the information that you have obtained through analysing your actions and results to date to confirm, modify or change future actions. The process of learning we are looking for is one that results in confidence in your current activities or impetus for changes in action. This type of learning can improve the individual project's chances of success and enhance the effectiveness of the team in this and future conservation work.

This type of learning - having real experiences and evaluating and recording them with your peers in an atmosphere of open discovery - not only ensures that the team and its individual members will move from having a “gut feeling” about something “to having real knowledge born of experience.” It also ensures that the lessons learned will be more transferable to other circumstances and to other people.

Ideally, what you learn will not only enhance your work and the work of the project team, but it will elucidate ideas that are transferable to other similar projects across your organization or beyond as outlined below. In the work of conservation, learning - that is acquiring knowledge that will lead to change - should be happening all the time at many different levels, at the individual and project level but also at the level of the organization and ultimately across the discipline of conservation as a whole.

Not everything you learn will be valuable to the discipline as a whole. But to the degree that you can translate your specific experience to more general applications your efforts may have a magnified effect. The language of CAP, and its use as an adaptive management framework, is designed not only to encourage individual and project learning but also to enable cross project and organizational learning. To this end, The Nature Conservancy has developed a searchable data

base populated by over 800 projects with fields analogous to the steps in the CAP process, to allow cross-project analysis, learning and sharing.

Adapting

Adapting is essentially about using what you have learned from your analyses to change and improve your project. In practical terms, it means regularly assessing progress towards your objectives, and reviewing and updating your strategic actions, action steps and monitoring tasks to ensure that your action on the ground is most effective. These updates will be informed by applying your learning to improve the viability and threat assessments and situation analysis. As you make changes, you should also document the reasons behind them so that others will understand what you have learned and why you made these changes.

Sharing

In the conservation field we can share what we learn in many different ways. We can publish articles in the professional literature, give talks or share posters at professional meetings, and/or share stories through our organizational newsletters or other informal newsletters. We can participate in on-line chats, societies, or any number of different types of working groups in our own organizations or beyond. How we share what we learn depends on our purpose for sharing and who we believe would benefit from what we learned from our experiences. Understanding why we want to share this information, who would benefit from knowing it, and how that audience is best reached are all part of the process of sharing effectively.

What we mean by sharing in this context has three primary purposes.

1. **To inform conservation peers engaged in similar work**. Conservation is a relatively new field and the challenges and tasks ahead of every single practitioner are great. Given this fact, actively sharing your most important findings with other professionals working on similar problems or in similar systems is a service worth performing. Who knows, your idea for establishing a new financing mechanism for Protected Area management, might be just what another team needs to help them in their area. Or telling them about something that didn't work for you could save them a great deal of precious time and resources.

2. **To solicit outside feedback and "compare notes."** Actively sharing what you did and what you learned with others in a peer review type of format can enrich your ideas and understanding more than if you have only your own team's "brain power" evaluating your work.

3. **To inspire and energize other practitioners and conservation supporters**. Sharing your work and findings - in stories and talks, popular literature, newsletters and other assessable venues - can be an inspiration to other practitioners, stakeholders, donors and conservation supporters.

Commonly Used Methods

There is obviously no "one-size-fits-all" method for analyzing what you have done, learning from your work, adapting your work and sharing your insights. So much depends on the type of project you are engaged in, the type of information available, the nature of what you learn, who you need to reach out to, and more. Furthermore, the discipline of analyzing, learning, adapting and sharing is the newest addition to the CAP process and as such, practical, specific examples for

implementing this step in the process are still being developed. That said, in this section we offer a few key principles to keep in mind as you go through this step.

1. Analyzing

As described above, analysis is about converting raw data into useful information. Key principles include:

- **Commit to a Regular Cycle for Analyzing Your Progress** - Core members of the team need to commit to coming together to take stock of progress at regular intervals and after critical project milestones or events. Depending upon the complexity of the project, the size of your core team, location of team members, urgency of threats, type of information you are working with, the interval will vary. At the very least, your project team should convene once a year, to document actions taken, compile monitoring results, review and discuss data that has been compiled, discuss trends and issues as they relate to what you identified in your viability and threats analysis, and then take what you have learned and apply it to your project action and monitoring plans for the next year. A project team can gain even more from learning if it reflects on its actions and results after key project milestones or events. For example, reflecting on the execution of a prescribed burn, and applying the lessons learned to the next burn, will likely improve project performance.

- **Base Your Analysis on a Clearly Defined Set of Questions** - Using the information contained in your viability and threats analysis, and the logic inherent in the process that led you to your strategic actions, establish a set of questions to guide this review process. These questions should help to inform you about whether you are moving toward your desired goals and objectives by giving you a framework within which to assemble and relate the information you have available. You can establish these types of questions by following the trail of your thinking from the actions you are taking through to your objectives and targets to determine whether you are seeing the results you had hoped to achieve. WWF calls this process, "results chain modeling." (Box 2) By formulating a simple results chain you can make explicit the "hypotheses" that you need to test to determine whether your actions are having the intended results.

- **Start Your Analysis By Summarizing Your Raw Data** - As adults, most of us learn best by doing. This type of learning can result in having good "instincts" or "gut feelings" about something. But if we want to be able to truly understand, apply and share that insight (create transferable knowledge), we have to take it from individual "gut" feeling to well articulated and demonstrated cause and effect through some transparent type of analysis. In most cases, to conduct a systematic analysis, you first need to assemble the data that are relevant to your stated questions and conduct some form of summary analysis to make the information more accessible to discussion and review. For quantitative data, you might look at the maximum and minimum values for any given variable and compare it over time or its status in a similar area. Or for qualitative data, you might pull out the most meaningful responses to critical questions.

- **Use Your Data to Answer Your Defined Questions** - Once you have your summarized data, you use them to address the questions that you have identified. This analysis will typically involve making some kind of comparison - for example, comparing the population of a target species at one date to a later date or comparing average stakeholder household income in a village where you took action to one in which you did not take action. Statistical analyses can help you determine how much confidence you can place in your results. However, the main goal of analyses should not be to demonstrate statistical significance, but rather to demonstrate

programmatic significance. A population of elephants may have had a statistically significant increase over time - but if it does not meet your state goal, it is still not programmatically significant.

- **Good Analysis Does Not Require Quantitative Data** - Often teams don't have quantitative data with which to conduct this analysis and review. Maybe it is too soon in the life of the project and the results are not yet available. Maybe the team doesn't have resources to gather a lot of quantitative data. Maybe, some questions that they are asking don't lend themselves to be answered by quantitative analysis. In these instances consider employing an After Action Review (Box 1). This simple, systematic approach will work to generate information and insights with or without hard data.

Box 1: Questions answered in an After Action Review:

1. What did we intend to accomplish through our actions? E.g., we thought that by presenting, at the re-licensing hearing, our assessment of the impact that the Big Bend Dam was having on the shad population, we would gain support for modifying its operations schedule.

2. What actually happened as a result of our actions? E.g., discussion during the hearing suggested that a majority of the licensing board is leaning against voting for removal of the dam.

3. What might have caused the actual results we observed? E.g., questions and comments by members of the licensing board suggest that the board is more concerned about the economic impact of lost power generation (increased power costs) than they are about the decline of the shad population.

4. What actions should we continue to take; and/or how do we think we can improve our actions? E.g., if we can demonstrate, through an economic analysis, that the loss of power generation is minimal and the potential revenues from the increased fishery more than off-set the loss we can generate support for modification of the dam schedule with a powerful constituency that may in turn sway board members.

5. What opportunities lie ahead in our project to test our thinking about how to improve our actions, and how can we test and review this thinking? E.g., the next hearing is in three months. We will commission an economic analysis and meet individually with each board member prior to that hearing to discuss our findings. Based on the feedback we get through these discussions, we will focus our presentation at the hearing on the points that seem to be most important to board members.

(Darling, Marilyn J. and Charles Parry. 2002)

2. Learning

Learning is the active process of using the experience that you are engaged in and the information that you have obtained through analysing your actions and results to date to confirm, modify or change future actions. Key principles include:

- Involve Your Entire Team in Analysis and Review - Involving as much of your project team as possible in your analyses will:
    - Enable the project team to explore underlying causes of how and why results were achieved (or not achieved) and seek practical ways to improve results and to focus on finding solutions rather than seeking to apportion blame if results did not turn out as planned.
    - Bring a range of perspectives, knowledge and experience to bear on an issue to find

solutions and ways forward.
  - Lead to the identification of lessons and good practice that can be shared to leverage a greater impact across other similar projects both within your organization and the wider conservation community.
  - Assist in providing a clear rationale to donors and partners on what changes need to be made and why.
  - Share understanding of challenges faced, and ownership of decisions for change.

- **Invite Practitioners from Outside Your Team to Participate in Your Analyses** - In situations where there isn't a lot of hard data yet available, some teams have found it very helpful to invite known experts to join them in the field, reviewing their objectives and actions and evaluating first hand what is happening in their project. Especially in situations where the actions largely involve hands-on actions, e.g. reintroduction of prescribed fire, invasive species removal, removal of ditches, etc., or where the response of the targets may lag behind the actions by several years, this type of interim expert consultation can be very helpful. While it provides only anecdotal evidence, it can help to give project teams a sense of whether they are moving in the right direction, can elucidate flaws in their plan of action and stimulate suggestions for moving forward in the near term. Even when you are looking at hard data in your analysis and review, it is helpful to have a fresh perspective. Sometimes new eyes and new ears can see and hear things that you have become indifferent to or that you don't even realize are exciting breakthroughs. Also, especially in projects that have been underway for a long time, a kind of "group think" can set in where people accept something as fact because they have always done it that way or they don't want to disagree with a trusted colleague or they don't want to appear out of step with the other members of the team. A respected "authority" from outside the team can break through these group accepted interpretations and norms in ways that members of the team often cannot.

3. Adapting

Adapting is essentially using what you have learned from your analyses to change and improve your project. Key principles include:

- **Update Your Plan to Reflect Adaptations** - This is your chance to acknowledge what you know and what the holes are in your knowledge, and to update your project documents (e.g. CAP workbook). In particular, you should revisit your strategic actions, and work and monitoring plans, update the current status of monitoring indicators, and update your project documents including the viability, threat, situation diagram and capacity tables in your CAP Workbook or the ConPro database. This may involve minor adjustments to a work plan, or it may involve a formal iteration through all the steps in the CAP process.

4. Sharing

Sharing involves documenting your work and communicating it to others. Key principles include:

- **Share Both Successes and Failures** - It is important to share not just your successes, but also the things that have not worked. Also, don't be afraid to share stories and anecdotes that illustrate what youhave learned, sometimes these can be the things some people find most compelling. To share your results effectively, you should think about who your key audiences are, what messages you would like to send them, and what channels would be most effective for reaching each of these audiences.

- **Share With Your Project Team Members** - Once analysis has been completed and documented, outputs should be shared with other team members, partners and stakeholders as appropriate to enable wider understanding of what is happening within the project and what changes need to happen and why. Doing this will help to ensure continued commitment to the project and buy-in for any changes.

- **Share With the Network of CAP Users** - By applying the CAP approach, you are immediately a part of a worldwide community of practitioners who "speak the same language" and may likely benefit from what you learned. You can easily reach this group by uploading your CAP workbook to a new searchable, web-based data base, Conservation Project Inventory (ConPro) at http://conpro.tnc.org. The database includes fast and powerful search capabilities using the language of CAP as search fields that can greatly facilitate cross-project learning and enable practitioners working on similar targets, threats, or employing similar types of conservation action to find each other where ever they are working. The CAP community also has a network of trained coaches who have agreed to support teams in the application of CAP, called the Efroymson Coaches Network. This network spans five continents and includes members from numerous organizations who are connected by the common language and approach of CAP and also by their commitment to helping teams apply the method successfully to their project. You can share your findings with this network by contacting a coach near you (http://conserveonline.org/workspaces/cbdgateway/cap/contact/).

  Another way to reach out to the CAP community is to develop a case study describing your approach to a particular aspect of the CAP process. All over the globe people are learning lessons about what works and what does not when it comes to accomplishing a step of the CAP process. These lessons are valuable to others and can be posted in the CAP Toolbox (http://conserveonline.org/workspaces/cbdgateway/cap/resources). The case study template is available at http://conserveonline.org/workspaces/cbdgateway/cap/practices/capcasestudyform.doc.

- **Share with Practitioners Doing Similar Projects** - The Nature Conservancy has developed learning networks largely organized around habitat types (i.e. marine and freshwater) or ubiquitous threats (invasive species and global climate change.) These groups of conservation practitioners provide a network for distribution of information and discussion of preliminary ideas and findings related to these specific topics. Box 3 provides some guidance on how to form and maintain your own learning and sharing group.

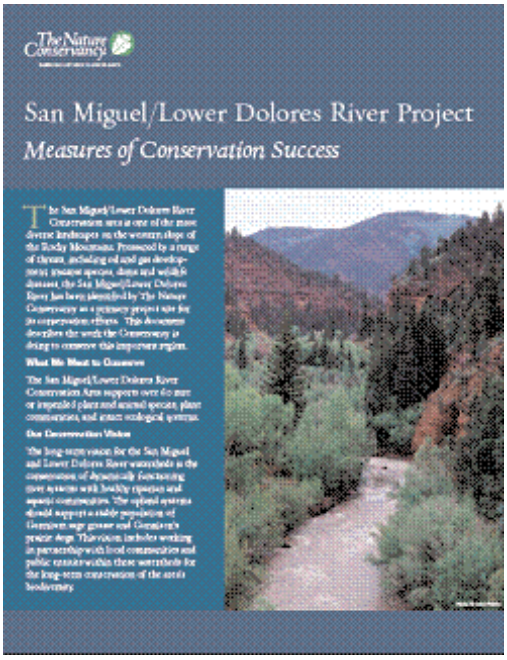
  Doing something that really works, doesn't have to be complex or even formally organized. Consider this example. Conservation project managers in the Southeastern United States working in restoration of upland pine systems in the mid-1980's faced a situation where they were doing something that no one had done before. A couple of them decided to host a one day field sharing event at their site. They invited a few people they had heard were working to implement restoration projects in other parts of the region to compare notes. The invitees knew of others and the first field meeting was attended by a dozen or so people. The participants all learned something new. They heard about promising practices that others were experimenting with and what people had tried to do and failed. The hosts got some great specific suggestions for their project. The host agreed to summarize the discussion in a short white paper. That group met annually for almost a decade at different sites actively engaged in restoration projects. The format changed a bit over the years but it always involved practical exchange of the most up-to-date ideas about what was working and not working in the evolving practice

of upland pine habitat restoration among the most active experts with a minor investment in time. The participants became the core dispersal network for important advances in this area of upland habitat restoration.

A venue that has become available for members of the conservation community to use to share information readily and find others interested in and working on projects similar to yours on the internet is http://conserveonline.org. ConserveOnline provides free workspaces for conservation teams to share materials and work in a virtual way with each other. And it also contains a library of conservation information that any user can search and populate with papers, reports, plans and other products of their work. Participating in this on-line conservation commons is one way to share your work and also to find information and others who might inform you ideas.

- **Share Within Your Own Organization** - Most conservation organizations (public and private) have their own newsletters, websites, magazines and other communication venues. These outlets may be specific to the practitioners in your organization, the members, the donors or any number of other groups that together make your organization work. Sharing a great story about what your team did backed up by real data, can be an inspiration to donors or management to further support not just your project but others like it. Figure 1 shows the cover of a summary report that one conservation program regularly compiles when they complete a CAP plan. In this report they extract the key information from their CAP process and display it as an attractive summary of the plan to use as a general communication tool for their project. By providing this summary, with beautiful photographs and colorful tables from their CAP workbook, to their fundraising staff for example, they provide that part of the organization's team with straightforward facts and sound bites that can be easily communicated with current or potential donors in an attractive and assessable format.

Figure 1: The San Miguel report is an example of a useful product for communicating the outcomes of a Conservation Action Plan. This report can be viewed in full at http://conserveonline.org/workspaces/cbdgateway/cap/resources/4/3/San_Miguel_CAP_document.pdf



Whatever or wherever you decide to share, remember that key to successfully having a significant impact is to:

1. Distill the innovation
2. Identify the audience that would benefit from the finding
3. Identify the venue most likely to actually reach that audience
4. Prepare the content in the form appropriate for that venue

Michael Tiemann, a vice president of Red Hat, a successful software company that relies on user innovation to develop new products, asserts that the rapid spread of innovative solutions requires a culture in which everyone commits to "learn it and pass it on." Whether or not you can commit to preparing your findings in the form that a select audience will find useful, we hope that you will consider taking one small step towards being a member of a learning culture and routinely share what you learn with a colleague or friend and urge them to "pass it on."

Opportunities for Innovation

- **Developing Simple Analytical Techniques** - The analysis step seems to present a large barrier to many project teams. All too often, teams collect large quantities of data that then never get analyzed or used. We need to develop simple tools that practitioners can use to conduct meaningful analyses.

- **Sharing Failures** - Although there is a lot of discussion about the need to share lessons about things that don't work, there is still a strong culture of hiding our failures. We need to find ways in which practitioners feel safe in sharing their experiences, both positive and negative.

Resources and Tools

Basic guidance and examples of analyzing, adapting, sharing and learning from conservation projects can be found in the following sources:

Conserveonline.org. Free on-line venue for working, sharing and learning about conservation.
http://conserveonline.org

Conservation Project Database is a searchable and editable web database containing core information from TNC's Conservation Projects worldwide.
http://conpro.tnc.org

Conservation Management Notes. Free online venue for reporting observations, discoveries, lessons, hints, tips, and mistakes to not be repeated for applied conservation project managers working in the Southeastern US.
http://conservationnotes.ifas.ufl.edu/

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