

# **Large Scale Conservation**

**Integrating Science, Management, and Policy  
in the Common Interest**

Susan G. Clark, Aaron Hohl, Catherine Picard, and  
Darcy Newsome, EDITORS



# Table of Contents

## Acknowledgments

## Preface

### *Part I: Overview*

<i>Chapter 1</i>	3
<b>Large Scale Conservation in the Common Interest: An Overview</b>	
Susan G. Clark, Catherine Picard, and Aaron Hohl	
<i>Chapter 2</i>	17
<b>Pursuing Large Scale Conservation in the Common Interest: A Perspective</b>	
Susan G. Clark, Aaron Hohl, and Catherine Picard	
<i>Chapter 3</i>	33
<b>Approaches to Large Scale Conservation: A Survey</b>	
Aaron Hohl, Catherine Picard, Susan G. Clark, and Arthur Middleton	

### *Part II: Cases*

<i>Chapter 4</i>	59
<b>Large Scale Conservation in the Connecticut River Watershed: Moving from Competition/Fragmentation to Collaboration/Integration</b>	
David Cherney, Yuko Kurauchi, Alex McIntosh, and Kim Mortimer	
<i>Chapter 5</i>	79
<b>Water Management on the Wind River Indian Reservation, Wyoming: A Rapid Assessment and Recommendations</b>	
Christopher Meaney, Colleen Sullivan, and Susan G. Clark	
<i>Chapter 6</i>	99
<b>Large Scale Conservation in the Greater Yellowstone Ecosystem: A Field Assessment and Recommendations</b>	
Darcy Newsome, Jennifer Hoyle, Tanya Rosen, Sristi Kamal, Rae Wynn-Grant, Christa Anderson, Emily Alcott, and Jessica Siegal	

*Part III: Education and Leadership*

<i>Chapter 7</i>	127
<b>A Workshop on Large Scale Conservation: An Exercise in Group Problem Solving and Leadership</b>	
Tristan Peter-Contesse, Susan G. Clark, and David J. Mattson	
<i>Chapter 8</i>	151
<b>Best Practices: The Concept, An Assessment, and Recommendations</b>	
Aaron Hohl and Susan G. Clark	
<i>Chapter 9</i>	171
<b>Learning Interdisciplinary Problem Solving Skills and Leadership: A Comparison of Four Designs</b>	
Susan G. Clark and Richard L. Wallace	
 <i>Conclusions</i>	
<i>Chapter 10</i>	209
<b>Large Scale Conservation in the Common Interest: Conclusions and Recommendations</b>	
Aaron Hohl, Susan G. Clark, Catherine Picard, and Darcy Newsome	
 <i>Appendices</i>	
<b>A. The Yale Seminar on Large-Scale Conservation</b>	215
Tristan J. Peter-Contesse, Susan G. Clark, and David J. Mattson	
<b>B. Making Conservation More Effective: A Guide for Decision Making</b>	225
Susan G. Clark, Aaron Hohl, Catherine Picard	
<b>C. Worksheets for Appraising and Improving Large Scale Conservation</b>	231
Susan G. Clark and Catherine Picard	
 <b>Biosketches of authors</b>	239

## Acknowledgments

We owe a deep thanks to the many students and guest speakers who took part in the Yale graduate seminar on which this volume is based. We have learned a great deal from them. We have also had the opportunity to learn from fieldwork and academic experiences across a wide range of situations in over a dozen countries. In this, we appreciate the professionals, officials, and citizens in the numerous large (and small) scale conservation programs that one or another of us has been part of, or visited, in Africa, Europe, Asia, Australia, North America, and South America over the last 40 years. We thank our colleagues at the Yale School of Forestry & Environmental Studies and elsewhere, including Christina M. Cromley, David Cherney, Quint Newcomer, Richard P. Reading, Murray Rutherford, Richard L. Wallace, Seth Wilson, Doug Clark, David J. Mattson, Steve Primm, Jason Wilmot, and Mike Gibeau. Emily Biesecker helped in the production of this volume. We also have benefited from financial and institutional support from many sources, particularly the Yale School of Forestry & Environmental Studies and the Northern Rockies Conservation Cooperative, Jackson, Wyoming.

## Preface

Achieving environmental sustainability at large scales has proven difficult. Ideally, the goal of large scale conservation should be to improve “human dignity” for all people so that we can live in and enjoy healthy, sustainable environments. However, data show that many people live in poverty and indignity, and many species, ecosystems, and environmental systems are currently overused, stressed, or degraded. Additionally, our professional systems and institutions for science, management, and policy are not presently designed to address conservation at large scales, so learning and change have been slow or nonexistent. Consequently, gains to be had in human dignity and sustainability require rapid learning and improvement. Because of the limitations of and an over-reliance on the principles—formula and doctrine—of scientific management, bureaucratic systems, and techno-rational expertise, both the number and scope of ordinary, governance, and constitutive problems are growing across the globe. Until we achieve environmental sustainability, human dignity will remain only an aspiration for billions of humans. Finally, without changes in the professions and our management and policy institutions, many more life forms may be consigned to extinction at the hands of humans.

There are numerous approaches to large scale conservation, including single and multiple use strategies, parks and protected areas, eco-regional approaches, integrated conservation and development projects, transboundary efforts, community-based initiatives, and adaptive governance approaches. Each approach is premised on a core set of basic beliefs (doctrines) about nature, resources, and humans, and implemented by a set of operating principles or formulas. Given the human dignity and sustainability goal of large scale conservation, not all approaches are equally useful or practical. It is possible to transition from current approaches, which are bounded and conventional, to a more sustainable, cooperative, and effective formula. The Yale School of Forestry & Environmental Studies graduate seminar on which this volume is based examines this diversity of formulas and doctrines, and harvests practical lessons in order to upgrade the practice of large scale conservation (Appendix A, this volume). It encourages learning and improvement through enhanced problem solving and leadership (Chapter 9, this volume).

Different approaches to large scale conservation reflect different origins, interests of originators, and contexts. Each approach emphasizes somewhat distinct goals and methods, and mobilizes different communities of practitioners, decision makers, and publics. Each approach stresses different conventional outcomes, such as nature

preservation, human sustainability, or poverty relief. Functionally, each initiative attempts to change decision making processes and value-institutions to favor its prescription (and doctrine). Being clear on goals and evaluative standards for particular projects is essential in order to close feedback loops and actively learn in systematic ways. Ultimately, upgrading the decision process is at the heart of all successful large scale conservation efforts. Consequently, *understanding how decision (governance) processes work and how to improve them is essential to successful leadership and problem solving*. This is the practice-based prototyping approach that is emphasized in the Yale seminar. Anyone can learn to use it. This volume will help you become knowledgeable and skilled in the pursuit of sustainable large scale conservation and human dignity.

This volume is intended for a broad audience, including experienced field-based practitioners, students new to the large scale conservation subject, policy makers who set strategic direction, and organizations managing large scale landscapes. Professors can use it to design courses, and practitioners will find it helpful in leading workshops and projects. Much of the volume is focused on the knowledge, skills, and leadership needed to improve large scale conservation. As such, the ideas and perspectives introduced here can be put in practice immediately.

This publication is divided into three parts, each with three papers, a conclusion, and appendices. Part I is especially relevant for practitioners and provides an overview of our theory and methodology. Chapter 1 offers a problem-oriented overview of large scale conservation in the common interest, defining key terms, and making recommendations. Chapter 2 presents our perspective focusing on a problem typology, a theory of human behavior (people seeking values through institutions using and affecting resources), and our conclusions. Chapter 3 surveys seven major approaches to large scale conservation. We recommend the adaptive governance approach.

Practitioners and students will be interested in the application of our approach, which is illustrated by the three case studies in Part II. All three cases were rapid appraisals by student teams. Cases were informed by Part I, but are not a literal follow-on from the theory in Part I. Cases include the Connecticut River watershed in New England, the Wind River Indian Reservation in central Wyoming, and the Greater Yellowstone Ecosystem in the Rocky Mountains. Other students in the Yale course over the years have looked at large scale efforts worldwide (see Appendix A). All three chapters make recommendations in the common interest.

Practitioners and teachers are directed to Part III, which describes strategies for group problem solving, analysis, and practice-based learning (including a specific chapter on best practices), as well as how to foster interdisciplinary leadership and problem solving in the service of large scale conservation and in other projects in the common interest. All are general in nature and focus on education. Chapter 7 is based on a class learning exercise using a workshop model to clarify best practices for large scale conservation. The workshop used a variety of methods helpful to practitioners anywhere. Chapter 8, on best practices, lays out the concept and recommendations on how to find and use best practices in the context of large scale conservation. Chapter

9 is a paper on learning interdisciplinary, integrative problem solving and leadership skills. These skills are highly useful in diverse conservation challenges and cases. Four venues are described for learning these skills. Recommendations are made to help people be successful.

The conclusion is short and offers final words on large scale conservation in the common interest. Three appendices describe the Yale seminar on large scale conservation, provide a guide for effective decision making in conservation, and offer worksheets for appraising and improving large scale conservation.

Our perspective in this volume differs from many publications in that we move beyond conventional typologies and problem definitions to focus on the contextual, foundational, and practical elements of large scale conservation, including the formulas, doctrines, and symbols that are always used, regardless of the case. We seek to capture diverse experiences in large scale conservation no matter what form they take—from single and multiple use to transboundary and ecoregional planning. Our volume is intended to help readers move beyond existing paradigms towards a more integrated, comprehensive, effective approach that seeks human dignity and sustainability for all.

Susan G. Clark, Aaron Hohl, Catherine Picard, and Darcy Newsome, Editors