

# *Appendices*

- A. The Yale Seminar on Large Scale Conservation
- B. Making Conservation More Effective: A Guide for Decision Making
- C. Worksheets for Appraising and Improving Large Scale Conservation



## *Appendix A*

# The Yale Seminar on Large Scale Conservation

*Susan G. Clark*<sup>1</sup>

This volume addresses the environmental and human dimensions of large scale conservation problems. It is based on a graduate seminar offered at the Yale School of Forestry & Environmental Studies. The seminar and this volume promote a problem-oriented and interdisciplinary approach to the study and practice of large scale conservation. This appendix provides details about the seminar including the rationale and organization of the course, selected case studies by students, a description of guest presentations, student evaluations of the course and finally some general comments about benefits from five years of teaching the seminar.

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The seminar and this volume promote a problem-oriented and interdisciplinary approach to the study and practice of large scale conservation.

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### **THE SEMINAR**

In the Yale seminar “Large Scale Conservation: Integrating Science, Management, and Policy in the Common Interest,” we first gain an overview of the different approaches, their history, and content. As the semester progresses, we hear from diverse guest speakers involved in actual cases using one or more of these approaches, examine cases in the literature, and visit large scale initiatives and make assessments, as feasible. This is supported by readings, exercises, and much discussion. Throughout we are seeking a workable formula, a supporting doctrine, and appropriate symbols to represent these.

## Background

Collectively, large scale conservation efforts are a response to the growing awareness that many environmental problems can only be understood and addressed at large scales and in more basic ways (e.g., governance and constitutive changes). These initiatives can be considered *practice-based prototypes* or *innovations* to meet the goal of sustainability in terrestrial, aquatic, and marine arenas. As these innovations are applied, we can learn from them through appraisal of all aspects of their operations, both content and process dimensions. Methods and standards for such appraisals exist and can be applied to any large scale effort.

Many large scale conservation efforts are ambitious in scope. Some are mere extensions of business as usual only at bigger geographic, scientific, and bureaucratic scales. Each case is “large” on spatial, temporal, and complexity scales. Efforts are being undertaken or proposed at subnational, national, and international levels. Although each “formula” for large scale conservation shows a central tendency in approach, variation and overlap exist among the many models. This reflects the fact that initiatives are being developed in many different contexts, rest on very different beliefs (e.g., doctrine), and are represented symbolically for diverse promotional reasons. Each approach emphasizes somewhat different goals and methods, and engages different communities of practitioners, decision makers, and publics. Functionally, each initiative seeks to change or maintain value-institutions in their respective societies. Ideally, their goal is to improve human dignity for all people in healthy environments, but often this is not the case. Sometimes goals are much narrower and technical. Large scale conservation efforts stress different conventional outcomes, ranging from nature preservation and biodiversity conservation to poverty relief and rural development.

People and organizations use diverse “formulae,” based on different conceptions and standards. These include different mixes of the biological and/or social science disciplines, epistemologies (positivism or post-positivism), operating assumptions and means, typically in a multidisciplinary fashion. Few use a genuine interdisciplinary approach, despite rhetoric to the contrary. To be fully interdisciplinary requires critical thinking, problem solving, observation, management, and technical skills (see Clark and Wallace this volume). Finally, the success of any large scale efforts varies according to the standards of appraisal. Being clear on evaluative standards is essential to close feedback loops and actively learn at individual, organizational, and policy levels. The key to improving and learning is monitoring and finding lessons that can be adapted and applied in a never-ending process that upgrades management policy (this sequence is *prototyping* at its best). The thing to be upgraded in each case is the decision making process involved in large scale conservation. Therefore, knowing about decision making and its context is key to understanding formulas and improving on them practically.

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## Seminar

This seminar examines the conceptual, contextual, and practical basis for diverse efforts, compares and contrasts formulae, doctrine, and symbols being used (e.g., in science, management, policy), explores themes and skills (critical thinking, problem solving, decision making, organization, leadership, monitoring, learning, innovation), and surveys cases from three arenas (terrestrial, aquatic, and marine) for lessons. The seminar is genuinely interdisciplinary in an explicit, systematic sense (see Clark 2002).

The course is a mixed seminar and practicum. It takes a problem-oriented, contextual, and multi-method approach that offers students conceptual, practical, and professional benefits. It includes readings, lectures, discussions, workshops, exercises, guest speakers, individual and small-group assignments, workshop, papers, presentations, and a field trip. Extensive student participation is required throughout. It draws on a literature about professionalism, leadership, and effectiveness, including but not limited to:

Schon, D. A. 1987. Implications for improving professional education. Pp. 303-326 in *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. San Francisco, CA: Jossey Bass.

McCroskey, J., and S. D. Einbinder, eds. 1998. *Universities and communities: Remaking professional and interprofessional education for the next century*. Westport, CT: Praeger.

## Organization

The seminar is organized around specific goals, requirements, prerequisites, enrollment concerns, students, case studies, guest speakers, and as a capstone course. Students meet once or twice weekly with each other for discussion and with guest speakers. Readings for each week's discussion are essential. High interest, thought, and engagement with the topics are expected from all participants. A field trip is carried out most years, providing students with the opportunity to apply their knowledge and skills to a large scale conservation case. The seminar focuses on finding a formula that would be effective in practice, along with supporting grounding and philosophic basis.

## Goals

The seminar has scientific, analytic, and professional goals. First, students develop their broad scientific knowledge and the conceptual and practical tools and standards necessary to understand the management of natural resources, people, and policy process at large scales. Second, students develop their critical thinking and analytic skills so that they can analyze and articulate the formula being used in any initiative, critique its theoretical/conceptual basis and mode of application, and offer ways to improve it—conceptually, organizationally, and practically. Third, students develop their career skills of integrating scientific, management, and policy tasks that are

essential for becoming an effective professional today. The seminar's most exciting possibility is the leadership potential for those who will enter the work world armed with the ability to orient themselves quickly to a given program or initiative, make well-grounded assessments about the effectiveness of its approach and operation, and help with new approaches and practices that will increase the program's and their co-workers' chances for success.

### *Requirements*

Attend class. Read assignments. Engage the subjects, guests, and your fellow students actively and constructively. Engage in critical thinking at all times. Grades are based on (1) participation in all class exercises and discussion (20%), (2) a paper/book reports (oral and written, 2 page (20%), (3) a 20+ paper and presentation on a topic of your choice (40%), and (4) a personal journal with at least 20 substantial entries (20%). In 2009 the class also carried out a workshop over nine hours. Other years, different designs were used. Requirements were altered so as to best fit with students' unique requirements. Each year the class also contributes to an annotated bibliography on large scale conservation.

### *Prerequisites*

The more courses and experiences a student has, the better. A background in ecology, conservation biology, social ecology, economics, and policy sciences and related areas is desirable. Extensive and diverse work experience (local to international) is also desirable.

### *Enrollment*

The seminar was limited to 16 students and restricted to second year students, mid-career students, or those with permission of the instructor to accommodate those that have had substantial prior work experience or academic training in the area or because of other constraints can only take the course at this time.

### *Students*

Approximately 100 students have enrolled in the seminar over six years. They came from over 25 countries. Many graduates have gone on to work in organizations that are active in developing integrated science, management, and policy at large scales. This trend is expected to grow in the future. In order to be successful in their careers, students need a way to sort through the myriad approaches and learn to lead future initiatives. One key to sustainability is to accelerate progress toward that goal and that requires a special kind of strategic leadership and professionalism. That is why leadership skills, critical thinking, and problem solving are stressed in this seminar.

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### *Guest speakers*

In 2009, we heard from David Mattson (USGS, Yale, MIT) on scientific management vs. adaptive governance, Tanya Rosen (Yale) on grizzly bear management in Greater Yellowstone, Mike Gibeau (Parks Canada) on the evolution of his professional career in support of adaptive governance. Murray Rutherford (Simon Fraser, BC) talked about ecosystem management but is in favor of adaptive governance. Keeley Maxwell (Yale) spoke about the social context of parks and protected areas. Catherine Picard (Yale) addressed the symbols, formulas and doctrine that underpin transboundary conservation. Conrad Reining and Alice Chamberlin (Wildlands Project) told us of their eco- or bioregional planning efforts. David Cherney (Univ. Colorado) spoke on science for policy and policy for science and supported adaptive governance. Toddi Steelman (NC State University) spoke directly to adaptive governance based on her book and studies, and David Mattson spoke again on leadership (see attachment below). I spoke on large scale conservation efforts in support of elk management, and on other subjects.

### *Capstone course*

The seminar is a capstone course. A capstone course should meet certain criteria, if it is to adequately substitute for a master's project as the culminating independent work, including: (1) course should involve the synthesis and application of knowledge gained in previous courses, and should generally involve integration of material and perspectives from different disciplines; (2) the bulk of the work of the course should be a project (individual or group) that is focused on the application of knowledge to the solution of a specific, real-world problem; (3) there should be a balance in the course between the clinical experience of dealing with a specific case study and the learning of generalizable principles; and, (4) the project should result in a substantial, professional-quality, implementable document.

### *Student cases*

Students typically conduct an appraisal of a large scale case in which they are interested or have been involved. A list of student cases from 2004 to 2009 is provided below. Examples are drawn from an array of large scale conservation approaches including: ecosystem management, terrestrial and marine, transboundary, and integrated conservation and development efforts. Additional examples of single and multiple use and parks, protected areas and adaptive governance can be found in Chapters 4-6 of this volume as well as Brunner et al. (2002, 2005).

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**2004 Student Titles**

Andriamihaja, Misa. The Yellowstone to Yukon Initiative: Comments Following the Y2Y Workshop.

Cherney, David. Preparation to Understand Large Scale Conservation in the Field: A case of pronghorn migration in the Greater Yellowstone Ecosystem

Dempsey, Heather. Conflict in the Klamath River Basin, Oregon.

Egan, Elizabeth, and Petruska, Elizabeth. The Future of the Northern Forest: An Assessment of Large-Scale Conservation Efforts in the Northern Forest Region.

Kurauchi, Yuko. Review of the Case: Transboundary Approach of IUCN Asia in Mekong River Basin.

Malcolm, Trent. Functional Analysis of the Millennium Ecosystem Assessment.

McIntosh, Alex. National Audubon Society, National Park Service and The Wildlife Conservation Society: Using the Policy Process to Evaluate Summer 2004 Internship Opportunities

Cahusac, Cesar Moran. The Machu Picchu Historical Sanctuary: An International Tourism Icon in Peril?

Mortimer, Kim. Ecoregional Planning, The Nature Conservancy and a Case Study in Southern Florida.

Van Gorp, Alison. New Models of Governance: An Analysis of Envision Utah.

Mortimer, Kimberlee. Private Property and Water Policy: The Influence of Tradition on the Lake Okeechobee Basin.

**2005 Student Titles**

Franco, Oscar. Designing a Conservation Plan for the Huanacabamba Conservation Landscape, Northern Peru.

Lam, Hugo Sergio. Rethinking Bosawas, Nicaragua: Balancing Sustainable Livelihoods with Conservation.

**2006 Student Titles**

Albietz, Jessica, and Avery Anderson. An ecosystem approach to watershed management: a prescriptive paper for participatory water management in the Makira Forest Area, Madagascar.

Campbell, Richard. Transboundary protected areas: a dual mandate in the Carpathians.

- Clark, Gordon. "Conservation in the 21<sup>st</sup> century:" The Governance Approach and the Story of the Great Bear Rainforestry.
- Enuoh, Oliver. Appraising Integrated Conservation and Development Initiatives in Cross River National Park, South Eastern Nigeria.
- Gudbrandsson, Gudmundur. The Debate on Hydropower Development in the Thorsaver Nature Reserve in Iceland.
- Marriott, Susan. Large Marine Ecosystems: A Paradigm Shift Toward Success in the Gulf of Guinea.
- Middleton, Arthur. Single- and Multiple-use Natural Resource Management: A History of American Conservation.
- Muruetagoiena, Tamara. Transboundary Conservation in the European Union.
- Nordgren, Jim. Bio-Regional Planning in Metropolitan New York.
- Picard, Catherine. The Promise and Peril of Transboundary Conservation: An Appraisal of The Great Limpopo Transfrontier Park.
- Sanborn, Rebecca. Ecoregional Planning and the Green Infrastructure Approach.
- Watters, Rebecca. Parks and Protected Areas in Evolution: Mongolia and the Creation of a Protected Areas System.
- Westrum, Justin. Integrated Conservation and Development in Kerinci-Seblat National Park, Indonesia.
- Zarella, Christina. Ecosystem Management: Science, Society, Politics and the Idaho Wolf Reintroduction.

### **2007 Student Titles**

- Gordon, Bella. When a Protected Area is 80% Private Land: Creating Sustainable Livelihoods and Rational Resource Use in the Tepesomoto Reserve and La Botija Protected Area.
- Holmes, Patrick. Social and Decision Processes in Free-Market Environmentalism: The Case of the Defenders of Wildlife Predator Compensation Program.
- Knowles, Lucas. A New Direction for Alaska's Salmon Fishery Management.
- Moberg, Tara. Adaptive Governance: 15 Mile Reach Case Study: Ordinary, Governance and Constitutive Problems Identified through Implementing the Prescription.
- Oden, Matthew. Greenland: A Large Scale Resource and Global Change.
- Parisa, Zachary. Forest Management in Armenia.

Group project: Northern Continental Divide Ecosystem of the US and Canada:  
Grizzly Bear Management Analysis.

**2009 Student Titles**

Adams, Abigail. Yellowstone to Yukon Initiative (Y2Y): Making Connections,  
Naturally.

Alcott, Emily. The Appalachian Mountain Club and the Maine Woods Initiative.

Anderson, Christa. Livestock Predation in Northern Tanzania as Viewed by a Local  
NGO.

Blom, Benjamin. The Nicaragua and Honduras Corazon Transboundary Biosphere  
Reserve Project.

Burns, David. The Heart of Borneo Initiative: An Appraisal.

Caligiuri, Peter. Conservation, Community Forests and the Skyline Forest: A Central  
Oregon Case Study.

Carroll, Matthew. Wildland Fires and Communities.

Hoyle, Jennifer. Ecosystem Management of The Great Bear Rainforest: The Legend of  
the Spirit Bear Meets the Myth of Scientific Management.

Hughes, Kathy. Algonquin to Adirondack.

Hummon, Lisa. Case Study on the Mexican Wolf Reintroduction for Large Scale  
Conservation: A Paradigms Workshop.

Kamal, Sristi. Project Tiger: India.

Newsome, Darcy. The Mustangs of America's Frontier: Symbolism and the Pioneer  
Myth Confounding the Common Interest.

Peter-Contesse, Tristan. Northeast Shelf Ecosystem.

Rosen, Tatjana. Large-scale conservation in the Pamirian Knot: The proposed  
Transboundary Protected Area Agreement.

Siegal, Jessica. Case Study: Mesoamerican Biological Corridor- Formula, Doctrine and  
Symbols.

Wynn-Grant, Rae. Terrestrial Ecoregions: WWF's Approach to Large Scale  
Conservation.

*Benefits of the seminar*

Among the many benefits of this seminar is the opportunity for participants to get to know one another through an examination of the challenges of large-scale conservation (i.e., mixed ordinary, governance, and constitutive challenges), and exploration of management options. The guest speakers, readings, weekly assignments, discussions, projects, field trip, and workshop all provided valuable materials for discussion and debate. More specifically, participants examined approaches to large scale conservation using the research categories of myths or paradigms, formulas, doctrines (e.g. views of nature/human interactions, program/policy organization), and the symbols to represent people, nature, and efforts. We saw that NGOs, governments, and citizens use one or some combination of these categories to justify, organize, and implement large scale conservation efforts. These researchable categories are fundamental to understanding large scale conservation and were new to some of participants. Another benefit of the seminar is that it provided an opportunity for participants to practice and apply their analytic skills to a case study. The ability to identify and analyze formulae, doctrines, symbols, and related phenomena are vital to successful leadership and the career of any conservation professional.



## Appendix B

# Making Conservation More Effective: A Guide for Decision Making

*Susan G. Clark, Catherine Picard, Aaron Hohl<sup>1</sup>*

This appendix provides a comprehensive series of questions that can help people think constructively about organizing and making decisions in any large scale conservation program. The questions are designed to help everyone carry out successful programs, whether they are new programs that are being set up, or existing ones that are facing conflict or undergoing review.

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Answering these questions may appear to be an academic or theoretical exercise, but the questions are systematically presented to help people be as rational and practical in their work as possible. There are no single, correct answers. The purpose of this exercise is to encourage people to be deliberate, systematic, and thorough in examining themselves, the structure and functioning of a program, and the process of decision making. This exercise is applicable to a broad range of cases, and these questions are appropriate for scientists, managers, decision makers, citizens, researchers, investigative reporters, ranchers, advocates, and anyone else affected in any way by a management program. Discussing and comparing the diverse answers that result is a good way to begin building trust so that participants can delve into the causes and conditions of their problems and, ultimately, explore alternatives in a creative and inclusive way. This exercise can help people find ways to identify common interests, clarify their goals, and track progress toward achieving those goals. It can also help them make the kinds of adjustments needed to make the program more successful.

We encourage users of this guide to modify or adapt the questions to fit their particular situation. You can refer back to the text to help you think about and use these questions.

### **I. How well is the overall conservation program working?**

- (1) How would you characterize an ideal large scale conservation program? What features would it have? Be specific.
- (2) How does the current program function? Describe its strengths and weaknesses.
- (3) What are the differences between 1 and 2? Again, be specific.
- (4) Explain the differences. In other words, what factors are causing or contributing to differences between the ideal program and the actual program? Such factors might include a lack of clear or realistic goals, competing estimations of the problem, an insufficient program structure for a large scale effort, weak leadership, lack of skills on the part of the professionals involved, the wrong equipment, or too few resources. Try to explain the program's functioning in terms of the people involved, the decision-making process, and similar "systems" variables.
- (5) Identify possible means that participants could use to minimize these differences or address the problems that you have identified. That is, how can you, as a group, move the current effort toward the ideal and close the gap between how the program currently operates and how it should operate? Be creative. Don't settle on the first idea that comes to mind, but let the group spend a long time fully discussing and evaluating lots of ideas. To answer this question, you need to refer to #4 above. The suggested alternatives should be geared specifically to the variables or problems (e.g., changes goals, decision-making process, leaders, or some other variable). Evaluate each suggestion realistically. Explicitly, how will each alternative solve the program's problems?
- (6) Which of the suggestions or alternatives developed under #5 above are most promising? Ask which problems will be solved by which suggested change. Will the proposed changes improve the program, or might they create other, unintended consequences? How will you measure progress if you implement the suggestions?

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How does the current program function? Describe its strengths and weaknesses.

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### **II. How are people, groups, and organizations interacting with one another within the existing program?**

Get data on these matters; do not rely on casual opinion. Informed observation is important in answering all these questions.

- (1) Who are the key participants (individuals and organizations, official or unofficial) in the program? Who is not participating? Who should be involved? What is preventing people or organizations from participating?
- (2) What are the perspectives, goals, assumptions, expectations and values of participants in the program? Getting information to answer this question can be difficult, but it is important.
- (3) In what situations or settings do participants interact (science, management, media, courts, other)? Is there a way to change the patterns of interaction for the better? How do participants manage their interaction across a large and dispersed landscape (if relevant)?
- (4) What strategies do participants favor or use to get their way? In an open democracy, persuasive strategies are more sustainable and often more effective than coercive ones. Education, diplomacy, and economics can all be used persuasively. Sometimes coercion seems justified, but it is often destructive in the long run.
- (5) What are the short-term outcomes and long-term effects of these interactions on the people involved in the program, the management institutions and decision-making processes, and public perceptions? Finally what the short term outcomes and long term effects for wildlife, humans and large scale ecosystems? These are important questions: it is possible for example to save carnivores across a large scale ecosystem in the short term, but doing so may alienate the public, make institutions more rigid and defensive, or create other problems so that long-term conservation becomes impossible.

### III. How well are decisions being made?

This set of questions clarifies the standards that we use for making judgments about the adequacy of the program and each of the human, decision, and technical matters involved. Is your program comprehensive, yet targeted? Is it creative in finding facts? Is it open to everyone who has something to contribute? Is it realistic and rational (does it meet standards of procedural rationality)? Is it integrative? Is it effective – that is, does it work in practice? Is it timely? Is it constructive, unbiased, and independent of special interests? Is it economical? Is it flexible? Is it responsible and honest, and does it have a reputation for honesty? In what ways does your program meet these standards, and where does it fall short? Where are the data to support your evaluation?

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This set of questions clarifies the standards that we use for making judgments about the adequacy of the program and each of the human, decision, and technical matters involved.

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- (1) Describe an ideal example of people gathering, processing, and sharing information. Does the current program this ideal? In what ways have research and the transfer and application of information been ideal? In what ways have they not? Is information being collected on all the relevant components of the large conservation program and from all affected people? (2) Is data collection balanced and diverse (for example quantitative and qualitative)?
- (3) How open is the discussion about the meaning or relevance of information? By what standards are meaning and relevance judged? Which participants (official or unofficial) urge which courses of action, based on what information, for what purposes? Are people keeping common interests in the forefront, or are special interests trying to subvert the process of collecting, analyzing, and interpreting information?
- (4) Are the guidelines, policies, or plans that result from the preceding research and debate adequate to conserve and manage species across a large landscape? Are they efficient, effective, and equitable? What is guideline, or plan for a conservation program? Does the current program approximate the ideal?
- (5) What are some ways to implement both national legislative policies and more local management plans and guidelines across a large landscape? What are the features of an organization ideally suited to carry out this implementation? In what ways have the agencies that are currently implementing programs and management activities performed well? In what ways have they not?
- (6) What would be the best ways to appraise or evaluate implementation of the program as well as the entire decision-making process that led up to implementation? In what ways has appraisal of the program been done well? In what ways has it not been done well?
- (7) Has the present approach to large scale conservation led to success? By what standards do you define success? What factors should be considered in judging if large scale systems are well managed, if affected people have been treated fairly, if institutions have been strengthened and trust in them increased? How should policies and related management be changed as needed? What should happen in terms of policy and management after the present policy ends to ensure future conservation and long-term coexistence? Why?

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This set of questions clarifies the standards that we use for making judgments about the adequacy of the program and each of the human, decision, and technical matters involved.

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#### IV. What is your own standpoint?

We all have different personalities, values, philosophies, education, experiences, and loyalties that give each of us a unique standpoint or viewing angle on the world and the program of interest. There is no such thing as a truly “neutral” or objective” person or organization, although most of us aspire to be as bias-free as possible. How we see people and explain their behavior (including our own), how we go about solving problems, and how we find personal and professional meaning in our lives are all directly affected by our standpoints. Being aware of your own and others’ standpoints is essential to good analysis and problem solving. Knowing the answers to these questions may tell you about unconscious biases that you or others have.

- (1) What roles do you and other people play in the conservation program? Are you a scientist, a technician, manager, advocate, advisor, decision maker, scholar, facilitator, observer, analyst, or concerned citizen, or do you play another role?
- (2) What problem-solving tasks do you carry out when performing your roles?
- (3) Do you help set goals, determine trends, analyze the conditions that underlie that trends, project trends into the future, or invent and evaluate alternatives?
- (4) What factors shape how you carry out your role and tasks—culture, personal interests, personality type, disciplinary training, organizational affiliation, and previous experience?
- (5) Which roles or problem-solving approaches are you attracted to large scale conservation in the first place? Which approaches or roles are you not interested in? Why?

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How we see people and explain their behavior (including our own), how we go about solving problems, and how we find personal and professional meaning in our lives are all directly affected by our standpoints.

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#### Some final thoughts

Our shared interest is in finding more effective and sustainable ways for conducting large scale conservation—whether it is international transboundary peace park, an ecosystem management plan or a community watershed taskforce. This task will likely continue to be a problematic if past trends continue without any substantive or procedural changes. One conclusion seems obvious: if we—the extended community of people concerned about large scale conservation—persist in our old perspectives and practices, unproductive conflict will remain with us. Improving programs and processes will require that people and institutions shift gears conceptually and practically.

We perceive three possible outcomes in any large scale conservation effort. In the win-lose situation, a “solution” is found when the most powerful side wins at the expense of the losers. This seems to be the way that large scale conservation typically unfolds. In the compromise situation, contenders are clear about what they stand to gain or lose, and they work out a deal that minimizes deprivations. Compromise is, for example, part of most carnivore programs in Greater Yellowstone Ecosystem today. Integrative, win-win solutions are achieved when a new framework of cooperation is devised and adopted. Integrated solutions go well beyond winner versus loser, or patchwork quilt compromises. They involve genuine innovation that redefines the context and offers participants the possibility of satisfying their underlying demands without threatening participants’ values and expectations. New perspectives and practices will emerge from integrated solutions.

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Integrative, win-win solutions are achieved when a new framework of cooperation is devised and adopted.

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## Appendix C

# Worksheets for Appraising and Improving Large Scale Conservation

Susan G. Clark, Catherine Picard, Darcy Newsome, Aaron Hohl<sup>1</sup>

### Worksheet 1: A Comparison of Formula, Symbols, Doctrine

Paradigm (Framework, Worldview, Myth)	Single/Multiple Use Approach	Parks & Protected Areas Approach	Ecosystem Manage. Approach	Integrated Conserv. & Develop. Approach	Bio(Eco)-Regional Planning Approach	Trans-Boundary Approach	Governance Approach
Formula (Operation Guidelines—“How To?”)							
Symbols (Representations, “Y2Y,” GIS Maps, Logos, Tee Shirts, Etc”)							
Doctrine (Underlying Beliefs, Assumptions About World, People, Nature, Etc)							

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and amhohl@yahoo.com.

### What is the formula, recipe or guide being used?

1. **Formula** is the recipe, rules, guidelines, or program for being successful. Describe in terms of steps, methods, details how to be successful. The formula may not be well articulated and/or it may lie buried in the history and operations of the effort. Detail and cite examples.
2. **Symbols** are the popular manifestations of the formula. These include stories, actions (deeds), words, uniforms, logos, flags and the like. What symbols are used in the case? For example, “Y2Y” is a symbol of the

Yellowstone to Yukon initiative. What do they symbolize? List, detail, and cite examples.

3. **Doctrines** are the basic premises, beliefs, assumptions or philosophies that are described in abstract terms to support the formula. Doctrine functions to shape and continually reaffirm the perspectives of people, organizations, society as they carry out their lives and work. The doctrine is sometimes hard to find or see and describe.

## Worksheet 2: Problem Orientation

	Ordinary Problems	Governance Problems	Constitutive problems
Single and Multiple Use			
Parks & Protected Areas			
Ecosystem Management			
Integrated Conservation & Development			
Ecoregional Planning			
Transboundary Conservation			
Adaptive Governance			

**Ordinary problems:** These are easily observed, quantifiable, technical problems that are observed on a day-to-day basis. Examples include poaching, habitat fragmentation, lack or excessive bureaucracy.

**Governance problems:** These are problems related to the decision process. Examples include the data collection and dissemination, participation in the debate about preferred alternatives, the selection of policy, implementation (including the use of sanctions), evaluation and termination of a policy or project.

**Constitutive problems:** These underlying problems have to do with the rules for making the rules. For example who gets to make decisions and set policy and why? Constitutive problems can be difficult to identify because they buried deep in doctrine and norms, but they can be seen by observing long-term patterns in decision making.

## Worksheet 3: Approaches to Large-Scale Conservation Relative to Content and Process Dimensions

	<b>Content (biophysical features)</b>	<b>Social process</b>	<b>Decision process</b>
<b>Single and Multiple Use</b>			
<b>Parks &amp; Protected Areas</b>			
<b>Ecosystem Management</b>			
<b>Integrated Conservation &amp; Development</b>			
<b>Ecoregional Planning</b>			
<b>Transboundary Conservation</b>			
<b>Adaptive Governance</b>			

**WORKSHEET 4: PROBLEM ORIENTATION****Goals:** *What outcomes are sought?*

Content (substance):

Procedure (process):

**Problem(s):** *What stands in the way of achieving goals?*

1. Situation (content or biophysical problems)?
2. Human (social process problems)?
3. Decision making (decision process problems)?

Overall problem definition? Describe/spell out clearly, realistically

**Trends** (*historic standpoint*): *What has happened In terms of problems 1, 2, 3 above?***Conditions** (*scientific standpoint*): *Why? Explanation in terms of problems 1, 2, 3 above.***Projections** (*future standpoint*): *What is likely to happen in terms of problems 1, 2, 3 above?***Alternatives** (*Options/recommendations*) (*practical standpoint*): *What can be done about problems given trends, conditions, and projections?*

Remember that solutions come about by changing conditions that affect future trends.

Option #1: Status Quo—do nothing

Option #2: Some change in conditions? Detail.

Option #3: Something other than two above? Detail.

*Justify your selected option.*

**WORKSHEET 5: CONCEPTUAL OUTLINE FOR A CASE STUDY: DECISION PROCESS**

This outline views a decision process as a means for clarifying and securing a community's common interest. There are many factors that hinder finding the common interest in large scale conservation including, but not limited to pluralistic interests, special interests, bounded rationality, ideology, incomplete and distorted information, and situations that are open to internal and external surprises. Some decision process fails to realize the common interest just as some programs fail to achieve their goals. This outline for appraising conservation programs and finding ways to improve them was modified from a general outline prepared by Professor Ronald D. Brunner, Center of Public Policy Research, University of Colorado, Boulder, Colorado 80309 and successfully used in a wide variety of program appraisals.

**I. Introduction**

- A. Focus. Describe the case and its significance.
- B. Purpose. Clarify the purpose(s) of your study (e.g., practical, theoretical, and/or comparative).
- C. Overview of what follows in body of paper.
- D. Your standpoint and methods

**II. Policy (decision) appraisal**

- A. Goals. What are the policy goals that are openly proclaimed? These formal goals are usually the best working approximation to the common interest and the easiest for us to use and defend.
- B. Persistent problem(s). Problems are discrepancies between goals and actual trends in outcomes. Problems exist over time despite promises to correct them.
- C. Diagnosis. Malfunction in decision process (any or all functions) are likely to be among the formal and effective factors responsible for persistent problems. Identify them so that they can be addressed.

**III. Decision process appraisal**

- A. Map the decision process. What are the typical outcomes of each function? How are outcomes typically arrived?

- B. Identify malfunctions. Look at each decision function for malfunctions.
- C. Diagnosis. What factors are formally or effectively responsible for any significant malfunctions – participants, perspectives, situations, values, strategies, outcomes, and effects?

#### **IV. Correcting the process**

- A. Strategy. Who should intervene in the process, when where, how, and for what specific purposes in order to improve the policy / program's outcomes through improvements in the decision process?
- B. Explanations. Why is the recommended strategy expected to work if implemented? This is a case-specific theory to guide the reform effort.
- C. Requirements. What resources are required to implement the strategy?

#### **V. Conclusions**

- A. Contribution. Review what this case study has added to knowledge and/or practice in the conservation area.
- B. Significance. Consider the significance of the results in broader political and social context.



## Biosketches of Authors

**Emily Alcott** is a Master of Environmental Management Candidate at the Yale School of Forestry & Environmental Studies. Her interests include water resource management, soil conservation, and the policy sciences. She has experience in water quality research, watershed restoration, and environmental education.

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**Susan G. Clark** is Joseph F. Cullman 3rd Professor (adjunct) of Wildlife Ecology and Policy Sciences in Forestry & Environmental Studies and Fellow in the Institution for Social and Policy Studies at Yale. Her interests include interdisciplinary problem solving, decision making, governance, policy process, leadership, conservation biology, organization theory and management, natural resources policy, and the policy sciences. She has experience in the NGO community, academia, and field, nationally, and internationally. She wrote *Ensuring Greater Yellowstone's Future: Choices for Leaders and Citizens* (Yale Press) in 2008. Current work is on large carnivore conservation (e.g., polar bear/native people coexistence in Canada) and other projects.

**Aaron Hohl** is a recent PhD graduate of the Yale School of Forestry & Environmental Studies. His dissertation, *Decision Support Systems and Monitoring for Sustainable Forestry* (2009), analyzed social and biophysical dimensions of forest sustainability. His research interests include ecological modeling, forest landscape management, decision support systems, and interdisciplinary problem solving. He currently lives in northern California, where he is a lecturer at Humboldt State University.

**Jennifer Hoyle** is a candidate for a Master of Environmental Management degree at the Yale School of Forestry & Environmental Studies. Her current coursework

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**Sristi Kamal** is a graduate in Zoology and holds a post-graduate degree in Environmental Studies. She is currently working with ATREE (Ashoka Trust for Research in Ecology and Environment) in Darjeeling, India. Her interests include biodiversity conservation, natural resource management, and enhancement of livelihoods and ecological services for local communities in protected areas. She has worked with NGOs in India and has experience working in the field. She wrote a paper on Vertebrate Fauna of Kanjia Lake, Orissa, based on her field work, which was published in a national journal of India in 2009. She is currently working on community empowerment and monitoring impacts of human intervention on biodiversity in the Eastern Himalayas.

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**David Mattson** is a Research Wildlife Biologist and Station Leader with the USGS Southwest Biological Science Center, Lecturer and Visiting Scientist at the Yale School of Forestry & Environmental Studies, and Western Field Director of the MIT-USGS Science Impact Collaborative. He has studied large carnivores for the last 30 years, focused on puma ecology and human-puma interactions in Arizona and behavioral ecology of grizzly bears in the Yellowstone ecosystem of Wyoming, Montana, and Idaho. His interest range across leadership issues, organization design and behavior, and policy matters.

**Alex McIntosh** is Director of Corporate Citizenship for Nestlé Waters North America (NWNNA). In creating this role and through initiatives completed to date, he acts as a catalyst to imbed corporate citizenship strategy into NWNNA's operations, particularly: 1) environmental sustainability; 2) community & stakeholder engagement; and 3) reporting & transparency. Prior to Nestlé Waters, he helped lead conservation efforts at a field office of The Nature Conservancy, and published a field guide to birds. Alex earned his B.A. from Duke, and a master's degree from the Yale School of Forestry & Environmental Studies. Alex and his partner designed and live in a green condominium in Connecticut.

**Christopher Meaney** is currently a Marine Habitat Resource Specialist with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service. His efforts focus on the implementation of the essential fish habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act, integrating impacts of climate change into habitat protection policies, aquaculture policy, and approaches to ecosystem based management. Over the course of his career, he has worked closely with government and non-government organizations on issues associated with both land-based and coastal and marine natural resource management, policy, and governance issues. He has a Bachelor of Science from the University of New Hampshire, and a Master of Environmental Management from the Yale School of Forestry & Environmental Studies, and was named a John A. Knauss Marine Policy Fellow in 2007.

**Arthur Middleton** is a PhD student in the Cooperative Fish and Wildlife Research Unit and the Program in Ecology at the University of Wyoming. He is currently conducting research on elk population and behavior dynamics and elk-wolf interactions in northwest Wyoming. Currently his focus is on large mammal ecology and predator-prey interactions, and he also maintains interests in relationships among ecological science, management, and conservation policy. He graduated in 2007 from the Yale School of Forestry & Environmental Studies with a Master of Environmental Management, and previously worked as a raptor biologist and falconer.

**Kim Mortimer** received her bachelor's degree in Visual Arts and Environmental Studies from Eckerd College in 2002 and her master degree in Environmental Management from the Yale School of Forestry & Environmental Studies in 2004. She also attended the Ecumenical Water Network–School on Water in Geneva, Switzerland in 2008. Her research focuses on the value of water as both a resource and human right from the religious and private lands perspectives, exploring how these values influence water policy decisions. She currently works for the Florida Fish and Wildlife Conservation Commission as a Regional Coordinator of private lands conservation in southwest Florida.

**Darcy Newsome** earned her Master of Environmental Management from the Yale School of Forestry & Environmental Studies in May 2009. Her work has included nonprofit conservation work as well as federal contracting. She has written on conservation-related topics including the need for a broader base of the conservation movement, as well as on programs to protect open spaces by targeting growth into urban centers. Her original research and analysis have influenced conservation and land use policy decisions at the local and state level. Her interests include large scale conservation, smart growth, and land use.

**Tristan Peter-Contesse** earned his Master of Environmental Management from the Yale School of Forestry & Environmental Studies in May 2009. He is currently an ORISE Fellow with the Environmental Protection Agency in Washington, DC. His interests include collaborative conservation, interdisciplinary approaches to

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**Catherine Picard** is a doctoral candidate at the Yale School of Forestry & Environmental Studies. Her research is focused on transboundary and large scale conservation in sub Saharan Africa. Her dissertation is an appraisal of the design, implementation and impact of the Selous Niassa Wildlife Corridor located on the Tanzanian-Mozambique border. Prior to Yale, she spent five years with the John D. and Catherine T. MacArthur Foundation, and has lived and worked in Rwanda, Senegal, Swaziland, Namibia and South Africa. She has a B.S. from the University of California at Berkeley, and a M.S. from the University of Michigan, Ann Arbor.

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**Jessica Siegal** is completing the final year of her Master degree in Environmental Management at the Yale School of Forestry & Environmental Studies. Her academic focus is sustainable agriculture and local food systems, with an emphasis on farmland conservation and small-farm economics. Prior to attending Yale, she worked for the Rainforest Alliance, an international conservation organization, as their major gifts officer. Rainforest Alliance develops and promotes best management practices for sustainable agriculture, forestry and tourism in over 60 countries. She holds a bachelors degree in political science from Boston University.

**Colleen Sullivan** is a 2008 graduate of the Yale School of Forestry & Environmental Studies and has a B.S. in Environmental Studies from the University of Vermont, School of Natural Resources. After college, she spent five years teaching ecological concepts at a variety of environmental education facilities. While at Yale, she learned to use an interdisciplinary approach to manage conservation issues. Her work included a stint as a Tropical Resources Institute Fellow, researching institutional strategic alliances for conservation in the Galapagos Islands. She also worked locally with groups including the Urban Resources Initiative and produced, "Invasive Plants in Beaver Ponds Park, New Haven, Connecticut: Origins, Impacts, and Management Options."

**Richard L. Wallace** is associate professor and chair of the Environmental Studies Program at Ursinus College, where he teaches interdisciplinary courses on problem solving, biodiversity conservation, and food systems. He is a former staff member of the U.S. Marine Mammal Commission, where he analyzed species and habitat

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**Rae Wynn-Grant** is a 2010 Candidate for the Master of Environmental Science at the Yale School of Forestry & Environmental Studies. Her focus areas are wildlife ecology, East African wildlife management, human-wildlife conflict, and community based natural resource management. She has work experience in the government sector as well as with NGOs and plans to continue a career in addressing human-wildlife conflict globally.

