

Commons Protected For or From the People

Co-Management in the Swedish Mountain
Region?

Anna Zachrisson



Department of Political Science
SE-901 87 Umeå, Sweden
Umeå 2009

Copyright©Anna Zachrisson

ISBN: 978-91-7264-889-0

ISSN: 0349-0831

Department of Political Science, Research Report 2009:3

Cover: Photos by Anders Esselin, Mountain Mistra

Printed by: Print & Media, Umeå university, 2007438

Umeå, Sweden 2009

To My Daughter Oumou

Table of Contents

| | |
|--|------------|
| List of Papers | iii |
| Abstract | v |
| Acknowledgments | vii |
| Abbreviations | ix |
| | |
| Why co-manage protected areas? | 1 |
| Purpose of the study | 4 |
| Protected areas – a common-pool resource (?)..... | 5 |
| Organization of the thesis | 7 |
| | |
| Tragedy or comedy – always drama | 9 |
| Panaceas for nature conservation | 9 |
| Co-management to bridge and pool | 12 |
| Understudied issues | 17 |
| | |
| Analytical approach and research design | 21 |
| The Institutional Analysis and Development Framework | 21 |
| Quantitative survey analysis | 24 |
| Comparative case studies | 25 |
| | |
| Co-management efforts in Sweden | 29 |
| The history of Swedish nature conservation policy | 29 |
| Is nature conservation at a crossroads?..... | 33 |
| Today’s institutional framework | 35 |
| Overview of appended papers | 37 |
| | |
| Dynamics of management institutions | 44 |
| Co-management process principles | 45 |
| Institutional change through protected areas | 55 |
| Policy implications | 56 |
| | |
| References | 59 |

List of Papers

This thesis is based on the work described in the following papers, which are referred to by the corresponding Roman numerals in the text:

- Paper I Zachrisson, A. (2008). Who should manage protected areas in the Swedish mountain region? A survey approach to co-management. *Journal of Environmental Management* 87:154-164.
- Paper II Zachrisson, A. (2010). Deliberative democracy and co-management of natural resources: snowmobile regulation in Western Sweden. *International Journal of the Commons* [online], 4(1). Available from: <http://www.thecommonsjournal.org/index.php/ijc/article/view/116/91>.*
- Paper III Zachrisson, A. (2009). The designation of Fulufjället National Park: efficient co-management through downward accountability? *Local Environment* 14(3):259-271.
- Paper IV Zachrisson, A. (2009). Conflict resolution mechanisms in co-management: The Laponia World Heritage. Submitted to *Environmental Politics*.**

Papers I and III are reproduced in the paper copy with the permission of the publishers; Copyright 2007 Elsevier Ltd and 2009 Taylor and Francis Group.

* This paper was awarded "Best Ph.D. Student Paper" at the 12th International Symposium on Society and Natural Resources (ISSRM) in Vancouver, Canada, 2006.

** This paper was awarded "Best Paper" at the annual meeting of the Swedish Political Science Association (SWEPSA) in Örebro, Sweden, 2009.

Abstract

Protected areas have so far been the primary means to conserve biodiversity, an increasingly important environmental issue, but proposals to establish protected areas are often met by local resistance due to fears that user rights will be severely restrained. Nature conservation traditionally aims to preserve an ideal state of nature, in which interference by people is minimized through a number of regulations, and where central authorities are in charge. Increasingly, however, conservation policy emphasizes participation. Protected area designations are about institutional change where customary and legal rights to use and manage certain resources are renegotiated. Protected areas can be considered as multi-use and multi-level commons that may benefit from co-management where the state cooperates with user groups, municipalities, research institutions and others. This thesis analyzes the establishment phase of the co-management of multi-level, multi-use commons in order to characterize design principles common to the emergence of co-management processes which improve institutional robustness.

The thesis is based on a quantitative survey study and a small-n comparative case study. Paper I compares national, regional and local public opinions about protected areas through a multi-level survey. Papers II to IV each presents a case study of a designation process within the Swedish mountain region. The qualitative case studies are based on the structured, focused comparison method and employ within-case analysis and process-tracing. The material examined consisted of written documentation and 41 semi-structured interviews.

The two studies contribute to commons theory; the focus on the establishment phase provides opportunities to acquire abundant information about how contextual and process factors influence the functioning of a co-management arrangement. Paper I suggests that national public opinion is an important contextual variable for natural resources of national interest, and shows that 65% of the Swedish population support local or co-management of protected areas. Papers II to IV reveal that the rigidity of the existing institutional framework is another important contextual variable that influences the degree of learning taking place. Further, the comparative analysis proposes that certain characteristics of a process (the co-management process principles) are essential for the realization of co-management arrangements of multi-level and multi-use commons. The principles are representation, reason(ableness), powers, accountability and learning.

Keywords:

commons, co-management, governance, multi-level survey, deliberation, accountability, conflict resolution mechanisms, learning

Acknowledgments

When I started my academic carrier over ten years ago, I had a vague idea of doing a PhD. However, I was keen to work abroad on developmental and environmental issues – to change the world! So I went to France initially and spent almost a year there, but found that it was not the place for me in the long term. Then I went to Brussels to lobby as an intern at Eurostep, ending up in the basement making coffee, picking up forgotten items and making telephone calls for other people. Not quite what I had imagined. Next I went to Senegal to write my master’s thesis under the supervision of Katarina Eckerberg. That was a thrilling experience; I enjoyed diving into the theories of common-pool resources and meeting fishermen for discussions of institutions and conflicts. At the final seminar back in Umeå, Katarina urged me to apply for a post as a research assistant in the Mountain Mistra Programme. I applied and was accepted. After a year I formally became a PhD Student.

Many thanks to Katarina for your excellent governance of this project! You have been a rock to anchor to when everything else has shaken. Always encouraging, advising, sharing, but firm at times; you made sure that I kept on the right path. I am also deeply indebted to Camilla Sandström, my co-supervisor and closest co-worker within the Mountain Mistra project. You have always been there for a chat about theories, complex interviews or life in general, and to improve tricky passages in my manuscripts. All our discussions on co-management and its intricacies have of course been particularly helpful!

I want to thank all past and present colleagues at the Department of Political Science at Umeå University for commenting on various drafts of papers, for assistance and advice, as well as pleasant coffee and lunch breaks. Carl Rova and Håkan Myrlund gave me most valuable comments on the almost final version of the thesis. Svante Ersson and Anders Lidström have always helped me out on methodological issues, lending me essential literature etc. Ingemar Ring provided me with computer support, Viveca Jonsson and Marie Olsson with administrative support while Christina Boström professionally completed the final editing of the thesis.

My warmest thanks go to my fellow PhD Students – sharing this trip with you has been invaluable! Our many strategic discussions on how to write a thesis, navigate academia and teach undergraduates have always encouraged me to persevere. Special thanks go to associates in the “Green Corner”: Charlotta Söderberg, Johanna Johansson and Annette Löf. Also to Lisa Hörnström for being there in both good and bad times.

I had the great luck of attending the Workshop of Political Theory and Policy Analysis at Indiana University, Bloomington, USA, under the auspices

of Elinor Ostrom for a semester. Thanks to all the Workshopers for a wonderful time and all the valuable theoretical conversations! I enjoyed exploring Bloomington and its surroundings with the other visiting scholars: Stefan Jungcurt, Magalie Bourblanc and James Nachbaur. Tatyana Ruseva provided me with roof over my head and introduced me to the SPEA PhD potlucks. Prakash Kashwan gave valuable comments on the first Fulufjället draft. Emil Uddhammar has involved me in writing research proposals; sooner or later I hope we will succeed! Lars Carlsson is another old Workshopper who has always showed belief in my work.

The initial stages of the project within the Mountain Mistra Programme were enjoyable and many thanks are due to the crew involved, in particular Peter Fredman, Klas Sandell and Anders Esselin. Thanks Anders for the beautiful photos that have improved many presentations and the cover! Through our workshops and later on at other conferences I met Eva Falleth who has encouraged me by providing good critique of drafts of my work. Another Norwegian colleague, Gunn Elin Fedreheim, gave me the inspiration needed to return from my breast-feeding psychosis – thank you!

The warmest thanks are due to everyone I have interviewed about the Funäsdalen, Fulufjället and Laponia processes. Without you this thesis would not have been possible. Interviews, participation in conferences and the stay at the Workshop etc. were funded by MISTRA (through the Mountain Mistra Programme), STINT and the JC Kempe Memorial Fund for Scholarships.

There have been many people from outside academia who have supported me and dragged me out so that I could think of other things apart from the studies and to share joys and disasters. Anna – we have always been on a journey of exploration together; from producing yarrow tea to clubbing throughout the world, and becoming PhD students. Katarina and Maria – you know my history and we have shared so many enjoyable moments together. Bella and Maria with your families – you are the best! Karin – I hope we will meet soon in Dakar! Together with my undergraduate team(s) consisting of Annika, Mia, Karin, Camilla x 2, Baldan, Satu and Marcus I made Umeå and Lille unsafe and ourselves safe!

My parents, my sister Annika and Simon, my brother Björn and his family deserve more than thanks for putting up with me during this period! You believe in me, I can always count on your help and you are so open-minded and tolerant. Inga-Karin and Eva – you are the most wonderful grandmothers in the world! To my Senegalese family and friends, I am grateful for your hospitality and that you share your world with me!

Oumar and Oumou, my dear little family, you are the sunshine in my life! I love you so much!

Anna Zachrisson
Byviken, Obbola 2009-11-01

Abbreviations

| | |
|------|---|
| CAB | County Administrative Board (länsstyrelse) |
| CBD | Convention on Biological Diversity |
| IAD | Institutional Analysis and Development framework |
| ILO | International Labour Organization |
| IUCN | International Union for Conservation of Nature |
| NHB | National Heritage Board (Riksantikvarieämbetet) |
| RHC | Reindeer Herding Community (sameby) |
| RSAS | Royal Swedish Academy of Sciences (Kungliga Vetenskapsakademien) |
| SEPA | Swedish Environmental Protection Agency (Naturvårdsverket) |
| WWF | World Wide Fund for Nature |

Why co-manage protected areas?

Stop this deathblow against those who inhabit and live close to the mountains! We have made the choice to live here so that we can have access to the forest and the mountains; don't take away our quality of life!

*(Protest against the proposed Blaikfjället National Park at
<http://namninsamling.se/index.php?sida=2&nid=2668>)*

The sentiments in this quotation are fairly representative of those expressed by local populations when a proposal to establish a protected area is made public. This local resistance makes the designation of protected areas difficult. Local populations fear that their existing rights to use particular natural resources will be severely restrained, depending on the level of protection. Therefore, the processes involved imply profound institutional change. Customary and legal rights to use and manage certain resources are renegotiated and eventually reallocated, with equally profound implications for the relationships between local populations, ecosystems and natural resources. Globally, traditional nature conservation policy aims to preserve an ideal state of nature, in which interference by people is minimized through a number of regulations, and central authorities are charged with the whole process to establish and manage protected areas. This global ideology opposes the wishes of most people living in or close to the designated areas, who want to continue using 'their' natural resources, for business, subsistence and/or recreation. Over the last three decades an apparent ideological shift has occurred and it is now increasingly recognized that nature conservation should be carried out for the benefit of people and in particular the local population. The aim is to combine the explicit external wish to conserve nature and the local need to make a living, in order to conserve nature effectively, rather than merely create 'paper parks'. The question is how to reconcile global and local perspectives in practice.

Protected areas could have many purposes other than biodiversity conservation, such as forestry, mining, hunting, agriculture and fuel production, hence they show multi-use characteristics. Furthermore, they show multi-level characteristics, since concerted management efforts are required at multiple levels, ranging from the local to the global. A class of management regime that has been proposed to embody characteristics that overarch conflicts between users and levels is co-management (some form of cooperation between state actors and private actors). If so, it could presumably be appropriate for the management of protected areas. However, before accepting this conclusion one must first consider the extent to which co-management has the potential to reconcile local and central demands to manage protected areas in a robust way (for a the operationalization, see page 24),

and the key requirements for such co-management arrangements. The major aim of this thesis is to contribute to the understanding of the management of multi-level and multi-use commons (for a definition of commons, see page 5) by analyzing attempts to establish co-management arrangements during the processes of designating selected protected areas.

But, why is it important to study protected areas? One reason is that, to date, they have been the primary means of conserving biodiversity (Moeliono 2006; Gorenflo and Brandon 2006; Southworth, Nagendra, and Munroe 2006; Dearden, Bennett, and Johnston 2005) – “the variety of life on Earth and the natural patterns it forms” (Secretariat of the Convention on Biological Diversity 2000:2). Biodiversity is essential for a number of absolutely crucial goods and services, including the provision of food, fuels, fibres, shelter and building materials. It is also needed for the purification of air and water, detoxification and decomposition of waste materials, the stabilization and moderation of the Earth's climate (moderation of floods, droughts, temperature extremes and high winds). Generating and renewing soil fertility, pollination of plants, control of pests and diseases, maintenance of genetic resources to develop crop varieties and livestock breeds also all depend on biodiversity. Furthermore, medicines and other products with cultural or aesthetic benefits and man's ability to adapt to change could be lost through the reduction of biodiversity (CBD 2009).

Currently, however, biodiversity is threatened by degradation of ecosystems due to human actions. As a result, many species face extinction. In addition, natural disasters such as floods, droughts and landslides are becoming more regular occurrences, and shortages of food and water are demanding global attention (European Communities 2008). “Global warming may dominate headlines today. Ecosystem degradation will do so tomorrow” (WRI 2009:ii). At the Earth Summit in Rio 1992, the Convention on Biological Diversity (CBD) was adopted with the aim of combating the loss of biodiversity, and today it has contracted a total of 191 partners. In 2004 it was agreed that at least 10% of the world's terrestrial ecological regions should be conserved effectively by 2010, and the establishment of new protected areas accelerated. However, although 12.2% of the world's land surface is currently protected, 44% of the world's ecoregions do not yet meet the 10% target (UNEP-WCMC 2008). The CBD (article 8 (j)) and other international agreements, such as Agenda 21 (section 15.3) and ILO Convention 169, call for much wider involvement of local and/or indigenous populations in the conservation of nature.

To achieve conservation of biodiversity successfully through the establishment of protected areas, analysis of both politics and institutions is required. However, the challenges this poses have largely been ignored by political scientists until recently (Agrawal and Ostrom 2006: but see Hayes and Ostrom 2005, Schoon 2008, and *Local Environment* nr 3, vol 14 2009).

Studies on the co-management of protected areas are few, but increasing in number (for instance Rudd et al. 2001; da Silva 2004; Clifton 2003; Hoffman 2009; Plummer and Fennell 2009). The work described in this thesis attempts to contribute to the idea that “strengthening governance systems at relevant scales is perhaps the most important challenge of the next century for biodiversity conservation” (Agrawal and Ostrom 2006:682). The establishment of protected areas, in particular, involves a process of institutional change that has not been well studied. The institutional perspective presented in this thesis is based on the rational-choice inspired Institutional Analysis and Development (IAD) framework developed by Elinor Ostrom and colleagues (Ostrom 1990, 2005; Imperial 1999), which is often used in the study of commons. However, most studies have analyzed existing institutions, rather than the processes involved in establishing them. Therefore, the work described here focuses specifically on these processes. In addition, to date research into commons has mostly concentrated on small-scale, single-use resources (Edwards and Steins 1998; Berkes 2006), but the most important contemporary environmental challenges such as biodiversity conservation are complex and require governance solutions at multiple levels (Edwards and Steins 1998; Dietz, Ostrom, and Stern 2003). Co-management studies usually consider several administrative levels, but processes at local and international levels are not often intensively assessed (Keskitalo 2008). This study approaches the multi-level dimension by focusing explicitly on all administrative levels involved in the processes of designating a protected area, including relevant international influences.

The study area focused on in the thesis is the Swedish mountain region, which is highly dependent on commons such as fish and game, a magnificent landscape and mineral resources. In the region there is increased competition and conflict over the management of these resources and disagreements over the question of whether nature should be preserved for its own sake or used sustainably by man. The Swedish government has adopted a so-called coherent nature conservation policy, which emphasizes the possibility of combining strict nature protection with careful usage such as ‘nature tourism’, as well as dialogue and communication with citizens (Swedish Gov. Communication 2001/02:173). There seems to be ambiguity, however, regarding how the policy is to be implemented. Local populations increasingly demand management responsibility for protected areas, but the authorities are reluctant to agree to this. In addition to conflict between local and central actors, there are also local conflicts, to varying degrees, due to actors at the local level having different, competing interests. This conflict situation, driven by multiple uses and levels, make this region particularly suitable for investigations aimed at developing theories on complex common-pool resources since they represent least likely cases. There have also only been few studies on co-management of protected areas conducted

in Sweden (for instance two references in the Web of Science database: Stenseke 2009; Ernstson, Sorlin, and Elmqvist 2008).

To help bridge this gap in the research, the empirical basis of the work presented in this thesis is a selection of case studies of current processes aimed at establishing co-management of protected areas in the Swedish mountain region. However, protected areas are defined widely here. A local snowmobile regulation area is included, since also the process of establishing such an area illustrates the fundamental problems associated with designating protected areas, which involves institutional change including the renegotiation of usage rights and management structures. This empirical focus originated from the connection of this project to the Mountain Mistra Programme (see no. 4, volume 2 of the International Journal of Biodiversity Science and Management), in which the management of the Swedish mountain area was studied by an interdisciplinary research team over seven years.

Purpose of the study

The overall purpose of this thesis is to analyze the establishment phase of the co-management of multi-level, multi-use commons in order to characterize design principles common to the emergence of co-management processes which improve institutional robustness. This explorative analysis enables both theoretical and empirical contributions.

In Paper I it is suggested that public opinions should be treated as a contextual factor; commons research has been criticized for ignoring this aspect so the paper represents a small contribution towards filling an important gap. Furthermore, research with a novel design is presented in this paper; the investigation of public opinion regarding protected areas and their management, based on a multi-level survey. Papers II to IV provide advances in understanding of commons by investigating the significance of deliberation, accountability and conflict resolution mechanisms for institutional change in processes associated with the designation of protected areas. These three complementary aspects of the dynamics of resource use institutions are all related to 'key understudied issues' within commons theory (see Stern *et al.* 2002). The first, deliberation (see Paper II for a definition), is increasingly emphasized as a general requirement for the attainment of sustainable development, but it has not been treated as a specific quality in previous natural resource management studies. To develop this notion, the co-management literature is compared with that on deliberative democracy. Does deliberation increase robustness, and if so, what are its qualities? The second aspect, accountability (see Paper III for a definition), is a concept that is not well developed, generally, within co-management studies, but it is becoming increasingly important since co-management is being increasingly regarded as an approach to governance in

which responsibility is blurred by informality and negotiation. Here, key questions are how may mixed governance bodies such as those established for co-management be held accountable (both formally and informally) and how can accountability be measured? Finally, the third aspect represents a deviation from the emphasis on mechanisms of conflict resolution (see Paper IV for a definition) within the commons literature, in which descriptions of its manifestation are unclear and often rely on induction. To clarify the underlying mechanisms, alternative dispute resolution theory, emphasizing collaboration, is applied, *inter alia* to assess how conflict resolution mechanisms can be conceptualized in the context of co-management and the role they may play in its emergence.

Current commons literature provides the study with a general theoretical framework in which further inquiries can be undertaken. Other theories are employed in order to explore the aspects which are, as outlined above, perceived to be not well studied in commons research; to specify which elements are particularly relevant to the research questions and to help formulate working assumptions about them. In this respect the aspiration is to develop cross-fertilization between research areas, so that research into commons can contribute to the development of other theoretical perspectives.

Empirically, the aim is to identify lessons that can be learned from the case studies for future conservation policy and its implementation, by analysing the extent to which the emphasis on local involvement in current Swedish conservation policy is generally supported (Paper I), whether this is translated into co-management and (if so) the consequences for legitimacy and conflict resolution (Papers II to IV).

Protected areas – a common-pool resource (?)

A protected area is “a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (IUCN 2008:8). Such areas consist of landscapes that may include forests, fisheries, meadows etc. These resources are examples of what Ostrom calls ‘common-pool resources’ or simply ‘commons’ – “[A] natural or man-made resource system that is sufficiently large to make it costly (but not impossible) to exclude potential beneficiaries from its use” (1990:30). They share two important characteristics: 1) subtractability or rivalry, which means that consumption of resource units removes those units from those available to others and 2) difficulty in excluding potential beneficiaries from accessing the resource system, which raises risks of free riders using the resource without contributing to its upkeep (Ostrom 1990:30; Ostrom, Gardner, and Walker 1994:6; Berkes 1989:7). Preventing access by users who do not follow the rules is costly, so exclusion costs are a

key problem of the management of commons. There is also a limit to the number of resource units that can be produced by the common-pool resource. When this limit is approached, crowding effects occur and in the long run the capability of the resource to reproduce may be destroyed (Ostrom 1990:30-33). These considerations imply that the creation of institutions for managing the resources is very costly. Hardin (1968) postulated that situations of this nature would lead to inevitable degradation and to what he termed the “tragedy of the commons”. This tragedy was illustrated using the example of the rational herder who adds more and more animals to the common grazing lands. The herder will immediately receive the direct benefit of his own animals while he will only bear a small share of the costs resulting from overgrazing.

National parks were another of Hardin’s examples of commons and, as stated above, the physical components of a protected area are common-pool resources that have been shaped by human consumptive use or could be used for such a purpose. However, the traditional values of protected areas, such as beautiful scenery and ‘wilderness’, can be described more as public goods than common-pool resources in that they are non-consumptive and therefore not subtractable. However, these values do share some of the characteristics of common-pool resources, since their value can be reduced by congestion. If too many people are present, they each have a reduced experience of beauty, magnificence and wilderness. In addition human-induced erosion may be damaging to the physical resource. Protected areas are often further characterized by an inability to exclude, since it is difficult to put a fence around them, for both economic and aesthetic reasons. Providing sufficient surveillance of the area would be problematic for similar reasons; for efficiency conservation areas should be large so fencing and/or surveillance costs would be very high. The erection of fences and potential surveillance equipment etc. would also reduce the wilderness experience that the majority of people expect from protected areas. In Sweden, such an approach is also impossible politically because traditionally there has been a right of public access to all land¹.

Murphree (2002) argues that “commons are protected areas in that they are sites and bundles of collective entitlement for their constituents which require protection through controls on their use”. They are legitimized through a variety of sources, imply different entitlements and concern different constituencies, but collective and controlled access is their signature

¹ In Sweden there is “a right of public access”, which means that everyone has the right to roam in the countryside. But this freedom must not infringe upon the freedom of others, neither the landscape nor the animal life is to be damaged, and consideration for both landowners and for others who are out in the countryside must be shown (Naturvårdsverket, <http://www.allemansratten.se/templates/firstPage.asp?id=2058>).

characteristic. In this respect, most rural landscapes can be regarded as 'protected areas', whether officially recognized as such or not. In the view of the cited author protected areas are to be treated as commons, not least because he saw this as a way to avoid protected areas becoming areas of state-managed exclusion, without useful purpose. In conclusion, therefore, protected areas can be considered commons.

Various terms have been employed to describe the commons: some scholars have used the terms 'common property resources' (Berkes 1989:7) or 'common property regimes' (Bromley 1992:4) instead of common pool resources. 'Common pool resource' is a generic term that has been adopted for resources used in common, which may or may not have rights (formal and informal) regarding their use attached to them. In contrast 'common property resource' (or more correctly 'regime'), attaches specified property rights to common usage (Edwards and Steins 1999b:199). Four different types of general property regimes have developed in relation to common-pool resources: open access, communal or common property, state property, and private property. Much of the confusion that exists stems from the meaning traditionally assigned to the term common property, which refers not to property, but its absence. Therefore, a more accurate term for this would be open access (McKean 2000:29-30). It is this concept that inspired Hardin's classic and often quoted idea of 'the tragedy of the commons' (1968), and Gordon's (1954) conclusion that "everybody's property is nobody's property". They predicted that ecological disaster would result if all users attempted to withdraw maximum profit without planning for the future.

Organization of the thesis

This thesis consists of an introductory section and four appended papers, each of which can stand alone. The introductory section presents relevant background information and the aims of the studies. The common ground connecting the four papers is also explained in this section. The second chapter provides theoretical background to nature conservation and co-management, and highlights associated issues that have not been well studied to date. The third chapter introduces the analytical and methodological approaches used in the studies. The fourth chapter begins with an empirical overview of Swedish nature conservation policy and then summarizes all four appended papers. Finally, the fifth chapter discusses the findings, focusing on information acquired about the three aspects that had been identified as not previously well studied in the three case studies, and draws overall conclusions.

The papers present the main studies conducted; the theoretical contributions, their operationalization, and the empirical work. Hence, precise definitions of the theoretical concepts that were employed are to be

found in the papers, but shorter descriptions are given in chapter five to explain the rationale for the conclusions. The scene is set in the first of the appended papers, in which a statistical analysis of public support for the various management alternatives in Sweden generally and the mountain region in particular is presented. A case study is described in each of the following three papers, each focused on developing one understudied aspect of commons research, theoretically and empirically. Although all three case studies covered all three aspects only one is discussed in each paper. A comparative analysis of all the cases in all of the dimensions is presented in Chapter five.

Tragedy or comedy – always drama

Panaceas for nature conservation

A number of scholarly works have predicted that ecological disasters will occur unless a certain blueprint for a governance-system are adopted; government ownership (top-down/central management), privatization (market management) or community property (bottom-up/local management) (Ostrom, Janssen, and Anderies 2007). Hardin is the most often quoted author in this context, from his article “The Tragedy of the Commons” which recommended centralization or privatization (1968). These blueprints can be thought of as panaceas, that is “a remedy, cure, or medicine reputed to heal all diseases; a...universal cure” (Oxford English Dictionary online 2009-08-03). Such a tendency to adopt a single solution for many problems is, however, based on two false assumptions: (1) that all resource situations have sufficient in common to fit a small number of formal models; and (2) that the preferences of the Western market economy, as well as the role of information and individual perceptions, are uniform all over the world (Ostrom, Janssen, and Anderies 2007). All of these panaceas have resulted in some successes and some failures, but the result is that the world is facing a resource management crisis (Acheson 2006).

Until the 1980s, most scholars agreed with Hardin’s (1968) and Gordon’s (1954) analysis of the situation; avoiding the tragedy of the commons required privatization or centralization. It was, however, increasingly shown that the result of common-pool resource situations can, on occasion, be described as a ‘comedy’ – a story with a happy ending – through the use of various kinds of community-based or local management systems (McCay and Acheson 1987). Therefore, commons management always entails drama, but it can end either in tragedy or comedy, depending on which governance strategy or mix of strategies is chosen. Possibly, the most important lesson from commons research is that there are simply no blueprint solutions that will work everywhere (Ostrom 2008a; Ostrom, Janssen, and Anderies 2007). No one form of institution is best for achieving general sustainable management of natural resources. What will work in one setting does not necessarily succeed in another; it depends on the specific characteristics of the resources, the users, the external factors and the details of the institutional design.

However, perceived panaceas have been applied from the first attempts to formulate nature conservation policies and instruments. A strong emphasis on government ownership and management is still the dominating blueprint, but since the 1980s this has been combined with attempts to develop community-based conservation or co-management. The first protected areas, created in the 19th century, represented areas of particular scenic

beauty or uniqueness and were set aside for exclusive conservation. A prime example is Yellowstone National Park, inaugurated in 1872 around a tract of hot springs and geysers in north-western Wyoming (Ghimire and Pimbert 1997:6). It established a world standard, often called the Yellowstone model, based on strict nature protection, prohibited settlement, and banned exploitation of natural resources for both subsistence and commercial use (Stevens 1997:29). The inhabitants of Yellowstone, mainly Crow and Shoshone Native Americans, either left for reservations, following intense persuasion, or were driven out by the army (Ghimere and Pimbert 1997:7). Nature was to be preserved free from human interference, in accordance with idealization in the late 19th century of wilderness as a refuge from the ills of civilization. The perspective at the time was that wilderness areas were needed to fulfil an emotional need and to rediscover the purpose of life (Colchester 1997:99).

In 1969 the International Union for Conservation of Nature (IUCN) defined a national park as an area “where one or several ecosystems are not materially altered by human exploitation and occupation” and “the highest competent authority of the country has taken steps to prevent or eliminate as soon as possible exploitation or occupation in the whole area” (cited in Stevens 1997:28). Hardin had been heard; the management of protected areas continued to be centralized by the state to avoid the tragedy of the commons. This policy was driven by conservation professionals, representing national environmental agencies or major international conservation organizations, together with urban national elites. The result was the creation of “artificial, idealised landscapes in which local people have no place” (Ghimere and Pimbert 1997:7-8). While local people were excluded, it was a different matter for visitors since “from the very beginning, park visitation and tourism were central pillars of the national parks movement” (Eagles et al. 2002:7).

Despite these early intentions, most protected areas around the world are, in fact, currently inhabited. In 1985, according to the IUCN 70% of them were inhabited and in some areas the figure was (and is) even higher (Colchester 1997:103). Management plans established for protected areas seldom recognized the survival needs of the people living in them, or if they did mention these people, it was in terms of the need for resettlements. Local communities were often expelled without any compensation for their losses or provision for alternative means of employment and income. Even if they were not told to leave, local inhabitants faced restrictions on their use of common pool resources for food, grazing, fishing, hunting, and their utilization of other vital products. This enforcement of rigid laws and reliance on coercion has led to conflicts, although it has been quite sporadic in nature. Local people are left with a deep sense of frustration when priorities are externally imposed; they feel that they do not get a fair share of

the benefits of conservation, although they bear the majority of the costs (Ghimere and Pimbert 1997:13-17; Nepal and Weber 1995:13-5). These injustices have led to calls for both greater respect of human rights and cultural sensitivity in creating and managing protected areas in order to ensure their long-term viability (Stevens 1997:33). In addition, protected areas have generally not been effective at conserving nature as a result of this confrontation policy (Hayes and Ostrom 2005). It has even been suggested that biodiversity may decrease when human interference in ecosystems is removed (West and Brechin 1991:89) because ecosystems are shaped by their interaction with human beings (Folke 2006). Humans become a part of these ecosystems and, therefore, of the 'balance of nature' represented within them. Indeed, it is possible that the values that the biodiversity conservationists want to protect may be of anthropogenic origin (Ghimere and Pimbert 1997:5-6). The threat to biodiversity is not, therefore, general human exploitation of nature, but only certain more specific human activities (Stevens 1997:27).

Across the world many initiatives appeared in the 1980s and 1990s placing an emphasis on local participation in conservation measures (so-called community-based conservation) as a result of the abovementioned shortcomings (Brosius et al. 1998; Kellert et al. 2000; Inamdar et al. 1999). The major NGOs working in the field, the IUCN and the World Wide Fund for Nature (the WWF), adopted a much more open view towards local people and in particular indigenous peoples (Beltrán 2000). Most often these efforts were coupled with an emphasis on community development to reduce poverty, in so-called "integrated conservation and development projects" (Garnett, Sayer, and du Toit 2007). Tourism development was, and still is, emphasized as a means of reconciling the interests of local communities with those of conservation (Colchester 1997:119; Finger-Stich and Ghimere, 1997:161; West and Brechin 1991). Indeed, tourism is currently the world's number one industry (Eagles et al. 2002) and many managers of protected areas hope that tourism will end the decline in rural economies and environments, while at the same time increasing recognition of the local cultural identity (Finger-Stich and Ghimere 1997:161).

However, the effectiveness of community-based conservation of environments and societies is also in dispute (Wilshusen et al. 2002, Kellert et al. 2000). Some researchers argue that community-based management efforts have failed due to the difficulties encountered when attempting to reconcile and harmonise the objectives of socioeconomic development, biodiversity protection, and sustainable resource use. Human development, they say, has been accorded top priority while the biodiversity goals have been subordinated and rarely achieved (Kellert et al. 2000). Many of these projects have also been expensive and have not produced the expected benefits (Inamdar et al. 1999). Profits are largely enjoyed by large private companies, based far

away from the parks, while the possibilities of further local development, for example, in agriculture and fishing, are considerably restrained (Colchester 1997:119; West and Brechin 1991:389). If tourism is really to be beneficial to local people, it needs to be small in scale and adapted to the local community. In this manner it can increase local jobs and income, in addition to maintaining rural cultures and lifestyles (Seale 1995:241; Woo 1991:204). Conservation biologists often view protected areas as the last safe havens for large tracts of ecosystems that are under serious threat, as the people-oriented approach has failed. Accordingly they advocate a renewed emphasis on strict protection through authoritarian enforcement practices (Wilshusen et al. 2002; Terborgh 1999).

The development of nature conservation policy described here follows the overall pattern of natural resource management, as well as some general tendencies in society; reduction in the costs of public administrations results in decentralization reforms (Plummer and Fitzgibbon 2004), top-down management has been shown to work inadequately, and a trend, driven by ideology, towards increased participation in governance (Jentoft 2003) in order to vest “power of government in the people being governed” (Loucks, Wilson and Ginter 2003:154). This overview further illustrates that there is ongoing discussion on the effectiveness of employing different management regimes in order to conserve biodiversity. However, there is still little discussion of the pluralistic approaches needed to distribute authority across multiple institutions and meet current challenges, according to certain commons researchers (Berkes 2007b; Ostrom and Nagendra 2006).

Co-management to bridge and pool

Co-management simply establishes some form of cooperation between state actors and local actors (for the exact definition employed here, see p 16–17). It is a pluralistic approach, as explained above, and represents an additional model of management to add to the tool box. Often, it has been identified as a solution for the future by common-pool resource theorists (Stern et al. 2002; Berkes 1989; Pinkerton 1989; Berkes and Folke 1998; Jentoft 1998). Examples can be found not only in nature conservation, but also in fisheries, wildlife, forests and other resource management. Co-management research is a sub-field of the larger field of commons research (Berkes 1997; Pinkerton 1989; Jentoft 1989; Plummer and Fitzgibbon 2004; Berkes 2009). Many examples of successful co-management of common-pool resources have been analyzed and their shortcomings described. In management situations where there are numerous conflicts between stakeholders with different interests, co-management is considered particularly suitable, since it leads to formalization of the process, providing actors with a forum where issues can be thoroughly discussed and disputes settled (Pinkerton 1989:29; Haaland and Skogen 2003:43; Osherenko 1988:42).

Furthermore, co-management facilitates the handling of management problems both simultaneously and at different levels by pooling the skills and knowledge of the disparate actors. Certain resources may be needed at the local level that user groups cannot provide. These may include technology and scientific expertise. At the same time users have resources based on local knowledge, such as information about harvests or the status of the resource, which may be needed for central administration. Efficiency may be increased as specialization is enabled by the division of labour. This may also occur through linking different types and levels of organization so that the flow of information can be accelerated and problems can be addressed at their appropriate level (Carlsson and Berkes 2005). Increased interaction among stakeholders may also foster trust and thus strengthen the potential to develop and implement enforcement regimes. Decision-makers may become more sensitive to the needs and concerns of the users, for example over issues of social justice (Berkes, George, and Preston 1991:16; Jentoft 1998:10). Some studies have even indicated that personal transformations take place during the process of co-management. This is exemplified by participants experiencing positive changes in their understanding of other stakeholders, new relationships forming and identities changing (Poncelet 2001). The legitimacy of this form of management may, hence, be perceived to be greater than that of possible alternatives, resulting in better compliance to established rules (Berkes, George, and Preston 1991; Jentoft 1998:9; Ostrom 1990; Pinkerton 1989).

A developing definition

The development of co-management research can be divided into three phases. The first generation of co-management concepts stressed the importance of power-sharing between the state and the local users or communities. One example of this is the widely cited definition given by Berkes, George, and Preston: "...the sharing of power and responsibility between government and local resource users" (1991).

A second generation extended the range of possible stakeholders included in co-management, for instance Jentoft (2003) added "research institutions and other stakeholders" and Yandle (2003) market actors. The logical development of this was the suggestion of Carlsson and Berkes' (2005) that co-management systems can be described as systems of governance or "networks of relationships". Agreeing with the current literature on international relations, they pointed out that the state cannot be seen as a unitary actor. The modern state is fragmented and comprises numerous authorities and agencies, each associated with the management of a resource system. In addition, user groups or communities are complex systems, although it is often implied that communities are small units in terms of space occupied, with a homogenous social structure and shared norms. It is,

therefore assumed that making collective decisions by community members is a simple and low cost exercise. However, homogeneity is seldom higher in small communities, and all human groups are stratified to some extent and thus research needs to focus on “the multiple actors that make up communities, the processes through which these actors interrelate, and, especially, the institutional arrangements that structure their interactions” (Agrawal and Gibson 1999:636).

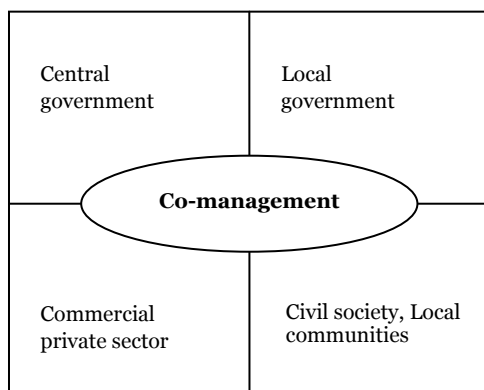


Figure 1. Categories of actors in co-management (Carlsson and Berkes 2005)

A third generation of co-management concepts (adaptive co-management) has developed from a desire to integrate: 1) the systems approach and adaptive management concepts with 2) the common-pool resource approach (Armitage, Berkes, and Doubleday 2007). It is a result of co-management and adaptive management evolving towards common ground (Berkes, Armitage, and Doubleday 2007). There is a current focus on complexity, stemming partly from research related to adaptive management and resilience, which views both social and ecological processes as complex systems coupled to one another in “social-ecological systems” (Folke et al. 2005; Berkes and Folke 1998). A complex system is characterized by nonlinearity, uncertainty, multiple scales and self-organization (Berkes, Colding, and Folke 2003:5). Further, the interconnections within the biophysical world across scales, across levels of society and interrelated groups of users are increasing, requiring institutions to become more complex in order to link the multiple levels (Berkes 2002; Dolšak and Ostrom 2003:338; Stern et al. 2002:463).

Adaptive co-management can be defined as “a process by which institutional arrangements and ecological knowledge are tested and revised in a dynamic, self-organized process of learning-by-doing” (Folke *et al.* 2002:13). The primary feature of adaptive management seems to be its emphasis on dynamic learning (Olsson, Folke, and Berkes 2004), which

includes a focus on conducting field experiments (Berkes, Armitage, and Doubleday 2007). Such experimental approaches may include (inter alia), small and large plot experiments, simulations, modelling and adaptive experimentation (Armitage, Marschke, and Plummer 2008). The work presented in this thesis, however, focuses on political and institutional aspects of natural resource management covered by co-management theory, with a particular emphasis on the complexities posed by multiple layers of management and multiple groups of resource users. No ecological experiments were conducted in the case studies the thesis is based upon. Thus, the potential relevance of the ecological experimentation aspects of the adaptive management approach are acknowledged here, but since they were not applied in practice the term co-management will be used throughout the thesis rather than adaptive management.

Although a number of definitions of co-management are used in the literature, most of them stress the following: (1) co-management regards the management of natural resources, (2) co-management is some kind of partnership between public and private actors, and (3) co-management is not a fixed state but a process (Carlsson and Berkes 2005). Co-management is also used more or less interchangeably with a number of related concepts such as: cooperative management, collaborative management, joint management, participatory management and multi-stakeholder management (Berkes 1997). However, there is a risk that co-management may be used as a term for all alternative management models that include different stakeholder groups (Campbell 1996), and thus the concept could lose its edge. Indeed, it has become a 'catch-all term' (Berkes 2002) invoking such positive connotations that all management initiatives desire to be labelled in this way. In "The Fisheries Co-management Experience" (Wilson, Nielsen, and Degnbol 2003) the authors conclude that co-management should be reserved exclusively for arrangements that vest a substantial degree of power in the resource users. The sharing of power and responsibility is, therefore, central to definitions of co-management (Plummer and Fitzgibbon 2004; Berkes 2007a).

Hara and Nielsen (2003) have shown, for instance, that unless users are genuinely permitted and feel empowered to participate in the setting of management objectives on equal terms with the government, co-management cannot really be considered an institutional innovation. According to Jentoft (2003:4), not all forms of user-participation qualify as co-management, since the 'co' in co-management stands for co-operative/collaborative, not just consultative practices. User-organizations should be able, at least, to make autonomous decisions about certain management operations, and not merely act on decisions made at a higher level. Selin and Chavez (1995:189) argue that cooperation is hindered when there are significant power differences, or certain parties are not perceived as having a legitimate right

to participate. According to Agrawal and Gibson (1999), interactions such as negotiating the use of resources, implementing decisions, and resolving conflicts are irreducibly influenced by the existing power distribution and the structure of incentives within a social group. Local groups are usually the least powerful actors and need to be granted greater authority and power to check arbitrary actions by governments and other stakeholders effectively (Agrawal and Gibson 1999:637, 641). More power also needs to be given to local groups to ensure that efforts aimed at garnering participation are effective; otherwise there is a substantial risk that these actors will perceive the process as futile and frustrating (Arnstein 1969:216). For the system to be successful user groups need to feel that the partnership creates a sense of ownership and responsibility. This can only occur if groups can actually participate in decision-making (Osherenko 1988:42).

In practice, arrangements termed co-management involve various degrees of integration of local and state level management systems, which may be negotiated, legal, or informal (Pinkerton 1989:4, Notzke, 1995:188). As such, they differ in the extent to which they actually allow users to participate and make decisions. Some authors have considered possible ways to characterize and analyze these different co-management arrangements. Arnstein's "ladder of citizen participation" (1969) is often considered the seminal work on the conceptualization of public participation and continues to be cited, discussed and further developed. For instance, Berkes (1994), Pomeroy and Berkes (1997) and Sandström and Widmark (2007) have been inspired to adapt the ladder to co-management situations between indigenous groups and the authorities in Canada, fisheries co-management, and co-management of forests, respectively. Paper III includes a discussion of a ladder of co-management in relation to protected areas.

In this thesis co-management is defined as a collaborative and participatory process of regulatory decision-making over a specific area or set of resources in which representatives of user-groups and government agencies, and eventually research institutions and other stakeholders, as appropriate to each context, negotiate authorities and responsibilities. The definition primarily builds on three earlier conceptualizations. Firstly, it is inspired by the definition offered by Jentoft (2003:3): "a collaborative and participatory process of regulatory decision-making between representatives of user-groups, government agencies, research institutions, and other stakeholders". This definition particularly emphasizes that it is a process and that it involves regulatory decision-making, requiring institutionalization. Secondly, the IUCN makes a contribution with its focus on negotiation, indicating that different actors may have varying powers and responsibilities due to dissimilarities in their stakes in the particular resource system, as can be seen in their definition: "a partnership in which government agencies, local communities and resource users, non-governmental organizations and other

stakeholders negotiate, as appropriate to each context, the authority and responsibility for the management of a specific area or set of resources” (IUCN 1996). Thirdly, the applied definition is intended to incorporate what Berkes describes as “the hallmark of co-management”, that is “at least one strong vertical linkage involving the government and a user group, and some formalized arrangement for sharing power and responsibility” (2009:1693). This is done by differentiating between a first category of actors consisting of user groups and government agencies and a second category of other stakeholders. The first is a requirement for designating a system as co-management, but not the second.

As a consequence, co-management is perceived as a management form that is distinct from local or community-based and state management. In the context of Sweden, this implies that co-management brings local user groups and/or municipalities together with the regional County Administrative Board (CAB) and/or other government agencies at the national level. Local management does not involve any direct state actors, but municipal and/or sub-municipal actors do participate (see also Paper I, page 156).

Understudied issues

Co-management, as described above, provides a way to bridge multiple levels in order to pool resources, but most published empirical studies are case studies focussing on the local level and interactions between user groups and the state. However, nature conservation (and natural resources in general) is considered to be of strategic national interest and it is considered desirable to protect important natural assets for future generations. There is also increasing recognition that the participation of local user groups is beneficial to increase legitimacy and improve implementation that pave the way for co-management arrangements. However, national opinion ultimately constrains what a state administration can do, and thus needs to be taken into account. Broadly, this important aspect of the context is neglected in co-management and commons research. Moreover, this field of research has been criticized for an overall tendency to ignore contextual factors. Despite the fact that their importance is generally acknowledged, they lack explicit identification and measurement (1999b, 1998; Agrawal 2001; 1999a). An attempt to elicit national public opinion in Sweden regarding management of protected areas, and to relate it to opinions at regional and local levels through a multi-level mail survey, is described in Paper I. Thus, work presented in the paper represents a novel approach to the study of multi-level systems, which is particularly important for the understanding of certain aspects of context.

Some of the increased complexity in social-ecological systems is due to multiple-use commons that are used for different purposes by different actors and governed by different management regimes. Edwards and Steins

(1999a, 1998) pointed out that much commons research has focused on resource systems in which only one resource is extracted. In multiple-use situations, the key management issue is to balance the interests of multiple uses and users (Edwards and Steins 1999a:209). Even though further research has been conducted on the issue during the ten years since the publication of the framework for multiple-use commons, the focus in commons research still seems to be on single-use commons (Berkes 2006). When Ostrom (2007), for example, described second-tier variables in the framework for analyzing a social-ecological system, she assumed that there was merely one sector, such as forests or pasture, to be taken into account. A multiple-use management system needs to deal with conflicting human interests (Dietz, Ostrom, and Stern 2003), which requires deliberative processes (Berkes 2007). Co-management would ideally meet these requirements (Berkes 2002; Armitage 2008), but little of the existing research addresses the issues of deliberation and conflict resolution in a thorough manner.

Deliberation may provide a method of solving conflicts (Dietz, Ostrom, and Stern 2003). It has also been argued in green political theory that public deliberative processes are required to achieve sustainable development (Barry 1996:118), since experts alone cannot make decisions that need to be based on ethical considerations. Common-pool resource settings are characterized by multidimensionality of outcomes, value conflict and a need to act even when there is scientific uncertainty. In such situations analytical deliberation during the decision-making process is beneficial (Stern *et al.* 2002:470). The notion of deliberation is not widely studied in common-pool resource research, although there has been substantial research on deliberative democracy that could feed into research about the commons. It should be noted, however, that deliberation also has problematic aspects including: the possibility of stakeholder fatigue (Meadowcroft 2004:212-13), limits on the number of people that can participate (Goodin 2000:82-83), and the challenge of achieving equality when discourse in itself is authoritarian (Mouffe 1999). The discussion on deliberation is further discussed in Paper II.

Since complexity in social systems results not only from multiple user groups, but also multiple scales, more research is needed into how to deal with interacting networks and stakeholders at different organizational levels (Berkes 2007b; Agrawal and Gibson 1999, 2001; Murphree 1997). When co-management is conceptualized as “systems of governance” and “networks of relationships” (as already mentioned on page 13), Peters and Pierre (2004) argued that there is a risk that important aspects, regarding institutions and power, will be neglected. They pointed out that the informal bargaining and the blurred accountability relationships in governance may well mask a good deal of power; that the stronger players dictate the so-called consensus

outcome. These aspects have not been addressed in the previous commons and co-management literature, although increased accountability is often used as an argument for co-management. The focus has generally been, instead, either on how monitors and other officials may answer to users (Ostrom 1990, 2005; Agrawal 2002) or on formal mechanisms through elected representatives (Ribot 2004). Other relations and mixed systems have not been previously analyzed, hence these aspects are addressed in Papers II and III.

Some scholars consider conflicts to be one of the major reasons for the emergence of co-management (Baland and Platteau 1996; Wilson 2003:202; McCay 2002:369-70). As long ago as in 1985, conflict resolution mechanisms were emphasized as one of three “unanswered questions and areas for future research” on the commons (Dietz *et al.* 2002:15), and in 2002 they continued to be identified as a “key understudied issue” (Stern *et al.* 2002:469). Despite the urgent need for research on the issue, the conceptualization of conflict resolution mechanisms remains unclear and often relies on induction (see for instance Wutich 2009). In Paper IV alternative dispute resolution theory, in particular discussions of the mechanism of collaboration, are compared with the co-management literature in order to clarify this concept and its importance in the emergence of co-management.

In summary, the work described in this thesis represents an attempt to contribute to the understanding of multi-level and multiple-use commons, with a particular focus on the three aspects identified as understudied; deliberation (Paper II), accountability (Paper III), and conflict resolution mechanisms (Paper IV).

Analytical approach and research design

The Institutional Analysis and Development framework

Research on the commons has been undertaken in a range of disciplines including ecology, economics, anthropology, and political science. For political scientists, the most important contribution has probably been the Institutional Analysis and Development (IAD) framework (see figure 2). This was initially inspired by Lasswell's conception of the policy sciences and his emphasis on the definition of terms (Jagger 2004:4-5). The IAD framework has been used extensively in efforts to improve understanding of common-pool resources (see for instance Oakerson 1992; Carlsson 2000; Rudd 2004; Imperial 1999), and to study other policy areas such as metropolitan organization, infrastructure in developing countries and privatization (Ostrom, Gardner, and Walker 1994; Gibson et al. 2005). At the roots of this framework is rational choice (although considered bounded) and what later became known as new institutional economics, thus it combines an actor-based perspective with attention to institutional rules, intergovernmental relations, and policy decisions (Sabatier 1991). These social attributes are, however, combined with some of those of the physical world. Political scientists using the IAD framework have focussed either on carrying out theoretical game experiments or, much more widely, on exploring aspects of institutions.

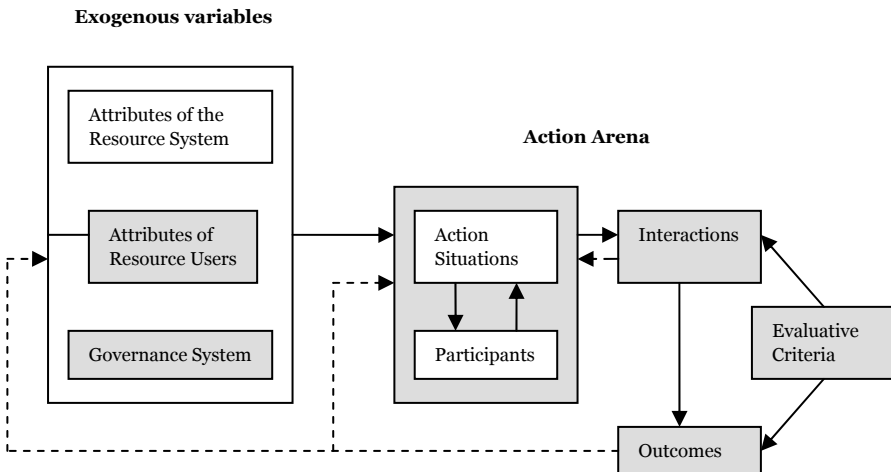


Figure 2. The Institutional Analysis and Development Framework (adapted from Ostrom 2005:15; 2007)

The IAD framework is a very general, multi-theoretical framework or conceptual map that can be used as a starting point in the study of social-ecological systems. As such, it provides a basis for organizing the characteris-

tics of a resource system, the users of that system, and the governance system (the left box in figure 2) that jointly affect and are affected by interactions and the resulting outcomes. Each of these variables may be further organized into multiple conceptual tiers. Ostrom (2007) has listed 40 second-tier variables that have been shown to be important in empirical studies. However, she explicitly states that “[no] one can develop theories or do empirical research simultaneously that includes all of the second-tier variables (or the many lower-tier variables) that may be important factors affecting particular important outcomes” (Ostrom 2008b). A framework broadly outlines types of variables, while theories make specific assumptions about these variables and their interactions. Models are much more specific theoretical tools that are rooted in a particular theory. The point at which the framework is entered depends on the major question posed by the researcher.

Figure 3 (next page) illustrates the ‘focussed’ version of the IAD framework used in this study. It does not provide detailed theoretical causal chains, but a conceptual map highlighting the variables included in this thesis and their interrelationships. Figure 3 also explains, to some degree, the grey boxes in figure 2. This study further employs the two-step analysis proposed by Ostrom (2005:15, 66), as is also pointed out in figure 3. In step 1, the framework is entered by brief inquiries into the shaping of interactions between users and the particular governance system of Swedish nature conservation (particularly in Paper I). Then, in step 2 processes whereby characteristics of the interactions in the action arena produce outcomes are examined in detail (see Papers II to IV). Each designation process represents an action arena in which formal and informal aspects of deliberation, accountability and conflict resolution are scrutinized, although each paper focuses on just one of these dimensions. The cases represent designation processes where the management structure is yet to be set, and therefore informal aspects become particularly important. The participants are national and/or regional authorities, municipalities and different user groups. None of these actors is homogenous and their collective strategies are decided by interactions within their respective action arenas. Swedish nature conservation policy could be thought of as another action arena, but here it is considered in the context of the three case studies and the survey presented in Paper I.

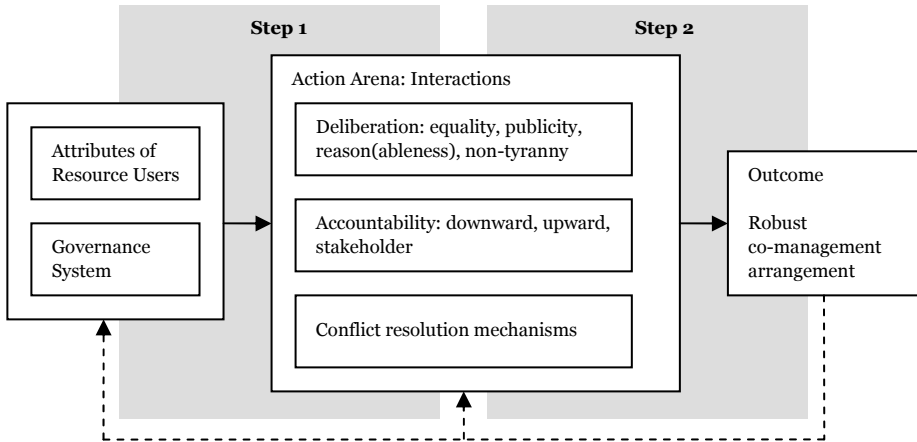


Figure 3. 'Focussed' version of the IAD framework, emphasizing the variables used in the case studies. Each case, thus, represents an action arena. Dotted arrows correspond to feedback loops.

Analysis of certain second-tier variables related to the users is included in the first analytical step (see the left-hand boxes in figures 2 and 3), including: a) resource dependency (users are dependent on the resource system for a major portion of their livelihood), (b) social capital (implying trust and reciprocity in addition to a common understanding of the resource and of how users' actions affect each other and the resource, as well as prior organizational experience) (Ostrom 2000), (c) homogeneity of the community or communities (in terms of ethnicity, gender and interests) (Bardhan and Dayton-Johnson 2002; Baland and Platteau 1996). Second-tier variables of the governance system are also included: relevant political and administrative arrangements that regulate or affect the use of the resource (such as legislation and the official attitude among the national and regional authorities concerning devolution measures) and the institutional framework (how tasks are divided at the national, regional and local levels) (ICLARM and IFM 1998). Finally, external political processes are mapped that have the ability to give moral support, provide economic incentives and resources, create formal conflict-resolution mechanisms and clarify rights (Berkes 2002).

The second analytical step, which is to evaluate real or likely (under alternative institutional settings) outcomes resulting from the interactions within the action arena, is a central feature of the IAD framework and a focus of this thesis. Deliberative processes, accountability relations and conflict resolution mechanisms can all be considered as second-tier variables, of importance to explanations of how certain interactions in social-ecological systems produce certain outcomes. Ostrom (2007:15183) also considered deliberative processes and conflicts among users to be interaction variables,

but she designated accountability an outcome variable. Accountability is, of course, an important aspect of the outcome, but it is also an important part of the ongoing interaction process that needs to be continuously evaluated (compare the use of good governance principles, for instance in Graham, Amos, and Plumptre 2003). Details of how these three variables are operationalized can be found in the appended papers.

There are a considerable number of potential outcome criteria within both the socio-economic and ecological spheres. These include (*inter alia*) economic efficiency, equity and sustained biodiversity (Ostrom and Ostrom 2004). The criteria employed in this thesis depart from the design principles of Ostrom (1990:90; 2005:259), which concern characteristics of *robust* institutions. A system is robust to the degree that it is long-lasting and the operational rules for day-to-day activities are being devised and modified over time according to a set of collective-choice rules² (which themselves might be modified more slowly over time within a set of constitutional-choice rules³ that are modified very infrequently, if at all) (Ostrom 2005:258). For a system to be long-lasting, it also needs to be legitimate, i.e. accepted by the majority of the parties concerned. Legitimacy is strongly connected to equity, a criterion almost always cited by authors (see for instance Ostrom, Gardner, and Walker 1994; Oakerson 1992). In the empirical case studies (Papers II to IV) outcomes are measured by the degree to which they appear to be long-lasting, the acceptability and legitimacy of the resulting management arrangement as perceived by the informants (which includes an efficiency element), how well conflicts have been resolved (or managed) and the envisaged procedures for modifying rules.

Quantitative survey analysis

Paper I presents a novel research design to analyze part of the context in which the management of commons occurs, and thereby introduces a new contextual variable (public opinion), which is particularly significant since commons research is criticized for not paying sufficient attention to the context. Furthermore, it tests the utility of a multi-level quantitative method by analyzing a two-sample mail survey that allows the examination of attitudes at national, regional and local levels. The dependent variable in the survey was attitudes to ‘management alternatives’, which were initially assessed by examining responses to the question: Which of the following

² Collective-choice rules regulate membership of the collective arena. They specify the scope of the rules, the positions within the management system, the ways in which decisions can be grouped to link different decisions together, rule-changing procedures and how information should be collected and used (Edwards and Steins 1998:360-61).

³ Constitutional-choice rules determine who is eligible to participate in the system and what specific rules are to be used in creating a set of collective-choice rules (Ostrom 1990:52).

institutions should decide management rules for protected areas? The respondents could choose from the state, the CAB, the municipality, the local population, and/or the reindeer herding communities (RHCs). Answers that included the state and/or the CAB were considered as supporting state management. If one of these was combined with any of the local actors (the municipality, the local population or RHCs) it was considered to support co-management and if only local actors were selected it was interpreted as local or self-management.

Logistic regression analyses were then applied, in which the independent variables were derived from other survey questions (for example what the characteristics of nature protection 'should' be, should the quantity of protected areas be increased, decreased or remain constant and the respondents' consumption of game meat). The objectives of these analyses were to elucidate overall and specific attitudes towards both co-management and protected areas in the Swedish mountain region, and identify factors influencing the attitudes. This study, thus, provides contextual background for the comparative study of designation processes in the region by exploring and testing the characteristics of the resource users, which is the general exogenous variable (see the left box in figures 2 and 3 above). Quantitative material was collected as part of the Mountain Mistra Programme by means of a survey conducted by post with 8868 respondents. Two samples were included, one national and one regional (with respondents in each municipality of the four mountain counties). The response rates were 57% and 65% for the national and regional surveys, respectively.

Comparative case studies

The major objective of this thesis was to explore possible mechanisms that could explain how and why certain designation processes result in robust co-management. These possible causal mechanisms had already been postulated in the common-pool resource framework, but they had not previously been developed further. The main research strategy applied was to conduct a hypothesis-generating, small-N case study. Researchers are motivated to carry out in-depth case studies when the objective of their work is to identify mechanisms behind phenomena that are not well understood (Huberman and Miles 1998:191-193), such as the multi-level, multi-use resource systems considered here. Yin stated that, "Case studies are the preferred strategy when "how" or "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context" (1994:1). Furthermore, contributions of Van Evera underline the fact that case studies are more informative regarding the reasons for theories holding than large-n studies (1997:55). In this manner case studies are very suitable for building and developing theories (Lijphart 1971).

In order to be interesting from a comparative perspective a good case study addresses a general analytical theme; an ideal case study “should be theoretically informed and theoretically informative” (Jentoft 1999:8). This comparative case study is based on the IAD framework, which allowed relevant variables to be defined and their possible relationships to be formulated in advance in order to structure the study. The approach is based on the structured, focused comparison method (George and Bennett 2005), which enables generalised conclusions to be drawn from a small number of cases. The within-case analyses presented in Papers II to IV are, therefore, structured around a set of ‘standardized general questions’ and focus selectively on aspects of each case that are relevant for the research question posed (Collier, Mahoney, and Seawright 2004:92-94). Although all three case studies covered the whole set of questions, to permit the comparative analysis presented in Chapter five, only a part of the set is presented in each paper. Therefore, each of the papers presents a theoretical puzzle, then describes the procedures involved in its investigation, and an empirical analysis of the acquired information. In Chapter five a comparison of the three cases based on the three theoretical problems is presented.

For each case study the process-tracing method was employed, which enables a strong test of theory (Van Evera 1997:65). The aim of process-tracing is to “identify the intervening causal process – the causal chain and causal mechanism – between an independent variable (or variables) and the outcome of the dependent variable” (George and Bennett 2005:206). This is done through examination of a number of different sources such as archival documents and interview transcripts (ibid:6).

The area focused upon in the studies is the Swedish mountain region, since there are more acute land use conflicts here than in most other parts of Sweden. This provides crucial cases for the development of theories on complex commons. The first dimension of conflict is the recognition of the mountain region as the traditional lands of the indigenous people of Sweden, the Sami. Another is that this region contains the great majority of the total surface of protected areas in the country, while at the same time it is highly dependent on its natural resources for economic development. In the context of Sweden the co-management approach is unusual, in particular with respect to protected areas, but there are examples outside of this region, for instance Tyresta National Park (managed by a foundation) and Koster National Park (managed by a multi-interest representative committee).

The population relevant for this study is protected area designation processes of co-management character (as defined on page 16) in the Swedish mountain region. Five such processes were identified and three were selected for further study; those that have been employed as blueprints by the authorities. Of the three, the Funäsdalen Snowmobile Regulation Area (Paper II) represents a case with a positive outcome; an apparently robust

management arrangement (although local management rather than co-management). The Laponia World Heritage Site (Paper IV) is also considered to be a case with positive outcome, although no final decision has been made. However, Fulufjället National Park (Paper III) represents a case with a negative outcome, since the establishment process does not appear to have led to a robust management arrangement. The two cases that were excluded, the Kiruna and Southern Jämtland National Park proposals, would have also been cases with negative outcomes. However, Fulufjället was chosen as the negative case, for comparison, since it has been suggested to offer a blueprint for the successful designation of national parks. This made its study of particular interest since it was reported to have involved a high degree of collaboration and participation, but did not result in co-management.

The research strategy could be regarded as a most-similar-system design (Seawright and Gerring 2008:304; Frensdreis 1983:260), since many background variables in the three cases are quite similar, but there are potentially important differences in variables such as the degree of heterogeneity and the type of protected area. However, in most case-oriented investigations the most-similar and most-different principles are not fulfilled in a rigid or mechanistic manner due to the difficulties involved in identifying the underlying similarities and differences (Ragin 1987:44-46). In theory development a prime part of the research task is to constitute the relevant population. Cases are thus not predetermined from the beginning, they “coalesce in the course of the research through a systematic dialogue of ideas and evidence” (Ragin 2004:127).

Apart from being employed as blueprints for a more participatory Swedish nature conservation policy, the three cases selected represent different types of protected areas, in the broad sense of the term. The task of establishing them was delegated to the authorities at varying levels; the snowmobile regulation area at the local, the national park at the central, and the world heritage site at the global level. To analyze the multi-level characteristics involved, it was important to choose cases involving different levels. In this way, differences may be accorded also to at which level formal responsibility is found. Awareness that the cases represent different kinds of protection, with varying accessibility restrictions, is important for the analysis of the severity of the local-central conflict, since local populations’ protests are mainly directed towards perceived reductions of the areas’ accessibility. Furthermore, the degree of accessibility can provide a measure of the instrumental component of legitimacy (to what extent desired outputs are achieved) while the procedural component may be evaluated from how effectively the characteristics of the process (the conflict resolution mechanisms, deliberation and accountability variables) are perceived to have functioned (Ulbig 2002; Thibaut and Walker 1975).

Triangulation (the use of material from multiple sources) is a very important feature of case study designs, since they allow the development of converging lines of inquiry. Findings are likely to be more convincing and accurate when they can be confirmed using different sources, thus increasing construct validity (Yin 1994:33, 90-94). In these studies, written material obtained from a range of sources is complemented with information obtained from interviews. Most of the written material consisted of official documentation, such as archive material (project documentation, minutes of meetings, decisions, and debates) from the regional authorities and local municipalities concerned, as well as the Swedish Environmental Protection Agency (SEPA), the Parliament and the central Government. Relevant government commission reports (SOU) were also used, both for obtaining specific information about the cases and to obtain an understanding of the general context. Other written sources included newspaper and magazine articles, documentation created by the individuals or associations involved (for example letters, memoranda, and agenda) and previous research reports. These disparate sources may not always be considered to be accurate by all the parties, but when considered together they illustrate how an issue has been interpreted by the factions involved.

In order to elucidate the mechanisms behind the results of the processes, the written sources mentioned above have been complemented with interviews. In Funäsdalen 11 interviews were conducted, in Fulufjället 14, and in Laponia 16. Informants were selected using the written material and the so-called “snowball technique”, a method of non-randomised selection (Esaiasson *et al.* 2004) in which key informants put forward the names of other people for interview. The interviews were semi-structured in order to cover all of the relevant issues but were still open-ended and quite fluid in nature. To obtain a complete account of the interviews they were recorded and transcribed. Further details regarding methodological issues can be found in the appended papers.

Co-management efforts in Sweden

The history of Swedish nature conservation policy

In 1909, exactly 100 years before this text was written, the first national parks were designated in Sweden (they were also the first in Europe). At the time, Sweden was in the midst of a massive transformation brought about by industrialization of a previously agriculture-based society. Through the use of novel technologies the whole country could be exploited, providing much needed economic development. The nature conservation policy proposed was, thus, aimed at saving the remnants of primordial ecosystems, but at the expense of neither the exploitation of resources that provided employment and welfare, nor of the small private owners (Ödman, Bucht, and Nordström 1982:187). Both Haraldsson (1987:111) and Lundgren (2005:79) have called the approach “rational nature conservation”. The nature that would be protected was untouched wilderness in order to counteract the ugliness of industrialisation and compensate for changes to living conditions: “to flee the unhealthy big city conglomeration out into the pure, free nature” (Ödman, Bucht, and Nordström 1982:193). The Government Commission report of 1907 cites reasons for conserving nature that are economic, scientific and social. Nature needed to be protected in order: to promote economic development (through sustaining valuable resources and ecological services); to create reference areas for scientific studies; and to understand the development of nature when undisturbed by man (the natural history of animal and plant life and geological development) (p. 6-7). Furthermore, it was emphasized that “the love of nature is... nowadays, general” (p. 8). This was linked to aesthetic demands, that a natural object should be conserved both for its beauty and for cultural historic purposes. However, conservation was in fact advocated in intellectual, touristic and scientific quarters and as such failed to represent the working-class view of nature (Mels 1999:75).

Natural heritage sites and national parks became the two instruments for protection. Natural heritage sites could be invalidated at any time if they posed a challenge to economic interests, and national parks could only be designated on state-owned land that was considered to be more or less useless for economic purposes. National parks were instruments used to set aside large areas where nature could develop without any cultural interference. They had a double character in that they represented “a remarkable natural heritage site and a prominent tourist site” (p. 47). They were also important to provide “patriotic material for object lessons” (fosterländskt åskådningsmaterial) for the education of people (Ödman, Bucht, and Nordström 1982:114). There was no discussion of the criteria used to select such areas. Indeed, patriotic reasoning was more important

than the desire to protect certain examples of nature. Hence, seven out of a total of nine parks were designated in Norrland, although less scientific knowledge was available regarding this part of the country than for other parts (Ödmann, Bucht, and Nordström 1982:109). Most of the selected areas were already considered to be important: Abisko for its canyon, Stora Sjöfallet for its waterfall, and Sarek for its glaciers (Sörlin 2009:184). For some of these areas the motive for designation was similar to that for Yellowstone Park, namely the stimulation and control of tourism in the area (Haraldsson 1987:76). Moreover, these particular designations came about as a result of the great interest in 'Norrland' as the "land of the future" (Sörlin 1989, 2009).

An example is the Stora Sjöfallet National Park in Norrbotten, which was established in 1909, and today forms part of the Lapponia World Heritage Site (see Paper IV). It was argued that the area already was recognized as one of the most beautiful natural areas in the country and, furthermore, its waterfall as one of the most remarkable in Europe. The forest and the waterfall were said to be of no direct economic value. Almost the whole area was stressed to be state property and through the establishment of a national park the state could control tourism and reap considerable economic benefits. No mention of the Sami, who operated within the area, was made (Swedish Government 1907:65-70).

The final law, adopted in 1909, prohibited hunting, fishing, felling of trees, and the removal of objects etc. Exceptions were made for Sami reindeer herding which was allowed to continue (SFS 1909:56), although few references had been made to this issue during the preceding discussion (Mels 1999:93). In this respect, the law did not fully embrace the scientists' proposal, that hunting and fishing by the Sami should be prohibited within the parks (Swedish Government 1907:49-50). From an international perspective permitting an indigenous people to continue their traditional practices within a national park was a unique concept (Stevens 1997:47). "The exercise of these rights [of Sami reindeer herding] has so far not had noticeable influence on wildlife [*naturlivet*], and the Lapp population [the Sami] is so intimately united with the nature within its territory, that is to say it completes it. It would without doubt be inappropriate to undertake something, which could deprive a Lappish national park the particular interest that it is endowed through the presence of the Lappish folk element" (Swedish Government 1907:49). This citation, however, illustrates how the Sami were also pictured as being part of nature, in accordance with the viewpoint that they represented a lower form of civilization (see also Mels 1999:93).

During the preparation of the law proposal, the greater importance of establishing natural heritage sites rather than merely national parks was emphasized, and it was adopted by parliament without any debate (Ödmann,

Bucht, and Nordström 1982:104, 84). The policy was more in line with the German discourse than the American, emphasizing that the remnants of primordial nature should be conserved as a form of outdoor museum to strengthen patriotic and nationalistic feelings (Ödmann, Bucht, and Nordström 1982:188; see also Sörlin 2009). Nature and discovery of the Swedish landscape through tourism were perceived as the cement that would unite the working and bourgeois classes in striving for national welfare (Ödmann, Bucht, and Nordström 1982:192). The belief in progress and development was linked to both nature and the nation (Eskilsson 1998:98-99). In conclusion, the motives that dominated the creation of national parks were both nationalist and monumental; the parks were seen as flag carriers (Sörlin 2009:182); outdoor museums to stimulate tourism and thus both provide economic benefits and boost national identity (Ödmann, Bucht, and Nordström 1982).

During this initial phase of Swedish nature conservation policy, administrative resources were very limited and objectives unclear (Ödmann, Bucht, and Nordström 1982:188-90). A committee consisting of three members under the auspices of the Royal Swedish Academy of Sciences (RSAS) was responsible for the management of protected areas (Lundqvist 1971:123). However, during the 1930s, nature conservation came to be viewed increasingly in social and economic terms (Lundqvist 1996:257) as a consequence of increased public interest in outdoor activities, such as camping, hiking and cycling (Sörlin 2009:189).

Until 1950, nature conservation was characterized by haphazard planning and flexible application (at least with respect to national parks). No clear guidelines or principles for selecting parks or their establishment were in place (Mels 1999:114). In 1946, a government investigation was initiated to examine the management and organization of protected areas, which was considered inadequate. However, the instruction for the investigation stated that one person should be enough and that economic and social arguments should be prioritised over environmental consequences (Lundgren 2005:85). It was not until 1952, when a new nature conservation law was adopted, that nature was recognized to be of national interest and thus should be protected and managed. At this time the state also strengthened the available management resources (Ödmann, Bucht, and Nordström 1982:190) and gave the Country Administrative Boards (CABs) decision-making powers in addition to those held by the King. The RSAS kept its investigatory and advisory functions with regard to scientific concerns, while issues related to landscapes were dealt with by a voluntary association. Management was to be handled by the State Forest Service and the Forestry Boards (Lundqvist 1971:30, 40). Two new instruments were also established by law; nature parks and landscape conservation, but not a new nature conservation

agency. Conflicts over nature conservation were, however, increasing (Lundgren 2005:85).

Until the 1960s, environmental policy and administration was given low priority. Early attempts to protect the environment were characterized by a fragmented approach, in which issues were dealt with individually, rather than in an integrated manner (Lundqvist 1996:258). A new investigation into nature conservation was commissioned in 1960. The ensuing report, published in 1962, highlighted the following findings; that there was an unclear compensation policy, insufficient financial resources, lack of staff for inventories, investigations and negotiations, and that landowners had been favoured in conflicts regarding nature conservation. As a consequence, most of the land that had been protected was in fact “remnants that have not been used because they were remotely situated, of insignificant economic value at the designation or other for the protection value irrelevant grounds”. The ‘remarkable’ had been given priority over the ‘typical’ and ‘representative’. Furthermore, the need to protect the cultural landscape was emphasized and social aspects became increasingly important. It was concluded that scientific conservation should, therefore, be complemented with facilitation of outdoor recreation. Parliament adhered to the investigation’s findings, and in 1963 the Nature Conservation Committee was established to carry out inventories, plan and advise (Lundgren 2005:85-86). It was hoped that this would secure public access to nature in particular, making it valuable for leisure activities and so safeguard ‘social’ aspects of interest (Lundqvist 1996:257). A nature conservation law was adopted in 1964 and an additional conservation instrument was introduced; nature reserves that would be established by the CABs at the regional level (Lundgren 2005:85-86).

In the mid 1960s, environmental issues played a central role in the political debate. Scientific knowledge had increased substantially and ecological disasters were becoming both increasingly common and increasingly publicized (Lundqvist 1971:105). Reliance on science for defining environmental policies increased, bringing scientific classification of protected areas into nature conservation (Mels 1999:119). In 1967, the Swedish Environmental Protection Agency (SEPA) was established and endowed with a number of administrative powers, primarily associated with leading and controlling the work of the environmental protection units of the CABs. Environmental issues were to be dealt with by specialized agencies and units that were to be established at all levels of government (Lundqvist 1996:322). The work was, therefore, centralized through SEPA to a large extent and highly specialized. Nature conservation was not to be mixed with agricultural policy or forestry policy. The work was intensified with the injection of the new institutional and economic resources; the area protected between 1967 and 1969 was twice the size of the total protected area during the preceding 50 years (Lundgren 2005:111).

During the 1980s, public interest in the environment increased steadily and finally exploded in 1989 when the Green Party entered Parliament; the first new party to do so in 70 years. The society was to be ‘ecologized’ (Lundgren 2005:111), which meant that environmental policy should be cross-sectoral. In the 1990s, emphasis shifted even further towards integration, as manifested by the adoption of the Environmental Code, which replaced a dozen previous pieces of legislation (Lundqvist 1996:260-61). There was also a new focus on protecting forests and wetlands in nature conservation. When SEPA was established there were 16 national parks and by 1991 the number had increased to 22, and in 1967, 25 000 hectares were protected as reserves compared to 2 300 000 hectares in 1991 (Lundgren 2005:118). Nature conservation became increasingly connected to conservation biology, to identify and protect threatened species. In the 1970s, SEPA had already initiated the compilation of a register of threatened species and this work was intensified during the 1980s when so-called red lists of threatened species were made public (Sjöberg 2005:247). In the 1990s, concerns about the depletion of biodiversity played a major role in the nature conservation agenda (Lundgren 2005:121). The ‘red-listing’ of species made this an environmental problem, which became measurable and visible (Sjöberg 2009:29). This focus led to the renewal of efforts to protect rare species and areas with high biodiversity (meaning ones with many varieties of rare species).

Is nature conservation at a crossroads?

Today, whether this focus on protected areas and red-listed species represents the optimum strategy for sustaining functioning ecosystems is questioned (Bengtsson 2009; Gustafsson 2009; Elmquist 2009; Johannesson 2009). The capacity of the most common natural ecosystems like forests, oceans and meadows is not determined by the number of species within them, or by how many of the species present are rare, but by the status of a few very common species that strongly contribute to most of the ecosystem functions (Johannesson 2009:99). Furthermore, the provision of protected areas will not be sufficient to conserve biodiversity, since the dispersal of species providing ecosystem services is slow and climate change is expected to change landscapes (Bengtsson 2009:44). Thus, to meet the challenges of conserving ecosystem services rather than just rare species, a more flexible and innovative system of protected areas is called for, combined with even greater efforts to integrate nature conservation with land-based industries (Bengtsson 2009:53; Gustafsson 2009:87; Elmquist 2009:98). This demands greater emphasis on participation and cooperation with users (Bengtsson 2009:55).

According to Emmelin (2009), over time, an environmental paradigm has developed in Sweden. He argues that this paradigm still dominates and

nature conservation is part of it. A central idea of the paradigm is that it is possible to decide what is 'healthy' and 'what nature can support' scientifically. Therefore, central expert knowledge is crucial if nature is to be conserved. This view is based on the perception that there is a 'natural state' and that 'nature' is in opposition to 'culture'. Accordingly, nature conservation officials consider top-down management to be a cornerstone of any rational conservation system, and are sceptical about efforts at the local, municipal level (Emmelin 2009:123-28). However, more recent policy documents (Swedish Gov. Bill 2008/09:214; Swedish Gov. Communication 2001/02:173; SEPA 2003b) emphasize the importance of dialogue, participation, local support (lokal förankring) and local management in nature conservation, in line with international trends outlined earlier (pages 11-12). This indicates a change in Swedish nature conservation policy (Ljunggren Bergeå 2007:33-35), where also regional development, e.g. tourism, is favoured once again (Zachrisson et al. 2006).

However, participation in nature conservation work remains "more sporadic than systematic and regular" (Sandström, Falleth, and Hovik 2008:16). Emmelin (2009:128) points to the policy's emphasis on 'support' or 'anchoring' (förankring), which implies finding methods to increase understanding and acceptance locally. This is explicitly stated: "The Government's environmental objectives are certainly not negotiable, but the forms to achieve them may be subjected to dialogue" (SEPA 2003b:6). Paper III, in particular, includes a discussion of this aspect of current conservation policy. Government Bill, 2008/09:214, gives the impression that participation is to be reserved primarily for landowners, rather than general users, to encourage voluntary nature conservation measures. But if the proposed cooperative fora at the regional level come into effect, more formalized cooperation will also be introduced. The CAB, the Forestry Board, the municipalities, the landowners, reindeer herders, nature conservation and outdoor recreation associations etc. should all be represented. The aim is to provide fora for both dialogue and the exchange of information on nature conservation work that is currently ongoing. Furthermore, there is a proposal that all national parks should have advisory management boards.

Clearly, there is an increasing political emphasis on greater collaboration in nature conservation. This is not surprising given that public opinion is demanding more local management of protected areas, as shown in Paper I. However, the question is whether the meaning of this has really changed. Current policies on nature conservation remain rather fragmented. Voluntary measures, protected areas and landscape strategies are just a few of the new and old tools that need to be properly integrated to attain a comprehensive perspective that could embrace ecological, social and economic concerns. The importance of an ecosystem approach is mentioned, but does not permeate throughout the policy. An example is the plan for

national parks from 2009, in which ecosystem services are only mentioned in relation to general economic motives to conserve nature. The plan does not spell out how the proposed national parks are to make a real contribution to the conservation of ecosystem services (SEPA 2008:88). Apart from the emphasis on participation (or support) the current policy seems to resurrect certain themes from very early nature conservation efforts. Firstly, the nationalist theme: nature conservation is seen as a way to strengthen national identity, e.g. national parks are seen as flagships and immigrants are to be taught how to use the Swedish forest as a way to become more fully integrated into Swedish society. Secondly, the educational motive: nature conservation as a way to educate the people regarding preferred societal values that today are expressed as the ‘ecological welfare state’.

The cases analyzed in Papers II, III and IV are examples of how ‘participatory ambitions’ have been and are being expressed in practice. These contributions provide evidence indicating where Swedish nature conservation is currently heading in practice.

Today’s institutional framework

The Swedish Parliament decides the overall institutional framework of nature conservation through stipulating laws and making policy declarations. Parliament also delegates the right to declare directives to the Ministries, who in their turn delegate power to the central agencies. The central agencies may then delegate tasks to the CABs, which are government-appointed boards charged with the coordination of national policies in the regions. Constitutionally, each CAB is a government agency subordinate to the Government Cabinet.

At the national level, SEPA has central responsibility for nature conservation work and coordinates different forms of protection, which implies the production of guidelines and national programmes. Funding for promoting biodiversity (which is used to reimburse landowners for the management of protected areas etc.) is administered by SEPA, which also runs national parks. The Forestry Board is responsible for the protection of biotopes in forested lands and works through agreements on nature conservation (naturvårdsavtal). The National Heritage Board (NHB) has responsibility for cultural reserves (Swedish Gov. Bill 2008/09:214, p. 34).

At the regional level, the CABs are responsible for the protected areas within their respective counties and they run most of the operative work involved in protecting and monitoring areas (nature reserves, cultural reserves, natural heritages etc.). The CABs also manage almost all protected areas, including national parks, which means that they are responsible for funding and evaluating them. When establishing protected areas, the CABs should consult with the municipalities concerned. They further have a

responsibility to coordinate and guide the municipalities within the county in nature conservation issues (Swedish Gov. Bill 2008/09:214, p. 34; SEPA 2003a:28).

The municipalities have defined responsibilities at the local level. They may establish certain types of protected areas such as nature reserves and cultural reserves. The funding, management and monitoring of the areas protected by the municipalities are dealt with by them. SEPA may provide some of the funding required (Swedish Gov. Bill 2008/09:214, p. 34).

There are a number of different types of protected area, but only those studied in the three case studies will be described, briefly, here; national parks, nature reserves, snowmobile regulation areas and world heritage sites. National parks are established to “conserve a large continuous area of a certain landscape type in its natural or essentially unchanged condition” (Environmental Code 7 chapter 2 §). The decision to designate a national park is made by the Government with the agreement of Parliament. SEPA decides on regulations and management plans, is responsible for the long-term planning and prepares the establishment of new national parks. There are 29 national parks in Sweden and approximately 85% of their total area is within the northernmost county of Norrbotten (in the mountain region) (Swedish Gov. Bill 2008/09:214, p. 28-29).

Nature reserves are intended to conserve biodiversity, preserve and conserve valuable natural environments and/or provide recreation areas. The CABs and the municipalities can establish them, and this process should include the formulation of regulations on land use and a management plan. There are 3283 nature reserves (223 of which are municipal) constituting 80% of the total area of protected land. Together national parks and nature reserves account for about 10% of the total land surface in Sweden. Forty-three percent of the Swedish mountain region area is protected and 2.3% of the rest of the country (Swedish Gov. Bill 2008/09:214, p. 28, 30).

Snowmobile regulation areas are primarily regulated by part of the Cross-Country Driving Bill (Terrängkörningslagen 1975:1313), which states that if motor-driven vehicles cause nuisances the Government may ban driving in certain areas or provide regulations. The Government may also delegate this task. Such bans or regulations may not unnecessarily restrain the driving of local populations or that which is needed for professional practices.

Countries who have signed the World Heritage Convention can nominate sites of outstanding universal value to be included in the UNESCO World Heritage List. Selection decisions are made by the World Heritage Committee and a site must fulfil at least one of ten criteria to be successful (UNESCO 2009). Sweden signed the convention in 1985, and today it has 14 World Heritage Sites. Two authorities have overall responsibility for these sites; to monitor the development of sites already in existence and to support the CAB in management issues. The same authorities are also responsible for

nominating sites: SEPA sites with high natural value and NHB sites with high cultural values. There is no particular legislation that regulates World Heritage sites; they comprise different protection instruments regulated by the Planning and Building Law, the Environmental Code, and/or the Cultural Heritage Law (NHB 2009).

Overview of appended papers

1. Who should manage protected areas in the Swedish mountain region? A survey approach to co-management

This article investigates attitudes towards the co-management of protected areas at the national, county and local levels in Sweden. This approach is novel; co-management research is usually conducted using case studies and public opinion is seldom addressed in the analysis. Since commons research is criticized for undervaluing the context, the inclusion of the unexplored contextual dimension of public opinion is a particularly important contribution of the study. The usual focus on case studies has emphasized the views of local populations, largely ignoring a key issue; the degree to which local demands are representative of the general opinion in the country. Nature conservation is usually undertaken to protect important natural assets for future generations and rarely to protect the environment for local people. Hence, the opinions of all citizens need to be heard and considered in cases dealing with natural resources of national interest so that fully democratic processes can be realized. Further, general public opinion is likely to influence on the success of co-management initiatives, since state administrations need to take it into account. Mapping the similarities and differences in attitudes at the national and local levels may, therefore, contribute to our understanding of how co-management arrangements come to fruition, when they do and not work, and the factors that influence their success.

The analysis was based on a postal survey of two random samples. The first included 150 permanent inhabitants from each municipality in the four northernmost counties – Dalarna, Jämtland, Västerbotten and Norrbotten (in total 7800) – and the second, 1067 persons from the remainder of Sweden. This allowed the analysis of attitudes at the municipal (local), county (regional) and national levels. Logistic regression analyses were employed to investigate factors that might explain the preferred mix of management in Sweden, and characteristics of opponents and advocates of different management arrangements. Three hypotheses derived from commons research were tested.

The co-management of protected areas is an emerging phenomenon in Sweden and the forms it may take are yet to be established. The study help to narrow the broad concept of co-management to fit the Swedish context. Self-

management was defined to include situations where the municipalities, RHCs, and/or local populations were responsible for management, and co-management any sharing of power of these local actors with the CAB and/or SEPA. The majority of respondents (65%) supported one of these two forms of management, while state management (which is the rule today) was only preferred by 18%. Swedes evidently wish more actors to be involved in the management of protected areas; 25% even desire self-management and, hence, management that is entirely locally controlled.

The basic assumption behind the discussion of protected areas is that resistance develops in rural areas where protected areas are most often established. Simple frequencies observed in the analysis supported this. The support for self-management was 10% higher in the mountain region (where the great majority of protected areas are located) than in the rest of the country. However, the logistic regressions showed that the degree of urbanization is actually more important; co-management tends to be preferred by people living in rural areas and self-management by people in the cities. The current emphasis on the opposition between rural and urban views in nature conservation is, therefore, modified in this study, which suggests that other variables are more important, at least for explaining preferences for certain management solutions.

Results of tests of the other three explanatory variables show that: resource dependency is related to support for co-management but not to support for self-management; that a common understanding of the number of protected areas needed and what should be allowed in them is associated with support for both co- and self-management; and that trust is an important factor regarding individuals' management preferences. So, the theoretical assumptions are confirmed to a degree, but not entirely. Self- and co-management supporters were assumed to have similar characteristics, but they were found to differ substantially. This suggests that it should be clarified that self- and co-management are indeed analytically separate entities, although both are common property regimes that suit different kinds of situations. The quantitative survey method employed proved to be a fruitful approach to the analysis of a resource of national and local interest.

II. Deliberative democracy and co-management of natural resources: Snowmobile regulation in western Sweden

The purpose of the work described in this article was to enhance understanding of the relationship between co-management and deliberative democracy. Deliberation is an understudied aspect of common-pool resource theory, understanding of which could be developed through closer connectivity to deliberative democratic theory. Empirical co-management studies may also provide valuable insights into deliberative democratic theory.

There is an increasing emphasis on deliberation within the current natural resource literature, however, few references are made to deliberative democratic theory. This means that deliberation has not been treated as a specific quality, but as being synonymous with communication within a participatory setting. In this paper the argument is advanced that deliberation is a particular kind of participation which is both deliberative and democratic. Most deliberative democratic theorists set up three procedural preconditions: (1) reason (interpersonal reasoning), (2) publicity (the acts of giving, weighing, accepting or rejecting arguments are made in public), and (3) equality (all affected parties should have the same opportunities to participate). A fourth condition is also discussed; non-tyranny, which assumes a requirement for institutions to constrain power. These conditions are also discussed in the co-management literature, but concepts related to the mechanisms involved are less well developed, particularly regarding publicity and reason. The main value in bringing deliberative democratic theory into co-management analyses is in attaining a deeper understanding of how these mechanisms may contribute to successful conflict resolution and improved decision-making.

A framework is developed for analysis of the extent to which co-management processes incorporate deliberative elements. The utility of the framework is then tested in a case study of a process with co-management characteristics, which led to the establishment of a municipal snowmobile regulation area in western Sweden. In Funäsdalsfjällen a situation that had been plagued with conflicts caused by use of snowmobiles ended in agreement and the establishment of local management. Initially, neither the central nor regional authorities resolved the conflict, but when they started working directly with the relevant interest groups, agreement was reached. Their goal was to deal with the conflict while promoting the development of the area. Funäsdalsfjällen is a small community which is highly dependent on tourism, and it had a relatively high level of social capital. The resource system was considered to be over-used. External political forces pushed for regulations to be imposed and assisted with funding. Under such favourable conditions, deliberative mechanisms helped in bringing the conflict to an end.

The presented analysis shows that the Funäsdalsfjällen case incorporated many elements of deliberative processes and it, therefore, approaches the deliberative democratic ideal. This is despite the fact that the designation process was group-based, which is not readily accepted as deliberative democracy. Deliberative democracy is most commonly thought of as the reformation of core political institutions and/or public discourse across the strata of society. There are scholars, however, who stress the relevance of group-based arrangements at the interface between the state and society in order to improve outcomes for society. If these are incorporated into

deliberative democracy, it is important that accountability is discussed. In Funäsdalsfjällen, accountability was ensured as the formal decision was made by the municipality, while the benefits of deliberation accrued at the local level. Furthermore, this case study highlighted the importance of attending to the instrumental dimension of deliberative democracy; i.e. that the end result and follow-up through the provision of information and supervision is important.

Understanding of the factors leading to more robust management is enhanced when deliberative democratic elements are included, in particular the focus on reason. The case study shows that thematic cross-groups, maps, field trips and experts definitely facilitated the process. With respect to publicity, the study emphasizes that transparency is increased when the constituencies involved designate their own representatives. The study also shows that it is necessary to consider whether accessibility to funding is equal in order to evaluate non-tyranny, and strengthens claims that deliberative democracy is a requirement to abate conflicts over methods of solving complex, multifaceted environmental challenges. To conclude, co-management research can be used more extensively to theorize about the realization of deliberative democracy in real life situations. Conversely, deliberative democratic theory can be used to improve the design of co-management arrangements.

III. The designation of Fulufjället National Park:

Efficient co-management through downward accountability?

Commitment to international nature conservation policy demands increased participation, which could be implemented through decentralization or co-management. This follows a general trend from government to governance. Co-management arrangements are also increasingly seen as forms of governance, which opens them to the criticism that accountability becomes blurred when public-private relations are characterized by informality and negotiations. The purpose of this paper was to examine the issue of accountability by comparing co-management theory and the decentralization framework of Agrawal and Ribot. Key questions addressed were: How should the level at which participation should be broadened and who should participate?

Co-management is a governance approach that mixes elements of public and private institutions, thus complementing formal political governments. Decentralization focuses on both the representative assemblies and administrative organs of these formal institutions. Both co-management and decentralization aim for broadened participation at the lower administrative and/or ground level. The decentralization framework analyzed here includes three dimensions: actors, powers and accountability relations. The main contribution that this framework offers to studies on co-management is its

focus on accountability, even though it does not outline clearly which variables should be used to make this concept operational. It is an issue which has not been well studied so further work in this area is of the utmost importance. Both the decentralization framework and the co-management literature emphasize the need to map the participating actors and their representativeness. Co-management is based on public-private arrangements and decentralization on local elected assemblies. However, the two approaches are, perhaps, complementary; public-private governance is important in pooling knowledge gathered from different actors, while governments for elected representatives guarantee the democratic element (see also Paper II). The issue of which powers are being transferred and how discretionary they are is incorporated in both the co-management literature and the decentralization framework. However, the degree of discretion seems more developed in co-management theory as illustrated by the co-management ladder.

The combined frameworks were applied to analysis of the process of designating Fulufjället National Park, which SEPA uses as their blueprint for successfully increasing participation in the implementation of the nature conservation policy and adherence to international obligations. The park was inaugurated in 2002 after a long process to overcome initial conflicts, and it was the first national park to be designated in the Swedish mountain region since 1962. It was considered a real success against a background of previous failures caused by local protests. However, the sincerity of the move towards participation can be questioned, since the process was not opened to local interests until the park proposal had almost been turned down, clearly indicating that the original intention was not to involve local actors.

In general the case study supported the theoretical expectations. However, it contradicted the suggestion in the decentralization framework that downward accountability is more likely to occur when powers are decentralized to elected assemblies. The degree of representation of the municipalities was not adequate in the establishment phase, as illustrated by the outrage of local residents, and it was not much better in the co-management elements of this phase, in which local residents were either appointed by the authorities or were self-appointed participants. There is clearly a need to carefully appoint/elect representatives in governance arrangements. There was also a notable change in the scope of power when the national park was established, since many rights of local withdrawal were restricted and tasks that used to be dealt with by the regional administration were taken over by the central administration. The end result should thus be considered as recentralization rather than decentralization. The local influence was consultative or advisory during the establishment phase; decentralization elements were used purely as a means to implement national policy and overcome local resistance. The advisory organization, which was finally established

after the park had been designated, deals only with issues relating to tourism and it is not highly formalized. The findings clearly indicate that the less institutionalized forms of accountability that may operate in public-private partnerships require that an arrangement is well-defined and agreement over roles and responsibilities.

IV. Conflict resolution mechanisms in co-management: The Laponia World Heritage Site

There are few studies on the emergence of co-management; the process from policy making to implementation, which involve both policy and institutional change. However, conflicts are often seen as catalysts for the emergence of common-property regimes in studies of the commons or co-management. Thus, conflict resolution mechanisms are perceived as essential, but understudied. The processes involved remain unclear, and their characterization often relies on induction. This paper analyzes and discusses the institutional and policy change entailed in the emergence of co-management. A key aspect addressed is conflict resolution, prompted partly by the need for a clearer concept of the nature of conflict resolution mechanisms, through comparing alternative dispute resolution theory and theories on the commons and policy change.

The conflict resolution mechanism discussed in the paper is collaboration, as discussed in theoretical considerations by Gray and Daniels and Walker. They focus on the initiation of collaboration and outline process models. Collaboration requires interdependence, through which all parties have some form of countervailing power since they are all in some ways dependent on each other. The definition of collaboration is similar to that of co-management, therefore it appears difficult to differentiate the mechanism of conflict resolution from the processes of collaboration or co-management. Alternatively, there might be process elements that are particularly important to conflict resolution. Such elements are identified by the process models proposed by Gray and Daniels and Walker. There is no corresponding model of the co-management process, which would outline the gradual steps involved in the implementation of a joint decision: problem-setting, direction-setting and implementation. Daniels and Walker's model of experiential learning in three stages; first-loop, second-loop and third-loop learning. Third-loop learning appears to be a requirement for reaching agreement on a common transformative model, which is necessary in order to reach the implementation stage of collaboration. However, in the co-management literature, third-loop learning is not a recognized occurrence before the maturation of co-management.

The relevance of the process elements outlined for conflict resolution and the issue of when third-loop learning occurs are demonstrated empirically in a case study of the process of realizing a management organization and plan

for the Laponia World Heritage Site. Laponia is situated in northern-most Sweden and is one of only four World Heritage Sites worldwide aiming to conserve the cultural values of an indigenous people, along with natural values. The process had been plagued with conflict over the level of influence that the indigenous people, the Sami, should have in the management of the site, but eventually collaboration was initiated against the odds. Laponia is used by the Sami for reindeer herding and this activity is disturbed by tourism. The municipalities concerned hoped that tourism would increase as a result of gaining world heritage status. Authorities involved in nature conservation accept tourism to a certain extent, but consider reindeer herding to pose a potential threat to the environment. Collaboration was initiated when all parties had agreed on a Sami majority in the management organization and consensus decision-making in the process which followed. The focus would be on conservation of natural and cultural values as well as development of both Sami and local industries.

The case study shows that employment of a process model is useful in the analysis of collaboration or co-management processes and that there are certain process elements that appear to be particularly crucial for conflict resolution. In the future, focus on these may replace the analysis of conflict resolution mechanisms in co-management. Where co-management originates in conflict, as in Laponia, the problem-setting phase appears to demand internal second- and third-loop learning in order for changed ideas and norms to build trust and understanding. Joint work on transformative models through the establishment of sub-groups, joint searches for information and exploration of the various models of the actors is essential in establishing grounds for system-wide learning. Throughout the direction-setting and implementation phases, learning is institutionalized and spread within organizations and across levels. These findings conflict with the current view in the field of adaptive co-management, that second- and third-loop learning does not occur until co-management arrangements are mature.

Dynamics of management institutions

Co-management process principles

With the IAD framework as its starting point, this dissertation contributes to the literature by proposing design principles for the interactions in multi-use, multi-level co-management processes. It can be described as a proposal, since the work in this thesis is exploratory in design. The objective was to develop theoretical aspects, although the comparative case studies offered some possibilities to test theoretical assumptions. The co-management process principles can be considered complementary to the design principles for enduring common-property institutions described by Ostrom (1990:90, 2005:259). Principally, the following principles proposed by her, were developed; 3 (collective-choice arrangements), 6 (conflict-resolution mechanisms), 7 (minimal recognition of rights to organize) and 8 (nested enterprises), all of which have lacked specification.

Paper II presented the first building stone of the co-management process principles - deliberative democracy, paper III the second - decentralization, and paper IV the third – collaborative learning. Table 1 below presents the synthesis of these. It was found that deliberative democratic theory can make a contribution to the co-management literature (Paper II). But as a result of extending the concept of deliberative democracy to group-based co-management arrangements, it became apparent that both co-management and deliberative democracy analyses generally do not pay sufficient attention to accountability. This is an explicit focus of the decentralization model discussed in Paper III, which also brings attention to the scope of powers being decentralized. Co-management on the other hand emphasizes the nature of power. Both the studies in Papers II and III demonstrated that protected area designations are rather lengthy processes stemming from conflicts, which inspired the use of conflict resolution theories in Paper IV.

When the three theoretical models are combined, a new picture emerges. Table 1 shows design principles for co-management processes, which include five overarching dimensions derived from the theoretical models: representation, reason(ableness), power, accountability, and learning. Representation is a dimension that is already accepted (see Papers II-IV), while reason is something of a novelty in the context of co-management that requires inclusion (Paper II). Considering issues of power in co-management is not a new idea, but its operationalization has not been readily apparent. Here it is proposed that both the nature and scope of powers are important, including the equality element of deliberative democracy (Paper II) and the co-management and decentralization element of discretion (Paper III). Further important aspects are non-tyranny, which according to deliberative democracy theory involves the separation of power (Paper II), a process enhanced

by the adoption of ground rules and equal access to funding (Paper IV). Accountability should also be considered; incorporating both the publicity element of deliberative democracy (Paper II) and a focus on formal relations, as in decentralization theory (Paper III). The last dimension, learning, is developed from the literature on policy, conflict resolution and adaptive co-management and highlights the importance of real experiences for the recognition of multiple worldviews (Paper IV).

The principles in table 1 will be further explained below since they were applied to all the three cases examined in this thesis. As assumed in the case selection, the paper summaries show that these are all examples of protected area designation processes that had co-management characteristics (according to the definition on page 16), but resulted in different outcomes. Funäsdalen (Paper II) and Laponia (Paper IV) were the two cases considered to have positive outcomes, while Fulufjället (Paper III) represents a case with a negative outcome (at the time when the respective case studies were finished). Funäsdalen represented a local management arrangement, which appeared to be rather robust. The process in Laponia will, in all likelihood, be finalized with some form of co-management, including an important role for the Sami, that should increase the robustness of its management. In both cases, the fundamental conflict seems to have been successfully managed and regular revision of the rules is either an on-going process or envisaged in the future, therefore, the arrangements are considered to be robust. The national park in Fulufjället was state-managed and robustness appeared to be low. Its legitimacy was eroding, conflicts were re-emerging, and modifications of the rules were called for by local users. An important conclusion of this thesis is, therefore, that analysis of the establishment phase of a co-management process assists in understanding the functionality of co-management arrangements. However, the cases represent different kinds of protected areas, which implied that the designation of Fulufjället National Park tightened the restrictions on local populations, while in Funäsdalen alterations were mainly directed toward visitors and in Laponia few changes were made to those already in existence. This indicates that not only process characteristics are important for legitimacy (and hence robustness), but also instrumental achievements – that the output actually is the desired one.

| Co-management Process Principles | | Operationalization | Relevant questions |
|---|---------------------|--|---|
| 1. Representation | | Variety of actors | Who participates? How representative are the participants? Who is being empowered? |
| 2. Reason(ableness) | | Deliberators must state their reasons for advancing proposals, supporting them, or criticizing them. Arguments must be formulated in such a way that all can understand them and potentially accept them. | Is the encounter structured to facilitate reasoned analysis, to give careful attention to all opinions? Is the encounter structured to encourage the emergence of shared understandings and new solutions? |
| 3. Powers | a) Nature | All have the same chance to put issues on the agenda, to question, to interrogate, to propose solutions and to employ the full range of expressions available to everyone else. All have equal access to all relevant arenas. Degree of discretion (co-mgmt ladder) | Do all interested parties have an equal opportunity to express their views and influence proceedings? To what degree is power confined? |
| | b) Scope | Scope: powers (taxation, allocation, withdrawal, management, exclusion and alienation rights) | Which powers should be devolved? |
| | c) Non-tyranny | Institutional requirements constrain the distribution of power; separation of powers, legally guaranteed rights, agreement on ground rules before substantial issues are discussed, and/or funding is equalized. | Which formal requirements constrain the distribution of power? When were they agreed on? How is the collective output linked to any broader decisional process? Is access to funding equal? |
| 4. Accountability | a) Publicity | The acts of giving, weighing, accepting or rejecting arguments are public so that all have a chance to judge them. | Is the process continuously open to scrutiny by affected interests who cannot take part directly? |
| | b) Formal Relations | Downward: public actors are accountable downward to their constituencies (institutionalization, candidate selection, suffrage, term lengths, means of recall etc) | How can decision-makers be held responsible? |
| 5. Learning | | First-loop: Incremental change (of routines) Second-loop: Program change (of instruments) Third-loop: Paradigm shift (changed ideas, norms and protocols) | Are multiple worldviews recognized and allowed to co-exist? Do policy elites perceive and acknowledge policy failure? Which policy subjects are changed? What are the policy effects? |

Table 1. Co-management Process Principles (Papers II, III and IV)

Exogenous similarities and differences

The factors termed exogenous variables allow for step 1-analysis. Do the cases share some general similarities and are there some significant differences between them in terms of these variables (see pages 21-23)? The attributes of the *resource system* were excluded in figure 3 (page 23) since the focus of this thesis is on exploring institutional and social aspects. However, a very brief description of the resource system is valuable to provide background information for the studies and their results. The resource systems investigated are all mountainous ecosystems characterized by low-productivity soils and species-poor flora. The low productivity is further exacerbated by the northern location with its short period of vegetative growth. It is predicted that climate change will have a major impact in the region, bringing warmer temperatures and increased precipitation (Moen 2006:307). Once protected areas have been established, the resource systems within them have well-delineated and stable boundaries and a low level of resource use.

The Fulufjället and Funäsdalsfjällen areas are quite similar in *size* and they are both situated in the southern part of the mountain region. In contrast, Lapponia is situated in the northern part and it is more than ten times bigger. The communities around Fulufjället and Funäsdalsfjällen are also similar in that their *resource dependency* is high; tourism is needed for the provision of employment and economic development. The reindeer herding communities (RHCs) are not, however, dependent on tourism to the same extent, even though it could provide opportunities. In Gällivare and Jokkmokk, the municipalities involved in Lapponia, tourism is not as important as in those involved in Fulufjället and Funäsdalsfjällen. Furthermore, the greatest sense of urgency was present in Funäsdalsfjällen (due to the perceived *overuse of resources*) and to a lesser extent in Fulufjället (due to depopulation and earlier failures with national parks).

The *population* numbers affected directly in the three cases are similar; around 400 in Fulufjället, 2100 in Funäsdalen and 300 in Lapponia (this is the total number of reindeer herders working in Lapponia, since the RHCs are the only part of the local population to participate directly). Representation was similar in all three cases, although in Fulufjället and Lapponia two municipalities participated and only one in Funäsdalsfjällen. SEPA and the CABs were involved in all three cases, but SEPA was only very indirectly involved in Funäsdalen and it stepped back from the process in Lapponia. The local populations were represented by interest associations (snowmobiling, hunting, fishing and nature conservation) and businesses in Fulufjället and, in addition, by reindeer herders in Funäsdalsfjällen. In Lapponia only reindeer herders were represented, while the municipalities have been responsible for maintaining a dialogue with associative and business interests.

Social capital was abundant in Funäsdalsfjällen, with a touristic organization regrouping almost all the companies in the area and a joint organization of village associations. Interviews confirmed that there is a high degree of trust and openness of communication in this area, although relationships between the landowners and reindeer herders are strained occasionally. The RHCs in Lapponia initiated cooperation and formed a joint association at the beginning of the World Heritage Site designation process. They also worked continually towards including as many reindeer herders as possible. This could be presumed to have built a considerable degree of social capital. In Fulufjället, however, no overarching organization of this kind was present, only village associations and village-based hunting, fishing, and snowmobiling associations. A combined organization for tourism was created as a result of the national park establishment process, but it has been plagued with conflicts. Initially, in all three cases, understanding of the resources and how users' actions affect them appears to have been limited.

The *external political circumstances* were fairly favourable in all three cases, as indicated by the support in public opinion for decentralization of the management of protected areas (Paper I) and the substantial funding that was available. However, there is one important aspect differentiating Fulufjället from Funäsdalsfjällen and Lapponia; the *institutional framework*, which determines the degree of non-tyranny (see also principle 3(c) and page 52). National parks are old instruments of Swedish nature conservation policy, while snowmobile regulation areas had not existed before Funäsdalsfjällen and Lapponia is Sweden's first (and only) combined natural and cultural World Heritage Site, intended to protect indigenous cultural practices. Therefore, the concept and knowledge of the formal requirements for designation and management of the Fulufjället National Park were already in existence. However, the Funäsdalen Snowmobile Regulation Area and the Lapponia World Heritage Site represent innovative institutions, which could be conceived to allow more learning to take place. This also implies that the degree of protection was more or less decided in advance of the process in Fulufjället, while it was more open in the other cases. In the case of Lapponia international requirements were present, because of the cultural aspects in the designation as a mixed World Heritage Site. This strengthened the Sami position considerably.

In conclusion, in the two cases with positive outcomes (Funäsdalsfjällen and Lapponia) the exogenous variables that were present in both situations were Sami reindeer herders, high social capital and open institutional frameworks. The presence of the Sami was crucial in Lapponia (as further discussed below), while this factor does not seem to have played such a vital role in Funäsdalsfjällen. This study suggests, therefore, that the most important exogenous factors for explaining why the prerequisites for implementation of

co-management were favourable or not are social capital and an open institutional frame (when considering institutional innovations).

Reason(ableness) and deliberation

In Paper II it was shown that co-management theory could be informed by deliberative democratic theory by including an important, but generally neglected, element of deliberation; reason or reasonableness. Reason is the principle that distinguishes deliberation from participation and it prescribes *interpersonal reasoning* where participants “are required to state their reasons for advancing proposals, supporting them, or criticizing them” (Cohen 1997:74). This was operationalized to estimate the degree to which encounters are structured to encourage the emergence of shared understandings and new solutions, and to give careful attention to all opinions (see also the second principle in table 1). It was found that in both Funäsdalen and Laponia several characteristics of the process contributed to the creation of a reasoned analysis during the establishment phase. Firstly, the issues under discussion were sub-divided and subsequently allocated to small thematic cross-groups (of about five persons; each including representatives of all the interest groups). The process that took place within the sub-groups was evidence-based, with the merit that every different perspective was investigated. Participants took part in a joint information search with the aim of investigating certain conflict issues that were particularly salient. These were thoroughly investigated, including, for example, legal aspects of the issues addressed. Experts were also invited to contribute if necessary. Furthermore, in both of the processes visual methods were used, such as map drawing (Funäsdalen) and the employment of GIS tools (Laponia). This connects to research on participatory GIS (e.g. Kyem 2004; Sandström and Sandström, forthcoming).

In Fulufjället, however, the designation process was not as reasoned. Rather than in-depth reasoning taking place, arguments were generally not explained in any detail, but by reference to, for example, ‘General nature conservation principles’. No combined information searches were undertaken, while the SEPA and the CAB undertook much inventory work (primarily of the ecological conditions, but to some extent the social conditions). Allowing representative working groups to take responsibility for leading such investigations, as in Funäsdalen and Laponia, appears to offer improved opportunities for the creation of a process involving learning. Thematic cross-groups were also employed in Fulufjället, but these were established to deal with local development issues and not with those of conflict surrounding the proposed regulations. Furthermore, the representativeness of these groups may be questioned, since opponents chose not to participate.

Therefore, comparing the three cases demonstrates that thematic representative cross-groups contribute to a process that is characterized by reason. In order for such cross-groups to be effective, they need to cover all the important issues, particularly conflict issues. Joint information searches and the use of competent independent experts assist in the settling of conflicts. The importance of representation is made clear; it is not sufficient to be open to participation on only some issues. A comprehensive approach permeating all activities, appears to be necessary.

Power and equality

Papers II and III made contributions to understanding of three dimensions of this principle. Co-management theory has made explanations regarding the nature of power a priority (3a) through the employment of the ladder of co-management (see Paper III). This ranges from information and consultation through communication and placation to cooperation, delegation and partnership. It expresses the degree of discretion involved, which ties in with the concern of deliberative democratic theory with equality; that all participants should have equal opportunities to express their views and to influence proceedings (see Paper II). In Funäsdalen and Lapponia this was the case and the partnerships facilitated joint decision-making. A certain degree of institutionalization was reached early on, during the establishment process. The outcome of these processes was a local management arrangement in Funäsdalen and probably co-management in Lapponia. The use of consensus, as a means of building confidence and ensuring agreement, was a dominant feature of these processes. The simple passing on of information (one-way communication) was only employed during the early stages in Funäsdalen, while in Lapponia it only involved citizens not directly involved in the process. In Fulufjället the use of information induced a high degree of resistance. The participatory process, once initiated, can at best be viewed as cooperation, in which users participated in developing plans and had more than an advisory role. The end result was consultation that was confined to matters related to tourism.

A second aspect of power is its scope (3b), as stressed in the decentralization framework. The powers being devolved may, therefore, range from taxation by withdrawal (access and harvesting) and management (the regulation of patterns of use and improvements) to exclusion or allocation and alienation rights (to sell or lease withdrawal, management and exclusion rights). The arrangement in Funäsdalen devolved management responsibility to a local company who ran the snowmobile trails, while the municipality secured power over exclusion and alienation. The CAB dealt with monitoring. Visitor access was restricted to trails, while the local population enjoyed some freedom to use snowmobiles outside trails (but only to get to destinations that had been decided in advance, such as a fishing lake). In

Laponia management power was to be devolved to a considerable extent to the agreed co-management arrangement. It is expected to also obtain advisory powers over exclusion and alienation matters, which the CAB has yet to decide. Almost no changes were made to withdrawal or access rights. In Fulufjället management and allocation were centralized to a greater extent through SEPA, while the CAB retained its exclusion power. Withdrawal and access rights were restricted.

The last contribution is the dimension of non-tyranny (3c), from deliberative democracy theory (Paper II), which regards the distribution of power through institutional requirements. There may be a separation of powers or legally guaranteed rights, or the participants may decide on a requirement for such formalities during the process. As previously indicated (page 49), the legal requirements varied between the cases. In the Swedish context, Funäsdalen and Laponia represent new protected area instruments and, therefore, had fewer formal requirements than Fulufjället. Fulufjället is, in contrast, a national park and thus representative of the oldest nature conservation instrument, with a rather fixed institutional frame guaranteeing concentration of power rather than its separation. While the Fulufjället process was influenced by its international connections, the Laponia World Heritage Site was legally bound to a greater extent due to the UNESCO designation. The fact that it was appointed as a combined natural and cultural heritage site gave the Sami a unique position from which to demand power that was decisive in management issues. In addition, in both Funäsdalen and Laponia, agreement was reached on a set of ground rules before substantial issues were discussed. These included agreeing to make decisions by consensus. The final aspect of non-tyranny is the distribution of funding. In all the three cases, the advocates were successful in obtaining substantial external funding of local investments to back up their proposals. Funding also provided a means of empowering local users; reimbursement of travel costs and compensation for working hours lost were essential to enable their participation. In Laponia, funding was used for RHCs and municipalities to set up their own secretariats with employed staff, further improving the standing of the weaker parties.

In conclusion, the comparisons made between the three cases highlight the fact that robustness is enhanced when a process is based on joint decision making. This can be achieved by power separation, which may be brought about either through legal requirements or purposely established during the process. Regarding the scope of powers, it appears to be important to devolve management powers, while exclusion and alienation powers could be retained by the authorities, as in the cases of Funäsdalen and Laponia.

Accountability and publicity

In Papers II and III aspects of accountability in co-management processes, which are covered by principle 4, were developed. The publicity condition (4a) states that the interpersonal reasoning of a deliberative process needs to be public. The process is also required to be open to the scrutiny of affected interests who cannot participate directly (Paper II). The Funäsdalen and Laponia processes were quite public, employing thematic cross-groups with representatives of all the relevant interested parties that covered all of the important issues. Publicity in Fulufjället was restricted by the fact that the more formal thematic groups did not work on the most crucial aspect of conflict, which was over the regulations being proposed. This was dealt with by CAB and SEPA officials, with a make-shift approach, involving meetings of individuals and groups representing the interests of hunters, fishermen and snowmobilers. Such an approach is less transparent, since the process is controlled by the authorities who may change their position behind closed doors. Perhaps the lack of reason in Fulufjället is due partly to this lack of publicity; positions could be developed to a greater extent by those who already shared the same opinion.

The second of the publicity criteria (that the process should be open to scrutiny) is compatible with the emphasis placed on the character of the more formal accountability relations emphasized in the decentralization framework (Paper III). These relations can operate downwards or upwards (meaning that public actors are accountable to their constituencies and their superiors, respectively). The establishment processes of both Funäsdalen and Laponia involved downward accountability. In Funäsdalen, the co-management arrangement established is accountable in a downward manner, since the municipality is responsible for regulation of the area and is answerable to its citizens by means of elections. The track company is responsible for management issues, and answers to the stock holders: landowners (holding 51% of the stocks), private enterprises and the snowmobile club. The arrangement that will emerge in Laponia remains an open question. In Fulufjället, accountability was directed downward, to some extent, during the establishment process. However, the end result was to direct accountability upward; the CAB answers to the SEPA, which in turn answers to the Government.

In order for affected interests who cannot participate directly to be informed about what is happening throughout the entire process, well-established social relationships and transparency in the choice of co-management partners are both required. Well-developed relationships between the constituencies involved and their respective representatives (including via public meetings) were particular characteristics of the Funäsdalen and Laponia processes. These links were maintained throughout each stage of the processes, they appeared to facilitate acceptance of final

agreements and, therefore, implementation. The reason that these links functioned better in these cases than in Fulufjället appears to be connected to the representation principle (which interests were considered to be worth involving or relevant, and how representatives were selected or elected). In Funäsdalen and Laponia, constituencies nominated their own representatives, while selection was a greyer area in Fulufjället. Some appear to have been invited to participate by the CAB without a mandate from an interest group, others simply chose to participate or were elected by an association. When representatives are elected by the constituency concerned, the relationship between them becomes more durable, due to the presence of a forum for exchange of information (for instance the board of the association).

Learning and maturation

In Paper IV, a process model of co-management arising from alternative dispute resolution theory was related to three stages or orders of learning (principle 5): first-loop, second-loop and third-loop. In first-loop learning, failure is registered by sensing and feeling directly, it is then corrected by altering routines. Second-loop learning entails self-awareness and differentiation of one's own and others' values, and experiences of failure leads to changes of instruments, and hence program change. Finally, in the third stage of learning, value systems are appreciated relatively and integrated, which eventually causes paradigm change, via the emergence of new ideas, norms and protocols. The establishment of a regulatory system for snowmobile use in Funäsdalen followed learning. The Jämtland CAB attempted to regulate snowmobiling using existing routines with no success, prior to changing their approach and involving local users. Even then, learning about each other's businesses in order to build sufficient confidence to come to an agreed arrangement took several years. In this single case study, it is difficult to demonstrate whether this actually led to a paradigm shift. However, there are indications of such a shift towards experimenting with co-management in the Jämtland CAB since the Funäsdalen experience (see Sandström 2009). Third-loop learning occurred in Funäsdalen, but had not completely matured when the case study was undertaken in 2004.

In Laponia, third-loop learning took place internally within groups of key actors before the idea of co-management was accepted and it was, therefore, a precondition of co-management. Norrbotten CAB officers experienced policy failure and when attempts to correct routines increased the degree of failure they initiated program change. This led, eventually, to a paradigm shift with realization of the value of collaboration and multiple worldviews. Since the RHCs were involved in policy failure and in the changes, they also experienced second- and third-loop learning. This shift in position was strengthened by their efforts to build internal cohesion and organization. In

Fulufjället, third-loop learning did not occur, since ideas, norms and protocols showed no dramatic change. Policy instruments were renewed, so second-loop learning was taking place.

To explain why learning did not reach the third order in Fulufjället, it is useful to connect this principle with that of reason. As already discussed, the Laponia and Funäsdalen processes involved reason in that they included organized thematic sub-groups and joint information searches. In this way participants explored all the different worldviews expressed. Through this work, system-wide learning occurred, and it became institutionalized when actors agreed on a common transformative model.

Institutional change through protected areas

In the context of the designation of protected areas, the work presented in this thesis has examined processes of institutional change. In all three case studies, the designation processes employed elements of co-management, but the result was not necessarily the establishment of a robust management institution. By investigating the designation processes, several reasons could be found for the realization of certain management arrangements and their robustness. Focussing on the designation phase provided opportunities to acquire abundant information about how contextual factors influence the functioning of a co-management arrangement (or common property regime), and thus make contributions to commons theory and the IAD framework.

A proposal advanced in this thesis is that national public opinion is an important contextual variable, at least for natural resources of national interest. Quantitative multi-level surveys were shown in Paper I to have potential for the analysis of issues relating to such commons. The results suggested that most advocates of self-management for protected areas are not to be found in rural areas, where the majority of the protected areas are established, but in the cities. Further studies are needed in order to explain this finding. In addition, supporters of self- and co-management share an understanding of the number of protected areas required and appropriate restrictions. Further findings are that differences in notions of trust are important factors influencing groups' management preferences and that resource dependency is related to support for co-management, but not self-management. The importance of the institutional framework already in existence is stressed in the commons literature, as exemplified in Ostrom's design principle on minimal rights to organize (2005:259). This thesis indicates that the *rigidity* of the existing institutional framework is also important; the more rigid it is, the less chance there is of learning or innovation within institutions occurring. Further, it was also confirmed that social capital is an important contextual and process variable, which can also be created through learning, as long as sufficient time is allowed.

Apart from the contextual aspects, this thesis highlights the fact that certain characteristics of a process (the principles in table 1) are essential for the realization of co-management arrangements of multi-level and multi-use commons. They are probably also required for sustaining them. Firstly, deliberation seems to be necessary to find sustainable solutions for institutions, primarily through reason and publicity. Aspects of equality have been on the agenda for many years, in approaches involving participation, but what is lacking within them, in comparison with deliberative democratic theory, is taking reason into account. Secondly, the division of power, via joint decision-making, is essential for the empowerment of actors, and management powers need to be devolved in order to ensure a meaningful degree of discretion. Thirdly, mixed governance bodies, such as co-management regimes, may be held accountable via a combination of the formal accountability ensured by traditional democratic institutions (in the case of Sweden, for instance, municipalities) and the referent organizations involved, in addition to collaborative encounters that deal with issues openly. Finally, third-loop learning appears to be a requirement for changing both the actors' traditional views of one another and the manner in which both policy-making and implementation should be carried out. This is a precondition for collaboration. A reasoned process in which representative subgroups conduct joint information searches in order to build up common transformative models seems essential for ensuring that learning occurs across the system and at all levels.

A process characterized by the proposed principles throughout its various phases should result in a robust co-management arrangement. However, these principles need to be tested thoroughly and developed further by carrying out comparative studies in different contexts. Although the co-management process principles have been developed from the investigation of cases confined to the Swedish mountain region, they are likely to be applicable to other cases with similar characteristics. These would include the presence of a high degree of conflict (due to ethnic heterogeneity, multiple uses, and multiple levels) and low, and declining, population density. Different state levels were in charge in the here scrutinized cases, but the results are valid for all of them although it seems as if regional administrations run co-management processes more successfully.

Policy implications

One of the starting points for this thesis was the 'new' Swedish conservation policy, which emphasizes the need for participation. Findings presented in Paper I indicate that such an approach is strongly supported by the population (65% of respondents). The potential to obtain legitimacy for further efforts towards devolution is, therefore, high. Nevertheless, despite this public support and the political ambition to increase participation in

nature conservation, the development toward co-management has been slow. This is probably due to the interpretation of the objective of devolution by the Swedish authorities as being primarily to increase local understanding and acceptance (see pages 33-35). This can be classed as an instrumental objective, in contrast to the ideological objective of democratisation.

The latest nature conservation bill proposes cooperative fora at the regional level, as well as advisory management boards for all national parks. Their intended function is not clear, but it seems as though they will be merely advisory. If that is the case, they do not represent co-management arrangements. The case studies show that locals ought to be involved, not just to increase *their* understanding, but also to increase awareness regarding local priorities and needs among nature conservation officials. The findings suggest that this demands extensive learning through reasoned discussions based on joint decision-making and downward accountability. If joint understanding is achieved it results in greater public support and acceptance (or increased legitimacy), as well as better cooperation between various sectors and levels, which facilitates implementation of the nature conservation policy. In addition, such processes demand extensive funding, in particular if the playing field is to be really levelled. This was the case in Lapponia, where external funding made it possible for RHCs to employ a secretariat to work full-time on issues associated with World Heritage matters. Experiences in Fulufjället show that once funding is no longer available, and promises made have not been fulfilled, public support starts to erode. In Funäsdalen, fees were introduced so that the system would keep going once external funding was no longer available.

Learning through reasoned discussions was achieved in Funäsdalen and Lapponia, both of which represent new forms of nature protection. However, it was not really present in Fulufjället, which represents an old blueprint for protected area institutions. These findings indicate that making the institutional framework sufficiently flexible to avoid blocking innovative solutions is important, even for nature conservation instruments already in existence. However, the fulfilment of international standards also has requirements, such as those that apply to national parks in general, e.g. that they should be state-owned and centrally administered. Thus, if Sweden has a sincere ambition to increase participation to improve nature conservation, the Government should work towards changing international standards (particularly with regard to ways in which local needs and priorities are to be voiced and taken into account in areas designated as protected, and the management of such areas). This is of high importance, since the findings presented in this thesis show that cases where the central administration stepped back and allowed the regional administration to manage were most successful. However, it should be remembered that these studies did not take ecological conditions into account, nor whether the different forms of

protection resulted in different ecological outcomes or whether the changes, in each case, improved or reduced the status of the natural environment. Studies which combine the analysis of how process characteristics and societal contexts influence designations and management structures with investigating ecological changes would contribute to greater understanding of the interconnectivity between the social and ecological factors in the IAD framework.

References

- Acheson, J. M. 2006. Institutional failure in resource management. *Annual Review of Anthropology* 35:117-134.
- Agrawal, A. 2001. Common Property Institutions and Sustainable Governance of Resources. *World Development* 29 (10):1649-72.
- . 2002. Common Resources and Institutional Sustainability. In *The Dilemma of the Commons*, edited by E. Ostrom, et al. Washington DC: National Academies Press, 41-86.
- Agrawal, A., and C. C. Gibson. 1999. Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. *World Development* 27 (4):629-649.
- , eds. 2001. *Communities and the environment: ethnicity, gender, and the state in community-based conservation*. Piscataway, NJ: Rutgers, The State University.
- Agrawal, A., and E. Ostrom. 2006. Political Science and Conservation Biology: a Dialog of the Deaf. *Conservation Biology* 20 (3):681-682
- Armitage, D. 2008. Governance and the commons in a multi-level world. *International Journal of the Commons* 2 (1):7-32.
- Armitage, D., et al. 2007. Introduction: Moving Beyond Co-Management. In *Adaptive Co-Management: Collaboration, Learning, and Multi-Level Governance*, edited by D. Armitage, et al. Vancouver: UBC Press.
- . 2008. Adaptive co-management and the paradox of learning. *Global Environmental Change-Human and Policy Dimensions* 18 (1):86-98.
- Arnstein, S. R. 1969. A Ladder of Citizen Participation. *American Institute of Planners Journal* 35:216-224.
- Baland, J.-M., and J.-P. Platteau. 1996. *Halting Degradation of Natural Resources: Is There a Role for Rural Communities?* Oxford, New York: Clarendon Press.
- Bardhan, P., and J. Dayton-Johnson. 2002. Unequal Irrigators: Heterogeneity and Commons Management in Large-Scale Multivariate Research. In *The Drama of the Commons*, edited by E. Ostrom, et al. Washington DC: National Academies Press, 87-112.
- Barry, J. 1996. Sustainability, political judgment and citizenship: Connecting green politics and democracy. In *Democracy and Green Political Thought*, edited by B. Doherty and M. d. Geus. London: Routledge, 115-131.
- Bengtsson, J. 2009. Landskapens mångfald i en föränderlig värld: naturvårdens nya utmaningar. In *Naturvård bortom 2009: Reflektioner med anledning av ett jubileum*, edited by L. J. Lundgren. Kristianstad: Kassandra, 39-56.
- Berkes, F. 1997. New and Not-So-New Directions in the Use of the Commons: Co-Management. *The Common Property Resource Digest* 42:5-7.
- . 2002. Cross-Scale Institutional Linkages: Perspectives from the Bottom Up. In *The Drama of the Commons*, edited by E. Ostrom, et al. Washington DC: National Academy Press.
- . 2006. From community-based resource management to complex systems: The scale issue and marine commons. *Ecology and Society* 11 (1).

- . 2007a. Adaptive Co-Management and Complexity: Exploring the Many Faces of Co-Management. In *Adaptive Co-Management: Collaboration, Learning, and Multi-level Governance*, edited by D. Armitage, et al. Vancouver: UBC Press, 19-37.
- . 2007b. Community-based conservation in a globalized world. *PNAS* 104 (39):15188-15193.
- . 2009. Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management* 90:1692-1702.
- , ed. 1989. *Common Property Resources. Ecology and Community-Based Sustainable Development*. London: Belhaven Press.
- Berkes, F., et al. 2007. Synthesis: Adapting, innovating, evolving. In *Adaptive Co-Management: Collaboration, Learning, and Multi-level Governance*, edited by D. Armitage, et al. Vancouver: UBC Press, 308-27.
- , eds. 2003. *Navigating Social-Ecological Systems. Building Resilience for Complexity and Change*. Cambridge: Cambridge University Press.
- Berkes, F., and C. Folke, eds. 1998. *Linking Social and Ecological Systems. Management Practices and Social Mechanisms for Building Resilience*. Cambridge: Cambridge University Press.
- Berkes, F., et al. 1991. Co-management: the Evolution in Theory and Practice of the Joint Administration of Living Resources. *Alternatives* 18 (2):12-18.
- Bromley, D. W., ed. 1992. *Making the Commons Work. Theory, Practice, and Policy*. San Fransisco: the Institute for Contemporary Studies Press.
- Campbell, T. 1996. Co-management of Aboriginal Resources. *Information North* 22 (1).
- Carlsson, L. 2000. Policy networks as collective action. *Policy Studies Journal* 28 (3):502-520.
- Carlsson, L., and F. Berkes. 2005. Co-management: concepts and methodological implications. *Journal of Environmental Management* 75:65-76.
- CBD. 2000. *Sustaining life on Earth*. Secretariat of the Convention on Biological Diversity & UNEP, [cited 17 November 2009]. Available from <http://www.biodiv.org/doc/publications/cbd-sustain-en.pdf>.
- . 2009. *How the Convention on Biological Diversity promotes nature and human well-being*. Secretariat of the Convention on Biological Diversity, [cited 9 September 2009]. Available from <http://www.cbd.int/doc/publications/cbd-sustain-en.pdf>.
- Clifton, J. 2003. Prospects for co-management in Indonesia's marine protected areas. *Marine Policy* 27 (5):389-395.
- Collier, D., et al. 2004. Claiming Too Much: Warnings about Selection Bias. In *Rethinking Social Inquiry: Diverse Tools, Shared Standards*, edited by H. E. Brady and D. Collier. Oxford: Rowman & Littlefield Publishers.
- da Silva, P. P. 2004. From common property to co-management: lessons from Brazil's first maritime extractive reserve. *Marine Policy* 28 (5):419-428.
- Dearden, P., et al. 2005. Trends in Global Protected Area Governance, 1992–2002. *Environmental Management* 36 (1):89-100.

- Dietz, T., et al. 2002. Introduction: The Drama of the Commons. In *The Drama of the Commons*, edited by E. Ostrom, et al. Washington DC: National Academy Press, 3-35.
- . 2003. The Struggle to Govern the Commons. *Science* 302 (5652):1907-1912.
- Dolšák, N., and E. Ostrom, eds. 2003. *The Commons in a New Millennium*. London: MIT Press.
- Edwards, V., and N. A. Steins. 1998. Developing an Analytical Framework for Multiple-Use Commons. *Journal of Theoretical Politics* 10 (3):347-383.
- . 1999a. A Framework for Analysing Contextual Factors in Common Pool Resource Research. *Journal of Environmental Policy and Planning* 1:205-221.
- . 1999b. Special Issue Introduction: The Importance of Context in Common Pool Resource Research. *Journal of Environmental Policy and Planning* 1:195-204.
- Elmqvist, T. 2009. Naturvård i utvecklingens tjänst. In *Naturvård bortom 2009*, edited by L. J. Lundgren. Kristianstad: Cassandra, 89-98.
- Emmelin, L. 2009. Naturvård - en professionell verksamhet på vetenskaplig grund? In *Naturvård bortom 2009: Reflektioner med anledning av ett jubileum*, edited by L. J. Lundgren. Kristianstad: Cassandra, 117-149.
- Ernstson, H., et al. 2008. Social Movements and Ecosystem Services-the Role of Social Network Structure in Protecting and Managing Urban Green Areas in Stockholm. *Ecology and Society* 13 (2):27.
- Esaiasson, P., et al. 2004. *Metodpraktikan. Konsten att studera samhälle, individ och marknad*. 2nd ed. Stockholm: Norstedts Juridik.
- Eskilsson, L. 1998. Föreställningar om fjällen: Naturrum för romantiker eller arena för skoteråkare? In *Hållbar utveckling och biologisk mångfald i fjällregionen*, edited by O. Olsson, et al. Stockholm: Forskningsrådsnämnden, 97-102.
- European Communities. 2008. *The Economics of Ecosystems & Biodiversity: An Interim Report*, [cited 17 November 2009]. Available from http://ec.europa.eu/environment/nature/biodiversity/economics/pdf/teeb_report.pdf.
- Folke, C. 2006. The Economic Perspective: Conservation against Development versus Conservation for Development. *Conservation Biology* 20 (3):686-88.
- Folke, C., et al. 2002. Resilience and sustainable development: Building adaptive capacity in a world of transformations.
- . 2005. Adaptive Governance of Social-Ecological Systems. *Annual Review of Environment and Resources* 30:441-73.
- Frendreis, J. P. 1983. Explanation of variation and detection of covariation. *Comparative Political Studies* 16 (2):255-72.
- Garnett, S. T., et al. 2007. Improving the Effectiveness of Interventions to Balance Conservation and Development: A Conceptual Framework. *Ecology and Society* 12 (1):2.
- George, A. L., and A. Bennett. 2005. *Case Studies and Theory Development in the Social Sciences*. Cambridge and London: MIT Press.
- Gibson, C. C., et al. 2005. *The Samaritan's Dilemma: The Political Economy of Development Aid*. Oxford: Oxford University Press.

- Goodin, R. E. 2000. Democratic Deliberation Within. *Philosophy and Public Affairs* 29 (1):80-109.
- Gordon, S. H. 1954. the Economic Theory of a Common-Property Resource. *Journal of Political Economy* 62:124-142.
- Gorenflo, L. J., and K. Brandon. 2006. Key Human Dimensions of Gaps in Global Biodiversity Conservation. *BioScience* 56 (9):723-731.
- Graham, J., et al. 2003. Governance principles for protected areas in the 21st century. Ottawa, ON: Institute On Governance.
- Gustafsson, L. 2009. Sju reflektioner om skyddade områden och hotade arter. In *Naturvård bortom 2009: Reflektioner med anledning av ett jubileum*, edited by L. J. Lundgren. Kristianstad: Cassandra, 71-87.
- Haaland, H., and K. Skogen. 2003. Del 2: Medvirkning og fleksibilitet - viktige virkemidler i fremtidens rovviltforvaltning. In *Utredningar i forbindelse med ny rovviltmelding. Konfliktdependente tiltak i rovviltforvaltningen*, edited by S. M. Brainerd. Trondheim: Nina Fagrapport 66.
- Hanson, C., et al. 2009. *The Corporate Ecosystem Services Review: Guidelines for Identifying Business Risks & Opportunities Arising from Ecosystem Change*. World Resources Institute, [cited 11 July 2009]. Available from http://pdf.wri.org/corporate_ecosystem_services_review.pdf.
- Hara, M., and J. R. Nielsen. 2003. Experiences with fisheries co-management in Africa. In *The Fisheries Co-management Experience*, edited by D. C. Wilson, et al. Dordrecht: Kluwer Academic Publishers, 81-97.
- Haraldsson, D. 1987. Skydda vår natur! Svenska Naturskyddsförningens framväxt och tidiga utveckling. Lund: Thesis (PhD), Department of History, Lund University.
- Hardin, G. 1968. The Tragedy of the Commons. *Science* 162:1243-47.
- Hayes, T., and E. Ostrom. 2005. Conserving the World's Forests: Are Protected Areas the Only Way? *Indiana Law Review* 38:595-617.
- Hoffman, D. M. 2009. Institutional Legitimacy and Co-Management of a Marine Protected Area: Implementation Lessons from the Case of Xcalak Reefs National Park, Mexico. *Human Organization* 68 (1):39-54.
- Huberman, A. M., and M. B. Miles. 1998. Data Management and Analysis Methods. In *Collecting and Interpreting Qualitative Materials*, edited by N. K. Denzin and Y. S. Lincoln. California: SAGE Publications, 179-210.
- ICLARM, and IFM. 1998. Analysis of Co-Management Arrangements in Fisheries and related Coastal Resources: A Research Framework, 1.
- Imperial, M. T. 1999. Institutional Analysis and Eco-System-Based Management: The Institutional Analysis and Development Framework. *Environmental Management* 24 (4):449-465.
- IUCN. 1996. Resolutions and Recommendations, World Conservation Congress, Gland, Switzerland.
- . 2008. Guidelines for Applying Protected Area Management Categories, Gland, Switzerland.
- Jagger, P. 2004. *Artisans of Political Theory and Empirical Inquiry*, [cited 15 December 2004]. Available from http://www.indiana.edu/~workshop/publications/workshop_history.pdf.

- Jentoft, S. 1989. Fisheries Co-management. *Marine Policy* 13:137-154.
- . 1999. *Fisheries Co-management Research and the Case Study Method*, [cited 17 November 2009]. Available from <http://www.co-management.org/download/svein.pdf>.
- . 2003. Co-management - the way forward. In *The Fisheries Co-management Experience: Accomplishments, Challenges and Prospects*, edited by D. C. Wilson, et al. Dordrecht: Kluwer Academic Publishers, 1-14.
- , ed. 1998. *Commons in a Cold Climate*. Paris, New York: UNESCO and Parthenon Publishing.
- Johannesson, K. 2009. Rödlistor och ekosystemansats - en svårlöst ekvation. In *Naturvård bortom 2009: Med anledning av ett jubileum*, edited by L. J. Lundgren. Kristianstad: Cassandra.
- Keskitalo, C. 2008. Konflikter mellan rennärning och skogsbruk i Sverige. In *Omstridd natur*, edited by C. Sandström, et al. Umeå: Boréa, 248-268.
- Kyem, P. A. K. 2004. Of intractable conflicts and participatory GIS applications: The search for consensus amidst competing claims and institutional demands. *Annals of the Association of American Geographers* 94 (1):37-57.
- Lijphart, A. 1971. Comparative Politics and the Comparative Method. *The American Political Science Review* 65 (3):682-693.
- Ljunggren Bergeå, H. 2007. Negotiating Fences: Interaction in Advisory Encounters for Nature Conservation. Uppsala: Thesis (PhD), Department of Urban and Rural Development, Swedish University of Agricultural Sciences.
- Loucks, L., Wilson, J.A., and Ginter, J.J.C. 2003. Experiences with fisheries co-management in North America. In *The Fisheries Co-management Experience: Accomplishments, Challenges and Prospects*, edited by D. C. Wilson, et al. Dordrecht: Kluwer Academic Publishers, 153-170.
- Lundgren, L. J. 2005. Miljöproblem och miljövard i Sverige 1967-1991. In *Konflikter, samarbete, resultat: Perspektiv på svensk miljöpolitik*, edited by L. J. Lundgren. Brottby: Cassandra, 81-123.
- Lundqvist, L. 1971. *Miljövärdsvärld och politisk struktur, Verdandi-debatt nr 58*. Lund: Bokförlaget Prisma/Föreningen Verdandi.
- . 1996. Sweden. In *Governing the Environment: Politics, Policy, and Organization in the Nordic Countries*, edited by P. Munk Christiansen. Århus: The Nordic Council, 259-333.
- McCay, B. J. 2002. Emergence of Institutions for the Commons: Contexts, Situations and Events. In *The Drama of the Commons*, edited by E. Ostrom et al. Washington DC: National Academy Press, 361-402.
- McCay, B. J., and J. M. Acheson, eds. 1987. *The Question of the Commons. The Culture and Ecology of Communal Resources*. Tucson, USA: University of Arizona Press.
- McKean, M. A. 2000. Common Property: What Is It, What Is It Good For, and What Makes It Work? In *People and Forests. Communities, Institutions, and Governance*, edited by C. C. Gibson, et al. London: MIT Press, 27-56.
- Meadowcroft, J. 2004. Deliberative Democracy. In *Environmental Governance Reconsidered*, edited by R. F. Durant, et al. Cambridge, MA: MIT Press, 183-217.

- Mels, T. 1999. Wild Landscapes: The Cultural Nature of Swedish National Parks. Lund: Thesis (PhD), Department of Social and Economic Geography, Lund University.
- Moeliono, M. 2006. Conservation policy and the commons. *Common Property Resource Digest* 76:1-4.
- Moen, J. 2006. Land use in the Swedish mountain region: trends and conflicting goals. *International Journal of Biodiversity Science & Management* 2 (4):305-314.
- Mouffe, C. 1999. Deliberative Democracy or Agonistic Pluralism? *Social Research* 66 (3):745-58.
- Murphree, M. W. 1997. Articulating voices from the commons, interpretation, translation and facilitation: Roles and modes for common property scholarship. *Society and Natural Resources* 10 (4):415-421.
- . 2002. Protected areas and the commons. *Common Property Resource Digest* 60:1-3.
- NHB. 2009. *Världsarv*. Riksantikvarieämbetet, [cited 16 November 2009]. Available from http://www.raa.se/cms/extern/om_oss/fragor_och_svar/fragor_och_svar_varldsarv.html.
- Oakerson, R. 1992. Analyzing the Commons: A Framework. In *Making the Commons Work. Theory, Practice, and Policy*, edited by D. W. Bromley. San Fransisco: the Institute for Contemporary Studies Press.
- Olsson, P., et al. 2004. Adaptive Comanagement for Building Resilience in Social-Ecological Systems. *Environmental Management* 34 (1):75-90.
- Osherenko, G. 1988. Sharing Power With Native Users: Co-Management Regimes for Native Wildlife, Ottawa.
- Ostrom, E. 1990. *Governing the Commons*. New York: Cambridge University Press.
- . 2000. Reformulating the Commons. *Swiss Political Science Review* 6 (1):29-52.
- . 2005. *Understanding Institutional Diversity*. Princeton and Oxford: Princeton University Press.
- . 2007. A diagnostic approach for going beyond panaceas. *PNAS* 104 (39):15181-15187.
- . 2008a. The Challenge of Common-Pool Resources. *Environment* 50 (4):8-20.
- . 2008b. Frameworks and theories of environmental change. *Global Environmental Change* 18:249-252.
- Ostrom, E., et al. 1994. *Rules, Games, and Common-Pool Resources*. Ann Arbor: The University of Michigan Press.
- . 2007. Going beyond panaceas. *PNAS* 104 (39):15176-15178.
- Ostrom, E., and H. Nagendra. 2006. Insights on linking forests, trees, and people from the air, on the ground, and in the laboratory. *PNAS* 103 (51):19224-19231.
- Ostrom, E., and V. Ostrom. 2004. The Quest for Meaning in Public Choice. *American Journal of Economics and Sociology* 63 (1):105-147.
- Peters, B. G., and J. Pierre. 2004. Multi-level Governance and Democracy: A Faustian Bargain? In *Multi-level Governance*, edited by I. Bache and M. Flinders. Oxford: Oxford University Press, 75-89.

- Pinkerton, E., ed. 1989. *Co-operative Management of Local Fisheries: New Directions for Improved Management and Community Development*. Vancouver: University of British Columbia Press.
- Plummer, R., and D. A. Fennell. 2009. Managing protected areas for sustainable tourism: prospects for adaptive co-management. *Journal of Sustainable Tourism* 17 (2):149-168.
- Plummer, R., and J. Fitzgibbon. 2004. Co-Management of Natural Resources: A Proposed Framework. *Environmental Management* 33 (6):876-885.
- Pomeroy, R. S., and F. Berkes. 1997. Two to tango: the role of government in fisheries co-management. *Marine Policy* 21 (5):465-480.
- Poncelet, E. C. 2001. Personal transformation in multi-stakeholder environmental partnerships. *Policy Sciences* 34:273-301.
- Ragin, C. C. 1987. *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*. Berkeley and Los Angeles: University of California Press.
- . 2004. Turning the Tables: How Case-Oriented Research Challenges Variable-Oriented Research. In *Rethinking Social Inquiry: Diverse Tools, Shared Standards*, edited by H. E. Brady and D. Collier. Lanham: Rowman & Littlefield Publishers, Inc.
- Ribot, J. C. 2004. *Waiting for Democracy*, World Resources Institute, Washington, DC.
- Rudd, M. A. 2004. An institutional framework for designing and monitoring ecosystem-based fisheries management policy experiments. *Ecological Economics* 48:109-124.
- Rudd, M. A., et al. 2001. Policy analysis for tropical marine reserves: challenges and directions. *Fish and Fisheries* 4 (1):65-85.
- Sabatier, P. A. 1991. Toward Better Theories of the Policy Process. *PS: Political Science and Politics* 24 (2):147-156.
- Sandström, C. 2009. Institutional Dimensions of Co-management: Participation, Power, and Process. *Society and Natural Resources* 22:230-244.
- Sandström, C., et al. 2008. Omstridd natur. In *Omstridd natur: Trender och utmaningar i nordisk naturförvaltning*, edited by C. Sandström, et al. Umeå: Boréa, 13-32.
- Sandström, C., and C. Widmark. 2007. Stakeholders' Perceptions of Consultations as Tools for Co-management - A Case Study of the Forestry and Reindeer Herding Sectors in Northern Sweden. *Forest Policy and Economics* 10:25-35.
- Schoon, M. L. 2008. *Building Robustness to Disturbance: Governance in Southern African Peace Parks*. Bloomington: Thesis (PhD), School of Public and Environmental Affairs and Department of Political Science, Indiana University.
- Seawright, J., and J. Gerring. 2008. Case Selection Techniques in Case Study Research. *Political Research Quarterly* 61 (2):294-308.
- Selin, S., and D. Chavez. 1995. Developing a Collaborative Model for Environmental Planning and Management. *Environmental Management* 19 (2):189-195.
- SEPA. 2003a. *Bildande och förvaltning av naturreservat: Handbok, 2003:3*. Stockholm: Swedish Environmental Protection Agency.

- . 2003b. Lokal förankring av naturvård, 5264-0. Stockholm: Swedish Environmental Protection Agency.
- . 2008. Nationalparksplan för Sverige: Långsiktig plan. Stockholm: Swedish Environmental Protection Agency.
- SFS. 1909:56. Lag angående nationalparker [Law on National Parks]. Swedish Government.
- Sjöberg, F. 2005. Verkligheten på hotlistan - tio år efteråt. In *Konflikter, samarbete, resultat: Perspektiv på svensk miljöpolitik*, edited by L. J. Lundgren and J. Edman. Brottby: Cassandra.
- . 2009. Bidrag till den gulvita blekspikens idéhistoria. In *Naturvård bortom 2009: Reflektioner med anledning av ett jubileum*, edited by L. J. Lundgren. Kristianstad: Cassandra, 21-37.
- Southworth, J., et al. 2006. Introduction to the special issue: Are parks working? Exploring human-environment tradeoffs in protected area conservation. *Applied Geography* 24:87-95.
- Stenseke, M. 2009. Local participation in cultural landscape maintenance: Lessons from Sweden. *Land Use Policy* 26 (2):214-223.
- Stern, P. C., et al. 2002. Knowledge and Questions After 15 Years of Research. In *The Drama of the Commons*, edited by E. Ostrom, et al. Washington DC: National Academy Press, 445-486.
- Stevens, S., ed. 1997. *Conservation Through Cultural Survival. Indigenous Peoples and Protected Areas*. Washington DC: Island Press.
- Swedish Gov. Bill. 2008/09:214. Hållbart skydd av naturområden. Stockholm: Ministry of Environment.
- Swedish Gov. Communication. 2001/02:173. En sammanhållen naturvårdspolitik. Stockholm: Ministry of Environment.
- Swedish Government. 1907. Betänkande rörande åtgärder till skydd för vårt lands natur och naturminnesmärken. Stockholm: Ministry of Agriculture.
- Sörlin, S. 1989. Land of the Future: Norrland and the North in Sweden and European Consciousness, Miscellaneous publications Nr. 8.
- . 2009. Stadens natur - det nya naturskyddet och sammanlevnadens politik. In *Naturvård bortom 2009: Reflektioner med anledning av ett jubileum*, edited by L. J. Lundgren. Kristianstad: Cassandra, 179-203.
- Terborgh, J. 1999. *Requim for Nature*. Washington D.C.: Island Press.
- Thibaut, J., and L. Walker. 1975. A Theory of Procedure. *California Law Review* 66:541-566.
- Ulbig, S. G. 2002. Collective Restraint in Social Dilemmas: Sources of Support for Government? *Social Science Quarterly* 83 (3):789-809.
- UNEP-WCMC. 2008. Annual Report on Protected Areas: A Review of Global Conservation Progress in 2007, UNEP-WCMC, Cambridge.
- UNESCO. 2009. *World Heritage*. UNESCO, [cited 6 November 2009]. Available from <http://whc.unesco.org>.
- Van Evera, S. 1997. *Guide to Methods for Students of Political Science*. Ithaca, N.Y.: Cornell University Press.

- Wilshusen, P. R., et al. 2002. Reinventing a Square Wheel: Critique of a Resurgent "Protection Paradigm" in International Biodiversity Conservation. *Society and Natural Resources* 15:17-40.
- Wilson, D. C. 2003. Conflict and scale: A Defence of Community Approaches in Fisheries Management. In *The Fisheries Co-management Experience*, edited by D. C. Wilson, et al. Dordrecht: Kluwer Academic Publishers, 193-211.
- Wilson, D. C., et al., eds. 2003. *The Fisheries Co-management Experience: Accomplishments, Challenges and Prospects*. Dordrecht: Kluwer Academic Publishers.
- Wutich, A. 2009. Water Scarcity and the Sustainability of a Common Pool Resource Institution in the Urban Andes. *Human Ecology* 37 (2):179-192.
- Yandle, T. 2003. The challenge of building successful stakeholder organizations: New Zealand's experience in developing a fisheries co-management regime. *Marine Policy* 27:179-192.
- Yin, R. K. 1994. *Case Study Research. Design and Methods*. Vol. 5, *Applied Social Research Methods Series*. London: SAGE Publications.
- Zachrisson, A., et al. 2006. Tourism and protected areas: motives, actors and processes. *International Journal of Biodiversity Science and Management* 2 (4):350-358.
- Ödmann, E., et al. 1982. *Vildmarken och välfärden*. Stockholm: Liber.