CONSERVATION IN CONTEXT:

ESTABLISHING NATURAL PROTECTED AREAS DURING

MEXICO'S NEOLIBERAL REFORMATION

by

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A Dissertation Submitted to the Faculty of the

DEPARTMENT OF GEOGRAPHY AND REGIONAL DEVELOPMENT

In Partial Fulfillment of the Requirements
For the Degree of

DOCTOR OF PHILOSOPHY

In the Graduate College

THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

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ACKNOWLEDGEMENTS

This project would not have been possible if not for all of the support I received. I am forever grateful to everyone who supported me in achieving this life goal. I'd like to start by acknowledging the people in Mexico who allowed me to interrupt their daily lives to talk and share. In Loreto, I'd like to thank Fernando for giving me a place to stay during my initial visit. Thank you to George and Olivia, who inspired me. Thank you to Cecilia, my friend when I needed one. A special thanks the park staff that was so generous with their thoughts and time. In particular, I'd like to thank and Alfredo Gutierrez, who balanced so many conflicting demands with humor and honesty.

In Cuatro Ciénegas, I owe a very special thanks to Dean Hendrickson, a researcher to be admired and emulated for his devotion to his research site and for his efforts to work with the park staff and local community. I'd also like to thank the reserve staff for being so generous of their time. A special thanks to Arturo Balderas, who made time for conversations with me – even at the end of a long day. Most of all, I'd like to thank the residents of Cuatro Ciénegas, who made it feel like home to us for the too short period of time we were there. In particular, I'd like to thank the "Profe" and Benigno Vasquez, a good friend whose knowledge about the basin and enormous capacity to share was always a grateful surprise.

A great committee helped shape this project and gave me the support I needed to complete it. A special thank you to my advisor, Diana Liverman, who gave me full-throttle logistical, intellectual, and emotional support. Thanks to Beth Mitchneck who shared wisdom and caring over many cups of coffee. Thanks to Simon Batterbury for his excellent comments. Thanks also to Maria-Carmen Lemos, Elisabeth Oglesby, Margaret Wilder, and Marv Waterstone – all of whom contributed thoughts and ideas.

This work would not have been possible without financial help. I would like to thank the Tinker Foundation and the Fulbright-Hays Foundation for supporting my field work. Thank you to the P.E.O. Scholar Fund (and particularly the AZ BQ Chapter) for supporting my dissertation write up. Thanks also to the Geography Department and the Center for Latin Studies at the University of Arizona for their financial support.

I have been blessed with supportive family and friends. My greatest thanks go to them. I'd like to thank Milagro, for taking my family in its heart. Thank you Ken and Melissa, Leo, Susan, and Holly. Thank you Roberta for lending your sanctuary. Thanks to my many Tucson friends who helped me along including Robert Emanuel, Carrie Brown, Stacy Ryan, Erik and Alicia Larson, and Dereka Rushbrook.

Last, but not least, I owe my entire family an enormous thanks for all of their love, patience, and unending support. Thanks Marti and Mike, for giving up your days and nights during the home stretch to take care for us. I could not have done it without you. Thank you Robert and Karen for providing us with a nurturing place to realize this project. Thank you Maia for providing the ultimate incentive. And thank you Brian for, well, everything.

DEDICATION

To my family – all of it.

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ABSTRACT

In the late 1980s and through the mid-1990s, Mexico underwent an enormous neoliberal transformation that affected almost every level of its economic, political, and social systems. Research has shown that rural and poor areas of Mexico have been particularly hard hit by these transformations. At the same point in time, Mexico established an unprecedented number of natural protected areas – national parks, biosphere reserves, wildlife reserves, and the like. Mexico is not alone in this transformation. Other "less industrialized" countries are also implementing these dual policies.

While many working in the field of conservation in less industrialized regions assume little connection between their work in natural protected areas and the larger political economy, I argue that the two are interrelated and have compounding outcomes. The goal of this study is to understand the connection between these two seemingly incongruous policies. In addition, this study seeks to understand the process through which natural protected areas were territorialized and the outcomes of this territorialization process on landscapes and livelihoods within the larger context of Mexico's neoliberal reformation.

To understand these questions, I look at Mexico as a case study at the national level as well as two more local case studies – the Loreto Bay National Park (LBNP) in Baja California Sur and Cuatro Ciénegas Wildlife Reserve (CCWR) in Coahuila, Mexico. Both areas support the neoliberal agenda, although in different ways. In addition, both are being reterritorialized so that nature is separated from society and treated as a

marketable commodity through tourism or privatization. In addition, both have created uneven or patchy regional landscapes in which resources are more heavily extracted outside of reserves (due largely to neoliberal reforms) while inside the reserves small-scale production activities are limited.

CHAPTER 1: BACKGROUND AND INTRODUCTION

1.1 Conservation in Context

As a senior in college studying conservation biology, I have a vivid memory of a figure in my textbook showing the ideal shapes and sizes of protected areas. The images were derived from McArthur and Wilson's theory of island biogeography, which builds on early principles of population ecology and genetics to explain how distance and area combine to regulate the balance between immigration and extinction in island populations. Based on this theory, the size and shape of protected areas are designed to maintain the optimal amount of biodiversity.

The inherent assumption behind these images was that protected areas were the only way to preserve the world's rich but highly endangered diversity of species. To be effective, these areas must be made into figurative islands – cut off in some degree from the surrounding ocean of human activity and encroachment. The images in my textbook reflect the dominant thinking within the field of conservation biology, a discipline that emerged in the mid 1980s.

In the minds of biologists, it was a radical move. Disturbed by the rapid loss of species and ecological diversity, ecologists and biologists decided to extend their science and become advocates of the natural world they studied and loved. Without challenging the underlying basis of scientific investigation, conservation biologists began applying their science to questions aimed at developing policies and guidelines for conserving biological diversity. Ultimately, all of these policies and guidelines took the form of

"protected areas" designed to maintain islands of biological richness from human destruction.

Given their proximity to the subject matter, it is not surprising that conservation biologists lead the charge in developing policies to protect biodiversity. When sticky issues regarding people in and around natural protected areas have arisen, social scientists have been invited to join the effort, lending their expertise to help resolve conflicts arising between conservation goals and what is generically referred to as economic development. More frequently than not, these conflicts are boiled down to issues of local poverty. Like conservation biologists, social scientists working in the areas of conservation are frequently confined to the local scale of research and analysis. This confinement takes large-scale political and economic issues related to rural poverty beyond the grasp of conservation policy. Many working in conservation fail to connect issues of globalization and neoliberalization to poverty and development in their particular area of interest – be it a coral reef, butterfly reserve, or sky island. Ignoring the large-scale context of conservation conflicts has tended to widen the gap between conservationists and social justice advocates.

It took me approximately another five years to realize that missing from my conservation biology text was any discussion of alternative means to protect environmental resources besides protected areas. In our society, alternative means of protecting non-human life are difficult to envision in contemporary western society. The concept of the protected "island" is indelibly wrapped up in our society's predominant way of viewing the world – in which human and natural are separate and distinct. As a

product of my society, it is likewise difficult for me as an individual to envision an alternative way of being in the world that does realize these divisions. But I know that alternatives exist in the world's diversity of cultures and societies.

This dissertation represents a step in surpassing the "protected area" model to realize alternative ways of being that are more just and kind to other living things – human and otherwise. That step involves partially dissecting the "protected area" as the dominant model for conserving non-human life. This dissertation questions the natural protected area model as the dominant and nearly exclusive approach to conservation by placing the protected area model in the larger political, economic, and social context. The emphasis on the broader context makes this study inherently geographic. Rather than try to understand natural protected areas in a discreet scale – the local, regional, national, or international – this study attempts to transcend scale by interconnecting actors and processes occurring simultaneously at different sites.

Therefore, while the protected areas analyzed in this study serve as the nexus for these connections, much of the research is aimed at actors based in other places entirely. This is not a study just about the two case studies or about Mexico. Rather, it is about the multi-scaled interactions that enable the transformation of rural places through neoliberal programs and natural protected areas and the outcomes of those transformations. Mexico (and northern Mexico in particular) provides a convenient and representative location for understanding those transformations. However, I argue that my research is aimed more at environmental groups in the United States and other industrialized/capitalist societies that have propagated the natural protected area model around the world. Frequently these

groups use the logic of conservation biology and other sciences to de-politicize their conservation agendas and do not reflect how their own position in the global political economy may contribute to the problems threatening what they seek to protect.

1.2 Neoliberalism and Natural Protected Areas

In the early to mid-1990s, nation-states throughout the developing world[1] created a host of new natural protected areas that encompassed large tracks of rural landscapes. The IUCN defines natural protected areas as "An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means" (Chape, Blyth, Fish *et al.* 2003:2).

There are now at least 44,000 protected areas over the globe covering nearly 14 million square kilometers (UNEP 2006). Over half have been designated in the past 30 years, doubling the amount of land encompassed by natural protected areas since 1975. Much of this growth has occurred in the global south. Over a quarter of the protected areas created between 1990 and 2000 occurred in Asia, Latin America, Africa, and the Middle East. Funded with money that flowed from the industrialized north, developing nations reshaped these areas into visions of protected nature.

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[1] I use this term for lack of a better common description for countries stricken by poverty as a result of a long history of colonialization by wealthy, industrialized nations. However, I also recognize that the description of "less developed" or "developing" reifies the notion that poverty can be rectified by modernization.

During this same period of time, another global phenomenon was occurring. Nation-states throughout the world were shifting their political and economic systems into alignment with dominant neoliberal ideals promoted by international development agencies and nations in the industrialized north. Neoliberalism is an idea of how the world should work, or should be organized. It emerges from neoclassical economics, in which human behavior is understood according to economic models. The power of these models has reduced our appreciation of the diversity and mystery of human behaviors to a series of arcs that rise and fall on a graph with changes in cost and other limited variables. According to the models, human behavior is predetermined and the market sets the circumstances for that behavior. Allow the market to rule and you will have a reliable, predetermined outcome. However limiting these models are, their reductionism has given them the power of explanation that policy makers grasp to justify programs that follow a strict agenda of market rule. This neoliberal agenda has led states to adopt programs that, ostensibly, withdraw the state while making room for the "free market". States have reformed their economic and political systems to conform with the neoliberal agenda by withdrawing social spending and subsidies, reduced restrictions on trade and investment, privatizing state and communally owned property and natural resources.

Not surprisingly, the outcomes of these reforms are uneven and highly contested. While proponents like to claim that free trade and other components of neoliberalism has led to greater prosperity (Williams 2004; Aldonas 2005), opponents argue that the prosperity is unevenly distributed as the income gap has grown (Barkin 2001; George 1999; Gledhill 1995; Kelly 2001; Veltmeyer, Petras and Vieux 1997). Having personally

witnessed the increasing gap between rich and poor in this country as well as in Mexico, this research unapologetically sympathizes with the latter view

Regardless of the fact that neoliberal reforms have had very real outcomes for rural livelihoods, those working in the conservation field have rarely engaged with how those livelihood outcomes have changed the way that rural populations interact with their resources and effect the circumstances under which local residents are able to protect and conserve their resources. This oversight limits the ability of conservationists to evaluate and improve the effectiveness of natural protected areas as a means to protect biological diversity.

1.3 Mexico as an Example

While most countries around the world have accepted the neoliberal trend to some degree, the Mexican state under Salinas de Gotari (1988-1994) fully embraced neoliberal ideals and rapidly translated them into policy. With the support of international lending institutions (such as the World Bank) and the United States government, Mexico began making significant political and economic changes in line with the tenets of neoliberalism. Two significant political-economic reforms which reflect the degree to which the Mexican state embraced neoliberalism include *ejido* land tenure reform and NAFTA (the North American Free Trade Agreement).

As part of the neoliberal embrace, in 1992 Mexico made several significant changes to its natural resource laws (land, fisheries, water, forestry), shifting resource control from state or communal ownership to private interests. Most significant among

these changes was the reformation of Mexico's land tenure system, which allowed for the first time the privatization of communally held property, or *ejido*s. The *ejido* system was the product of Mexico's revolution and the backbone of Mexico's political system, ruled by a single party -- the Partido Revolutionario Institutional (PRI). Landless peasants, who had frequently worked farms belonging to *hacendados*, were able to request their own land, granted by the federal government. Because this land was held communally, it created a structure of governance at the local level that enabled a structure of patronage in Mexico between the PRI and the rural producers. As the PRI's power structure crumbled, new spaces emerged for opposition parties and other non-governmental groups. Therefore *ejido* reformation not only reflected structural economic changes, but also the emergence of a new political system.

Another primary example of Mexico's embrace of neoliberalism was the adoption of NAFTA in 1994, which removed (and continues to remove) trade barriers between the United States, Canada, and Mexico. This agreement signaled the end of Mexico's previous economic development strategy of import substitution industrialization, which protected domestic producers from foreign competition. Mexico's producers are now in direct competition with U.S. and Canadian producers.

Looking back over the past decade, it is apparent that Mexico's embrace of neoliberal policies had deep and lasting consequences for its rural landscapes. The rural sector in Mexico has been particularly hard hit by reforms. For example, Kelly (2001) shows the number of agricultural households below the extreme poverty line (able to buy the basic nutritional requirements) increased from 39% to 45% between 1984 and 1994.

Meanwhile agricultural households below the moderate poverty line (unable to meet basic needs) has remained around 90%. Similar trends are evident in other parts of the "developing" world.

Given its full embrace of neoliberal reforms, Mexico makes an excellent case for understanding how neoliberalism has affected less industrialized countries. Mexico is somewhat exceptional for the extent to which it has reformed its political and economic system (although it is not surprising given its proximity to the United States, from whence the neoliberal agenda emerged in the 1980s). Because of this, Mexico provides an excellent example of the extreme changes that occur as less developed countries shift from state-led to market-led economies.

Mexico also serves as an excellent example of a country that has rapidly transformed parts of its rural landscape by embracing the natural protected area model that was being promoted internationally in the early 1990s. At the same time that many other developing countries began creating a network of protected areas, Mexico nearly doubled its number of natural protected areas from 67 NPAs in 1985 to 110 NPAs in 1998. Reflecting global trends in the conservation movement, Mexico's environmental policy in the early 1990s emphasized for the first time a need to protect biological diversity and it embraced a conservation policy that institutionalized natural protected areas. Mexico also created a bureaucratic infrastructure for the management of natural protected areas, led by CONABIO (Comisión Nacional para el Conocimiento y Uso de la Biodiversidad / National Commission for the Understanding and Use of Biodiversity) and

CONANP (Comisión National de Areas Naturales Protegidas / National Comission for Natural Protected Areas).

And like many other countries, democratic openings associated with neoliberal reforms enabled a support network of environmental groups that supported the creation and maintenance of protected areas. A new crop of environmental organizations grew up in Mexico dedicated specifically to conservation of biological diversity. Many of these organizations became directly involved with natural protected area management, lending financial support as well as scientific expertise. The majority of these organizations are supported quietly through private industry and less quietly through environmental groups based in the United States, primarily The Nature Conservancy, World Wildlife Fund, and Conservation International. Through their international conservation programs, these northern-based organizations provide financial and logistical support to Mexican partners and also directly to protected areas in Mexico – often helping to shape management plans and strategies.

Without a doubt, Mexico has a tremendous amount of biodiversity. Mexico is one of 12 countries that harbor between 60-70% of the world's total biodiversity (CONABIO 1998). Although it is the world's 14th largest country, it is ranked third in biodiversity behind Brazil and Columbia (Ramamoorthy, Bye and Lot 1993). It is first in the world for reptile diversity, second for mammals, fourth for amphibians and vascular plants, and tenth for birds. Overall, Mexico is believed to shelter as much at 10% of the world's species. While 65,000 species have been described, there are an estimated 200,000 species in Mexico (CONABIO 1998).

A variety of factors have contributed to Mexico's high biodiversity. The first are biogeographic – its topographic variation over a variety of climates create a diversity of micro-climates and ecoregions (Ramamoorthy, Bye and Lot 1993). In addition, Mexico is the saddle between the Nearctic realm to the North and the Neotropical realm to the South. Second, Mexico's cultural diversity also contributed to its biodiversity – particularly for agricultural plants. Indigenous groups have cultivated and domesticated genetic diversity in plants – particularly corn and beans. Says Bye, "Mexico is a country favored with biological and cultural diversity. As a consequence of this heritage, it is one of the major world centers of agriculture…(Bye 1993: 725)". Because Mexico's biodiversity is highly scattered, conservationists and policy makers argue that discreet protected areas may be the best way to protect these hotspots of biodiversity (Ramamoorthy, Bye and Lot 1993).

1.4 Case Studies

The cases examined in this study highlight how that dual embrace of neoliberalism and natural protected areas has played out in rural landscapes in Mexico. Both case studies are located in northern Mexico. The first case study is located on the east coast of Baja California Sur, within the *municipio* of Loreto (Figure 1.1), which includes a population of about 100,000. Approximately 83% of the population lives in the town of Loreto while the remaining population lives in approximately six small villages surrounding Loreto (Ayuntamiento de Loreto 1999). The primary economic activity in the town of Loreto include tourism. In the surrounding villages, the primary

source of income is small-scale commercial fishing. In 1996 President Zedillo created the Loreto Bay National Marine Park, which encompasses five major islands and approximately 200,000 hectares (700 square miles) of open water. Park regulations outlaw large fishing vessels. While tourist-oriented sport fishing and small-scale commercial fishing by local residents are permitted, they are highly regulated.

Figure 1.1 **Location of Case Studies**

Cuatro Ciénegas is a small, intermontane valley in the Sierra Madre Oriental at the eastern edge of the Chihuahuan desert in Coahuila (Figure 1.1). The city of Cuatro Ciénegas de Carranza is situated at the northern edge of the valley and has a population

of about 10,000 people. Twenty-four percent of the land in the valley is in the hands of private landowners, and seventy five percent is owned by the *ejidos*. Ranching, agriculture, and gypsum mining constitute some of the principle industries in the valley. More recently, several industrial plants have moved into the valley. The Cuatro Ciénegas valley has received limited federal protection as a recreational area since 1987. In 1994, President Salinas declared the valley an Area for the Protection of Plants and Animals (roughly the equivalent to a wildlife reserve in the United States), which encompasses 84,347 hectares (32,566 square miles). The area does not place restrictions on most current land use, although it does prevent further development and exploitation of resources in the reserve.

I initially picked these case studies for practical reasons because I was able to establish connections at each before arriving, which facilitated my field research. However, these areas make good cases for study because the communities are about the same sizes and both created during neoliberal reforms in the mid-1990s. The context of their creation provides both protected areas some fundamental similarities. However, their particular geographies makes for some interesting contrasts in which to examine the questions of this study.

Although both case studies are located in northern Mexico, giving them some shared physical and cultural characteristics, both sites have unique cultural and historic differences. Both cases are located in arid regions that characterize northern Mexico, but the resources upon which livelihood strategies depend are very different. In Loreto, life depends on the sea. Fisheries provide the primary source of income either directly

through commercial fishing or indirectly through tourism and sport fishing. The Loreto Bay National Park is meant to protect marine habitats and species. In Cuatro Ciénegas, life revolves primarily around agriculture and ranching made possible by rare sources of freshwater bubbling up to the surface throughout the basin. The reserve protects a unique desert aquatic ecosystem supported by freshwater pools.

Being in the north, both cases share some cultural characteristics of northern Mexico. Cuatro Ciénegas is a typical *norteño* town similar to other small communities throughout Mexico's northern deserts. The economic and social development and structure of these communities revolves around a long and stable history of ranching and farming. The rural *norteño* life is reflected also in the culture through food, music, dress, community events (rodeos, festivals, and dances), and family life. Although Loreto is in the north, like many communities on the Baja Peninsula, its culture is shaped by very recent explosion of development and immigration after nearly four hundred years of isolation from the mainland. This recent growth has led to a hodgepodge of people from other regions and countries, giving it an interesting juxtaposition of cultural elements.

Despite their many differences, both cases have essential similarities when it comes to understanding the impacts of creating natural protected areas in the context of neoliberal reform. Both areas had protected areas created at the height of the period when both policies were being implemented – in 1994 and 1996. These areas have received a great deal of attention from U.S.-based environmental groups (primarily The Nature Conservancy) and have received significant international financial and logistical support. Most importantly, both areas have populations dependant (directly or indirectly)

on natural resources that have been hard hit by neoliberal reforms. In both areas, these impacts have affected the way that resource users' livelihood decisions in ways that have implications for specific resources, species, and habitats. As such, the case study areas are very representative of other newly created protected areas in Mexico.

Although these similarities amidst difference will help paint a picture of the dual impact natural protected areas and neoliberal reforms have had on rural communities in Mexico and other parts of the developing world, it is by no means a complete picture. This study is limited by the fact that it only deals with two cases and these cases are based in one region in one country – a very large and diverse country. Undoubtedly, the outcomes on rural livelihoods of neoliberal reforms and protected areas are going to vary a great deal, subject to the unique geography of place. While these cases provide a starting point for understanding the outcomes of natural protected areas in the context of neoliberalism, many more case studies will need to be done to begin to reveal the common outcomes amidst the diversity of place.

1.5 Questions

In this study, I answer three broad questions framed by connections, process, and outcomes. Each then is broken down into several sub-questions.

1.5.1 Connection

The first question I seek to understand is the connections between the adoption of neoliberal reforms and the creation of natural protected areas in Mexico in the early 1990s. Specifically, I ask:

a. How do global neoliberal ideals adopted by Mexico in the 1990s ideologically support the creation of natural protected areas through concepts of community-based conservation, eco-tourism, and bioprospecting?
b. How do natural protected areas legitimate Mexico's neoliberal agenda? Specifically, do natural areas allow state actors to claim they working to protect nature from neoliberal reforms that may lead to greater resource exploitation as suggested by Mumme (1992)? Or do protected areas enable the capitalization of nature for market consumption according to neoliberal ideals?

These questions are addressed mainly in Chapter 4 where I examine the rise of natural protected areas internationally and in Mexico throughout the last decade of the 20th Century. In answering this question, I draw on state theory that illuminates how the state regulates society in such a way as to maintain capitalist accumulation. I argue that protected areas represent a form of regulating human-environment interactions in such a way as to enable the capitalization of natural resources.

I support this argument with Foucauldian concepts of discourse to demonstrate how protected areas are legitimated as forms of regulation. Using discourse analysis, I demonstrate how in an increasingly neoliberalized world, the discourses of sustainable

development and biodiversity conservation grew and flourished. Both inherently rely on the same reduced economic logic of human behavior that neoliberal thinking does. These discourses provided the framework for the construction of a global natural protected area network that slides across geographic levels from the international to the local and involves a host of actors including states, non-governmental organizations, corporations, and local residents. As part of this examination, I explore concepts that emerged with and enabled the creation of protected areas – particularly concepts of community based conservation, ecotourism, and bioprospecting. I demonstrate how these ideas are in tandem with the ideals of neoliberal economics and enabled the creation of protected areas globally.

1.5.2 Process

Next, I seek to understand the process by which conservation areas are created and the role of neoliberal and conservation ideologies in this process. I do this by examining the following questions:

a. What actors are involved in the creation and establishment of protected areas and what is their relationship? Who has been excluded from the process of establishing a protected area and how? What is the background of each actor and how might it influence his/her/their support of a protected area?
b. How have neoliberal reforms materially enabled the creation of natural protected areas? In other words, have policies such as decentralization, democratization, social welfare reform, privatization, relaxation of trade barriers, increased foreign investment and so on created circumstances for the establishment of protected

areas? In particular, how has the democratization of Mexico, which has led to the rise of non-governmental, organizations enabled global concepts about natural protected areas to be transmitted across scale?

c. How have dominant discourses regarding natural protected area conservation traversed the network of actors and how are they being used, manipulated, or resisted in the process of creating the park. In particular, how are dominant conservation discourses used locally to justify the creation of natural protected areas and impose rules regarding appropriate human-environment interactions?

These questions are answered directly in the case study chapters. In answering these questions, I draw upon a wide body of research that has examined the implementation and outcomes of neoliberal reforms in Mexico. In addition, I use discourse theory to examine how certain groups use conservation discourses to create new rules and institutions that regulate the behavior of small-scale producers inside of protected areas.

1.5.3 Outcome

Finally I ask, what have been the outcomes of establishing natural protected areas in the context of Mexico's neoliberal reforms? I answer this question by looking specifically at the environment, social interactions, and overall human-environment interactions.

a. What are the outcomes for the health of natural resources locally and regionally? Have neoliberal reforms placed increased pressure on natural resources? Do natural protected areas effectively protect nature and natural resources within their borders from exploitation inside and outside their borders? Do natural protected areas create uneven landscapes in which nature and natural resources are exploited more intensely outside of protected areas?
b. What are the outcomes for local residents? How have neoliberal reforms affected the livelihood decisions and opportunities rural communities, particularly small-scale producers? How do natural protected areas affect the livelihood decisions and opportunities for local residents? Do natural protected areas increase tension among local groups with different relationships to nature?
c. In general, how have natural protected areas changed human-environment interactions?

These questions are again answered within the context of the case studies. In both cases, it is difficult to truly understand the full environmental impact of the protected areas and neoliberal reforms because data simply does not exist. While it is apparent that in both cases, the protected areas have sheltered local resources from immediate large-scale exploitation, it is also evident that neoliberal reforms have led to increased exploitation on the fringes of the protected areas – leading to an uneven or patchy landscape of exploitation and protection. It is unclear what this unevenness signifies for the health and well-being of resources regionally.

1.6 Organization of Study

This study is divided into six additional chapters. The second chapter describes the theoretical and methodological framework of this study. Although it fits within the geographic tradition of political ecology, this study relies specifically on state theory that is informed by neo-Marxism. In particular, I use regulation theory to explain the connection between the dramatic increase in the number of protected areas and the rise of neoliberalism. In a nutshell, regulation theory argues that the state is continuously shifting the way that society is organized in order to maintain the conditions of capitalist accumulation. I argue that protected areas, by reorganizing the way that humans perceive and interact with their environment, are able to open and maintain new forms of capitalizing nature in accordance with neoliberal ideals.

Chapter 3 looks more specifically at the global emergence of neoliberalism and how it became the dominant principal for reorganizing Mexico's political economy in the late 1980s through the 1990s. In addition to examining how this reorganization effected Mexico's political and economic structure, this chapter looks specifically at the outcome of neoliberal reforms on natural resource management. Overall, neoliberal reforms have led to increased commodification of natural resources through privatization and capitalization of resources. Although it is not clear what the environmental impacts of the reforms have been, it is clear that they have made rural livelihoods much more difficult in many ways.

Chapter 4 describes in more detail the development of natural protected areas globally, specifically focusing on the emergence of biodiversity and sustainable

development as guidelines for conservation. This chapter details how these concepts were translated into "community-based" conservation programs that enabled the commodification of resources and reserves through money-making schemes such as ecotourism and bioprospecting. Looking specifically at Mexico, this chapter shows how these global conservation ideas were adopted in national policy and enabled by an international conservation network of NGOs, corporations, and international governing and financial institutions.

Chapters 5 and 6 look specifically at the process and outcomes of creating protected areas locally. Examining one case each, these chapters describe how human-environment interactions have been altered by both changes in political economy that can be attributed to neoliberalism and by the establishment of natural protected areas. In particular, each chapter looks at the process of territorialization and commodification in the newly created reserves and how these processes have modified human-environment interactions along with neoliberal reforms. Each chapter ends with an evaluation of how protected areas are influencing human-environment interactions from a more regional perspective.

The last chapter brings together the findings and conclusions from the case studies and relates them back to the theoretical framework presented in Chapter 2. Based on these findings, this study concludes with a cautionary note to conservation organizations based in the U.S. and other industrialized nations working in less-developed, rural areas of the world. Conservation efforts must be implemented with greater reflexivity of the particular social and economic contexts in which they are conceived. While community-

based conservation efforts sound very good, they are in fact a contradiction since the ideas and principals of conservation are born of a particular mindset that enables the conditions of capital accumulation. It is these same conditions are generally creating havoc for small-scale rural producers in Mexico, and in other less developed areas of the world, with largely negative outcomes for the same resources that conservationists wish to preserve. Without addressing the social consequences of neoliberalism, conservationists are doomed to reify the conditions that threaten that which they seek to preserve. To avoid this, conservationists must become more open to political economy and how it relates to scale. In essence, conservationists must become more attuned to geography and stop separating the "local" and the "natural" from much broader and more complicated processes.

CHAPTER 2: THEORIZING THE STATE AND NATURAL PROTECTED AREAS

2.1 Introduction

This study falls into an area of research delimited by political ecologists, who have followed in the geographic tradition of understanding the interactions between society and environment. The earliest studies in political ecology focused on the relationship between resource degradation and political, economic, and social marginalization. Researchers did this by combining the concerns of Marxist political economy and its focus on how capital organizes people and nature with cultural ecology's concerns with individual responses to the environment (Blaikie and Brookfield 1987). Upon this basis, studies in political ecology have branched out and integrated perspectives on environmental history (Cronon 1992), ecology (Zimmerer and Young 1998), the state (Hecht and Cockburn 1989), civic institutions (Bebbington and Farrington 1993), discourse (Yapa 1996), situated knowledge (Haraway 1991), colonialism (Guha 1989), and social movements (Escobar, Alvarez and Dagnino 1998). At the same time, many studies have burrowed deeper into the Marxist roots of political ecology to understand the connections between capitalist growth, environmental degradation, and social injustice (Leff 1993; O'Connor 1994; O'Connor 1998).

A subject that has been relatively unexamined within political ecology involves the neoliberal political-economic system, its connections to natural protected area policy, and how these two programs have influenced rural landscapes. Numerous studies have been dedicated to the privatization and commodification of nature, the management of

natural protected areas, and the outcomes of neoliberal reforms for rural landscapes. However, there has been no overarching attempt to bring these areas of research together to understand the significance of neoliberal ideology in the recent creation and management of natural protected areas or the implications of this relationship for rural people and environments.

Theorizing the state is central to developing the connections between neoliberalism and natural protected areas. The state under neoliberalism has undergone a transformation that has also influenced the way society relates to nature. This section presents theoretical perspectives of the state and its transformation under neoliberalism. In addition, it presents perspectives on nature-society relationships, how these relationships have changed under neoliberal policies, and how these new relationships have influenced conservation in general and natural protected areas in particular. Considered together, these perspectives provide insights as to why and how natural protected areas have become incorporated into the neoliberal agenda.

2.2 The State

"States are not the sort of abstract, formal objects which readily lend themselves to a clear-cut, unambiguous definition" (Jessop 1990: 340). Regardless, the state is often treated as such, or not theorized at all. Such is the case for neoclassical economic theory, which is based on the concept that markets are self-regulating mechanisms. If left alone, the market will reach an optimal equilibrium. Therefore, the state is considered irrelevant and only creates inefficiencies by interfering in market forces (Tickell and Peck 1995:

368). With regard to the environment, the neoclassical view of the state has only been modified slightly. Because environmental goods and services are not integral to the market, the state is necessary only to insure their incorporation. In this capacity, the state is limited to government institutions. It is a defined, fixed, neutral, and rational object. Using the tools of environmental economics (a subset of neoclassical theory) the state determines and places an economic value on environmental goods. Once their value is established, the state can set up mechanisms (in the form of laws, programs, and policies) to ensure that environmental goods and services are incorporated in the market so it (and not the state) can optimize their management.

Within liberal capitalist societies, such as the United States, many environmental groups have readily adopted neoclassical economic theory as the basis for determining the appropriate action for environmental conflicts. This is particularly true of the mainstream conservation movement, represented by organizations with headquarters in Washington D.C. – such as The Nature Conservancy, The World Wildlife Fund, and Conservation International – which are more interested in preserving biodiversity and wilderness than in health, pollution, or similarly related environmental justice issues. For this reason, conservation could be considered a luxury movement – where activists are more likely to be fully integrated into the capitalist system as urban, middle-class professionals. These activists are more likely to be familiar and comfortable with neoclassical economic approaches to environmental conflict resolution[2].

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[2] There are, of course, obvious exceptions to this represented by anti-establishment groups with concerns over environmental conservation – such as Earth First!. However, it should be noted that because

Ultimately, the theoretical neglect of the state deeply undermines the efforts of those who seek to address environmental and social justice issues because it ultimately leads to the entrenchment of a system that has led to large-scale environmental exploitation and degradation.

> "To the extent that the liberal institutional movement turned to a neoclassical language to justify their claims for environmental regulation, they won – in the short term. In the long term however, they buttressed the legitimacy of a language that essentially represents the position of capitalist industry. This use of arguments from economic rationality to legitimate intervention into an otherwise "free" economy left an opening for the industrial counter-attack, which…began to turn to benefit-cost analysis to justify–and, in effect, to limit–state intervention. More recently, business and liberal environmental groups have agreed to extend the market resolve (but, at a deeper level, only to disguise) arenas of environmental struggle through devices such as marketable pollution permits" (Fitzsimmons, Glaser, Monte-Mor *et al.* 1994: 203).

To avoid this problem in my own research, I examine the state from a neo-Marxist perspective. Although there is much heterogeneity in the ways that Neo-Marxists define the state, all share the perspective that within capitalist societies the state assumes a central role in capital accumulation (Jessop 1990: 45). Although the form of capitalist systems are always changing in response to contradictions and crises, production for profit remains the basic organizing principle of economic life (Harvey 1989: 121). The state's role is to assist capital to overcome contradictions (Lauria 1997). Therefore, neo-Marxists are not so concerned with defining the state as a thing or subject, but a (continually shifting) strategy that fosters conditions necessary to maintain

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these groups eschew the dominant state-capital model, they are ostracized as "fringe" groups. Therefore, I do not consider in the same category of environmental organizations I discuss here.

accumulation. This perspective is useful for theorizing the state because it moves the state beyond a fixed and neutral object and instead gives it agency and purpose. I use neo-Marxist conceptions of the role of the state to understand the link between natural protected areas and neoliberalism. I argue based on the results of this study that natural protected areas provide a means for overcoming the second contradiction of capital (O'Connor 1994) and open "nature" for new forms of capital expansion such as tourism and bioprospecting.

In particular, I find regulation theory useful for understanding the state as strategy. Regulation theory proposes that extra-economic forces help respond to these contradictions by regulating regimes of accumulation. A regime of accumulation is a specific relationship between production, consumption, savings, and investment (Lauria 1997:6). The extra-economic forces that regulate these relationships include social institutions, cultural norms, and state activities such as environmental laws and standards. A particular combination of these forces is called a mode of regulation (Green 1996). For example, Fordism represented a particular mode of regulation, which involved change in the process of production, capital-labor relations, implementation of Keynesian demand management policies, and norms of mass consumption.

Whereas earlier regulation schools were concerned with identifying and describing modes of regulation, particularly in western, industrial countries, more recent work has moved away from this approach. Critics of "traditional" regulation approach say that it does not look at the uneven spread of modes regulation over time and space. By focusing on modes of regulation, critics say the assumption is that there is either

perfect regulation or none at all. This is clearly absurd, because regulation is neither ever perfect or entirely absent. So more recent work seeks to look at regulation as *process* constituted through material and discursive social practices in a particular time and place (Painter and Goodwin 1995).

Post-structural perspectives provide insight as to how that process occurs. The object of analysis for post-structural thinkers is how the state constitutes and consolidates power (Murdoch and Ward 1997). This question is informed by Foucault, who felt that "government was a form of activity aiming to shape, guide, or affect the conduct of some person or persons" (Gordon 1991: 2). This "activity could concern the relation between self and self, private interpersonal relations involving some form of control or guidance, relations within social institutions, and communities, and finally, relations concerned with the exercise of political sovereignty" (Gordon 1991: 2-3). Therefore, post-structuralisms are not interested in establishing an overarching definition of the state because the object of analysis is the *process* of establishing relationships of control. Those relationships could involve one person (self-control) or many groups of people.

The process of establishing these relationships does not involve direct repression but "invisible strategies of normalization in which apparently free subjects come to calculate and monitor themselves" (Murdoch and Ward 1997: 312). Knowledge and expertise is particularly important to strategies of normalization. Free or autonomous subjects must be "equipped with" forms of knowledge that constrain and enable particular behaviors (Murdoch and Ward 1997: 320). For this reason, excluding some forms of knowledge and enabling others is necessary to establishing relationships of

control. The process of enabling or legitimating certain forms of knowing the world is central to Foucault's concept of discourse and discursive practices. The post-structural perspective of the state helps me to demonstrate how biology and environmental economics become privileged forms of knowledge and how conservation discourses used by experts in these fields construct nature in such a way as to legitimize natural protected areas as the most effective way to protect biodiversity and ecosystems.

I utilize post-structural perspectives of the state to understand how groups and organizations legitimate and naturalize the linkage between natural protected and neoliberalism areas and neo-Marxist perspectives to understand why this linkage exists. So far, however, I have not offered a definition of the state to serve as the subject of analysis. For this, I turn to Jessop (1990) who offers a definition of the state that supports neo-Marxist perspectives of the role of the capitalist state while allowing the state to fulfill this role through a discursive process. Jessop defines the state as "a distinct ensemble of institutions and organizations whose socially accepted function is to define and enforce collectively binding decisions on the members of society in the name of their common interest or general will" (Jessop 1990: 341).

There are several advantages to adopting this particular definition. First, although this definition focuses on institutions and organizations, not all institutions or organizations are state-like. This includes, for example, non-governmental organizations. These institutions or organizations must be socially accepted. In addition, they must have some legitimacy to make claims about what is the common interest and general will. The establishment of social acceptability and legitimacy is accomplished through a discursive

process (Jessop 1990: 341). This process is never complete, it is constantly contested and the state must rework itself to become socially accepted and legitimate a common interest by which to bind the actions of society. Therefore, although the objects of analysis are institutions and organizations, understanding these objects depends on post structural discursive processes.

Second, the focus within regulation theory on institutions and organizations allows for heterogeneity within the state. There are some organizations that will work against capital accumulation while others will assist capital in distinct ways, at times contradicting the other. For example, Fox notes that middle and lower level reformist government officials in rural development agencies in Mexico took advantage of openings in policy areas that allowed them to recognize and encourage autonomous grassroots organization. Reformist officials "who managed a subset of the government's diverse array of rural development programs…were able to create institutional opportunities for grassroots participation in the implementation of development projects targeted to Mexico's poorest regions, including many indigenous regions that had never before experienced freedom of assembly and association beyond the village level" (Fox 1996; see also Klooster 1996 and Wexler and Bray 1996 for additional examples of this in community-based forestry).

Finally, this definition of the state allows for consideration of the ambiguous boundaries between the state, society and scale. These boundaries are important to understand the process of establishing natural protected areas in the context of neoliberalism, particularly because these boundaries have changed under neoliberalism.

These ambiguous boundaries and their recent transformations in relation to the state are explored below.

2.2.1 State Transformation

Prior to the current liberal-capitalist system, capitalist societies went through a period described as Fordist-Keynesian, which lasted roughly from end of WWII to the early 1970s. Fordism was a system of social relations that depended on organizing labor for mass production of consumable goods while at the same time creating the conditions necessary for mass consumption, such as sufficient working wages and leisure time. Fordist regimes of capital accumulation were supported by a Keynesian social welfare state, which intervened to overcome crises that plagued capitalist accumulation during the Great Depression of the 1930s. The welfare state provided public investment in sectors such as transportation and utilities. It also provided social programs through social security, health care, education, housing, and so on. In addition, the state also supported labor by institutionalizing collective bargaining and minimum wage (Harvey 1989:135).

Although these social and labor policies superficially appear to hinder capital (and may have hindered individual capital) in actuality they strengthened Fordism as a regime of capitalist accumulation by regulating class relations. "The welfare-state pacification of class conflict comes about under the condition of a continuation of the accumulation process whose capitalist drive mechanism is protected and not altered by the interventions of the state" (Habermas 1996). According to Harvey, "the proper configuration and deployment of state powers was resolved…brought Fordism to

maturity as a fully-fledged and distinctive regime of accumulation. As such, it then formed the basis for a long postwar boom that stayed broadly intact until 1973. During that period, capitalism in the advanced capitalist countries achieved strong but relatively stable rates of economic growth…" (Harvey 1989:129).

At the same time Latin America was not characterized by full-fledged capitalist societies. Rather, most Latin American countries were characterized by economies that were in large degree state-led. Therefore, Fordist-Keynesian regimes of accumulation did not exist in the same way in Latin America at this time. After WWII, dependency theorists diagnosed Latin America's economic problems in terms of a dependence on primary exports. While developed countries sold a range of manufactured goods, Latin American countries continued to export agricultural products and minerals. This led to deteriorating terms of trade as the price of manufactured goods rose. The suggested remedy was for Latin America to break its dependency on income from primary materials and imported manufactured goods from the developed world and establish its own manufacturing base. Consequently, many parts of Latin America, including Mexico, adopted a policy of import substitution industrialization (ISI), in which the state strictly controlled wages, labor, and prices.

Both Keynesian-Fordist and ISI systems began to break down in the late 60s and early 70s in ways that bound Latin America and the developed North more closely together. In capitalist societies, too much rigidity in fixed capital investments, labor markets, and state commitments began to weaken the Fordist regime. This rigidity led to a sharp recession in 1973. Social resistance in the late 60s and early 70s by women,

students, civil rights activists, and environmentalists against Fordist structures also contributed to the decline in Fordist regime (Cleaver 1997).

From the "flux and uncertainty" created by the recession and social unrest, a new regime of accumulation began to emerge along with a new system of political and social regulation. Harvey calls this new regime flexible accumulation and it is characterized by flexibility in the labor process and markets, products, and patterns of consumption (Harvey 1989: 141-147). Of particular importance to Latin America was the ability of transnational corporations to mobilize. Faced with higher labor costs and tougher environmental controls in the U.S., corporations began to produce in less-developed countries, particularly as technology, faster and cheaper transport and improved communications were developed.

Meanwhile, in many Latin American countries the import substitution model had failed to improve the balance of trade. To increase foreign earnings, many countries adopted an export-oriented model that invited foreign manufacturers. This model was exemplified by the Border Industrialization Program along the U.S.-Mexico border region when it began in 1965. This program allowed foreign companies to import materials duty free into the border region and assemble manufactured goods for export. In this way, foreign firms could take advantage of Mexico's low labor costs and lax environmental standards.

The transformation of global capital that occurred in this period was legitimated by neoliberal ideals, which value the ability to compete above all else. Flexibility is key to ensuring capital is able to compete. To maintain competition within markets,

neoliberalism as a strategy involves a general package of policies that include: fiscal discipline to cap government deficits; cutbacks on social programs; tax reforms that reduce rates and sharpen incentives; financial liberalization that allows the market to determine interest rates and capital flows; competitive exchange rates to induce growth in nontraditional exports; trade liberalization to reduce restrictions on imports; direct foreign investment enabled by removing barriers to entry for foreign firms; privatization of state enterprises; deregulation; and legal systems that ensure property rights at low costs (Peet and Hartwick 1999: 52). The rise of neoliberal ideals was not immediate or unmediated. Neoliberal ideals rose from obscurity throughout the developed world through a hegemonic project to become the dominant and unquestioned way of thinking Neoliberalism as a dominant way of thinking in the developed nations truly arrived in the early 80s with Reagan and Thatcher (George 1997).

Meanwhile in Latin America and much of the developing world, change came about largely as a result of the debt crisis in the early 80s (with the exception of Chile, where Pinochet enthusiastically adopted neoliberal ideals in the late 70s). Throughout the 70s and early 80s, most Latin American countries accumulated massive foreign debt as a consequence of corruption and mismanagement of funds, rising interest rates on foreign debt, and rising oil prices. To relieve debt from multilateral lending institutions, such as the World Bank and International Monetary Fund (IMF), these nations were required to restructure their economic and political systems according to a neoliberal agenda. Both regions, then, moved from a more state-centered political economy to a market-centered economy based on neoliberal ideals. While this move may be uneven

and heterogeneous, it nonetheless reflects the success of the global hegemonic project to make neoliberal ideas the dominant way of thinking.

Creating neoliberal states across the world has involved two fundamental processes. This first process involved reshaping the boundaries of scale as state power was shifted upward towards the global level and downward to the individual body, local, urban, and regional level (Swyngedouw 1997). The second process, called destatization, involves shifting boundaries between state and society as public-private partnerships that involve nongovernmental actors and organizations take on greater roles (MacLeod and Goodwin 1999: 505-506).

Keynesian social welfare policies presupposed distinct geographic-political space for the sovereign state under which other scales were managed (Brenner 1997: 136). Under neoliberalism, power has become reorganized across scales. International institutions and organizations have gained authority. While these institutions and organizations are not specifically bound to any national government, they nonetheless have state-like qualities. Likewise, local communities have also been receiving increasing attention as sites of development. Decentralization has been promoted under neoliberalism as a way to facilitate the efficiency of local economies (Mohan and Stokke 2000).

The shifting power under neoliberalism has led many researchers to assume that the nation-state is no longer important. Many times researchers approach globalization by focusing on local-global relationships in which the nation-state scale is non-existent (Brenner 1997). The problem with this research is that it assumes scales is a

"hierarchical division of physical space in which particular processes are consigned to specific levels" when scales are actually representations of space that are socially produced and politically charged (Kelly 1999: 381).

Without recognizing scale as socially constructed, researchers may reify this construction and the political agendas it serves. For example, Kelly argues that globalization rhetoric is used to legitimate the retraction of the welfare state. Mohan and Stokke also warn that 'the local' can be used to create the impression of homogeneity, thereby glossing over local inequalities and legitimating those (most likely a dominant group) who represent 'the local'.[3]

To avoid these and other problems associated with limiting research to scale, geographers and others have advocated that research instead focus on processes that transcend scales through the reorganization of power. For example, Brenner (a political scientist) suggests that globalization should be understood as a "process of worldwide spatial restructuring that unfolds in part through reconfiguration of state sociopolitical organization (Brenner 1997: 139)". I use this perspective to understand how the interactions between actors, organizations, and institutions seemingly placed at different scales enabled the establishment of national protected areas. In addition, I examine how scale is defined and described as a way to legitimate these interactions. In particular, I

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[3] Much has been written on this in the context of conservation, where the local is often constructed as a site of both environmental degradation and protection. Community-based conservation in particular has received tremendous attention from the conservationists as a mechanism for preserving natural protected areas and local wildlife (Western, Wright and Strum 1994). A number of people point out, however, there are many problems with this construction. Please see Agrawal and Gibson (1999), Leach, Mearns and Scoones (1999), and Klooster (1999) for more discussion.

examine how the 'local' is constructed and contested by different groups as the appropriate site of natural protected area management.

Destatization, the second process involved in transforming the welfare state under neoliberalism, involves shifting boundaries between state and society as public-private partnerships that involve nongovernmental actors and organizations take on greater authority (MacLeod and Goodwin 1999: 505-506). In many ways this is related to localism (Mohan and Stokke 2000). Within the development sector, there is an emphasis on local participation and development of social capital. For example, the World Bank has sought increasingly to develop projects that integrate development stakeholders and foster participation through public-private partnerships (Fox and Gershman 2000).

Much of the development work that has focused on local participation has been enabled by transnational non-governmental organizations (NGOs). Indeed, transnational NGOs are often considered critical to the process of participation and production of social capital (Fox and Aranda 1996; Macdonald 2001). NGOs are portrayed as more efficient and cost-effective service providers than governments (Edwards and Hulme 1996: 961). Inherent to this portrayal is the assumption that NGOs are outside of the state, that they step in where the state has withdrawn, and that they are good because they non-political (Fisher 1997). However, a number of researchers question this perspective. Edwards and Hulme (1996) offer perhaps the most vocal critique of the ideological emphasis on the role of NGOs. They argue that NGOs are too close to northern-government donors and developing-country states to be accountable to the poor. As a result, NGOs may actually reinforce structures that lend themselves to poverty, while

conveying the image of doing something about it (see also Zaidi 1999). The role of NGOs and their relation to the state in Mexico is discussed in more detail in Chapter 4.

Also within the development sector is an increased emphasis on social capital, defined as the "features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions" (Putnam 1993: 167). Such capital is localized at the regional or community level. According to Putnam, the best situation is to have enough social capital so there is no need for a state at all. In this situation, everyone would work cooperatively for a common good. However, for various reasons, people aren't capable of working cooperatively. The state, then, is necessary as a third party entity to mediate disputes and coordinate cooperative behavior. The third-party solution is undesirable, however, because it is costly and the state is not really capable of being neutral – instead the state will run things in its own interest, not the interest of those who have invested it with power. Therefore, the best solution is to find ways of increasing stocks of social capital – the features of social organization (norms, trust, networks) that improve the efficiency of society.

Social capital's version of the state works well with neoliberal conceptions of a withdrawn state, and for this reason it has been adopted by international development agencies. However, attempts to foster social capital have the potential to ignore the role of the state in enabling or destroying social capital. This warning is supported by Tarrow's critique of Putnam's analysis of the emergence of social capital in Italy. Tarrow argues that Putnam ignores the fact that Southern Italy was held in a semi-

colonial relation with the North, so that economic development and civic life were suppressed.

To counter these dangers, critics of the social capital literature suggest that development studies should focus on the politics and hegemonic production of the local (Tarrow 1996). Not only will I attempt to focus on the production of the local, but I will also focus on the production of civil society, and NGOs in particular, as being substitutes of the state. I question the legitimacy of these claims by examining the connections between environmental NGOs, government agencies, and capital in Mexico. This will help to address how the state legitimates natural protected areas as a means for environmental protection.

2.2.2 The State of Nature: Commodification under Neoliberalism

The process of reorganizing power under neoliberalism creates the impression that the nation-state has ceded power to non-governmental organizations and institutions operating at different scales in accordance with the free market. Despite this appearance, however, theses processes do not necessarily signify a weakened nation-state. The nation-state in a capitalist system is still actively regulating society so as to enable the accumulation of capital. In fact, the re-distribution of power to different scales and non-governmental organizations could be interpreted as a strategy that enables and legitimates certain goals of the central state (Brenner 1997; Edwards and Hulme 1995; Edwards and Hulme 1996; MacLeod and Goodwin 1999). "Rhetorically at least, it is as if all that is

required for the optimization of economic efficiency and individual freedom is for the overbearing 'nanny' state to get out of the way. At the same time, 'deregulationist' states are often impelled to adopt striking interventionist measures in order to mobilize or manufacture 'markets' where previously competitive forces were weak or absent" (Peck 2001: 445).

Environmental management under the liberal state exemplifies this point. Because nature is necessary for production, it is called a condition of production for capital accumulation (O'Connor 1998: 145-146). Since there is no law of value at work making land, soil, water, and other natural resources available to capital, the state must intervene to insure that capital has access to theses conditions. "The state regulates access to, use of, and exit from natural resource use on the part of individual capitals…natural resource, farm, park, water, land, and related policies regulate capital's access to external nature" (O'Connor 1998: 149). This process leads to the capitalization of nature, which may be defined as "everything that is not produced as a commodity but is treated as if it is a commodity". However, if access to the natural conditions of production is not regulated wisely, it could give rise to an economic and political crisis as capital degrades natural resources and raises the costs of production. This crisis is termed the second contradiction of capital (O'Connor 1998: 147-155).

Capital faced a second contradiction in the early 1970s in conjunction with the crisis in Keynesian-Fordist regimes. Throughout the post-WWII period up to the early 70s, the state provided capital with easy access to natural conditions of production. Bridge (2000) provides an excellent example of this through the copper mining industry

in the U.S. Southwest. According to Bridge, in the post-WWII period, institutions were established enabled the mining industry to gain access to land and high-grade ores. These institutions included customary and legal relationships between the state, the mining industry, and the public. Bridge outlines three major institutions that enabled the exploitation of copper by capital. For example, regulatory codes and routine practices of federal land agencies that promoted mineral production on federal lands at a minimal cost. In addition, routine practices by federal land management agencies in interpreting the law also allowed capital exploitation of copper ore. Even though legislation was passed in 1976 that gave these agencies authority to prevent environmental degradation in accordance with their multiple use mandate, federal agencies in Arizona and New Mexico continued to implement decisions that favored mineral exploitation.

Lax regulation of the industry as well as the global economic crisis eventually led to the second contradiction in the mining industry. The conditions enabling the industry to readily and cheaply access copper ore, eventually undermined the bio-physical and socio-political conditions necessary to sustain future profitability (Bridge 2000: 244). In response the environmental effects caused by mining, opposition arose from other economic sectors (such as real estate and tourism) and from the environmental movement who called into question the state's practices for adjudicating land use and mining permits. With the economic downturn in the early 70s and the collapse of Fordism, the copper mining industry faced a major crisis (Bridge 2000).

In the wake of the second contradiction of capital, there are two ways in which the state and capital have reworked their relationship with nature. The first is the "modern

phase" of capital, in which change in social relations will lead to more social forms of state regulation of natural conditions of production for capital exploitation (O'Connor 1998). Under the modern phase, nature remains external to capital. In the United States, the modern phase of capital was highlighted by a wave of unprecedented environmental regulations throughout the 1970s, such as the National Environmental Policy Act (1969), the Clean Air (1970), and Endangered Species Act (1973).

The second way in which the state and capital reshape their relationship with nature involves the "ecological phase" of capital. While the two can exist simultaneously, the ecological phase of capital is becoming more predominant under neoliberalism. Under the ecological phase, nature becomes internal to capital. This process is also called the *capitalization* or the *commodification* of nature because nature is internalized as a capital good or commodity[4] subject to the control of market forces.

> "No longer does (capitalism) simply exploit better and more intensively a nature (and human nature) external to itself. In what we might call the *ecological phase of capital*, the relevant image is no longer of man acting on nature to 'produce" value, henceforth appropriated by the capitalist-class. Rather the image is of nature (and human nature) codified as *capital incarnate*, regenerating itself through time by controlled regimes of investment around the globe, all integrated in a 'rational calculus of production and exchange' through the miracle of a price system extending across space and time. This is nature conceived in the image of capital; and this representation of nature is the basis for the rational management of nature/capital that, increasingly, is *instituted violently* in political fact (O'Connor 1994: 131)."

[4] From here on, I describe this process as the commodification of nature.

While market forces apparently guarantee the sustainable use of nature, the state is necessary to establish and maintain the relations that make nature available to capital. This is precisely what has occurred under neoliberalism. In this new phase, state management of nature occurs through privatization and valuation schemes such as allocation rights, trading programs, benefit-cost analyses, and the like which allow for the "rational management" of nature by the market.

Martin O'Connor describes the commodification process in relation to the fisheries of New Zealand. Up to the 1970s, coastal and deep-sea fishing had remained open to the public and small-scale fishing for food-gathering and recreation was widespread. In the 1970s, however, a rise in commercial fishing for export began to deplete the fisheries. In response, the resource was capitalized (internalized into capitalism) by establishing a tradable quota regime limiting catches to ensure the sustainability of the commercial fishing industry. However, Martin O'Connor points out that this scheme excluded individuals and communities, many of them of the Maori people who had been active for decades in noncommercial fishing. Therefore, the quota system dispossessed them of their fishing rights and presented a threat to their way of life.

> "The legally instituted dispossession of local interests in favor of corporate capital was effected through the Crown pretending that originally, 'no one owned the resource'; so it was, arguably, the government's to take in hand. The 1980s management procedure was, first, to commodify access to the fish species…in the form of catch 'quota'; and then to award these rights to the major commercial operators as a free gift, pro rata according to their documented catch histories. The small-scale and 'informal' operators, and the local people who thought that they enjoyed an environmental domain as a collective heritage and source of sustenance,

> were told they did not 'own' it at all. Effectively, ownership (all commercial catch rights) were awarded to the large commercial operators, who, from the Maori/local points of view, were the original 'poachers' overfishing the stock (O'Connor 1994: 139-140)."

Martin O'Connor goes on to note that even if trading quotas had been awarded to locals or indigenous groups, it would not guarantee the protection of the fisheries. "From this point on, the market makes an incessant enticement to the local tribe to 'profit' from its asset – to sell not just the fish caught but the entire capitalized catch rights" (O'Connor 1994: 141).

Although the commodification of resources is often resisted, particularly where a local or indigenous group has been dispossessed, often times social movements and local communities that resist the modern phase of capital are enticed to cooperate in the ecological phase by representing them as stewards of natural capital, whose responsibility it is to sustainably manage resources, or by bribing them through employment and other economic incentives to protect nature. This is particularly true of environmental movements that emerged from liberal states (Fitzsimmons, Glaser, Monte-Mor *et al.* 1994). However, rather than an authentic signal of respect and sustenance, as shown by Martin O'Connor, this can also lead to disappropriation and cultural domination. Escobar observes this of bioprospecting projects, "communities…are finally recognized as the owners of their territories, but only to the extent that they accept seeing and treating territories and themselves as reservoirs of capital" (Escobar 1996: 57). In this way, the logic of capital becomes more culturally embedded. As Martin O'Connor says, "…political legitimation of capital depends on getting people to believe in the

capitalization process as a defense against the predations of capital!" (O'Connor 1988: 144). This point once again underscores the importance of theorizing the state particularly under neoliberalism. Although the state appears to take a back seat to the market under neoliberalism, Marxist theory demonstrates that the state is still critical to make capital accumulation possible.

Some work has been done to describe the relationship between natural protected areas and the capitalization of nature (Katz 1998; Schroeder 1995; Place 1995; Zerner 2000). However, with the exception of Neumann (1995) very little has been done to examine this process in the context of neoliberalization to explain recent trends in the creation and management of natural protected areas in the developing world. In this next section, I describe theoretical perspectives on the relationship between nature and society that illuminate how the liberal state discursively constructs nature in such a way as to legitimate natural protected areas and the commodification of these areas.

2.3 Natural Protected Areas: Territorializing Human-Environment Relations

How the capitalization of nature occurs through natural protected areas can be envisioned through the concept of territorialization. Territoriality in human social life is "a spatial strategy to affect, influence, or control resources and people by controlling an area (Sack 1986:1)." Boundaries are particularly important in the creation of territories because they are necessary to "mold, influence, or control activities" (*Ibid*: 19). Basset applies Sack's notion of territories to the creation of natural protected areas. According to Bassett (2001), the creation of natural protected areas is a form of territorialization

through which the state technocrats and global resource managers (such as aid donors and international conservation organizations) regulate people and resource use for a variety of purposes. On of the most prominent purposes is to preserve natural patrimony for "new modes of intervention and regulation (Bassett 2001: 2)." Through territorialization, nature can be regulated to conform to the conditions of capital. However, as Sack points out, without a will to control, boundaries simply circumscribe space. There must be a form of active control within boundaries for them to be effective at regulating behavior.

The creation of territories as a form of regulation is enabled by hegemonic concepts of nature as separate from society. Contrary to the hegemonic definition of nature, this project follows the argument that epistemologically nature is not distinct and separate from society. That is not to say that nature and natural forces does not exist outside of human appreciation, but rather that what one knows and understands of "nature" and "the natural" depends on the position of the observer and the particular cultural, historical, sociological, and geographical factors. Because the creation and maintenance of natural protected areas is based on a particular conception of nature, it is necessary to understand how that conception arises, becomes dominant, and is transformed from idea to reality through the state. I agree with McNaughten and Urry:

> "….there is no singular nature as such, only natures. And such natures are historically, geographically and socially constituted. Hence there are no simple natural limits as such. They are not fixed and eternal but depend on particular historical and geographical determinations, as well as on the very processes by which nature and the natural is culturally constituted and sustained, particularly by reference to what is taken to be the 'other'. Moreover, once we acknowledge that ideas of nature both have been and currently are, fundamentally intertwined with dominant ideas of society, we need to address what ideas of society and its of its ordering become

> reproduced, legitimated, excluded, validated, and so on, through appeals to nature or the natural" (Macnaghten and Urry 1998).

Nature as it is known in the dominant culture of the western industrialized world emerged simultaneously with the development of capitalism between 1500-1800 along with shifting perceptions of nature associated with the romantic and enlightenment movements (FitzSimmons 1989;.O'Connor 1988; Smith 1984; Williams 1973). It is with these movements that I will begin my discussion of how the hegemonic conceptualizations of nature enable the territorialization resource use in natural protected areas.

The Enlightenment tradition legitimated theoretical inquiry through 'a separated mind looking at separated matter' or 'man looking at nature' (Macnaghten and Urry 1998). This is the nature of science and positivism – a nature governed by rules and laws outside of the human influence which can understood objectively by the observer to reveal a "truth". Because it is comprised of rules, nature is also "something that can be taken apart and reassembled in new forms, for example, in the form of a commodity" (O'Connor 1998: 21).

As such, the separation of nature and society was a premise of capitalism (Smith 1984). The concept that nature could be disaggregated and rebuilt, that external and human nature were distinct, that an individual's nature could be divided between mind and body, and that an individual could be extracted from society provided a premise for capitalist relations. Therefore, the separation of nature through parks and preserves was one aspect of the uneven landscape emerging from capitalist development. In other

words, the enlightenment notion of nature led to the removal of traditional constraints on land use and labor power and made them available for capitalist accumulation (O'Connor 1998: 20-24). Of particular importance to natural protected areas, is the fact that the separation of nature from society enables the commodification of so-called pristine nature – such as biodiversity and aesthetically pleasing views.

The romantic definition of nature was "unspoiled, untouched by human hands, distant from the urban" (O'Connor 1998:21). Nature represented an escape from the industrialized centers and a denouncement of city life.

> "Nature in any other sense than that of the improvers indeed fled to the margins: to the remote, the inaccessible, the relatively barren areas. Nature was where industry was not, and then in that real but limited sense had very little to say about the operations on nature that were proceeding elsewhere (Williams 1972: 158, cited in (Macnaghten and Urry 1998: 13).

In this sense, the separation of nature from society was a product of capitalism as the separation became more spatial with society at the center and nature at the margins. Eventually, this nature was seen as requiring protection from human interference, and natural protected areas were established beginning with the creation of Yosemite National Park in 1864. The protection legitimated the idea that the cities were spaces of inhabitation, labor, and production and nature was not.

As a product of capitalist development, the romantic separation of nature from society took on a spatial dimension that is bound up in the unevenness of capitalist development. As Smith says, "Uneven development is social inequality blazoned into the geographic landscape" (1984:155). I extend that definition to also include environmental inequality. While some areas are protected and valued for their "naturalness" other areas,

including urban areas, are disregarded. Because they are not considered natural, they are not given the same environmental considerations. This unevenness becomes the basis for issues related to environmental justice.

Today, both Romantic and Enlightenment natures are central to the concept of natural protected areas and are visible in the maintenance of these areas. The Enlightenment nature is a biodiversity hotspot, a representative ecosystem, or an endangered species. Natural protected areas are where a living creature or system of value is saved, studied, and propagated. The Romantic nature is a tourist destination and a playground. Natural protected areas are of particular scenic beauty and extreme landscapes where urbanites can go to escape for leisure and recreation.

2.3.1 Enlightenment Perspectives of Nature and Natural Protected Areas

Maintaining the epistemological separation of nature from society common to both the enlightenment and romantic traditions creates problems for natural protected areas. The enlightenment perspective holds that since nature can only be understood through science, biologists and other environmental experts (foresters, hydrologists, ecologists) become the interpreters of nature and, as such, they determine where, how, and why nature should be protected.

The primary problem with this is that science is not objective, rather it is a type of relation with nature that is shaped by the historical, geographic, and cultural position of the researcher. The researcher's position will inform what scientific research is done, how it is done, what it is used for, and what the results are. Without being self reflective

of his/her position and how it influences his/her research, the scientist will reinforce dominant ideas within their society. And because scientists tend to come from culturally dominant, high-income groups, most often it is the perspectives of these groups that are reinforced to the detriment of subaltern groups and the environment. Marx recognized that scientific inquiry, by separating the scientist from the object of study (by dividing mind from matter, human from environment), was used to justify the status quo of existing social systems (he was primarily focused on capitalism) on the basis that it was objective. For this reason, Marx argued for a dialectical understanding between scientist and object (Harvey 1974). Similar arguments from gender and subaltern studies have extended Marx's critique of science to systems of dominance that depend upon truth claims about the naturalness along lines of gender, race, age and other physical differences (Haraway 1991).

The separation of object from subject also has implications for environmental protection. Concepts that provide the basis for natural protected area establishment and management, such as biodiversity and ecosystems, are human creations and do not reflect an absolute reality (that is not to say that they do not have concrete referents). However, because the human origin of these concepts are overlooked, their relationship with the human experience is also overlooked. As a result, methods of dealing with species and ecosystem protection generally do not integrate humans or society. This presents real challenges for environmental protection since the underlying causes for changes in environmental degradation (in this case determined by decline in species diversity and ecosystem functioning) are frequently related to social systems. In not addressing the

underlying social causes for environmental degradation, scientists and conservationists leave the systems that caused the degradation unchallenged. This problem is particularly evident in struggles over biodiversity.

The concept of biodiversity produced by environmental and development institutions in western industrialized countries emerges from dominant views of science, capital, and management in response to increasing rates of species extinction. In this dominant view species extinction is attributed to habitat loss and the introduction of non-native species -- explanations focus on the immediate and biological causes for species extinction rather than the underlying causes due to changed relations between human societies and the environment. Therefore, prescriptions for species extinction include "conservation and sustainable use of resources at the international, national, and local levels" as well as "mechanisms for biodiversity management, including scientific research, in-situ and ex-situ conservation, national biodiversity planning, and the establishment of appropriate mechanisms for compensation and economic use of biodiversity resources, chiefly through intellectual property rights" (Escobar 1998: 56-57). The concept of biodiversity, then justifies the creation of natural protected areas. This is evident in the strategy adopted by Conservation International as identifying "biodiversity hotspots" as areas of priority for conservation efforts.

Similarly, the concept of ecoregions, watersheds, basins, landscapes, and buffer zones are also used to justify the establishment of natural protected areas (Zimmerer 2000). Like the concept of biodiversity, these ecological zones and processes are produced through the environmental sciences although they are frequently treated as

fixed or in an equilibrium state, particularly when considering them in the context of natural protected areas. In reality these physical/environmental systems are in constant flux, in large part due to human interaction (Zimmerer 2000; see also Demeritt 1998 for his discussion of forest ecology). "Preservation attempts to both delineate and maintain a boundary in space and arrest time in the interests of a supposedly pristine nature which, of course, in neither bounded nor static. As such, preservation is quite unecological, defying natural history and the vibrancy of borders – physical, temporal, spatial – where evolution, change, and challenge are negotiated and worked out in nature as in culture (Katz 1998: 54). Colchester (1994), notes that when biodiversity or some other environmental resource is "locked up" in protected areas without regard to the broader context it leads to compensatory exploitation in other (often proximate) places, which ultimately lessens the effectiveness of protected areas (Colchester 1994).

In sum, science provides the justification for natural protected areas through concepts such as biodiversity and ecosystems without recognizing the socially contingent aspects of those concepts. As a consequence, conservationists who use these concepts either tend to focus on natural protected areas as an immediate means of preservation without examining the root causes for degradation (as in the case of biodiversity) or examining the environmental implications of natural protected areas on a broader scale in terms of contributing to uneven development (as is the case for ecosystems). Therefore, conservationists who depend exclusively on the biological sciences for answers to environmental degradation limit their own capacity to enact environmental justice. However, the "nature" of the Enlightenment reinforces the scientist as expert who can

reveal the truth about the world through the scientific method. It is therefore a self-reinforcing concept that limits other perspectives of nature that might be useful in the struggle against the commodification of nature.

2.3.2 Romantic Perspectives of Nature and Natural Protected Areas

The trouble with romantic perspectives lies in the myth of untouched nature, or "wilderness" (Cronon 1996). Even in natural protected areas, human intervention is necessary to ensure a *vision* of pristine nature. Smith (1989) captures this contradiction in his concept of "second nature". First nature is that which is unaltered by humans. However, this nature does not exist in the human experience because the relationship with nature is at the center of human activity since as humans we rely on nature for the fulfillment of our fundamental needs (Smith 1980: 80-81). Says Smith "The relation with nature is an historical product, and even to posit nature as external…is absurd since the very act of positing nature requires entering a certain relation *with* nature" (1984:18). The relationship between nature and humans occurs through the labor process and produces second nature.

This is also the case for natural protected areas. To maintain their "pristine" character, they must be heavily managed through labor. In other words, "first nature is produced by and within the confines of the second" (Smith 1980: 84). Under capitalism first nature disappears and becomes another commodity. "(National Parks) are produced environments in every conceivable sense. From the management of wildlife to the alteration of the landscape by human occupancy, the material environment bears the

stamp of human labor; from the beauty salons to the restaurants, and from the camper parks to the Yogi bear postcards, Yosemite and Yellowstone are neatly packaged cultural experiences of environment on which substantial profits are recorded each year" (Smith 1984:57; see also Davis 1997 for a study on how nature is packaged in theme parks such as Sea World).

As natural areas are transformed into cultural experiences of environment, two things occur. First, they become integrated into the market as a tourist commodity. Government and private business capture the value of natural areas through concessions and entrance fees. The justification of establishing a natural area is not limited to its value as a refuge for biodiversity and ecosystem maintenance, but also as a way to generate income for local people and the state. In the late 80s and early 90s, with the rise of the concept of "sustainable development", tourism became a way to link economic growth with conservation. This is particularly true of ecotourism, or nature tourism. "Economic valuation studies abound on tourists' "willingness-to-pay" to protect areas, which can then presumably be captured by the market through the right mechanisms thereby justifying the forgone opportunity costs of establishing the area (Breunig 1998; Gutman 2002).

Second, as nature is separated out spatially as a place for leisure and recreation (as opposed to work) the relationship with nature through labor is masked. The masking of this relationship limits the effectiveness of environmentalists who focus on reforming/regulating work that involves direct interaction with the environment for the purpose of production (forestry, fishing, farming) -- while ignoring the relationship

between their own labor and the environment, which may have an even greater impact on the environment (White 1996). This situation leads to a fundamental contradiction that limits the capacity of environmentalists to make significant change in favor of environmental justice.

White (1996) makes this argument in a paper titled "Are You an Environmentalist, or Do You Work for a Living?", based on a bumper sticker he saw in Forks, Washington, a community that which depends on forestry and has been hurt by over-cutting and the spotted owl debate. Says White, "Environmentalists have invited the kind of attack contained in the Forks bumper sticker by identifying nature with leisure, by masking the environmental consequences of their own work" (White 1996: 185). He goes on to say,

> "…if we fail to pursue the implications of our labor and our bodies in the natural world, then we will return to patrolling the borders. We will turn our public lands into a play ground; we will equate wild lands with rugged play; we will imagine nature as an escape…We will condemn ourselves to spending most of our lives outside of nature, for there can be no permanent place inside. Having demonized those whose very lives recognized the tangled complexity of a planet in which we kill, destroy and alter as a condition of living and working, we can claim an innocence in the end that is merely irresponsibility. If, on the other hand, environmentalism could focus on our work rather than leisure, then a whole series of fruitful new angles on the world might be possible. It links us to each other, and it links us to nature…"(ibid.)."

White hints at issues of class inherent to the romantic ideas of nature and conservation. Indeed, to conceive of nature in this way requires a form of livelihood not dependent on direct (physical) interaction with the environment and a disposable income for travel and leisure time in remote natural areas. The class basis for natural protected

areas in not surprising when these areas are considered as products of the unevenness of capitalist development. As part of this unevenness, some spaces are considered essential for protection while others are neglected. Those worthy of protection will depend upon the values of the elite class – frequently those areas that are considered pristine or of particular value because of high biodiversity or the presence of a unique habitat. The overemphasis on protecting some areas not only leads to neglect of other areas, but may also lead to overall greater degradation.

"When biodiversity or some other perceived environmental resource is 'locked up' in a particular place without regard to the broader social, economic, cultural, and political context of resource use, it not only leads to compensatory exploitation elsewhere, often quite proximate, but ultimately is ineffective even within the site itself (Katz 1998: 55; see also Colchester 1994)."

2.3.3 The Discursive Separation of Nature from Society

The debate over the socially construction of nature is fierce, with conservationists such as Dave Foreman calling social constructionists the new threat to the environmental movement (Proctor 1998). Many theorists have struggled over the extent of the nature-society duality and even more over how to get beyond it. While all social constructionists depart from the common-sense realism, Demeritt (1998, 1994) demonstrates that there are varying degrees of the social construction of nature. He advocates for an approach that he calls "artifactual constructivism," which

> "reconfigures the actors in the construction of what is made for us as nature and society. The social in these social constructions is not just 'us': it includes other humans, non-humans, and even machines and other, non-organic actors. Artifactual constructivism provides a way of acknowledging that these other agencies "matter" without taking the particular configuration of their matter or the process with is realized for granted. This makes it possible to talk about science, knowledge, and nature without recourse either to the objective and ontologically given Nature of epistemological realism or to the omnipotent constructivism forces on the powerful and productive practices of science by which the reality of nature and our socially constructed knowledge of it are produced and articulated, thereby distilling the modern dualism on which the debate about science and social constructivism has turned" (Demeritt 1998: 181).

Major proponents of this approach include Latour and Haraway, who argue that language plays a critical role in creating the nature-sociey dualism. The importance of language is captured by Foucault's discursive practices, or practices that systematically form the objects of which they speak (Foucault 197249). The effect of discursive practices, is to make it impossible to think outside them.

Haraway (Haraway 1991) shows how this works within the realm of biological science. In particular, she examines how discursive practice of dividing nature and culture enables truth claims produced by the biological sciences. This constructed division between culture and nature is so embedded in our communication and understanding of the world, that it is nearly impossible to avoid constantly reproducing these divisions in research. In addition, few scientists dare to recognize the construction of that division because it lessens their legitimacy as experts, individuals who have acquired *the* skills necessary to interpret the world and obtain *the* truth (Demeritt 2001).

In addition to employing Foucault's analysis of discourse, Haraway also draws on Marx's dialectics to examine the relationship between subject and object – how scientists are informed by his/her circumstances. For example, Haraway shows through her evaluation of sociobiology that ideas about natural economy influence and are influenced by political economy. Like Marx, she uses that relationship to uncover how ideas reinforce and are reinforced by dominant ideologies, including racism, sexism, as well as capitalism.

Haraway's biggest contributions are her attempts at enabling alternative ways of knowing the world. To do this she starts at the base sustaining the hegemony of science: the discursive practice of separating nature from culture and subject from object. She does this in two ways. The first is to create a new language that recognizes the co-construction of nature and culture. This new language is comprised of metaphors, such as the cyborg. The second is to develop situated knowledges. In other words, be cognizant of how circumstances shape individual visions of the world.

Haraway's insights into the social practices of science are very useful to my own work because the biological sciences and environmental economics guide the management of environmental territories and associated projects. For example, Zimmerer (2000) shows how the ideas of ecological equilibrium have become a dominant concept in the formation and legitimation of environmental territories. These ideas are privileged over others, particularly those of local residents, who may have alternative ways of knowing and relating to natural resources. The goal, then, is to understand why and how these ideas have become dominant. In other words, what discursive practices

give them more legitimacy over others? Then, it is necessary to challenge those practices by revealing them, demonstrating their potential to lead to unequal power relations.

As a researcher, I can disable these practices by being aware of not only my situated knowledge, but other situated knowledges as well. Although I could never accurately represent another's particular way of knowing the world, I could, as Haraway says, "be looking for…real possible connections between different situated knowledges. That is actually about alliance formation; it's about learning to translate, to converse from one language to another, about having conversations which can transgress boundaries – disciplinary boundaries, national boundaries, ethnic boundaries, and the like" (Haraway 1991:509). However, as Haraway also points out, we should also be careful not to essentialized or appropriate other perspectives.

2.4 Methods

The information used in this study is based in large part on field research that was conducted in 2002, during a ten-month stay in Mexico. I spent approximately five months in each case study site, interviewing 50 people at each site at least once. The research utilized a variety of ethnographic and qualitative methods including participant observation, informal and semi-structured interviews as well as discourse analysis.

I began research in each case study site by establishing contacts with community members through a snowball approach (Singleton, Straits and Straits 1993). All of my initial connections can be traced back to researchers based in the United States. In Loreto, Emily Young, a faculty member at the University of Arizona introduced me to a

local non-governmental environmental group called GEA (Grupo Ecologista Antares). After spending some time in their offices as a volunteer, I began to also work with the park staff. In both places, I volunteered to develop websites and translating documents for English-speaking tourists. Eventually, park staff began inviting me to accompany them on their outings in communities, where I was able to observe park interactions with local residents and begin to establish connections.

I followed a similar pattern in Cuatro Ciénegas where Dean Hendrickson, a biologist at the University of Texas at Austin with whom I had a personal connection, introduced me to park staff. While I offered to volunteer for the reserve in Cuatro Ciénegas, they were less interested in using me as a volunteer. On only a few occasions was I asked to translate correspondence for them. Regardless, the staff there was very open in inviting me to accompany them on their community outings. Quite frequently, we used my vehicle on these outings when reserve vehicles were being repaired or used for other tasks. On two occasions, a reserve staff member accompanied me on my outings into communities where I was seeking information on the sale of *ejido* land. Because the reserve was interested in the same information, this was a mutually beneficial arrangement because I had a male companion and guide while the reserve had use of my vehicle and a "front" for their inquiries because I was the one asking the questions.

Through my volunteer work and by accompanying reserve staff during community outings, I was able to conduct participant observation. According to Bernard (1995), participant observation is different from other field methods because it depends

upon establishing relationships in a community. It is less of a method for gathering data than a strategy that facilitates data collection. There are several advantages to this strategy: it reduces the problem of people changing their behavior when I am around, helps me formulate intelligent questions in the native language and culture, and gives me a deeper understanding for what is going on in a community.

While on community outings, the staff introduced me to local residents who became contacts for interviews. Eventually, it became apparent that I needed to also establish my own contacts outside of interactions with the reserve for two reasons. First, because I was initially identified with the government, some people censored their discussions, particularly when it came to discussing illegal resource use. Second, reserve staff tended to introduce me to communities and individuals with whom they had positive relationships and who were more likely to speak highly of park programs.

Throughout my project I used two types of interviews: informal and semi-structured interviews. During informal interviews, I established viable open relationships by taking time to get to know informants and by "following rather than directing a flow of conversation" (Hobbs 1996: 9). There were no predetermined questions. In other words, "chit chat" (Douglas 1985). Informal interviews were particularly important at the beginning of my research while I was becoming acquainted with the context of my case studies.

Based on participant observation and informal interviews, I developed a list of topics for more semi-structured interviews. Semi-structured interviews involve scheduled topics for discussion although the interviewer is allowed to wander or digress

from a list of topics (Berg 1988). This approach allowed me to go beyond using the interviews as a resource to discover things about events outside the interview situation. The interview itself became an opportunity to examine how different individuals use language to construct a particular reality (Seale 1998). In other words, it was a source for discourse analysis.

During interviews with government officials and other informants I only interviewed once, I primarily relied on semi-structured interviews. For many officials, I faxed or dropped off my questions in advance along with a letter(s) of introduction and a one-page summary of my research project. I usually did this before I scheduled the interview so that officials had a clear idea of what I would be asking of them. I found that many times this opened the door and removed doubt or suspicion about what I was seeking. However, it was also somewhat limiting in the interview itself as many times the informant stuck directly to the questions I sent in advance, not allowing for much room to explore topics beyond the questions.

In situations where I was allowed to revisit informants on a more informal basis, I initially began with one or more informal interviews before attempting a more structured interview. These multiple interviews primarily occurred with local residents. In both cases study sites, I developed relationships with primary informants -- people who I visited (or vice versa) on numerous occasions with whom I developed deeper relationships. Through these relationships, I was invited to participate in meals and other daily activities. This allowed me to achieve a deeper appreciation and understanding for daily livelihood decisions and strategies.

In addition to local residents and government officials, I interviewed other actors involved in resource conservation and natural protected area management including individuals affiliated with research institutions, NGOs, local business owners, and tourists. Table 2.1 demonstrates the number of individuals interviewed within each sector at each case study site.

Table 2.1 Number of Individuals Interviewed by Sector in Each Case Study Site

	Scientists	**NGO Staff**	***Ejidatarios***	**Other Locals**	**Government Officials**	**American Residents/ Tourists**	**Total**
Cuatro Ciénegas	6	5	12	10	9	0	42
Loreto	2	10	17	10	7	10	56

The decision to stop interviewing was based on two criteria. The first was when I reached a "saturation point" in which I kept receiving much of the same information in my interviews and doing additional interviews did not provide any new information relevant to my research questions. Second, for specific information that required validation not available in texts, I conducted enough interviews to "triangulate"– that is ensure the validity of the information based on three independent sources that supported each other.

In addition to person-to-person information, I also collected information from written sources. This primarily involved collecting official documents (policy manuals), protest or solicitation letters on the part of local citizens to the government regarding resource issues and debates, tourist propaganda, unpublished reports or research papers, and newspaper articles. Like interviews, these written documents also became not only sources of information for information's sake, but also became sources for deeper

discourse analysis. This study relies not only on the information provided by interviews and written sources, it also analyzes the discourses used.

In discourse analysis, what is important is not so much the validity of the information presented, but rather what language and arguments are used and how that is informed by the speaker or author's position. Discourse analysis relies on a perspective of language as constructing and organizing social reality. Therefore, discourse analysis is an "interpretive process which relies on close analysis of specific texts…" (Tonkis 1998: 254). Texts, of course, include spoken or visual as well as written texts.

According to Potter (1997) discourse analysis requires nothing more than an "analytic mentality" (Potter 1997:148). Nonetheless, Tonkis (1998) offers several guidelines for analyzing texts. These guidelines include looking for: 1) clusters of words, which may indicate an attempt to legitimate certain ideas by associating them with more positive concepts; 2) variation in a text, which may indicate attempts to reconcile contradictions or uncertainty in ideas being presented; 3) consistent repetition of a word or phrase which indicates an idea the author is trying to get across most forcefully; 4) how evidence is put together and used to legitimate an idea; 5) silences or gaps that may indicate alternative perspectives excluded by omission.

Perhaps the best way to describe discourse analysis and its value to my project is to relate how it has been applied in previous research related to conservation areas in Latin America. In this regard, methods employed by Sundberg (1998) in her work on the Maya Biosphere Reserve in the Peten, Guatemala are particularly useful. She uses a variety of sources including interviews with local residents and NGO staff, maps of the

biosphere reserve, and museum displays to analyze different discourses. The purpose of her analysis is to demonstrate the ways in which conservation discourses legitimate particular views of nature and how those views are changing landscapes and livelihoods in the Peten.

In an analysis of scientific technical reports associated with the reserve, Sundberg notes that scientists frequently repeat words such as "untouched", "virgin", and "unaltered" to describe the reserve's environment. She argues these descriptive words create a vision of the reserve as being absent of culture. Because reserve policies are based on technical reports, these visions disqualify or marginalize other ways of thinking about or interacting with the reserve's environment (Sundberg 1996).

A benefit of discourse analysis is that it moves away from realist approaches that seek to produce information from expert knowledge (Potter 1997). Instead, discourse analysis is more concerned with how the world is produced through such expert knowledge. Whereas most research claims are validated based on the way data is collected, discourse analysis is an analytical procedure that recognizes the researcher's position and role in creating knowledge. Therefore, discourse analysis does not claim to produce more accurate information than other forms of knowledge. Instead it enables other, situated, knowledge –an important goal of my research project.

2.5 Conclusion

In this chapter I have outlined a framework I hope will help me to address the questions I laid out in Chapter 1 regarding the connection, process, and outcomes of

creating natural protected areas in the context of Mexico's neoliberal reforms. My goal is through understanding Mexico as a case, as well as examining two specific cases within Mexico, that I will be able to contribute to geographic study of natural protected areas considering the broader political economy. While natural protected areas have been studied extensively within geography and other sciences, there has been no study, which directly looks at the connection between the rise in the number of natural protected areas established in the 1990s and the adoption of neoliberal reforms. This study represents a first step toward understanding that dual phenomenon.

I primarily rely upon state theory to understand the connection between these two policies. I hypothesize that natural protected areas have been created in conjunction with neoliberalism as a way to regulate human-environment interactions in such a way as to separate out "nature" as a commodity, primarily for tourism. To understand the process by which this occurs, I rely to a large extent on discourse theory, which I believe may explain how new rules and institutions regarding human interactions with nature are established within protected areas.

Finally, by studying outcomes, I hope to contribute to the practical research being done to document the effect of neoliberalism on livelihoods and landscapes in rural areas. There is a large amount of research being done to understand the effect of neoliberal reforms on the economy and rural households, but few of these studies have looked at the establishment of protected areas as part of that trend. This is explored further in the next chapter on neoliberalism and Mexico's environment.

CHAPTER 3: NEOLIBERALISM AND MEXICO'S ENVIRONMENT

3.1 Introduction

The late 20th century marked profound political, economic, and social changes in Mexico related to neo-liberal structural adjustment. From the Revolution up until the economic crisis of the early 80s, Mexico's political life was organized by the PRI (Partido Revolutionario Institutional – the Institutionalized Revolutionary Party), which came to power shortly after the end of the Mexican revolution in the 1920s. By the 1980s, the power of the PRI began to wane as it faced a legitimacy crisis. The era of PRI dominance as the ruling political party symbolically ended in 2000 when Vicente Fox, the candidate of the leading opposition party, won the presidential election. The decline of the PRI as the dominant political party and the rise of opposition parties indicate greater democratization in Mexico. Along with political parties, other social actors are finding greater space for greater participation in Mexican politics.

Mexico's economic landscape has also gone through dramatic changes in the last two decades as it as shifted from a closed state-led system to a more open market-led system. This shift has been marked by the privatization of state owned enterprises, entry into free-trade agreements, cutbacks on social spending, and finance reform. Despite (or because of) the dramatic and rapid changes in Mexico's economic system, overall there has been little economic growth. As in many other countries that have transitioned through similar economic adjustments, the income disparity between rich and poor is becoming greater in Mexico.

As Mexico's political and economic systems have shifted, so have social relations throughout Mexico. Although highly uneven, there is nonetheless a great deal of change in the way divisions are defined and negotiated among class, gender, ethnicity, race, rural and urban, and age. Along with democratization, there has emerged greater space for social movements against political and economic reforms that have excluded social groups. The most visible of these movements being the EZLN (Ejército Zapatista de Liberación Nacional – the Zapatista Liberation Movement), which has fought for indigenous and peasant rights in the face of economic restructuring.

This chapter examines these changes in more detail and relates them to transformations in the relationship between the state, society, and the environment in rural Mexico.

3.2 Mexico's History of Liberalism and Neoliberalism

Liberalism has a long history in Mexico and the rest of Latin America. The first age of liberalism emerged in the latter half of the 19th century. Under liberalism, economic growth and stability became the overriding objective as Latin American countries opened their markets to free trade. As Europe and the United States went through a new industrial age, there arose greater need for imported raw materials such as sugar, coffee, wheat, beef, rubber, and minerals. In return, Latin America consumed the mass-produced goods of industrialization. To secure economic growth, many countries opened themselves to direct capital development from foreign investors. Throughout Latin America, foreign businesses financed infrastructure improvements including

railroads, canals, and electricity. However, these developments were oriented to ensure the rapid export of raw materials and did not enable a cohesive infrastructure in Latin America. In exchange, foreign investors received guarantees of profits on their investments and other favorable concessions from local authorities.

During the liberal period, Latin American societies became increasingly stratified as a very small elite class benefited from the export boom. The elite, with assistance from the government, dispossessed communal land holdings and other resources to take full advantage of the export boom. The remaining majority of citizens became laborers through debt peonage and/or slavery (such as the case of the Yaqui Indians forced to work on henequen plantations in southern Mexico). In Mexico, the liberal era is marked by the rise and fall of the dictator Porfirio Díaz. Under his regime, approximately 92% of the population was landless and corn and bean production declined by 20 and 25% respectively (Barry 1995: 16).

Eventually, social unrest caused by the unjust dictatorship led to the Mexican revolution, which lasted approximately from 1910-1920. After the revolution, Mexico entered a new era in which the central government, under the PRI, controlled the economic and political system through a complex and well established hierarchical system of patronage and clientalism. This system was particularly strong in rural Mexico as the PRI sought and maintained control over the majority of the population, which lived in rural areas. After the revolution, the PRI began the process of land redistribution from large landownders to communally held *ejido*s according to Article 27 of the 1917 Constitution. Redistribution of land dismantled the political power of the large

landowners and institutions that supported them. "The political and institutional vacuum that was left was filled as the state established a mechanism to control the rural sector by weaving the affairs of *ejido*s with various state institutions. Through a hierarchial network of institutions, the *ejido* became an organization for political control" (de Janvry, Gordillo and Sadoulet 1997: 1-2).

Until the mid-80s the PRI maintained a system of patronage with rural producers, with mechanisms to control the outcomes of elections and maintain power. Although the rural sector was largely neglected throughout this period in favor of development of an industrial sector, the rural sector nevertheless depended on the central government. Rural producers depended on state-owned enterprises for subsidized inputs and credits. The government provided social welfare programs as well as infrastructure development. The government determined prices and producers sold their goods to state-owned business. This system of intervention insured that the rural producers supported the PRI when it came time for elections (de Janvry, Gordillo and Sadoulet 1997: 1-2).

Although this system was an effective mechanism for maintaining control over the country's majority rural population, it nonetheless led to huge economic inefficiencies. Rural producers sought to circumvent these inefficiencies through the black market. In the *ejido* sector, government control had led to illegal markets in land and crops. Because *ejidatarios* were not allowed to sell or rent their land, many began to do so illegally, particularly with irrigated lands. This allowed many *ejidatarios* to leave their land and pursue wage labor through migration. Much of the illegal activity in the rural sectors occurred with the assistance of corrupt government representatives. For

example, to circumvent the government's low prices offered for products, *ejidos* would feign a natural disaster had destroyed their crops on record while the government representative recording crop production would broker an illegal deal for the purchase of their product at higher prices (de Janvry, Godillo and Sadoulet 1997: 1-2). With the rise of neo-liberal ideology in Mexico, reformers sought to eliminate inefficiencies in the rural sector and bring the black market to light.

Neoliberalism began in the United States and Western Europe, particularly Britain. As George (1997) points out, fifty years ago, there was no place for neoliberal ideals in the mainstream where everyone was a Keynesian, a social/Christian democrat, or some shade of Marxist. The ideological movement began at the University of Chicago, where the works of Friedrich von Hayek and Milton Friedman were published. Today the "Chicago School" is famous and its economic, social, and political views have spread around the world.

When Margaret Thatcher came to power, she proclaimed herself a disciple of Hayek. The central tenant of Thatcherism was the notion of competition between nations, regions, firms, and individuals (George 1999). To better competition, Thatcher privatized major state-held enterprises. In Britain, the Adam Smith Institute was the intellectual pool channeling privatization ideology into policy. Over 200 privatization measures developed in the Adam Smith Institute's "Omega Project" were put into practice by Thatcher (George 1997).

In the United States, a slew of new conservative think tanks also channeled the neo-liberal ideology into policy including the Heritage Foundation, the Cato Institute, and

the American Enterprise Institute. When Reagan came to power, his administration became a fertile site for the policy seeds laid by these institutions. Within a week of his electoral victory, the director of the Heritage Foundation handed Reagan's staff a thousand-page document of policy advice put together by over 250 neoliberal experts. Their recommendations were distributed through the new administration and most became law (George 1997: 3). Neoliberal ideas and policies spread to the remainder of the world, especially Latin America, through two avenues: 1) structural adjustment programs backed by the IMF and multilateral lending institutions such as the World Bank and 2) Latin American technocrats trained in the U.S. and Britain.

When the IMF and World Bank were created in 1944, they were considered progressive institutions. When they were created, their mandate was to help with the reconstruction of Europe and prevent future conflicts by lending for development and smoothing out temporary balance of payments problems. They had no control over individual governments' economic decisions and they did not intervene in national policy (George 1999). It was not until the 1980s that the Bank and IMF began to try to bring developing countries in line with the development agendas of the United States.

In the early 80s, the World Bank, under leadership appointed by Reagan, reoriented bank assistance from countries with the greatest need to those that were 'making the greatest efforts to restructure their economies'. In addition, the U.S. pushed the World Bank to shift the type of lending to structural adjustment loans, quick disbursing loans to relieve a country' balance of payment deficit. To receive the loans, however, the government had to agree to undergo a program of structural adjustment

designed to make its economy more efficient and capable of sustained growth (Cunningham and Rau 1994). The conditions of structural adjustment closely followed the neoliberal prescription.

Also in the 1980s, the IMF transitioned into a crisis-management role (some say global policeman) for the world's financial system. Originally, the IMF was meant to determine and maintain exchange rates among developed countries. One mechanism by which it fulfilled this mandate was to provide short-term loans to stabilize imbalances in their current accounts so they would not alter their exchange rates and destabilize the global monetary structure. These were typically small loans given to developed countries. Most of the countries implemented necessary adjustments on their own accord to correct imbalances. In the 1970s, when the exchange rates went from a fixed to a floating system, the role of the IMF shifted as it began lending to the developing world and became more active in determining and enforcing structural adjustments. With the onset of the international debt crisis in 1982, the IMF fully developed its new role. Beginning with Mexico, the IMF began to negotiate long-term low-interest loans with strict conditions for structural adjustment following neo-liberal principles (Boughton 2000).

"During this period, the efforts of both the IMF and the World Bank to nudge their borrowing members towards a more complete adoption of the market system became overt. Such a bias had characterized the Bretton Woods institutions from the time of their creation, although the official position was that their policies were ideologically neutral. Both institutions did indeed lend both to market economies and to

those centrally planned economies which chose to be members, although the latter were obviously the stepchildren of the Bretton Woods family. In the 1990s, however, the pretense of ideological neutrality was dropped and access to much of the Bretton Woods institutions's resources became conditional on the borrower's adherence to market principles" (Browne : 61).

In addition to international finance and lending institutions, there were several processes occurring within Mexico that also contributed to the rise of neoliberalism there. According to Morton, the space for neoliberal ideals began to open in under President Luis Echeverría (1970-1976) and López Portillo (1976-1982). Increased debt to finance ISI development, the peso devaluation of 1976, and eventually falling oil prices all led to crucial cleavages in the organization of the state and the hegemony of the PRI. A new group of government agents began to emerge who had received a conservative education in the United States. Throughout the 1970s, oil revenues helped to provide scholarships to study abroad. Says Morton, "…the dissemination of foreign ideas in Mexico increased as a direct result of the oil boom. This led to many *tecnócratas* adopting a more conservative ideology while becoming dependent on the president for their subsequent governmental position…it was this technocratic elite that took for granted the exhaustion of the previous ISI development strategy and engendered a degree of social conformism favouring the adoption of an accumulation strategy of neoliberalism…"(Morton 2003: 639).

Many of these technocrats began to work in the Ministry of Programming and Budget, which rose to institutional prominence within the organization of the state.

Presidents Miguel de la Madrid (1982-1988) and Carlos Salinas (1988-1994) both emerged from this ministry. By 1983, the majority of cabinet-level appointees started their careers or work in the Ministry of Programming and Budget. The outcome was that the Ministry would subordinate other ministries and prioritize policies attuned to the transnational economic process. This allowed the ministry to gain direct control over information and plans for development projects and to circumvent competing factions in the PRI who may not have agreed with the neoliberal ideology of the ministry. Says Morton, "the growing influence of neoliberal ideas can therefore be linked to the existence of a transnational capitalist class connecting IMF analysts, private investors and bank officials, as well as government technocrats in and beyond the PRI in Mexico" (Morton 2003: 639).

Through external factors (like the IMF and World Bank structural adjustment policies) and the internal rise of conservative technocrats, the neo-liberal ideology began to take shape in reality through policy. It is important to note that despite a basic thematic continuity, the neo-liberal model has undergone several important changes in Mexico over time (Pastor and Wise 1997: 331).

Miguel de la Madrid (1982-1988) was more focused on macroeconomic stabilization. His primary goal was to follow the economic guidelines of the IMF and lower the external debt by reducing government spending and a one-time peso devaluation (Pastor and Wise 1997). Although the process of trade liberalization had already begun in Mexico, it became more formal when de la Madrid signed the General Agreement on Trade and Tariffs (GATT).

De la Madrid also introduced privatization, the most important element of Mexico's liberalization. Although he wanted to do much more in terms of privatization, he was limited by economic instability. He did, however, take some steps enabling public-private ownership of certain financial institutions. In addition, he picked Salinas de Gortari as his successor, ensuring that privatization would continue.

The neoliberal model adopted by Salinas was more far reaching. He privatized state enterprises and banks while opening Mexico's market. Between 1991 and 1992, the Salinas government began to sell of the banks it had nationalized a decade earlier. It also sold Telmex and Mexicana Airlines. Of the 1,155 firms the government owned in 1987, it remained in control of only 286 in 1992 (Camp 2003). Privatization under Salinas was not just limited to firms and banks, however. Between 1990 and 1992, Salinas enacted market-oriented reforms for Mexico's agrarian, water, forestry, and fishery laws. Perhaps the most visible of these reforms included the overhaul of the *ejido* system in 1992. With changes to Article 27 of the constitution, Salinas stopped the process of land redistribution and started a process of enabling *ejidatarios* to privatize their individual parcels and communal property.

Also of significance to liberalization under Salinas was the decision to stabilize the macroeconomy by combining incomes policy, fiscal restraint, and a commitment to stabilizing the peso through further liberalization on imports (the idea being that import competition would put the brakes on inflation) (Pastor and Wise 1997). In 1991 Salinas began NAFTA negotiations with the United States and Canada. NAFTA lowered barriers to trade and opened Mexico's markets to imports from the United States and

Canada. Presidents Zedillo (1994-2000) and Fox (2000-2006) have continued with the neoliberal agenda and programs begun by Salinas.

What has been the outcome of neoliberal reforms? While Mexico has undergone moderate growth over the past decade, annual growth rates are erratic, distribution of income has deteriorated, and the labor markets have contracted (Pastor and Wise 1997). Income distribution has become a particular problem in Mexico as the majority of Mexicans live below poverty. As a result of the increasing income disparity, crime, violence, drug trafficking, and militarization are more present in the daily lives of Mexicans (Ferreyra and Segura 2000).

In the remainder of this chapter I examine the specific outcomes of Mexico's transition regarding the relationship between the state, society, and the environment. In particular, I examine the changing role of local governments and non-governmental organizations in Mexico's democratization and the potential for these institutions to effect environmental change, how economic restructuring and land reform has transformed rural production strategies, and finally, the how changes in natural resource policy have reshaped resource management.

3.3 Neoliberalism in Mexico's Rural Landscape

The previous section described the overarching changes that Mexico has gone through in the 80s and 90s as it makes its way toward a neoliberal political economy. This section explores in more detail these changes through the lens of state theory presented in Chapter 2. The first part of this section explores deomocratization and

decentralization. Although the Mexican nation-state has apparently retracted, strong state organizations and institutions are still in place to ensure the neoliberal transition. This is evident in the increasing role of opposition parties, non-governmental organizations, and local governments. Through the process of decentralization and democratization, the state has managed to legitimate neoliberalism and maintain control over the neoliberal transition. This is particularly relevant when looking at the inability of local governments and environmental organizations to truly confront these reforms and their impact on the environment.

The second part of this section looks at how these reforms have reshaped the state and society's relationship to the environment and natural resources. This section is largely based on the work of Steven Mumme who argues that although the state has enacted environmental policies, these have been largely ineffectual at protecting the environment and end up legitimating neoliberal reforms. This has created a paradox where on the one hand the state appears to be more environmentally friendly while on the other passes reforms that ultimately undermine environmental sustainability. I explore this paradox by looking at recent changes to forest and fisheries policy that has led to the privatization and commodification of these resources as predicted by eco-Marxist theory.

Finally, this section looks at how economic and agricultural reforms have affected the rural sector, in particular small-scale producers. Because the neoliberal model views these producers as inefficient, they have been forced to cope with the reforms with relatively little government assistance. This has led to major changes in Mexico's rural landscape as producers seek new strategies for survival. The last part of this section

reviews the literature on the outcomes of some of these strategies for rural lifestyles and resource decisions.

3.3.1 Democratization and Decentralization in Mexico

Mexico's political liberalization parallels its economic liberalization. While the central state governed by the PRI appears to have relinquished control over opposition parties, local and state governments, and non-governmental organizations, it still maintains a strong presence that hinders actions to create greater accountability for environmental degradation. This section explores the changing relationships between state and society and what the implications of these changes are for environmental accountability.

3.3.1.1 Party Opposition

For 72 years the PRI ruled Mexico – making it the longest-ruling party in the world. This is exceptional, particularly considering that during the same time period the rest of Latin America was suffering under military coups and rebellions. Stability depended on the ability of the PRI to develop and maintain highly centralized political institutions that limited competition and choice while at the same time incorporating broad social groups (Levy and Bruhn 2001; Camp 2003).

Perhaps the most important institutional force is the presidency and the administrative bureaucracy that surrounds it (Camp 1999; Rodriguez and Ward 1995).

The executive branch dominates other branches of government, particularly the legislature. It also dominates state and local governments, as discussed below. The PRI was able to maintain control over the executive branch in various ways; however, I will highlight two of the most important. The first was through a highly centralized system of patronage that pervaded Mexico. An excellent example is the National Peasants Confederation, which was affiliated with the PRI. The state would distribute subsidized inputs and other benefits through the confederation as favors from the PRI, with the expectation that the PRI would be repaid with political support. As a result, peasants lost autonomy, but gained benefits from their close association with the ruling party (Levy 2001; See also de Janvry et al. (1997) for a great explanation of how the ejidal system was used as a form of political control). The second was through the sexenio – every six years Mexicans would vote for a new president. However the PRI maintained control over the electoral process and opposition parties (Levy and Bruhn 2001).

The PRI's stronghold over the presidency began to breakdown in the 1980s with the debt crisis and subsequent state cutbacks. The PRI could no longer finance a system of patronage (Levy and Bruhn 2001). A faction emerged from the PRI demanding greater compassion for those hurt by the economic crisis. This faction eventually became the PRD (Partido de la Revolución Democrática – Party of the Democratic Revolution) led by Cuatehmoc Cardenas, son of the populist president, Lazaro Cardenas. This enabled the first significant challenge to the PRI's hold on the presidency in 1988 when both the PAN and PRD challenged Salinas. The strong showing by Cardenas and the PRD surprised many. However, because of ballot fraud, it will never be known how

close Cardenas came to actually winning. Regardless, even official tallies show that the PRI won the presidency by the narrowest majority ever (Camp 2003).

Given the cloud of suspicion that hung over Salinas' election, he enacted drastic changes to the electoral process to prove his legitimacy. He created a new electoral registry, an electoral institute, and a system of electoral courts. Clearly, these reforms have opened up space for opposition parties – particularly in light of the fact that PRI control of the presidency ended in 2000 with the election of PANista, Vicente Fox. However, there is some doubt over how big that space is, particularly for opposition that does not follow the PRI's development agenda.

Camp in particular argues that the gains of the PAN are not as revolutionary as they appear because the PAN closely resembles the PRI. In particular, both emerge from and represent middle class interests (Camp 1995). In addition, it appears that the PAN is committed to continuing the neoliberal reforms begun by the PRI. Rodriguez and Ward (1995) claim that, in the wake of the 1988 elections, in which the PRD presented the greatest challenge, the PRI has deliberately aligned itself with the PAN to marginalize the PRD. For example, while the PAN's gubernatorial victories were recognized in the 1992 election, the PRI maintained a claim of victory in a very close and controversial race against the PAN in Michoacan (Bruhn and Yanner 1995). This is because the PRD challenges the ideological program of the PRI and also competes for the PRI's traditional base of poor, rural Mexicans (Camp 1999; Bruhn and Yanner 1995).

The hostility against the PRD appears to have worked, particularly in Michoacan (Bruhn and Yanner 1995). In the 1988 and 1991 elections, the PRD won more municipal

votes than any other opposition party. Since then, however, the PRI has reclaimed many of those offices. In Michoacan, the PRD won 52 municipal seats.

The strongest critique against the belief that Mexico is becoming more democratic through opposition parties is launched by social movements, such as the FZLN (Zapatista National Liberation Front). Although the FZLN aligned with the PRD in the 2000 election, that collaboration was fragile because it claims that political parties represent an elite-based transition. Therefore, even the PRD would simply replace a PRI-dominated corporatist system with their own corporatist system, which would continue systems of domination over the poor (Vadi 2001: 138-139). As a FZLN spokesperson said of the recent 'democratic' transition, "change which changes everything so that everything remains the same" (cited in Vadi 2001: 138). Therefore, Vadi argues that the best hope for democratization is social movements "from below" which take advantage of the political spaces created by the political game taking place "above". This is discussed further below.

Therefore, although there have been more opportunities for opposition parties in Mexico, the PRI has maneuvered itself to neutralize any real opposition they might present to the neoliberal agenda. This particularly includes opposition parties from the left, such as the PRD, that tend to be more strongly allied with groups fighting for social and environmental justice. In contrast, the PAN as gained strength, particularly is northern states that were once the stronghold of the PRI. These victories can be attributed to the fact that the PAN, even more than the PRI, embraces the neoliberal

agenda supported by northern states that depend on direct economic transactions with the U.S.

3.3.1.2 Decentralization

Accompanying the electoral reforms that opened space for opposition against PRI control of the executive branch, was a set of reforms that appeared to give greater autonomy to municipal governments. In terms of the environment, this technically would allow for greater responsiveness. The idea being that local governments would be more likely to respond to demands to deal with local environmental problems. However, there are a number of questions raised about whether decentralization reforms really do contribute to the democratization of Mexico.

First, it is unclear whether these policies and programs are designed to simply recast the dependence of lower levels of government on the central government (Rodriguez 1997: 87). Rodriguez (1997) asserts that the decentralization project is a paradox, meaning that to retain power, the regime must give it away. However, the conditions under which it is given still provide the federal government ultimate control (Rodriguez 1997). An example of this is the fiscal system. Although this system has become more equitable, revenues still remain under the control of the federal government (Rowland 2001; Cabrero-Mendoza 2000; Rodriguez 1997). In addition, the ways that fiscal revenues are distributed contributes to spatial unevenness. Investment lines to states appear to favor better-off, more productive, states (Rodriguez 1997). To make matters worse, state to municipal revenue sharing is even more problematic. It varies from year

to year and from municipality to municipality. In particular, big cities seem to benefit over small municipalities (Rodriguez 1997; Rowland 2001).

The second question involves the apparently uneven distribution of the decentralization process (Rowland 2001). State and federal control over municipal funds is also worsened by the fact that the state and federal government continue to intervene in local governments decisions of how to allocate funds. According to Cabrero-Mendoza, one of the outcomes of the decentralization project was the establishment of local committees for development planning, with the power to decide the priorities for public investment. However, these committees, when they functioned at all, turned out to be largely ceremonial forums to legitimate decisions already made by state and federal officials (Cabrero-Mendoza 2000).

Third, there is the question regarding whether municipal governments are really more accountable to their constituency. One hypothesis is that since local governments are closer to their constituents, they will be more accountable. However, several researchers have also hypothesized that extreme inequalities also exist at the local level, and power could easily be concentrated in the hands of local elites (Rowland 2001; Fox 1995). Rowland finds the second hypothesis to be true because local governments do not have pluralist traditions and lack clear guidelines for receiving citizen input (Rowland 2001). Cabrero-Mendoza (2000) identifies at least three structural challenges to democratic local governance: the three-year term limits of mayors with no subsequent reelection, legislation for governing municipal governments is enacted at the state level, and the overly centralized nature of the municipal councils that are dominated by the

mayor. Rowland (2001) echoes this last point by noting that municipal councils have no clear role. Fox (1995) also points out that grants to the local level may actually strengthen the power of local bosses, particularly in Chiapas.

Finally, one of the major policies that Salinas introduced related to political liberalization was the National Solidarity Program (PRONASOL). The stated intention of the program was to buffer the poorest segment of Mexico from structural readjustment. In addition, PRONASOL was intended to devolve control to local governments, foster community participation, and provide transparency by making government seed money available for local projects to encourage "grassroots organization and local leadership. However, several specialists on Mexican question the stated objectives of PRONASOL. Through specific case studies several show that despite its stated purposes, PRONASOL was a necessary move on the part of the PRI to rework state-society relations as a way to regain centralized control over the rural electorate (Cornelius, Craig and Fox 1994). In particular Baily (1994) argues that PRONASOL in fact restrengthens presidential control by relying less on existing bases of support deemed unnecessary for modernization while constructing new bases consistent with the broader economic and social project (Baily 1994). One way it did this was by imposing its own scheme for citizen participation (Rowland 2001). In particular, to receive solidarity funds, local solidarity committees were formed, which worked directly with the central government to distribute funds. While the stated objective of these committees was to increase local participation, depending on local conditions, the formation of committees may have led to a reinforcement of authoritarian clientalism (Fox and Aranda 1996).

Furthermore, Horcasistas and Weldon (1994) show that allocation decisions under PRONASOL are better understood in terms of electoral criteria rather than poverty indices. In particular, the greatest amount of PRONASOL spending occurred in areas where gubanatorial and congressional elections occurred and where the PRI faced challenges (Horcasitas and Weldon 1994). This evidence supports Dresser's argument that PRONASOL, despite the rhetoric, really enforces presidentialism and PRI control. In doing, it also enables the neoliberal trend that the PRI has initiated (Dresser 1994).

Just as with opposition parties, it is apparent that moves toward decentralization further legitimate the neoliberal agenda by creating the appearance of devolving power while actually maintaining control. Because local governments and communities do not have much control, they are limited by what they can accomplish in terms of responding to environmental and social justice concerns. This shall become apparent in each of the two case studies, where local governments and communities have been effective under very controlled circumstances of challenging environmental degradation, but on the whole have been limited in what they are able to accomplish without the central government intervening.

3.3.1.3 Civil Society

Clearly, the process of democratization and decentralization in Mexico is limited. However I would like to return to Vadi's (2001) argument that the real hope for democracy in Mexico lies not in political parties but civil society and social movements. Fissures in the elite structure, of which party opposition is just one indicator, may enable social movements. As Fox (1996) says, "as long as elites remain united, there is little

room for the construction of basic citizenship rights" (Fox 1996: 1092). Most analysts agree that fissures in the central state have enabled the emergence of an independent "civil society".

Civil society has been weak in Mexico for several reasons. First, the Mexican state was able to either co-opt or repress most challenges. Second, civil society lacked resources (Levy and Bruhn 2001). Besides fissures in the state, Levy and Bruhn show other reasons for the emergence in civil society include increasing aid from outside non-governmental organizations and urbanization, which has lowered barriers to collective action. In addition, two major traumatic events encouraged collective action. The first was the 1985 Mexico City Earthquake. Because the Mexican government was incapable of dealing with the crisis, citizens organized to address their needs.

The second was the debt crisis, from which emerged the short-lived, but very effective Barzón (yoke) movement (Williams 2001). The Barzón movement was so successful because it mobilized people from a wide array of society, including business owners and other members of the middle class. It also used effective techniques such as street protests, public theatre, and "encircling" properties that were about to be repossessed to ward off collectors. Through these acts, the movement criticized and deconstructed what architects of the prevailing market order have sought to portray as natural and above criticism (Williams 2001). In this regard, the Barzón movement shares many characteristics with other social movements classified as new social movements.

The best example of a new social movement in Mexico is, of course, the Zapatista uprising in Chiapas. According to Harvey (Harvey 1998), there are three characteristics

of the Zapatista movement that make it a new social movement. First, the Zapatistas established a counter hegemonic discourse to dispute state and market power. Second, the Zapatista movement also created new autonomous spaces for opposition. It did this by challenging traditional forms of representation, such as political parties or unions, which tend to become subsumed or co-opted by the state. Finally, the Zapatista movement was able to avoid internal hierarchies. One way it did this was by avoiding *caudillismo* that had plagued earlier movements and allowed them to be co-opted more easily by the state. As a consequence, Gilbreth and Ortero (Gilbreth and Otero 2001) argue that the Zapatista movement has done more for democratization in Mexico than party opposition.

What does an emerging civil society mean for Mexico's environment? Clearly, social movements enfold demands for environmental justice as well. The Zapatistas have pointed out that although much of Mexico's wealth comes from the exploitation of natural resources in Chiapas, none of this wealth is returned to the people that live there, and in addition, the residents of Chiapas must then suffer with the degraded environment (Barry 1995).

Like other social movements, environmental justice movements face a number of challenges. Among these are political restraints (caused by limits on electoral contestation, press censorship, and co-optation); legal-administrative limits (such as formalism, enforcement, bureaucratic fragmentation); and subsumption of environmental agencies under other, more powerful agencies, limits to citizen participation, and limited public access to official information (Mumme and Korzetz 1997). However, as Dedina

shows, in the controversy over proposed salt works project in the calving grounds of the Gray Whale off the coast of Baja California, transnational environmental groups were able to take advantage of certain cracks in the state to ensure a more democratic decision (Dedina 2000).

While it is true that transnational environmental organizations seem to have better access to the state and therefore the ability to enact change, those concerned with social justice as well as environmental justice must be careful not to become too optimistic about the ability of transnational environmental NGOs to enact a real challenge to the dominant state and market system. Most transnational environmental NGOs are based in the United States or other western industrialized countries. These include, for example, the World Wildlife Fund (WWF), Conservation International (CI), The Nature Conservancy (TNC). As pointed out by Fitzsimmons, Glaser, Monte-Mor *et al.* 1994, environmental movements that originate in western industrialized countries tend emerge from and are wedded to the liberal state. Consequently, these movements rarely question the underlying logic of neoliberalism. Instead, they focus on pollution and population control as well as natural conservation. The inability of these movements to question the economic and policitical structures that enable neoliberalism limits their capacity to help rural producers. This was highlighted by the fact that, with few exceptions, transnational organizations supported the passage of NAFTA – once certain environmental provisions were included – despite the fact that NAFTA has the potential to widen the income gap in the rural sector and between the U.S. and Mexico (Barry 1995;Barkin 2001).

These concerns regarding environmental NGOs mirror concerns that have been expressed regarding national and transnational development NGOs. Miraftab demonstrates that development NGOs in Mexico have the tendency to reinforce the withdrawal of the social sector and reinforce neoliberal policies that have been detrimental to the rural poor. The only way to remedy this is for development NGOs in Mexico to become more cognizant and critical of their role and connections between grassroots organizations, donors, and the state, (Miraftab 1997).

Miraftab (1997), Gilbreth and Ortero (Gilbreth and Otero 2001), and Williams (Williams 2001) also express concern that NGOs in Mexico are vulnerable to losing their autonomy in a country where co-optation has been an important mechanism for the state to gain control over opposition movements and society. For example, NGOs in Mexico frequently lose their autonomy and ability to pressure on the state because they receive state funding or NGO leaders join political parties. Macdonald (Macdonald 2001) offers another potential consideration with the involvement of transnational development NGOs in local participation. In particular, these NGOs often have very limited perspectives of what "participation" means. In addition, these particular NGOs have a long history of asserting Western values and modernization as solutions to poverty.

3.3.2 Environmental Policy Under Neoliberalism

> "The new politics of structural adjustment shackled the government's capacity to respond to growing demands for the amelioration of environmental problems. The decision to reduce government spending, eliminate restrictions on the state's leverage over the private sector while opening new spaces for investment and growth, thereby increasing

> environmental risk…Paradoxically, however, Mexican leaders have been more active than ever in the field of environmental reform…the paradox of environmental reform coupled with a widening gap between policy and performance is attributable in the main to the growing politicization of the Mexican electorate in the 1980s as economic crisis undermined the regime's legitimacy" (Mumme 1992: 124).

By the 1980s, Mexico was facing several different crises. As discussed above, it included the economic crises. In addition, it faced a political legitimacy crisis along with an environmental crisis. Several decades of rigorous and rapid industrialization had led to an intensification of urban environmental problems associated with pollution particularly in areas of rapid growth such as Mexico City and the border region. In addition, the neglected rural sector also faced problems associated with agricultural pollution, deforestation, and soil erosion. As a result, there emerged a growing environmental movement in Mexico along with other social movements in response to Mexico's political opening. Because these movements tended to be aligned with the left, they presented a threat to the PRI stronghold (Mumme 1992).

As a consequence, the Mexican government began to develop environmental administration and legislation to address environmental problems in the 1980s as a way to preempt the growing environmental movement. Against this background, Mexican government policy in the 1980s is seen as a "preemptive reform"… aimed at diverting or coopting threats to the political system arising from political mobilization, particularly from newly organized groups" (Mumme 1992:125).

As part of this preemptive reform, the de la Madrid and Salinas administrations began to develop environmental policies aimed at neutralizing the environmental

movement. These policies built upon earlier trends begun by Echeverría and Portillo. Echeverría (1970-1976) reluctantly put environmental issues on the agenda out of fear of social unrest associated with the social consequences of pollution. In 1971, he passed the first pollution legislation and created a sub-ministry under the Ministry of Health and Welfare. Echeverría did not hide the fact that he made economic growth at a higher priority than environmental protection.

Portillo (1976-1982) shared that view, although he also passed further environmental legislation. In 1977 he gave the Ministry of Health and Welfare responsibility for planning and directing the nation's environmental policy. And in 1982, he passed the Federal Law for the Protection of the Environment, which allowed the government to shut down industries that do not install pollution controls and also requires the government and industry to complete environmental impact statements (see Simonian 1995).

It was not until de la Madrid (1982-1988) that the environment became a campaign issue – indicating its growing importance for political legitimacy.

> "Seemingly, an important change in the political leadership's perception of environmental problems occurred during the 1980s. The rhetoric of Miguel de la Madrid and Carlos Salinas de Gotari indicated a shift away from Luis Echevería's and Jose López Portillo's interpretation of pollution as a public health threat that could be resolved through limited government action. Miguel de la Madrid and Carlos Salinas instead identified pollution as part of a set of ecological problems that could only be resolved through concerted governmental and societal action" (Simonian 1995: 202).

Several major events occurred during his *sexenio* that required de la Madrid to adopt a preemptive strategy toward the environmental movement to maintain his legitimacy. The first was an oil leak from the PEMEX derricks off the coast of Tabasco, which led to protests by fishermen. The second was an explosion in a PEMEX refinery that killed 452 people.

Instead of dealing directly with the underlying problems that caused these events, de la Madrid developed more symbolic responses. In 1983 the administration held forums at local, state, national level to promote environmental awareness and publicize new legislation. The campaign promoted the development of existing and new environmental organizations and legitimating their participation in Mexican politics. However, the government maintained a central role in these organizations because they depended on the government for input and legitimacy.

On the administrative side, de la Madrid created SEDUE (Secretaría de Desarrollo Urbano y Ecología – Ministry of Urban Development and Ecology) and invested it with greater authority in administrative matters. Perhaps most significantly before leaving office, de la Madrid passed the1988 General Law on Ecological Balance and Environmental Protection (Ley General del Equilibrio Ecológico y la Protección al Ambiente – LGEEPA), which requires the government to address environmental matters in its national plans, delegates more authority to state and municipal officials to deal with environmental problems, requires environmental assessments of public projects, and outlines a program for pollution abatement and control. The law also presented a broad-

based rationale and policy platform for the establishment of protected areas in this period (discussed further in Chapter 4).

As part of a much larger initiative to decentralize administrative authority to the states and *municipios*, the law gave state and local governments the responsibility of incorporating environmental considerations into planning documents. It also created an opening for public participation by providing for consultation with social groups in policy development, requiring the government to seek formal agreements of cooperation, representation from principle sectors in the National Ecology Commission, including citizens in policy enforcement by allowing them to denounce violations to environmental law to SEDUE and requiring the agency to acknowledge the complaint in 15 days and investigate it with a ruling in 30 days.

Overall, de la Madrid's preemptive reforms did not work. The mobilization initiative legitimated the environmental movement, which was more vocal in their criticism of government performance and to point out government policy failures (Mumme 1992). Consequently, the environment as a decisive issue became even more prominent in the 1988 presidential campaign. The legitimacy of the PRI crumbled during this campaign as the leftist National Democratic Front (Frente Nacional Democratica – FND), with Cuauhtémoc Cárdenas as its candidate, nearly won the election. Although the principal environmental groups did not directly affiliate with a political party, a number of well-known environmentalists and the new Green Party favored the PRD.

> "The policy thrust of the Salinas administration since assuming office…has been strikingly reactive to the challenge of environmental mobilization. Salinas has identified his top priority as economic recovery

> based on rapid liberalization of the economy…Containing public demands and managing dissent is instrumental to economic conversion. In this context, the demands of the newly mobilized environmental groups represent a potential threat that requires careful handling" (Mumme 1992: 131).

In the careful handling of the environmental movement, Salinas built on de la Madrid's precedent of preemptive reform by passing some of Mexico's most innovative environmental policies particularly in relation to pollution within Mexico City and protection of the Lacandon rainforest.

Mumme (1995) describes Salinas' policy contributions as occurring in to distinct phases. In the first phase from 1988 to 1990, Salinas strengthened the LGEEPA with technical standards and regulatory norms which enhanced its effectiveness. Over the course of Salinas's administration, SEDUE and other agencies issued regulations and technical norms for environmental enforcement. Salinas also tackled Mexico's City's pollution problem by creating integrating the efforts of several agencies under a single initiative. Salinas also addressed non-urban environmental problems under the National Program for Ecological Conservation and Protection of the Environment. Under this new program were laws that regulated water quality and forest management; a focus on certain protected zones; and a cleanup of the Lerma-Capala and Coatzacoalcos River basins.

It was early in the Salinas *sexenio* that international organizations entered as legitimate partners to the Mexican government in the conservation and protection of Mexico's biodiversity and ecosystems. With The Nature Conservancy, Conservation International, and World Wildlife Fund, Salinas developed a program of protected areas

within the Lacandon. In 1991, Conservation International negotiated a $4-million debt-for-nature swap with the Mexican government for the Monte-Azules Biosphere reserve and scientific programs in the Lacandon. These agreements reflected the growing influence of international environmental organizations in Mexico.

The second phase of Salinas reforms were related to the passage of NAFTA by addressing the concerns that arose from the U.S. environmental movement about Mexico's environmental record and the potential adverse impact of a free trade agreement on the environment. Environmental groups in the U.S. initially tried to stop "fast track" authority for the Bush administration to negotiate NAFTA without congressional interference. More on this..

The fact that U.S. environmental lobbyists could hinder fast-track authority for NAFTA and extract concessions from Bush administration surprised Salinas and caused him to take action on the environment early in 1991 in time to improve and legitimate his environmental record in time for the renewal deadline in June of that year. His actions included cracking down on industrial plants in violation of air quality standards, generating a comprehensive plan with the Bush administration for addressing environmental problems along the U.S.-Mexico border, entering CITES (Convention on International Trade of Endangered Species of Wild Fauna and Flora), withdrawing a protest to GATT against the U.S. embargo of tuna because the use of driftnets, and increasing the number of environmental inspectors. These moves were also accompanied by a campaign by top Mexican officials in the Salinas administration to convince environmental organizations of Mexico's environmental commitment. These measures

worked because in May 1992, Congress granted the Bush administration fast track authority to proceed with NAFTA negotiations.

The final and perhaps most significant environmental initiative under Salinas was the reorganization of the Environmental Ministry. In 1992, Salinas abolished SEDUE and merged its functions with the Secretary of Social Development. Under this new ministry, environmental functions were allocated to two new agencies: the National Institute of Ecology (INE – Instituto Nacional de Ecología) and the Federal Attorney General for Environmental Protection (PFMA) (Mumme 1995).

Despite these pro-environment measures, the paradox of Salina's environmental reforms still existed.

> "The government has made it clear…that environmental regulation is hostage to economic recovery. Herein lies one of the most important contradictions, for Salina's strategy of economic recovery is predicated on market liberalization, increased foreign investment, and rapid expansion of Mexican exports. Such a strategy contradicts the objectives established in the environmental law in that liberalization, certainly in the short term, is being carried forward with little concern for its environmental impacts" (Mumme 1992: 139).

This paradox, or contradiction was most evident when considering major changes in natural resource policy that took place under Salinas.

While Salinas was adopting environmental policies to reduce pollution, deforestation, and biodiversity loss, he was adopting natural resource policies that opened resources to the free market. This is particularly true in the areas of forests, fish, water, and land (represented by the reform of the *ejido* sector). While these many of these resources were technically under community control in the 80s, new policies under

Salinas privatized these resources through permits and concessions to corporate interests. The privatization of these resources fit very well with the ideology of neoliberalism discussed in Chapter 2, which argues that natural resources are best managed by the free market. While resource management throughout the 80s was highly inefficient and resources were largely degraded during that time, the problems frequently had less to do with communal management than it did with government interference and corruption. Rather than address these problems, however, the Salinas government chose an overhaul of the system in favor of free-market principles. This overhaul is most evident in the forest and fisheries sectors, which have been impacted by new legislation passed in 1992 as well as market reforms.

The majority of Mexico's forests are on *ejido* lands. However, as Klooster (1999) points out, this does not necessarily mean that communities have had control over their forests. In fact, until the passage of the 1986 Forestry Act, forests were heavily exploited by private concessionaires with very little benefit going to the communities that owned the forests (Wexler and Bray 1996; Klooster 1999; Klooster 2000b; Zabin 1998; Silva 1997). The 1986 Forestry Act was a positive step toward effective community-based management of forests. In addition to ending private concessions, it also enabled communities to manage their own forests though non-transferable permits and time limits on private contracts (Wexler and Bray 1996; Zabin 1998).

The act came about in large part because of the local and sometimes violent protests by *Ejidatarios* against local companies. In addition, state reformers within the Agricultural Secretariat were sympathetic to grass root management of resources (Silva

1997). Despite the fact that communities were endowed with more power over their forests, the central government still intervened heavily at all stages of forestry production through a complex permitting process (Zabin 1998). The act also does not guarantee 'environmentally sound' forestry practices or equitable distribution of benefits among community members. As Klooster points out, where there are strong local elites, benefits will be unequally distributed while other community members protest by setting fires and stealing timber (1999; 2000).

Regardless, the act did go a long way toward providing community autonomy over forest resources. Many communities passed from being *rentistas* and hired labor on their own land to owning and operating their own logging companies and sawmills and forming regional unions (Zabin 1998; Wexler and Bray 1996). This trend may be short lived as it has been undermined by trade liberalization, reform of Article 27, and the 1992 Forestry Law – all of which came about as part of the neoliberal reform package.

According to Silva, as Mexico joined GATT and NAFT, Salinas began replacing state actors who supported community forestry and replaced them with technocrats that favored market-oriented approaches (1997: 483). This new team created the 1992 Forestry Act, which attempts to deregulate the industry and remove subsidized assistance to communities and unions. The biggest effect of the Article 27 reform is that it allows private-public ventures that give foreign timber companies greater access to forests.

Fortunately, liberalization has so far had little effect on community forestry projects because those operations were strong going into the reforms. In addition, domestic forestry has an advantage over foreign sources because of lower transportation

costs. The overall environmental impact of the reforms is still unclear. As foreign investors become more involved, there is a possibility that single-species plantations will become more predominant, threatening biodiversity (Wexler and Bray 1996). In addition, deregulation of the permitting process may increase contraband logging (Zabin 1998).

Fisheries, present a different situation from forestry. This sector faces some of the greatest environmental degradation at the same time that small-scale commercial fishers are forced to compete against each other as well as large-scale commercial fishing operations. Despite the obviously detrimental effects of neoliberal reforms to the fisheries sector, it has received relatively little attention (Ibarra, Reid and Thorpe 2000). Unlike agriculture, the fisheries sector has always had an export focus. Before neoliberal reforms, fishing concessions were held by cooperatives. Technically, these cooperatives had the only right to fish for commercial purposes. However, similar to the situation in the forestry sector, fishers often did not have control over their own resources because of concessions. For example, in Northwestern Mexico, private corporations rented boats and other production processes to cooperatives. In essence, cooperative members were used as labor because they did not have the ability to purchase their own equipment (Young 2001).

This problem has only been exacerbated, however, with the implementation of economic and legal reforms associated with neoliberalism (Young 2001). On the whole, these reforms have stimulated private investment in the fisheries sector, which has exacerbated the problem of overfishing. Most important among these reforms was the

1992 Fisheries Act, which opened up fisheries to private firms (Young 2001, Ibarra, Reid and Thorpe 2000, DeWalt 1998). Now any individual or corporation can gain access to fisheries that were formerly reserved for cooperatives. The "overcapitalization" of fisheries has created new technological mechanisms for greater exploitation (Ibarra, Reid and Thorpe 2000; Young 2001).

Private capital was also encouraged to enter the market immediately after the peso was devalued. Able to sell their products in a favorable market initiated corporations scrambled to get a piece of the fisheries and their products to the United States. According to Ibarra et al. (2000), the volume of fishing exports increased by 118% that year. In addition, trade liberalization opened up new export markets. In defiance of state efforts to restructure the fisheries market, fishers have participated in "collectively destructive behavior" by entering the black market for illegally harvested marine products. The combined effect of these reforms, therefore has been intensified pressure on local fisheries in Mexico along with growing conflicts over access (Young 2001; Ibarra, Reid and Thorpe 2000).

Water is another resource that has been greatly affected by neoliberal reforms. Water is a critical resource for development in Mexico, with a growing population in urban areas and along the U.S.-Mexico border. Ironically, Mexico's population is inversely distributed with Mexico's available water. Burquez and Yrizar (Burquez and Yrizar 1998) note that the southeast of Mexico, with 20 percent of the land surface, receives more than half the rainfall while the north, with 30 percent of the land surface receives only four percent of rainfall. Growing contamination, salinization, and overdraft

are becoming increasing concerns. Compounding these problems is Mexico's inefficient water system with 40 percent of Mexico's water is unaccounted for, 38 percent is lost through system inefficiencies. The need for reforming Mexico's water sector was apparent by the time of the 1982 peso devaluation crisis when the state was paying for 80 percent of the cost of irrigated water and producers were paying only 20 percent. It was apparent that the state was unable to maintain this level of expenditure and that more efficient water provisions were necessary that distributed the costs to the water users (Wilder 2003).

From the time of the revolution, water had been under control of the federal government. The state's role was one of a central, operational manager. New reforms introduced in 1992 as part of the New National Water Law changed the state's role to one of policymaking and oversight as it decentralized and privatized water resources. New regional and local water management councils, irrigation districts, and water users associations were formed to manage water at a smaller scale. Federal subsidies for water ended while market forces were integrated into the sale and purchase of water rights (Whiteford and Bernal 1996).

Since water reform in 1992, over 90% of public irrigation has been transferred through concessions to water users. The outcomes of this transfer for water use and conservation are unclear as they are complicated by other neoliberal reforms – notable the privatization of land and the adoption of NAFTA (Whiteford and Melville 2001). While reforms in rural areas appear to have better results than in the urban areas, there are still problems. Romero-Lankao (Romero-Lankao 2001) argues that the price

increases associated with the water reform and the increase in price of other inputs along with drought will create insurmountable challenges to farmers. Wilder (2003) adds that although users are paying more for water, it is still not enough to cover for the water sector to become sufficient or to induce greater efficiency. Overall, the evidence shows that while water reform has not made this worse, it has not made things better either (Liverman and Vilas 2006).

3.3.3 Outcomes on Small-Scale Producers

Before liberalization, agricultural production was heavily managed by the central state, which has made agriculture more vulnerable than other sectors to policy changes (Kelly 2001). To make matters worse, reforms have been implemented quickly and with little coherency (Appendini 1998; de Janvry, Gordillo and Sadoulet 1997). In particular, the combination of diminished prices for basic crops, withdrawal of input subsidies, restructured rural finance, and trade liberalization has created difficulty for *campesinos* (rural producers). The state's involvement in the agriculture was pervasive throughout the production cycle. State-owned banks provided low interest loans for subsistence farmers. Farmers also received subsidies on inputs, such as seeds and agrochemicals, produced by state-owned enterprises. Producers would then usually sell their crops to the state's food marketing and distribution company.

While the total amount of agricultural credit has increased under reforms, the distribution of credit changed dramatically. Prior to 1988, most *campesinos* received credit from Banrural at subsidized interest rates. After the reorganization of the rural

finance system, commercial banks took over the job of providing credit. Within the commercial banking system, there is an inherent bias against *campesinos* because of their lack of credit history and the low probability of financial returns (Myhre 1998; de Janvry et al. 1997; Hewitt de Alcantara 1992). This no-win situation for the campesino dates back to land redistribution. Most of the land redistributed to *ejido*s was marginal, rain-fed land that does not hold much productive potential. With few exceptions, high-quality rain-fed lands and land with access to irrigation was reserved for medium and large-scale commercial agriculture (Hewitt de Alcántara 1992).

The decline in subsidized credit occurred at a time when producers were caught in a price-cost squeeze (Appendini 1998). Costs of inputs have risen as state-owned enterprises are privatized and input subsidies decline. Meanwhile prices for agricultural products have declined as former price subsidies are lowered to conform with world markets. Finally, due to trade liberalization farmers are faced with competition from imported agriculture that is produced more cheaply in the U.S. (Nadal 1999).

In an effort to alleviate the impacts to small-scale commercial farmers and campesinos, the Mexican government decided to slowly phase out price supports for basic foods, particularly corn and beans. All of these combined policies have had a contradictory effect, particularly for corn (Appendini 1998). Neoliberal reforms should encourage farmers to grow crops in which they have an international comparative advantage – such as 'non-traditional' crops such as winter fruits and vegetables. However, without state credit or support there are few incentives for farmers to make the expensive transition from basic grains to other crops. Consequently, many Mexican

farmers continue farming basic food crops, for which there are limited price supports and subsidies at present (de Janvry et al. 1997; Appendini 1998). However, as these begin to be phased out under NAFTA agreements, it is expected that Mexican farmers will be forced out of the basic grains market by international competition. Large-scale and medium-commercial farmers with access to credit, markets, irrigation, and high quality land will be able to make the transition to non-traditional agricultural exports. Meanwhile, campesinos will have few options except to become even more integrated into the wage labor market. This supports Appendini's supposition that a failure to provide a new set of supportive institutions to agriculture could set off the abandonment of better farming to commercial farms (Appendini 1998: 69).

In this context, recent reforms to Article 27 of the Mexican constitution have potentially important implications for social and environmental conditions in rural areas. Reform of Article 27 has officially stopped the process of land redistribution to *ejido*s. It also allows *ejido*s to sell their land or use it as collateral. So, far there has not been any dramatic shift in land tenure as a result of Article 27 reform (Cornelius and Myhre 1998). This is partly due to the fact that there is not a lot of demand for *ejido* land except in tourist zones, the fringes of urban areas, and areas of irrigated agriculture. Regardless, by 1996, 59% of the countries *ejido*s had begun the process of land titling, the first step toward privatization (Cornelius and Myhre 1998).

Without question, agricultural reforms in conjunction with other neoliberal reforms have had a disproportionately negative effect on the poorest rural Mexicans. Drawing on data from the National Household Income Expenditure Survey, Kelly (2001)

shows the number of agricultural households below the extreme poverty line (able to buy the basic nutritional requirements) increased since 1984. In comparison, the percentage of agricultural household below the moderate poverty line (those not able to meet basic needs) did not change much at all. This is because the percentage of agricultural households in moderate poverty was already as high as 93% in 1984 (Kelly 2001: 93).

These numbers reflect the extreme inequality in the agricultural sector. The seven percent of agricultural households above the moderate poverty line are so well above it that they are not in danger of falling into poverty (Kelly 2001: 93). Meanwhile, the poorest agricultural households have become even poorer. The income disparities within the agricultural sector reflect basically two types of producers: *campesino* and commercial. The latter include infrasubsistence landholders who also depend on wage labor. Commercial farmers tend to have better land, access to markets, storage facilities, and irrigation (Hewitt de Alcantara 1992).

The environmental outcomes of these reforms are less clear. Perhaps one of the greatest determinants; however, will be land tenure (Toledo 1996). For this reason, as Appendini alludes, one of the biggest concerns is that agricultural reforms will mean greater concentration of land under highly commercialized agriculture (Appendini 1996). Commercialized agriculture tends to depend heavily on harmful agrochemicals that pollute water and air; rely on monocropping that lessens crop genetic diversity; overdraw ground water supplies; and use harmful tilling practices that cause soil erosion (Nadal 1999).

Despite this, proponents of Article 27 reforms have argued that privatization of *ejido*s is one way to reverse resource degradation that has occurred throughout Mexico. This argument is clearly based on the assumption that environmental degradation is caused by a tragedy of the commons – that communally owned (*ejido*) lands have not provided incentives for resource protection. It has not been difficult for researchers to expose the fragility of this argument or its political motives. There are examples of degraded resources associated with both private property and *ejido*s (Bray 1996).

Where ecological degradation has occurred with *ejido* lands, blame cannot be placed exclusively on *ejidatarios*. As Bray (1996) points out that if the *ejido* sector is today characterized in many areas by ecological degradation, it has much to do with official neglect of the sector and the quality of the land originally given to *ejidatarios* (Bray 1996: 219). Historically, the state has been heavily involved in the management of *ejido*s, including farming practices. This top-down management led to unsound resource practices. For example, *ejidatarios* had to be present and working the land every other year. After a two-year absence, the state could expropriate *ejido* land. This did not allow for fallow periods. Additionally, credit policies under Banrural moved peasants away from 'traditional' intercropping techniques to monocropping of corn (de Janvry et al. 1997; Bray 1996). Now that the state is withdrawing from the management *ejido*s, there could be a greater potential range of opportunities for *Ejidatarios* to use their land in diverse and productive ways. Unfortunately, those opportunities are limited because of a lack of economic resources.

3.3.4 NAFTA and the Environment

One of the primary symbols of Mexico's neoliberal reformation was the adoption of NAFTA. This symbol is so powerful that the Zapatista uprising in Chiapas began the day NAFTA went into effect on January 1, 1994. NAFTA opened up many questions about the effects of trade on labor and the environment. The greatest question from the environmental community focused on pollution.

The debate surrounding this question was captured in an 1993 issue of Scientific American, which asked two prominent economists to predict the environmental outcome of adopting NAFTA (Gallagher 2004). Jagdish Bhagwati, an economist, argued that free trade agreements such as NAFTA increase economic prosperity and integration which motivated governments to enact tougher environmental standards (Bhagwati 1993). This argument is based on the Kuznets Curve hypothesis, which argues that as a country develops, environmental degradation will continue until the economy reaches a certain critical point at which greater prosperity fosters greater environmental protection. After this point, environmental conditions begin improving again. On the other side of the debate was Herman Daly, a prominent environmental economist. He argued that free trade would cause greater environmental degradation as heavily polluting industries based in the U.S. and other developed countries would relocate to developing countries to take advantage of less restrictive environmental standards (Daly 1993). This argument was based on the "pollution haven" hypothesis. According to Gallagher (Gallagher 2004), there is no conclusive evidence to support either the pollution haven or Kuznets curve hypotheses. Unfortunately, ten years after NAFTA went into effect, there is still

little evidence how NAFTA has influenced Mexico's environment – leading to conflicting claims by scholars and scientists (Gallagher 2004; Husted and Longsdon 1997).

Although most of the pre-NAFTA debate on its environmental effects focused on pollution, perhaps the indirect environmental effects may turn out to be the most important. While it was easy to envision a direct relationship between NAFTA and polluting industries, it was more difficult to anticipate the outcomes between NAFTA and resource use because these outcomes are also influenced by local factors as well as other neoliberal transformations occurring at the same time.

Mexico's agricultural sector provides a prime example of the complicating factors influencing environmental outcomes of NAFTA. Free trade proponents point to data showing that Mexico's agricultural exports have doubled since NAFTA's inception, reduced cost inputs for Mexico's livestock and food processing industries, and increased the dollar value for key agricultural products (Williams 2004). However, Nadal (2000 and 2002) provides evidence that that rapid trade liberalization without adequate adjustment programs along with Mexico's economic crisis in the 1995 has led to severe social and environmental problems related to agriculture – particularly corn.

According to Nadal (2000 and 2002), corn is the most important crop in Mexico economically and socially. Mexico felt that its dependence on corn was sapping its reserves through subsidies to corn producers and was holding it back from realizing its comparative advantage. It was felt that NAFTA would free up land and labor that was

dedicated to corn. Rather, corn production remained at historically high levels and the area under corn cultivation increased while production per hectare decreased.

Nadal explains (Nadal 2000 and Nadal 2002) that trade liberalization has depressed the price of corn, but inadequate adjustment programs and cutback of subsidies have limited the ability of farmers to switch to high-earning crops. The pressure to produce more corn (to make up for falling prices) has led to a variety of environmental problems encroaching on marginal land or ecologically sensitive areas – leading to soil erosion, deforestation, and more intensive water use. Meanwhile, farmers forced to abandon cultivation altogether have also led to environmental degradation as they disrupt social organizations designed to maintain genetic resources and land conservation infrastructure (Nadal 2002; Nadal 2000).

This discussion demonstrates that lack of data and the complicated political/economic terrain make it is near impossible to argue that NAFTA has been "good" or "bad" for the environment. Rather, it will depend on the particular local environmental, social, political, and economic conditions and how these interact in the larger political economy. It will also depend on the particular resource being considered as NAFTA may have improved conditions, while enabling the degradation of other resources.

What is clear, however, is that the NAFTA negotiations had an impact on Mexico's environmental policy as well as cross-border collaborations between environmental groups on both sides of the border. According to John Audley (Audley 1997), environmental groups within the United States had varying influence over the

NAFTA negotiations. During the early stages of negotiations, President George H. Bush selected only a few representatives (6 of 1,000 advisors) from the environmental movements to serve as advisors. These representatives were from organizations that had ties to his administration – primarily from the National Wildlife Federation and the World Wildlife Fund, and Natural Resources Defense Council. Given their small role, it was not surprising that in July 1992 the environmental community sent a letter to President Bush warning him that they were dissatisfied with the process. When the initial agreement was made public in September of 1992, the Sierra Club, Friends of the Earth, and Public Citizen called for renegotiations.

Mounting opposition from environmental and labor groups kept President Bush from sending the agreement to congress – particularly before the 1992 presidential election. During the election campaign, the three presidential candidates hotly debated the NAFTA agreements – including the environmental outcomes. As Audley notes, "presidential politics amplified the leverage enjoyed by environmental groups" (Audley 1997: 69). In particular, environmental groups expressed concern over environmental issues related to the U.S.-Mexico border as well as Mexico's lax environmental policy and inadequate enforcement capabilities (Audley 1997).

Mexico's environmental record came under close scrutiny. Mexico's record of industrial pollution along the U.S.-Mexico border was an issue that raised a great deal of concern, since it was felt that it reflected more of what would come if trade barriers were relaxed further. Mexico found itself facing a public image problem in the United States as U.S. environmental groups began calling for Mexico to adopt tougher environmental

standards and enforcement as part of the agreement. These criticism provided an important motivation for the Mexican government to speed up improvements in its environmental policy and implementation. In essence, Mexico had to wage a public campaign to clean up its environmental record to improve its image in the United States (Hogenboom 1998).

On the Mexico side, there were also environmental groups working to link the environment to NAFTA. Among the opposition was the Pact (or Union) of Ecologist Groups, the Mexican Action Network on Free Trade, the Grupo de Cien, and the Mexican Ecologist Movement (Alanis-Ortega and González-Lutzenkichen 2002; Hogenboom 1998). However, Mexico was able to neutralize environmental objections to the agreement at home. Mexican groups had to form alliances with U.S. opposition groups as a way of being involved in the process as well (Hogenboom 1998).

Despite Mexico's efforts to preempt or ignore environmental pressures at home and abroad, when President Clinton was elected in 1992, he chose to amplify the environmental provisions of the supplemental agreement in order to maintain the support of the environmental and labor community that had joined forces in opposition to NAFTA. The negotiations of these side agreements came as a great consternation to the Salinas Administration, for which NAFTA was an urgent priority. NAFTA was at the heart of Salinas government's economic development strategy (Hogenboom 1998; Mayer 1998). On the whole, Mexico has resented attempts to link trade and the environment (Mancera 2002; Alanis-Ortega and González-Lutzenkichen 2002). Mexican trade officials feared that linking the environment issue to trade would expose Mexico to lost

trade opportunities if it could not meet U.S. environmental standards. There was also a fear that the U.S. could mask economic protection measures as environmental trade sanctions, as it believed happened with the U.S. sanctions against Mexican tuna (Alanis-Ortega and González-Lutzenkichen 2002).

In the end, because of pressures from U.S. environmental groups, Mexico agreed to three controversial provisions in the side agreement: sanctions for persistent failure to enforce environmental laws, the creation of a North American Commission for Environmental Cooperation, and a mechanism allowing civil society to register complaints about compliance with environmental laws (Alanis-Ortega and González-Lutzenkichen 2002). In addition, Mexico created new environmental institutions and regulations in the process as a way of showing good faith toward the environment and appeasing the concerns of U.S environmental groups. Most notable among these was the Integrated Environmental Plan for the Mexico-US Border Area (Hogenboom 1998).

3.4 Conclusion

Throughout the 1980s and 90s, Mexico adopted political, economic, and social reforms that brought it into a new neoliberal era. These reforms reflect a global trend toward neoliberalization, spearheaded by the United States and England during the Reagan-Thatcher era.

The outcomes of these reforms have had complex and sometimes contradictory outcomes for Mexico. While reforms have created more space for political opposition parties, that space is confined by a powerful elite, which still controls the parties. Other

political spaces for lower levels of government and social organizations are tempered by co-optation and lack of access. Similarly, while economic reforms have created greater income, the distribution of income has created greater poverty throughout Mexico.

The paradoxical outcomes of Mexico's reforms also apply to environmental and natural resource issues. During the age of neoliberal reforms, Mexico gave unprecedented attention to its environment and natural resources with new legislation and a bureaucratic infrastructure dedicated to conservation, public health, and natural resource management. However, these reforms were also plagued by contradictions due to simultaneous economic reforms. The best example of this contradiction is the privatization of natural resources. While privatization made natural resource management much more efficient in terms of the state bureaucracy, it also has led to the intensification of natural resource exploitation.

Perhaps the greatest impact of neoliberal reforms in terms of Mexico's environmental and natural resource protection is the effect it has on rural producers. Because of large-scale economic reforms, many of Mexico's small, rural producers in agriculture, fisheries, and forestry have been forced to change their livelihood strategies in ways that have complicated outcomes for natural resource management. Although there have been cases where rural producers have found greater opportunity under neoliberal reforms, many producers have adopted new strategies which are environmentally unsustainable or have been forced to give up their resource rights to private interests.

While these complicated outcomes make it difficult to determine the overall impact of reforms on Mexico's environment, it is clear that many places reforms have been largely responsible for environmental and natural resource degradation. The remainder of this study is dedicated to looking more carefully at the paradox of creating natural protected areas in this neoliberal context. Mexico's many new natural protected areas are also the product of neoliberal reforms. Although Mexico's natural protected areas have not been examined extensively in this context, in many ways they reflect the same contradictions that have shaped environmental outcomes throughout rural Mexico. Although apparently intended to conserve environmental resources, natural protected areas when considered in the neoliberal context also have contradictory outcomes.

CHAPTER 4: NATURAL PROTECTED AREAS IN THE WORLD AND IN MEXICO

4.1 Introduction

In the early 1990s throughout the developing world, there was a surge in the number of natural protected areas. This surge was unlike anything that had ever happened in world history. Between 1986 and 1996, nations in Asia, Africa, the Middle East, and Latin America increased the number of natural protected areas in their regions by 60%. Between 1885 and 1985, close to 8,800 areas were created in these regions. Between 1986 and 1996 approximately 5,200 were created.

Particularly astounding was 1993, the year following major landmarks in the conservation movement with the 1992 Earth Summit in Rio de Janeiro and the World Parks Congress in Caracas, Venezuela. In 1993 alone, 10% of the total number of natural protected areas in Asia, Africa, the Middle East, and Latin America were established. At least 771 areas were created in sub-Saharan Africa in 1993. There was a small lag in Latin America, which created 766 protected areas in 1996. The reason for this lag is unclear, but it may be due in part to a desire to compete with African countries as ecotourism destinations. It may also be due to the fact that Latin American countries did not have a well-established history of wildlife conservation as Africa did and therefore took longer to establish the groundwork necessary to create and maintain so many areas. Regardless, by 1995 it was clear that Latin America had dedicated itself to natural protected area conservation.

It is also interesting to note that an earlier surge took place in Europe in the mid 80s. This trend reflects the leading role that Europe took in the conservation movement.

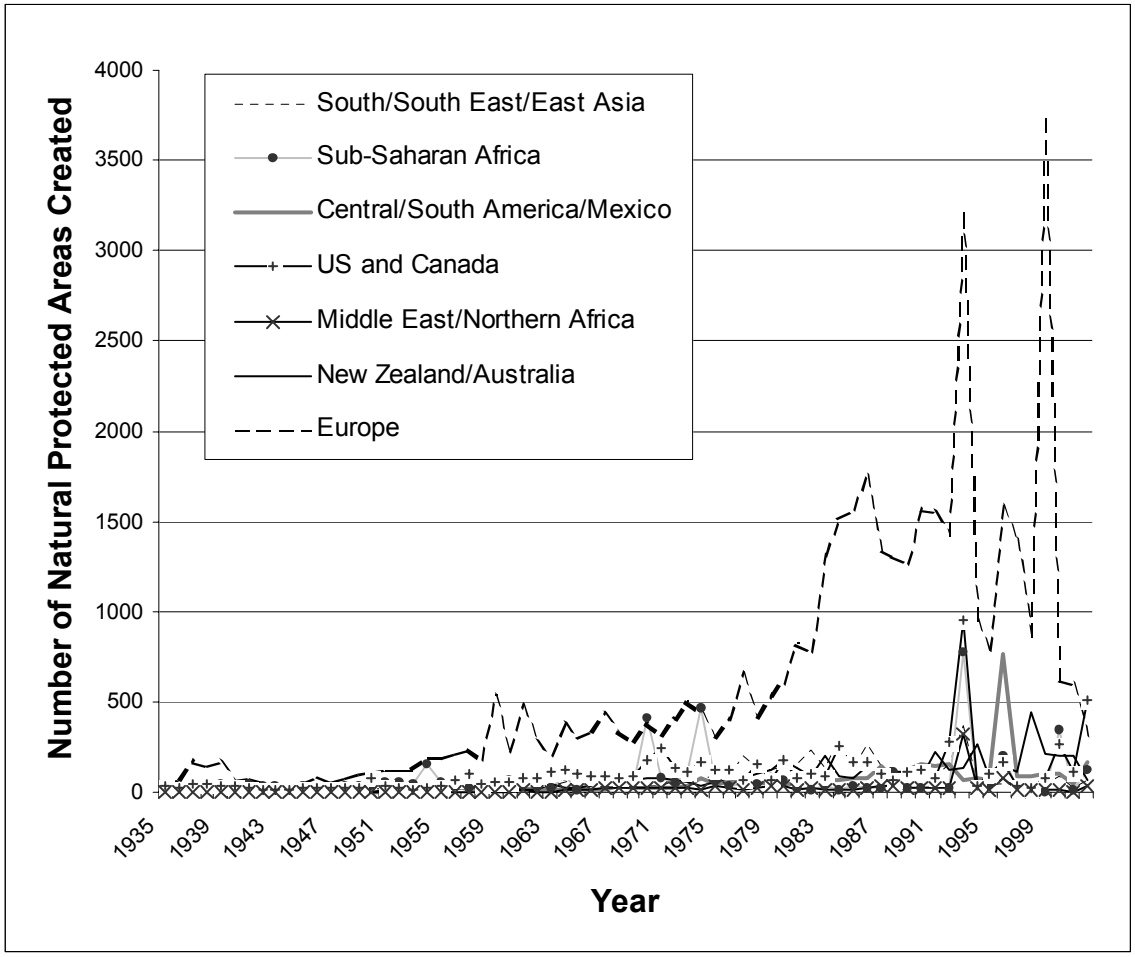

Figure 4.1 Number Annually Designated as NPAs Globally 1935-2003 (IUCN and UNEP 2003)

During the same period, Mexico nearly doubled its number of natural protected areas from 67 in 1985 to 110 in 1998. Although President Cardenas (1934-40) established a record number of protected areas during any one presidential administration, these areas do not compare in size to areas created in the past decade and

a half (Figure 2.2). While the average size of a protected area created in 1936 was 320 square kilometers, the average in 1994 was 2,620 square kilometers. Mexico's protected areas now total 125,390 square kilometers (48,413 square miles), or about 6.5% of Mexico's total territory (as opposed to 25% in Costa Rica, 17% in Ecuador, and 3.3% in the United States). In addition, Mexico (with significant help from international development and environmental organizations) has dedicated more finances to administer protected areas. Many protected areas that existed only on paper prior to 1994 today have offices, infrastructure, and management staff, resulting in tighter enforcement of resource rules that accompany protected areas.

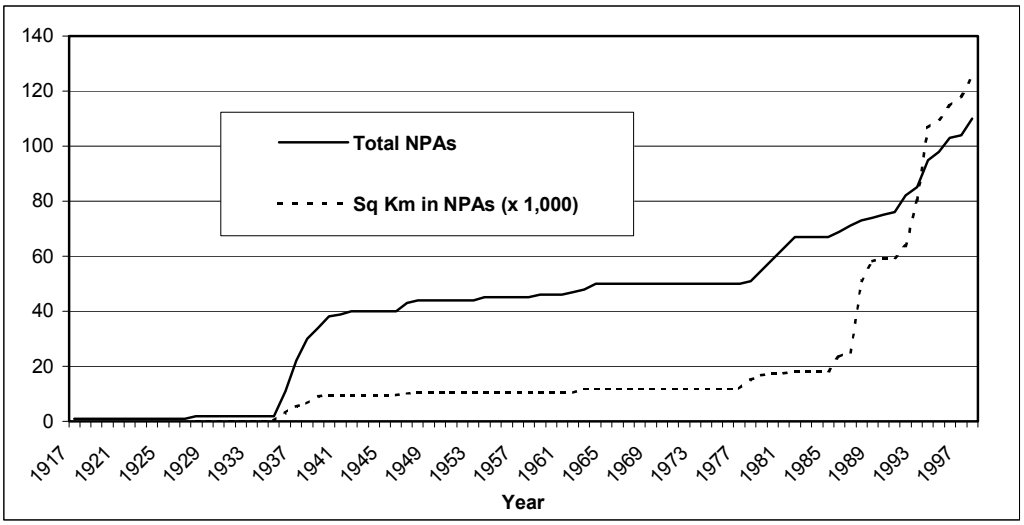

Figure 4.2 Total Number and Area of Mexico's Natural Protected Areas from 1917-1998 (CONANP 2005).

What fostered this surge of natural protected areas throughout the developing world in the 1990s? Earlier in the century, natural protected areas were closely associated with colonial rule and power or popular campaigns built around national

identity and pride. These areas reflected what E.O. Wilson called the "bunker approach" to conservation, where nature and society were clearly separated and enforced mainly for foreign wildlife gawkers and stalkers or as symbols of national heritage. Beginning in the 1970s, however, this approach to conservation began to be criticized as insensitive to social and economic concerns of the rural poor. The conservation movement based in northern Europe and the United States, which believed strongly in the protected area model, faced a crisis of legitimacy in the face of international concerns regarding social justice and economic development.

To overcome this crisis, the movement utilized emerging concepts from science and economics to reshape the natural protected area model. Instead of establishing areas that rigidly kept people and nature separate, the movement sought to fold social concerns into protected areas. While conservationists might argue that the model of protected areas has changed significantly, as W.M. Adams notes the underlying principle of protected areas remains pretty much the same as it did at the turn of the century (Adams 2004: 4).

Regardless of the fact that the underlying model of protected areas remained unscathed, the apparent transformation had the desired effect. Armed the newly emerging concepts of biodiversity and sustainable development, the conservation movement was able to advance its agenda in the developing world throughout the late 1980s and early 1990s more effectively than ever. These concepts were closely tied to the neoliberal ideology that spread throughout the world at this same period. Throughout this period, developing nations jumped on the conservation bandwagon by creating more

natural protected areas than had been created over the previous century. The jump was given a lift by a global network of institutions and organizations, which emerged from the growing environmental movement in the western industrialized world, primarily northern Europe and North America.

This chapter describes the transformation of the park model and how this was closely linked with the emergence of concerns over biodiversity loss and the sustainable development paradigm. Focusing specifically on Mexico, this chapter also describes how this transformation manifested itself in terms of the programs and projects implemented in natural protected areas with a particular emphasis on community-based strategies that sought to provide economic benefits to the rural poor residents in or near protected areas. As I show in Chapters 5 and 6, conservation programs and strategies conceived at the international level enable commodification and territorialization of natural protected areas when implemented on the ground, such as Cuatro Ciénegas and Loreto.

4.2 "Bunker" Conservation Strategies Meet Resistance

A convenient place to begin a discussion about natural protected areas is with the creation of the first national park in the United States in 1864. The conceptual origins of the first national park began with epistemological transformation of nature and wilderness in the 18th and 19th centuries due to the enlightenment and romantic movements that accompanied the processes of capitalism. The appreciation of nature and wilderness that eventually led to it protection first required that it be threatened by

capitalist growth. "Ironically what capitalism destroys, Western culture personifies as more precious" (Adams and Mulligan 2003: 29).

Grove points out that the beginnings of environmentalism can not only be traced back to Europe, but also to the colonial periphery where colonialists engaged with tropical ecosystems and people for the first time for the purpose of extracting resources for capitalist growth. The increasing exploitation of nature allowed for the notion that these tropical regions were the lost Eden (Grove 1995). Perhaps this process is best understood in terms of wildlife conservation in Africa. The 'natural' African landscape, in contrast to the built and manicured landscapes of Europe, allowed it to be constructed as an original wilderness. The presence of big game animals in Africa also contributed to its wilderness construction. "The survival of great numbers of large mammals contributed to the sense that Africa was a place apart, where nature persisted in a more complete and damaged state" (Adams and Mulligan 2003: 34). Big game hunters were some of the first conservationists in Africa and Australia (Mackenzie 1987). By about 1880, a conservation pattern was created in southern Africa associated with big game hunting. Most national parks in Africa were established from pre-existing game reserves, although this would not happen until after WWII.

A similar process occurred in temperate regions of North America. Roderick Nash describes how the first settlers to what is now the United States saw wilderness as a threat to be conquered and tamed. Once cities were established and the remaining wilderness was "tamed" it also became a paradise on Earth as exemplified by the writings of Thoreau and Muir (Nash 1982). To protect wilderness, the United States created the

first ever national parks with the Yosemite Act in 1863 and the Yellowstone Park Act in 1872. Although hunting and forest reserves have a longer history in other parts of the world, the national park model was soon to become the dominant concept of conservation.

What enabled the national park model as the dominant form of conservation was cultural nationalism. "Americans might lack the great artistic and archaeological treasures of Europe; but in waterfalls and geysers of Yellowstone, and the incomparable mountains of Yosemite, they had natural monuments that were world-beaters" (Adams and Mulligan 2003: 40). National parks were quickly established in Canada, Australia, New Zealand throughout the 1880 and 90s in dramatic mountain regions, such as the Rockies. Shortly thereafter these parks became major tourist destinations.

In colonized developing countries, there was a great deal of pressure to create national parks as part of a much larger push to establish systems of government before decolonization (Adams 2003). Murombedzi points out that liberation from colonial powers did not signify the end to colonialist systems of government in Africa. More often than not, post-colonial countries in Africa reinforced these systems (Murombedzi 2003). National parks were particularly important for the newly formed African nations and other parts of the developing world because they fostered state identity and nationalism necessary to legitimate the post-colonial state. Adams (2003) notes that most protected areas in former colonial territories exist because they served a political purpose. Simonian describes a similar trend in Mexico, where populist president, Lazaro Cardenas

(1934 – 1940), created over 40 national parks as part of his strategy for building his populist agenda and national identity (Simonian 1995).

Inherent to the national parks model was the concept of unpeopled wilderness. In the United States and Canada, it was widely believed that national parks were bastions of untouched wilderness (Stevens 1997). In reality, however, the landscape of national parks in the United States and the rest of the new world had been heavily modified in the past by Native Americans (Denevan 1992). In the era that national parks were created, Native Americans were recovering from a devastating population loss caused by the introduction of European diseases, which may have given the impression that many lands which became national parks lands were uninhabited (Denevan 1992). In addition, Native Americans being forced into relocation and containment onto reservations, which most likely altered their traditional migrations to hunting and gathering areas. Stevens (1997) notes that when Yellowstone National Park was created, Tukarika Shoshone lived in one part of the park year-round while other native groups (Bannock, Shoshone, Crow, and Blackfoot) hunted and fished in the highlands in the summers. Although the extirpation of Native Americans from Yellowstone was not due to national park policy, per se, it provided a model used around the world as the basis for the forced relocation of indigenous peoples from inside national park boundaries. Until recently, the national park model was the primary form of natural protected area.

4.3 New Environmentalism: Biodiversity and Sustainable Development

Beginning in the late 70s and early 80s, the national park model began to be questioned and reshaped in response to local resistance as well as criticism from conservation professionals working at the local level who recognized that the national park model was largely ineffective and socially inequitable (West and Brechin 1991). Local resistance made it clear that the blatantly colonialist nature of national parks and other natural protected area would not be accepted. The conservation movement needed to reframe conservation problems and solutions. From this emerged 'new environmentalism', which discursively neutralized the inherent colonialist underpinnings of natural protected area conservation while not questioning or challenging large-scale power structures between the developed and developing world that ultimately are responsible for natural resource degradation in poor rural regions. New environmentalism drew upon the expert legitimacy of science and economics in an effort reframe the conservation problems and solutions to make them more acceptable to rural poor who had resisted the national park model. And so the concepts of biodiversity and sustainable development emerged in the conservation discourse.

4.3.1 Biodiversity

1986 was a turning point for biodiversity, not so much because the crisis was realized or contained, but because it seized the public consciousness in the industrialized world. In September of that year, the Smithsonian Institution and the National Academy of Science in the United States held a conference of over 1,000 participants. The

National Forum on Biodiversity received extensive media coverage and provided the catalyst for action that launched many new or struggling NGOs into the international conservation arena (Adams 2004; Vogel 1994).

Out of this conference came a compilation of writings by conference contributors, simply called *Biodiversity*. Although many other publications came out before or about the same time, *Biodiversity* illuminates like none other the conception of the concept. It is not coincidence that conference was hosted in the United States by long-standing research institutions. A quick look at the book's 60 or so contributors reveals mostly male names of European origin (there are only four female names). Given its privileged birth, biodiversity became a favorite of the global conservation movement. With "expert" confidence, scientists such as E.O. Wilson and Terry Erwin presented dire prediction of species extinction.

These numbers were linked with images of rainforests and deforestation. Says Wilson, "In recent years, evolutionary biologists and conservation biologists have focused increasing attention on tropical rain forests, for two reasons. First, although rainforests only cover 7% of the Earth's land surface, they contain more than half the species in the entire world biota. Second, the forests are being destroyed so rapidly that they will mostly disappear within the next century, taking with them hundreds of thousands of species into extinction. Other species-rich biomes are in danger…each deserves attention on its own, but for the moment the rain forests serve as the ideal paradigm of the larger global crisis (Wilson 1988:8).

The alarming figures of species loss and rainforest destruction became rallying point for conservationists. Before long, biodiversity was one of the world's greatest environmental problems. In response, environmental organizations and institutions based in the industrialized world began developing strategies to address the biodiversity crisis. Foremost among these early strategic action plans was *Conserving the World's Biodiversity,* published by the World Research Institute (WRI), World Bank, IUCN, and WWF (McNeely 1990). Not surprisingly, most of the actions for biodiversity preservation were directed at the developing world, where most of the world's rainforests are located.

The one sided nature of biodiversity conservation strategies did not go unnoticed in the targeted regions. Vandana Shiva, of the World Rainforest Movement and Third World Action Network wrote this in response to *Conserving the World's Biodiversity*:

> "While the crisis of biodiversity erosion is focused as an exclusively tropical and Third World phenomena, the thinking and planning of biodiversity conservation is projected as a monopoly of institutes and agencies based in and controlled by the industrial North. It is as if the mind is the North, the matter is in the South. This polarity and dualism underlie the basic shortcomings of the monograph under review. Instead of being titled *Conserving the World's Biological Diversity*, the report could more honestly have been titled "The North Conserving the South's Biological Diversity for Itself" (Shiva 1991: 7).

The predominant strategy developed to address biodiversity conservation is *in-situ* conservation. The importance of *in-situ* strategies is evident in the international Convention on Biological Diversity (CBD), which came out of the 1992 Earth Summit. Article 8 of the Convention, which provides the main set of obligations that member

nations must follow, establishes *in-situ* conservation as the most important approach to biodiversity conservation. Because *in-situ* conservation requires the protection of species in their habitats, it follows that the best way to ensure *in-situ* conservation is through protected natural areas.

> "Protected areas form a central element of any national strategy to conserve biodiversity. Well known as national parks and nature reserves, they also encompass more recent concepts such as sustainable use reserves, wilderness areas and heritage sites. With proper management to effectively conserve biological diversity, a good network of protected areas forms perhaps the pinnacle of a nation's effort to protect biodiversity, ensuring that the most valuable sites and representative populations of important species are conserved in a variety of ways" (Glowka, Burhenne-Guilmin and Synge *et al.* 1994:39).

The Convention on Biological Diversity states "Each Contracting Party shall, as far as possible and as appropriate: a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity; b) Develop, where necessary, guidelines for the selection, establishment, and management of protected areas where special measures need to be taken to conserve biological diversity.

Loss of habitat was the problem and natural protected areas were the solution, But the crisis of legitimacy faced by natural protected areas required a new model of protected area. The emergence of sustainable development as the dominant paradigm for conservation in the developing world gave natural protected areas the necessary twist. E.O. Wilson captures how biodiversity conservation was

intertwined with sustainable development. He called this thinking, "New Environmentalism".

> "A revolution in conservation thinking during the past twenty years, a New Environmentalism, has led to this perception of the practical value of wild species. Except for pockets of ignorance and malice, there is no longer an ideological war between conservationists and developers…The old approach to conservation of biodiversity was that of the bunker. Close off the richest wildlands as parks and reserves, post guards. Let the people work out their problems in the unreserved land, and they will come to appreciate the great heritage preserved inside, much as they value their cathedrals and national shrines….The approach has worked to some extent in the United States and Europe, but it cannot succeed to the desired degree in the developing countries. The reason is that the poorest people with the fastest-growing populations live next to the richest deposits of biological diversity…Proponents of the New Environmentalism act on this reality…This revolution has been accompanied by another, closely related change in thinking about biodiversity: the primary focus has moved from species to the ecosystems in which they live. Star species such as pandas and redwoods are no less esteemed than before, but they are also viewed as protective umbrellas over their ecosystems. The ecosystems, for their part, containing thousands of less-conspicuous species, are assigned equivalent value, enough to justify a powerful effort to conserve them…" (Wilson 1992: 282-3).

4.3.2 Sustainable Development

Sustainable development is an inherently market-friendly concept. It embraces the neoliberal notion that the market is the most efficient manager of environmental resources. In so doing, those who advocate sustainable development "contribute to extending the economization of life and history" (Escobar 1996: 53).

Sustainable development as a concept began to be widely adopted following 1972 United Nations Conference on the Human Environment in Stockholm, where the need to see environment and development as an integrated whole discussed for the first time in an

international forum (Adams 2001). In 1977, the UNEP (which emerged from the Stockholm Conference) commissioned the IUCN to draft a document to provide a global perspective on the world's conservation problems and the most effective solutions to those problems. The result was the World Conservation Strategy (WCS), which came out in 1980 (IUCN 1980). While the preliminary drafts focused on wildlife conservation, subsequent drafts included issues of population, resources, and development (Adams 2001). Sustainable development served as the foundation for the strategies presented. This evolution reflected the emergence of an attempt to merge development into conservation. In the words of the WWF chairman, the WCS suggested for the first time that development should be seen as 'a major means of achieving conservation rather than an obstruction to it' (cited in Adams 2001: 60).

By the late 1980s, the agenda of sustainable development had taken hold in the core of the development universe, as demonstrated when the president of the World Bank spoke of the links between ecology and economics in a major statement of the Bank's policy on the Environment (Hopper 1988). The term and concept of sustainable development was solidified in a report of the World Commission on Environment and Development (the Brundtland Report) in 1987, which defined it as "economic progress that is ecologically sustainable and satisfies the essential needs of the underclass" (Bruntland 1987). By 1992, sustainable development was the dominant global paradigm for addressing environment and social justice. This was evident by the 1992 United Nations Conference on the Environment and Development (UNCED) or 'Earth Summit' in Rio de Janeiro. The centerpiece of the Earth Summit was Agenda 21, conceived as a

strategy to make the planet more sustainable by the 21st century by integrating development and environmental issues. Agenda 21 has greatly influenced the language and agenda of the international development community.

Most recently, the Millenium Ecological Assessment has also contributed to the global discourse of the environmental and development community. The Millennium Ecological Assessment (MA) was begun in 2001 under the United Nations as an international program to provide scientific information concerning ecosystem change. The first assessment was completed in March 2005 and will help meet the assessment requirements of the Convention on Biological Diversity, Convention to Combat Desertification, the Ramsar Convention on Wetlands, and the Convention on Migratory Species, as well as needs the private sector and civil society. It is anticipated that more assessments will be repeated every 5 to 10 years at national or sub-national scales.

The MA represents the latest in global environmental governance as the environment and development community as the MA is used to identify "priorities for action", provide "tools for planning and management", identify "response options to achieve human development and sustainability goals", and help "build individual and institutional capacity to undertake integrated ecosystem assessments and to act on their findings" (Millenium Ecosystem Assessment 2005). As the product of science study, the MA is a powerful tool for legitimating the connection between the global agenda of sustainable development and environmental regulation.

4.3.3 Biodiversity and Sustainable Development in Mexico's Natural Protected Areas

The creation of Mexico's natural protected areas is guided largely by the Ley General del Equilibrio Ecológico y la Protección al Ambiente (General Law on Ecological Equilibrium and Environmental Protection or LEEPA), passed by the Salinas Administration in 1998. Among other things, the law established natural protected areas as an integral part of Mexico's environmental program. The law outlined the justification for protected areas as well as the strategies for creating and maintaining such areas. The language of the law is heavily influenced by international thinking on protected areas at the time. This is particularly true for the connection between biodiversity and natural protected areas. The justification for the creation of protected areas is closely linked with the need to protect biodiversity on the first page of the law. The discussion of natural protected areas in the law resides under a larger section on strategies to conserve biodiversity.

In addition, natural protected areas (and environmental protection in general) is closely linked to sustainable development and use, greater social participation in environmental management, and the decentralization of management to local government, particularly municipal governments (LEEGEPA 1988: 9). These themes closely resemble neoliberal discourses on social participation, democratization, and decentralization that permeated the international discussion on natural protected areas. The emphasis on sustainable development is particularly apparent in the description of the law, which states its primary objective is to propitiate sustainable development. Under the discussion on natural protected areas, one of the primary objectives of these

areas is to "safeguard the genetic diversity of wild species and their continual evolution as well as guarantee the preservation and the sustainable use of national biodiversity, in particular those species that are in danger of extinction, are threatened, endemic, or rare…" (LEEGPA 1988: 37).

4.4 The New Face(s) of Natural Protected Areas: Involving Local Residents

4.4.1 Models for Natural Protected Areas

As early as the 1968, the international community was reevaluating the bunker approach to natural protected areas. In that year, the first Biosphere Conference was held which led to the creation of the Man and Biosphere (MAB) Initiative under UNESCO. According to the MAB, "these visionary founders …understood that conservation and utilization of natural resources could not be separated, but that an interdisciplinary approach to science, coupled with an understanding of the links between people and nature, was the only way to a sustainable future" (MAB 2004).

The biosphere reserve concept differs from previous models of protected areas (such as national parks), which prohibit human use or occupation. The biosphere reserve prototype permits certain acceptable human activities within well-defined zones. For example, within the buffer zone appropriate activities include research and recreation – as long as they do not disturb the core area. In the transition zone, "sustainable" agriculture and human settlement is permissible. However, every biosphere reserve has a "core" zone where human activities are restricted to scientific investigation and tourism.

The biosphere reserve program actually began 1976 and, as of January 2000, had grown to include a "network" of 368 reserves in 91 countries. Not all areas can receive the status of a biosphere reserve, however. Individual biosphere reserves must first be nominated by national governments. Nominations are reviewed by an international council, and, if they meet the necessary criteria, may be selected for inclusion into the biosphere reserve network. Despite their international recognition and funding, biosphere reserves are managed at the national level. In Mexico, there are currently 13 biosphere reserves.

Since then, the different types of natural protected areas has grown. According to the IUCN, today there are over 1,388 different terms to describe protected areas. In an attempt to set a global standardization for the goals and management of protected areas, the IUCN has created six categories of protected areas, defined by the extent to which human activities are allowed (Table 4.1). Despite the variations in the different kinds of protected areas, each delineates territories in which considered acceptable human-environment interactions are clearly defined.

Table 4.1 IUCN Categories of Protected Areas

Category	Use Priority
Strict Nature Reserve/Wilderness Area	For science or wilderness protection
National Park	Ecosystem protection and recreation
Natural Monument	Conservation of specific natural features
Habitat/Species Management Area	Conservation (of habitats and species) through management intervention.
Protected Land/Seascapes	Protection of traditional/cultural landscapes where specific interactions between people and nature has produced a distinct landscape.
Managed Resource Protected Area	Area managed for sustainable use of natural ecosystems

Mexico has adopted similar categories of protected areas in which limitations on human activities are defined according to what is considered "appropriate" use of a territory based on its ecological and social value. The LEEGPA sets the guidelines for these categories. Among the most restrictive of these categories are natural monuments and national parks. What is particularly interesting about national parks, and which will be explored in Chapter 5, is their explicit connection to tourism. What is also interesting is that only the description for biosphere reserves includes "use zones". However, every type of protected area in its management plan is required to develop territories or zones that delineate areas of acceptable activities. Most of these areas define "core" or "nucleus" zones in which all human activity is restricted. In my interviews with individuals who developed the use zones for management plans, this was a requirement that they met with some difficulty given already present human activities in the protected areas.

Natural Monuments

Areas that contain one or more natural elements…of exceptional character, esthetic interest, or historic or scientific value. Natural Monuments have "absolute protection".

National Parks

Constitute "one or more ecosystems that are significant for their scenic beauty; scientific education, recreation, or historic value; the existence of wildlife; for the ability to develop tourism; or for other reasons of general interest". The only activities permitted in national parks are scientific investigation, recreation, tourism, and ecological education.

Biosphere Reserves

"Areas of biogeographic relevance at the national level that represent one or more ecosystems not significantly altered by human action…and are inhabited by species respresentative of the national biodiversity". Human activities in biosphere reserves are envisioned according to the UN MAB model.

Areas for the Protection of Natural Resources

Areas for the protection of soil, watersheds, water, and general natural resources in forested areas. The only activities allowed are those related to preservation, protection, and sustainable use of resources.

Areas for the Protection of Flora and Fauna

Areas that contain habitats on whose equilibrium and preservation depend the existence, transformation, and development of wildlife species. Activities related to the preservation, repopulation, propagation, acclimation, refuge, investigation, and sustainable use of species.

Sanctuaries

These areas include canyons, caves, and other unique topographical objects that require protection. Activities include investigation, recreation, and environmental education compatible with the natural characteristics of the area.

4.4.2 Community Based Conservation

Despite this new approach to natural protected areas, it was not enough to stimulate the surge of new natural protected areas that was seen in the early 1990s. Biosphere reserves were a first step, but they did little more than retool the landscape text of protected areas to accommodate the presence of people and resource use. To truly convince the developing world to create more protected areas required a new discursive text, which cast protected areas as not simply benign, but *beneficial to* economic growth and development. Sustainable development gave conservationists a discursive foundation to make the argument for the establishment of protected areas. Now, all they had to do was build on that foundation. The resulting discursive construct used community-based conservation (CBC) as the framework.

Although there is a great diversity in the ways CBC projects are conceived and implemented, there are two basic concepts central to all CBC projects. The most essential concept is that conservation efforts provide some benefit to the local community (Western, Wright and Strum 1994: 7). The other concept is that the community has some ownership or participation in the project.

In recent years, the concept of community-based conservation has come under criticism, particularly by anthropologists, geographers, and other researchers working in communities. One of the major critiques has been that "community" is often assumed to be a homogeneous, stagnant entity in which every member has the same goals (Agrawal and Gibson 1999; Brosius, Tsing and Zerner 1998; Klooster 2000a; Turner 1999; Western, Wright and Strum 1994). This is, of course, never the case. Communities,

however small, are diverse. Different households, ethnic groups, economic classes, genders, ages, and so on have different goals and objectives. Some members of the community may benefit from protected areas – often at the expense of other community members (Belsky 2000; Schroeder and Suryanata 1996). Another criticism made of CBC, particularly by geographers, is that it treats communities as separate and distinct entities without interface or influence from other places – in other words, it ignores scale and contextual political economy (Zerner 2000). Suffice to say, despite these criticisms or the real outcomes of CBC projects, the discourse of CBC has built an argument for natural protected areas.

While the provision of benefits to local communities does not necessarily require commodification of an area or its resources, nonetheless that is largely how it is interpreted and implemented by the conservation and development community. The use of the word "benefits" implies an economic underpinning. Indeed, the justification for natural protected areas is often framed using the language of benefit-cost comparison. Conservationists have employed methods developed by environmental economists to determine the actual dollar value of the benefits to protecting a natural area.

Most of these valuation studies have focused on tourism. With contingent valuation and travel cost surveys, conservationists and economists have shown how much tourists are willing to pay to experience an area (Breunig 1998; Dixon and Sherman 1990; Gutman 2002; Lopez-Espinosa De Los Monteros 2002; Walpole, Goodwin and Ward 2001). Theoretically, these values can then be captured in entrance fees, user fees, and the price of goods and services sold on site. According to this logic, if the economic

benefits could be captured, these benefits could be enough to outweigh the forgone opportunity costs of creating a protected area and that this would be enough to convince local people, developers, and governments that protected areas are worth more untouched.

For the economic benefits of a natural area to be realized, some commodity must be produced for sale on the market. Richard Schroeder describes this as the "commodification road" to conservation (Schroeder 1995). Whether it be ecotourism, tagua nuts, honey, bark figures, wood carvings, genetic codes, or fresh water, the only stipulation is that it be "sustainable" as opposed to "destructive". The following text characterizes the typical argument in favor of the production of sustainable commodities. "There are intense economic pressures on the people of Central America and elsewhere, including the developed world, to overexploit their natural resources. Many countries have established protected areas to guard against this. However, when the only way to obtain a meal is to mine the resources of an area, the protected area is going to lose. If we are to save any of our precious environment, we must provide people with alternatives to destruction" (Whelan 1991: 3).

4.5 Commodification of Nature and Natural Protected Areas

The link between the commodification of nature and natural protected areas manifests itself in a number of ways, two of which are considered here. Perhaps the most evident connection is through nature tourism, in which nature is consumed through

regulated access via guided tours, entrance fees, and so on. The second connection involves bioprospecting of nature's genetic material for chemical companies.

Natural protected areas are essential to nature's commodification to ensure that nature is available to the market. In the case of tourism, natural protected areas create a vision of nature and enable tourist interactions with nature based on this vision. In the case of bioprospecting and forest products, natural protected areas ensure that biological resources are available to the market – literally "banks" for biodiversity and natural resources.

Conservationists will argue that I have got it backwards – that the designation of protected areas for the purpose of conserving ecologically and biologically valuable areas came first and strategies that ensured their maintenance came second. However, as seen in Mexico, an argument can be made that the creation of natural protected areas was not so objective or neutral. Looking at the geographic pattern and timing of protected areas in Mexico in the national context of the neoliberal strategies to develop tourism and bioprospecting, as I will show it must be considered that these areas were part of a deliberate strategy to commodify nature for the purpose of national economic development.

4.5.1 Ecotourism

Ecotourism as an activity grew rapidly in the late 80s and early 90s. In 1993, the World Tourism Organization estimated that nature tourism generated 7% of all tourism expenditures. And a 1990 World Resources Institute report found that while tourism had

been growing at an annual rate of 4%, nature travel was increasing by 10-30%. Although definitions of ecotourism vary, ecotourism is broadly defined as nature tourism that consists of traveling to a relatively undisturbed or uncontaminated area with the objective of studying, admiring, and enjoying the scenery, plants and animals, and local cultures. Many definitions of ecotourism also include a component of minimizing environmental and cultural impacts.

Ecotourism has been promoted by a number of interest groups as a form of sustainable development. Ecotourism is presented as beneficial for developing countries because it enables the generation of profit from environmental resources without degradation or pollution. At the heart of this argument, however, is the ideological link between ecotourism and neoliberalism. Inherently, ecotourism is an economic enterprise in which nature pays for itself. Says, Duffy (2002)"…ecotoursim operates within the current norms and, crucially, within existing business or market logic. Ecotourism also relies on the individual exercising power through choices about consumption…" (Duffy 2002: 10).

Duffy also argues that ecotourism fits the neoliberal agenda in several practical ways related to theories of modernization. The first involves a renewed neoliberal emphasis on outward-oriented growth. Neoliberal development strategies focus on economic diversification, particularly in non-traditional exports like tourism. In addition, tourism fits with the neoliberal idea of basing economies on comparative advantage (Duffy 2002: 11-12). Developing countries are considered to have a comparative advantage in tourism because they attract tourist from the industrialized north who seek

the "exotic" environmental and cultural resources of the south. In developing this image, governments and interest groups produce images of the country conducive to tourism. For countries trying to attract ecotourism, that means packaging and marketing images of untouched wild spaces and cultures (Duffy 2002: 71-73).

The second way in which ecotourism is linked to neoliberal economic development is through its relationship with the private sector. Although many tourism development projects rely on state developed infrastructure, private business benefits from tourism enterprises. Local elites with existing businesses and access tend to benefit from tourism enterprises, creating local employment. However, international business benefits even more as it allows expansion into new markets (Duffy 2002: 12-13). This emphasis on tourism to stimulate outward growth, improve the balance of payments, earn foreign exchange, and provide employment are all evident in Mexico's recent economic development strategy.

4.5.1.1 Ecotourism in Mexico

Mexico has long been a major tourist power as the third world country that has attracted the largest number of foreign tourists and hard currency over the past 30 years. Arrivals grew from two million in 1970 to 17 million in 1994. In the same period, receipts grew from $415 million to $6.4 billion. Over the past decade, tourism has become the second largest employer in Mexico since, behind agriculture. Since the 1970s it has been Mexico's second or third largest export.

This growth in the tourism sector began with a centralized tourism strategy after World War II, when the Mexican government began to promote tourism in the new resort of Acapulco. In the 1960s, Puerto Vallarta was promoted as a second resort. Finally, in the 1970s, the Mexican government took a giant step in promoting mass tourism by creating FONATUR, the National Trust Fund for Tourism Development. The role of FONATUR was to provide the infrastructure development for 15 major resort areas, although the capital was largely provided by private investors. Among these was Cancun, which has become the single largest income generator over all other destinations, accounting for approximately a third of Mexico's total income from tourism.

Given tourisms role as a major generator of foreign currency, it became central to the neoliberal development agenda, which seeks economic growth through global market integration. In 1988, upon entering office, Salinas identified tourism as the industry to spearhead growth (Cothran and Cothran 1998: 478). Salinas advanced tourism development in Mexico even further through neoliberal-style sectoral reforms. Foremost amongst these, not surprisingly was a privatization program that led to the sale of state-owned firms. In addition, Salinas relaxed investment laws. These laws originally prohibited in many industries foreign ownership in excess of 49%. The modified laws allowed for full foreign ownership in many industries, including hotels and other tourism properties. The laws also removed prior government approval of investments over $100 million. Foreign investors responded to these changes. For example, Marriott Hotel chain entered into a joint venture with CEMEX, a leading Mexican cement company to

develop resorts in five areas of Mexico from 1990-1995 (Cothran and Cothran 1998). Salinas also improved transportation by improving highways, road-side assistance, bus service, lifting regulations on air travel, and revamping Mexico's state owned airlines with a combination of private and public money.

Following the lead of his predecessor, Zedillo named tourism as a "strategic" industry to help the economy recover from the economic crisis of 1994-95. In 1996, Zedillo announced plans to provide additional government resources to stimulate the tourism industry. He also appointed a tourism cabinet to promote the industry, create a strategic plan, finance construction, and market Mexico abroad as a tourist destination (Cothran and Cothran 1998).

Under both presidents, Mexico began to develop new tourism markets. Under the previous wave of tourism development from 1970 to 1982, Mexico focuses primarily on developing sun and sea destinations. Beginning in the early 1990s, Mexico started to expand tourism into other regions, using natural and cultural attractions to lure tourists into the interior (Healy 1997). As a major tourism industry meeting in 1995, the Secretary of Tourism said, "…today I want to invite you to see our product not only as sun and sand, but also to include the people, food, musing, and the environment…we have been thinking a lot about the fact that we have not been able to achieve [tourism sales] in the colonial cities and our enormous and beautiful ecological reserves, when all the market studies demonstrate that passive tourism has been substituted for by another kind, eager to know, experiment with and which seeks exactly what Mexico possesses" (Hernandez 1995; cited in Healy 1997).

The 1995-200 National Development Plan specifically mentions that tourism development must "reassess the importance of ecological and cultural resources that until today have been enjoyed on a limited scale" (Federal 1995a: 120). The 1995-2000 National Tourism Sector Development Program specifically mentions the Sierra Tarahumara and "Mundo Maya" as regions of natural and cultural attraction as well as natural parks and protected areas, first and foremost the gray whale breeding grounds in Baja California and the Monarch Butterfly Reserve (Federal 1995b: 5-6).

Providing new opportunities for tourists near Mexico's mega projects has also of particular importance in Mexico's tourism development schemes. "I think Mexico is very much prepared for international tourism, if it can find and stress the specific uniqueness of each destination. In Huatulco, for example, we have nine bays and 36 beaches and that's what everyone knows. But we also have coffee plantations, dolphins, whales in the winter season, turtles and a turtle reservation less than an hour away…" said Yvonne Kraak, the general manager of Caribbean Village in Huatulco (cited in Levin 1997). As a way of attracting and keeping tourists to Mexico's mega developments, ecotourism is being added on as an additional activity. For this reason is not surprising that of the 34 natural protected areas created between 1992 and 1998, 11 are located near one of Mexico's mega projects (eight of those are in close proximity of Mexico's single largest tourist destination, Cancun).

4.5.2 Bioprospecting

Hayden (2003) argues that bioprospecting is a quintessential neoliberal strategy, not only because of its capitalization of nature, but because of its understanding of human nature. Bioprospecting as a concept arose in the late 1980s within a network of northern NGOs, academic institutions, and industrial interests. The stated problem was the fundamental problem with global conservation: that "gene-rich" but "cash-poor" southern countries would sacrifice their biological and genetic resources for development. The solution was envisioned as property rights. The argument was if countries and communities owned the property rights for wild genetic resources, they would be more likely to protect them. In 1989 Thomas Eisner, a entomologist at Cornell University, suggested benefit-sharing from screening chemical compounds from wild genetic material as a means to conservation. Eisner's original "chemical prospecting" was eventually changed to "bioprospecting". Although in Hayden's opinion, "the 'bio' in bioprospecting sanitizes…the image of…that other kind of prospecting – leaving only a trail of redistributed value (and more biodiversity) in its wake" (Hayden 2003:50).

Bioprospecting made biodiversity into a commodity. Until then, biodiversity protection was a defensive strategy aimed at protecting wildlife and habitat from development. Bioprospecting made biodiversity protection an offensive strategy that met development needs while at the same time protecting genetic and ecological diversity. In other words, bioprospecting gave biodiversity a way to "pay for itself" and therefore a place in the market-driven world of conservation and economic development.

The blueprint for bioprospecting agreements was undoubtedly the Merck-INBio agreement in 1991, which "prospected" Costa Rica's biodiversity and sold the pharmaceutical rights to U.S.-based pharmaceutical company, Merck. The market-driven ideals of bioprospecting were literalized in the UN Convention on Biological Diversity (CBD). Signed by more than 150 heads of state in attendance at the Rio Summit (except the United States), the CBD has three primary goals: to conserve biodiversity, sustainable use of biological diversity, and the "equitable sharing" of the benefits of genetic resources. "By promoting the commoditization of nature as the key both to conservation and the "equitable sharing" of the benefits of nature, the global environmental-economic paradigm enlists environmentalism in the service of the worldwide expansion of capitalism" (McAfee 1999: 2).

One of the ironies of the international bioprospecting nexus is that although the U.S. refused to sign because of the benefits sharing mandate, at the same time three U.S. agencies forged an initiative to link drug discovery to sustainable development through benefit sharing contracts. The agencies included the National Institutes of Health, the Nationals Science Foundation, and USAID. This was the start of the International Cooperative Biodiversity Groups (ICBG) program. Although the stated priorities of ICBG are: drug discovery, conservation, and economic development. In 1993, the ICBG sent out its first request for proposals targeted to U.S.-based academic institutions that would serve as the mediators of collaborations between companies, researchers, and communities in developing countries.

4.5.2.1 Bioprospecting in Mexico

Bioprospecting fully emerged in the national policy discourse in 1996, with the revision of the LGEEPA. According to Cori Hayden (2003), the revised law was clearly written with a section on Wild Flora and Fauna as it addresses collections for biotechnological use and how those collections would benefit land owners. Says Hayden "reflecting the many ways the terms, approaches, and even definitions of relevant kinds of nature put forth in the Convention on Biological Diversity, the 1996 law is the strongest statement on the national books in line with the CBD's benefit-sharing provision" (Hayden 2003: 94).

Bioprospecting was pursued as a strategy for sustainable development beginning with Carlos Salinas. Under Salinas, Mexico signed onto the CBD and established CONABIO (Comisión Nacional para el Conocimiento y Uso de la Biodiversidad or National Commission for the Understanding and Use of Biodiversity). One of the primary goals of CONABIO is to develop legislation that sets of terms of access to genetic resources according to the CBD. However bioprospecting represents a difficult paradox for Mexico's leaders. Presidents Zedillo and Fox have shown similar dedication to bioprospecting as economic development strategy. While turning biodiversity into a private economic resource, leaders have had to reserve "discursive space for the notion of protecting 'national sovereignty'" and the rights of local communities (Hayden 2003: 93).

The difficulty of this paradox has effectively frozen the advancement of bioprospecting in Mexico. A primary example of this is the Latin America International Cooperative Biodiversity Group (ICBG) program that involves the University of Arizona,

UNAM, and biotech companies Wyeth-Ayerst and American Cyanamid. Perhaps most famous project of this group was the Maya ICBG project, which began in 1998, but was quickly met by resistance from a network of international activists, Mexican environmental and human rights organizations, and local community groups – most notably an indigenous coalition called the State Council of Organizations of Indigenous Traditional Healers and Midwives (COMPITCH). Their primary objections were: 1) that the individuals, communities, and organizations that had "agreed" to participate did not have sole proprietorship over the resources to which they were brokering access and 2) that the process of obtaining consent was not transparent (Hayden 2003: 101). These charges led to a general charge of biopiracy, that has put a halt to the project.

Brand and Gorg (2003) characterize the strategies employed in the ICBG projects as "soft" variants of bioprospecting collaborations, in which peasant or indigenous knowledge is needed as a filter in bioprospecting. Prior informed consent and benefit sharing is a requirement of soft variants. Given the difficulties in dealing with the multiple layers of resistance to these projects, "hard" strategies of bioprospecting have been pursued as well to avoid obtaining consent from land owners. The "hard" variant of bioprospecting is interested exclusively in genetic resources and not knowledge. Therefore, these strategies bypass the local level and build collaborations at the national level.

An example of the hard variant of bioprospecting is a microbe screening contract between UNAM (Universidad Nacional Autonoma de Mexico) and Diversa, a biotechnology company based in San Diego. In the agreement Mexican researchers from

UNAM were to provide Diversa with samples from Mexico's natural protected areas, including the Montes-Azules Biosphere Reserve in Chiapas. Collecting microbes in protected areas (federal land as opposed to private land) was a deliberate strategy as it would "make irrelevant the thorny matter of community and traditional knowledge" (Hayden 2003: 96). Protagonists argued that prior informed consent was not necessary from a local actor because bioprospecting took place on federal land. Protected areas are convenient to this end because prior informed consent and benefit sharing agreements are negotiated with the nation-state, who "owns" the territory. The local population is excluded from the negotiation through "legal expropriation" (Brand and Gorg 2003: 231).

This is precisely what is happening in the Montes-Azules Biosphere Reserve. Where indigenous communities backed by the EZLN are in a tense stand off with the Mexican military, which threatens to extirpate the communities from the Montes-Azules Biosphere Reserve. The Montes-Azules Biosphere Reserve is located in the Lacandon Forest, a region of enormous natural resource wealth currently under design for massive exploitation that is opposed by the EZLN. Foremost is the Plan Puebla to Panama (PPP), which proposes a series of new superhighways, ocean-to-ocean pipelines and hydro-electric dams across southern Mexico and Central America as arteries for global trade and development. In addition, there are plans for a giant hydro-electric complex on the Usumacinta River, which cuts through the heart of the Lacandon forest and forms the border with Guatemala.

While on the surface, the Montes-Azules and Lacondon Biosphere Reserves appear to provide some protection from these development projects, the EZLN argues

that conservation imperative in the U.N.-recognized biosphere reserves mask a corporate agenda. Contrary to both U.N. guidelines and the peace plan principles reserves are not being established for the resident indigenous peoples, but for transnational biotech corporations (including Diversa) that hope to profit from the region's vast genetic wealth. This assertion is backed up considering the players involved. In 1991, Conservation International brokered a "debt-for-nature" swap, buying a $4 million chunk of Mexico's debt for the right to establish a genetic research station in Montes Azules. Working on this acquisition was Alfonso Romo Garza, a board member of Conservation International. Garza is also a CEO of Pulsar, an agro-industry firm based in Monterrey and an official promoter of the PPP (Weinberg 2003). As such, Garza represents the contradictory alliance between Mexico's big business and conservation.

Given the potential role of natural protected areas in Mexico's bioprospecting genetic material in the 1990s, it is not surprising that areas have been established in Mexico's "hot spots" for biodiversity and multi-scaled struggles over control for natural resources. In the hot spot state of Chiapas, six natural protected areas were created between 1992 and 1998, making it second only to the state of Quintana Roo, where the resorts of Cancun and Cozumel are located.

Table 4.2 Distribution by State of Natural Protected Areas Created in Mexico between 1992 and 1998.

Baja California	1
Baja California Sur	3
Campeche	1
Chiapas	6
Chihuahua	1
Coahuila	2
Jalisco	1
Oaxaca	1
Puebla/Oaxaca	1
Queretaro	1
Quintana Roo	8
San Luis Potosi	1
Sonora	2
Sonora/Baja California	1
Tabasco	1
Veracruz	2
Yucatan	1
Total	34

4.6 The International Conservation Network

Biodiversity and sustainable development concepts provided the scientific legitimacy necessary to enable an international network of actors who strongly promoted the creation, territorialization, and commodification of natural protected areas and the resources contained within their borders. Loss of biodiversity was a major global environmental problem and *in-situ* conservation with sustainable development was *the* solution. The global conservation and development community pushed for the establishment natural protected areas in poor rural regions that would ostensibly provide economic benefits to local residents and national governments. Missing from the discourse of biodiversity was habitat loss caused by capitalist expansion in the rich world. Nearly the entire burden was placed on the rural poor in so-called less developed nations.

Therefore, that is where most of the effort and money was directed. A vast network of international lending institutions, development agencies, conservation organizations, and governance congealed by the early 1990s with the primary aim of harboring the remaining biodiversity in natural protected areas that would provide economic benefits enough to satisfy local communities and national governments.

In the past two decades, this international conservation network has spread across the globe transcending scales and blurring the boundaries between governments, non-profit organizations, corporations, multilateral lending institutions, and so-called civil society. While the network is loosely described here according to these sectors, it must be clarified that one of the defining characteristics of this network is the interconnectedness between the different actors.

4.6.1 International Conservation Organizations

Perhaps the most pliable sector is the non-profits, or non-governmental organizations, which have morphed themselves to fill in the gaps of the network. The best known of these organizations simultaneously take on characteristics of government, civil society, and corporations. The big three, particularly in Latin America, include the World Wide Fund for Nature, Conservation International, and The Nature Conservancy. These organizations were founded by conservationists in the North but have a global reach with offices, projects, and partners in every corner of the world. Although these organizations have slightly different mission and relies on different strategies, all have the aim of conserving biodiversity. Because of their common goals, it is nearly

impossible to find a natural protected area in the world without some connection to at least one of these organizations.

First and foremost among these NGOs is the World Wide Fund for Nature (WWF). Founded in 1961, the aim of WWF was to raise funds for wildlife conservation. It began with a handful of wildlife scientists and political big hitters in northern Europe who were alarmed by the decline in wildlife populations, particularly in Africa. The shifting mission and goals of WWF reflect the changing strategies of conservation over time. Criticized as being a top-down organization with colonialist undertones, the WWF responded in the early 1990s by decentralizing its decision-making process and increasing its cooperative efforts with local people. "WWF…makes a particular point of responding to local conservation needs, and working with local people. More and more projects involve rural communities in making decisions as to how their environment should be used and conserved, while providing economic incentives" (WWF 2003).

Another important NGO in the global conservation network is Conservation International (CI). CI is a more recent organization, formed in the United States in 1987. The timing of its inception is reflected in its mission. CI focuses specifically on biodiversity conservation, and has relied strongly on concept of biodiversity "hotspots" as a way to mobilize funding and legitimacy for its projects. In the beginning, CI was focused on Latin America, where a focus on biodiversity and rainforests conservation was more predominant than wildlife issues, which are more closely associated with Africa. CI employs a variety of tools in working with poor countries and is much more hands-on in its projects that include developing national conservation strategies and

negotiating debt-for-nature swaps. In addition, CI has clearly linked biodiversity conservation with economic benefits in its projects. In 1990, CI initiated the infamous Tagua Initiative, which sought to bring sustainable harvested forest products into the market as economic incentive for conservation.

Finally, there is The Nature Conservancy (TNC), which has been involved in both the Area de Protección Flora y Fauna de Cuatrociénegas and Parque Nacional Bahía de Loreto. The mission of the TNC is "To preserve the plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive (The Nature Conservancy 2005c)." TNC began with a small group of ecologists (initially called the Ecologists Union) in 1951 and made their first purchase in 1955 of 60 acres in New York. TNC began its International Conservation Program in Latin America in 1980, to identify natural areas and conservation organizations with need of technical or financial assistance.

Perhaps TNC's biggest program outside of the industrialized world is the Parks in Peril (PiP) program, which is the largest program to support protected areas in Latin America. Launched in 1990, the PiP program was developed to "respond to the rapid creation of parks with no effective management and the high degree of threat faced by most" (Brandon, Redford and Sanderson 1998:3). The PiP program does this by providing grants to smaller partner organizations in the country. Unlike CI or WWF, which frequently create branch offices in a region, TNC supports in-country organizations that are distinct from TNC. These partner organizations then assist government organizations in protected-area management. Sometimes, these partners

even take over government duties. The PiP program is supported by USAID, whose intent is to ensure that newly created parks did not just exist on paper (ibid). In other words, the goal of the PiP program is to territorialize natural protected areas--to transform the human-environment interactions within their boundaries to fit the envisioned landscape.

In addition to the PiP program, TNC has experimented with other approaches to conservation in Latin America. Foremost amongst these has been the outright purchase of land, water, and development rights – employing the same strategies that it has used in the United States and Canada. By its own declaration, TNC is the most successful international conservation organization (as the world's richest environmental group) because of its non-confrontational approach. Rather than challenge large-scale capitalist development, TNC uses the same approaches as capital by treating land and resources as private commodities to be bought and sold. It is not surprising then, that a large portion of TNC's financial resources are provided by corporate or other private interests. Underpinning all of its projects, including the PiP, is the doctrine of "compatible development," that money can be made while saving the environment. This doctrine has gotten the TNC in hot water in recent years as shady deals appear more like money-making ventures than conservation efforts. In 2002, a series of Washington Post articles spotlighted these deals, including a TNC run oil-drilling operation on some of the last habitat of the Attwater's prairie chicken in Texas (Stephens and Ottaway 2003). TNC's compatible development doctrine fits well with community-based conservation initiatives that permeate natural protected area management plans in the developing world.

Therefore, it is little surprise that one of the goals of the PiP program is to: "integrate these protected areas into the economic and cultural life of local communities" (Brandon, Redford and Sanderson 1998: xi). On the ground, this has translated into ecotourism and other projects that capitalize on protected area resources.

4.6.2 International Lending and Development Institutions

The vast international network of environmental organizations is supported in large part by the international donor and lending community. Nearly all international development agencies and lending institutions have programs dedicated to the environment, and within those, programs dedicated to biodiversity conservation. An increasing amount of funds have been dedicated to environmental projects. Beyond the plethora of practical and logistical problems associated with this funding in terms of actual social and environmental benefits (Horta 1996), there are deeper concerns about the reality that these projects enforce, primarily the intensification of the commodification of nature, or what McAfee calls "green developmentalism".

The most dominant actor in this sector is the GEF (Global Environment Facility), which straddles the international development, lending, and governing institutions. The GEF was conceived in 1987 by World Commission on Environment and Development. Although the World Bank, UNDP, and UNEP jointly launched the GEF, the World Bank has the dominant role in the management of GEF funds. The GEF pilot program was launched in 1991, and formally launched in 1994.

The GEF aims to provide funding to developing countries and countries in transition for investments and technical assistance, and to promote research to protect the global environment in the four ways: global warming, pollution of international waters, destruction of biological diversity and the depletion of the stratospheric ozone layer (Gupta and Asher 1998:20). In addressing biological diversity, the GEF has relied heavily on the natural protected area model. According to its own description, the GEF biodiversity program approaches these problems by "demarcating, strengthening, and expanding protected areas, on-site conservation, and park or reserve management" (Global Environment Facility 2002: 8). By 2002, the GEF has allocated nearly 1.4 billion for 470 biodiversity projects in 160 projects. These projects have received nearly 2.8 billion in co-financing. In Latin America, the GEF had allocated 501.6 million for 128 biodiversity projects in 33 countries. These projects attracted an additional 1.2 billion in co-financing.

In 1992, Mexico began working with the World Bank's Global Environment Facility (GEF), the financial mechanism of the Convention on Biological Diversity (CBD). Since that time, Mexico has received about $215 million from GEF for biodiversity protection through natural protected areas. In Cuatro Ciénegas, GEF money has been used to develop community-based conservation programs and to fund tourism and other development projects.

4.6.3 International Governing Bodies

The scaffolding of the international conservation network are the international governing bodies, conferences, and agreements that diffuse ideas and bind the different international actors to them. One of the best examples of this process with regards to biodiversity was the adoption of the Convention on Biodiversity, which came out of the 1992 United Nations Conference on Environment and Development. As discussed earlier, the Convention defines an internationally accepted strategy for protecting the worlds' biological diversity. Those nations who sign on agree to implement these strategies in their own countries, including National Biodiversity Strategies and Action Plans.

Another governing body is the World Parks Congress, which has grown over the past three decades into a major international conference that brings together actors from all levels and sectors around the world. The last Congress in Durban, South Africa brought together over 3,000 delegates.

Changes in the natural protected area model over the past five decades are evident in an examination of the recommendations produced by the World Parks Congresses. The first two congresses took place in the industrialized world -- in the Western United States, the birthplace of the national park idea. The second location was specifically chosen because it was the first National Park. The location and title of these early congresses reflect the adherence to "bunker" approach to conservation. One of the topics for discussion at the first congress was the effects of humans on wildlife, reflecting a very wildlife-centric approach to conservation. While it was agreed that national parks were

of international significance, there was no discussion about the how to begin to develop protected areas in other regions.

An emphasis on the global expansion of protected areas did not fully emerge until the Third World Congress in Bali, Indonesia in 1982 where the congress concluded that the current network of terrestrial protected areas was inadequate and that there was also a global need for more tropical, marine, and coastal protected areas as well as more areas on Antarctica (World Conservation Monitoring Centre 1983: 765). Accompanying this emphasis on global expansion was an emphasis on the economics of protected areas. At the Bali Conference the phrases "sustainable development" and "cost-benefit analysis" were used for the first time in the recommendations. The emergence of these phrases in the context of protected areas reflects the merger between Third World development efforts and conservation that was occurring at the time. To justify protected area expansion into less developed regions was going to require consideration of the economic hardships faced in those countries.

By the 1992 Congress in Caracas, Venezuela, the global conservation network had greatly expanded. While only 350 people attended the 1982 Congress, over 2,500 participants attended the Congress in Caracas. The discourse of sustainable development was fully ingrained in the discussion on protected areas and the discussion moved to the integration of different interests into the management and designation of protected areas, particularly local communities. This reflected the attempt to shift from top-down approaches to natural protected area management to more democratic and participatory approaches. The double meaning in the subtitle of the conference, "Parks for Life",

makes these shifts clear. Livelihood strategies of local residents were linked to the longevity and success of protected areas.

The products of the Caracas World Parks Congress provide further evidence that the global conservation network was fully established by 1992. In addition to lengthy and detailed recommendations, the Congress produced the Caracas Action Plan, which synthesized strategic actions for protected areas to 2002. The Plan provides a global framework for collective action by professionals working in protected area management. The framework includes the following objectives: Integrating protected areas into larger planning frameworks, expanding the support of protected areas by involving local communities and other non-traditional interest groups, strengthening the capacity to manage protected areas, and expanding international cooperation in the financing, development, and management of protected areas. Following this framework, the overarching goal of the plan was to extend the protected area network to cover at least 10% of each major biome by 2000 (World Commission on Protected Areas 2004).

Table 4.3 Themes to Emerge from Each World Parks Congress

World Parks Congress	1962	1972	1982	1992
Place	Seattle	Yellowstone	Bali	Caracas
Title	First World Congress on National Parks	Second World Congress on National Parks	Third World Congress on National Parks	Fourth Congress on National Parks and Protected Areas: Parks for Life
Economics	Benefits of Tourism		PAs should be linked to sustainable development	Balance conservation with development
Scale	NPAs of Global importance	Examination of problems in wet tropical, arid, and mountain regions	Global network of PAs is inadequeate Need for more PAs in marine, coastal, freshwater areas. Global program on PAs Global PA categories	Call for more regional approaches to conservation Strengthen a international cooperation
Biodiversity				Biodiversity surveys to protect areas of greatest importance
Community Based Conservation				The relationship between people and PAs has been ignored Community Participation All parts of society should support PAs

4.6.4 Corporations and Foundations

Another, more elusive, group of actors in the international conservation network are private corporations and foundations. These actors are more elusive, because they are often the source of much of the funding for projects that are carried out by nongovernmental organizations or aid agencies. Who receives these funds and what purpose is not subject to a public process.

There are other hidden connections between private interests and other more "public" actors. These often take shape through financial deals and swapping board members. These connections have recently come to light, putting many environmental organizations in a difficult position of having to explain their relationships with private interests. The most controversial case involves the Nature Conservancy, which was the subject of an exposé by the Washington Post in 2003, which found the Conservancy was involved in several shady land deals that benefited some of the organization's donors and trustees. Frequently, trustees of organizations like The Nature Conservancy represent large and powerful businesses.

The connections between non-governmental organizations and corporations in Mexico are even more hidden than those in the United States. Looking at the websites and other publications for some of the largest non-governmental organizations in Mexico, there are no descriptions of the board members. Because these organizations in Mexico do not have a general membership, boards are frequently self-appointed and/or elected.

While much funding for non-governmental organizations comes from grants and partnership support from agencies and organizations in the industrialized north, another important source of funding for Mexico's non-governmental organizations comes from private corporations in Mexico. Similarly, there is no public accounting for the sources of income for most large non-governmental organizations in Mexico.

These hidden connections between private business and environmental NGOs in Mexico, demonstrate the limitations of Mexico's non-governmental sector for creating democratic openings. While these organizations are filling state responsibilities through

conservation and development projects, there is little accountability to the people that the projects are intended to assist. In addition, the connections between will corporations and NGOs will most likely influence how non-governmental organizations in Mexico respond to environmental conflict. These connections and how they influence environmental groups in Mexico is an issue that will take significantly more effort to investigate and is a rich topic for exploration.

4.7 Conclusion

In the past two decades, there has been an explosion in the number of natural protected areas around the world. To understand how and why this global trend occurred, requires looking at the social and economic context. I argue that the creation of natural protected areas around the world over this period was enabled by neoliberalism, which has enabled a "new environmentalism" governed by the concepts of sustainable development and biodiversity. Together, these concepts provided the discourse necessary to justify the creation of new protected areas. This became evident by 1992, when sustainable development and conservation emerged from the Earth Summit in Rio de Janeiro as the driving force behind development and conservation projects.

Mexico has embraced these concepts as it developed its own network of protected areas in the early 1990s. And like so many other developing countries, the state and non-governmental sector in Mexico has used these concepts in the development of community-based conservation projects. Intended to provide an economic incentive for rural poor to participate in the natural protected area model, these projects also enable the

commodification of nature through ventures such as ecotourism and bioprospecting. This process of commodification fits in very well with the neoliberal agenda, which seeks to integrate all things into the market.

In Mexico, and elsewhere, natural protected areas and the commodification of nature has been enabled by a multi-scalar network of actors. In this chapter, I focused primarily on international actors and processes and how they have influenced environmental policy in Mexico. In upcoming chapters I examine how these international discourses and actors influence the creation and territorialization of natural protected areas at the local level.

CHAPTER 5: LORETO

5.1 Introduction

The Loreto Bay National Park on the Gulf of California was established on July 19, 1996, along with four other protected areas[5] (Figure 5.1). It protects 2,000 square kilometers (797 square miles) of ocean, including the five major islands, which are also protected by the Gulf Islands Wildlife Reserve. There are several communities along the park's shoreline boundary, including the communities of Loreto, Nopolo, Puerto Escondido, Juncalito, and Ligui (Figure 5.1).

This case is excellent for addressing the three major questions presented in Chapter 1 regarding connection, process, and outcomes. First, the theories outlined in Chapter 2 are appropriate for answering questions about the connection between the rise of neoliberal reforms and the establishment of protected areas. In this case, neo-Marxist conceptions of the state and nature explain well how the Loreto Bay National Park advances the neoliberal agenda and vice versa. Furthermore, discourse analysis reveals how dominant neoliberal concepts are applied to regulate human-environment interactions in the park so as to capitalize nature for the purpose tourism consumption. In section 5.3 below I present the official creation story of the park, which creates the image of the state as a rational and neutral process dedicated to the preservation of biodiversity. I also demonstrate how a more complicated story in which the state is actively promoting

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[5] Three of the other areas created that day (which represent the total for 1996) were also marine parks located off the southern coast of Quintana Roo, one of the most visited regions of Mexico.

the landscape of the park for the purpose of tourism development, which is a key development tool in the neoliberal agenda.

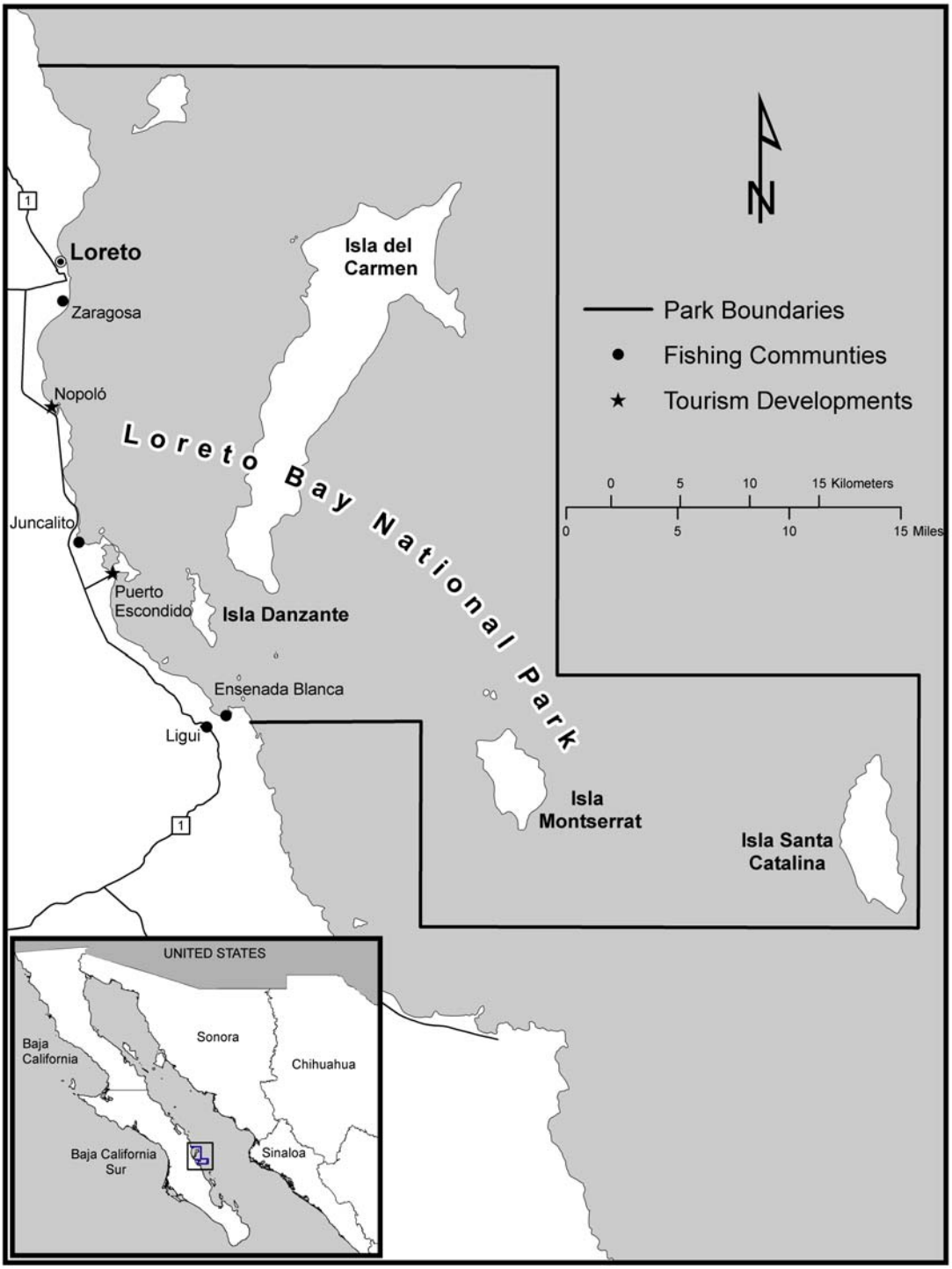

Figure 5.1 The Loreto Bay National Park and surrounding communities.

Second, this case also provides an excellent example of the process by which conservation areas are created through a network of actors. However, this case clearly shows that this network of actors is not evenly placed in terms of power. Some actors have been marginalized – primarily small-scale producers. Meanwhile, it is obvious that more powerful actors utilize dominant conservation concepts, fortified by neoliberal ideals, to justify the regulation of production activities within the park. These actors are enabled by neoliberal transformations, primarily the opening in Mexico's political system for non-governmental organizations. However, as we will see, these organizations are not independent entities; rather they are bound up with government and capital in ways that contradict the democratization process.

Finally, the park also provides some insights to the outcomes of establishing natural protected areas in the context of Mexico's neoliberal reforms, particularly on the livelihoods of small-scale fishermen. Unfortunately, lack of data on the fisheries makes it nearly impossible to determine the outcome of the park or neoliberal reforms on local species. However, it is clear that recent tourism development is impacting local habitats. Overall, this has created an uneven landscape (or seascape) as the park has become a place of passive consumption for tourism – a landscape of leisure – while the remainder of the Gulf left unprotected has been subject to intense exploitation. Meanwhile, the park has exacerbated the effects of neoliberal reforms for local fishermen and increased tensions between the local tourism and fishing sector.

In this chapter, I first describe the history and background of the Loreto region. Next, I present information I gathered during my field research that will help me answer each of the three major questions I developed at the outset of my study. These questions are broken down into major headings entitled: Connections, Process, and Outcomes. I then interpret this information based on the theoretical framework laid out in Chapter 2.

5.2 History and Background

Approximately 15 to 5 million years ago, the present-day Gulf of California became a region of crustal extension. Earthquakes caused northwest-southeast continental basins and ranges as Baja California rifted westward away from mainland North America. The faulting caused subsidence to the east and the ocean moved between to form a shallow Gulf of California. Over the past 2.5 million years, the Gulf has continued to grow wider over time as the peninsula moved northwest along faults that connected to the San Andreas Fault of California. Loreto is located in an area of subsidence between two mountain ranges. The first is the Sierra of La Giganta, formed by a series of large faults from a major fault escarpment, which now forms the prominent steep range that faces the ocean from Puerto Escondido to Loreto. The second range has "sunk" into the Gulf, the top of which can be seen as the Isla el Carmen (Dorsey, Stone and Umhoefer 1995). Within the past one million years, volcanic activity contributed to the islands and erosion created valleys and alluvial plains along the base of La Giganta.

Gulf currents have much influence on the climate on the eastern side of the peninsula. Warm currents from the South Pacific feed the Gulf, rotating counter-

clockwise along the Pacific side of the mainland and then back down the eastern coast of the peninsula. As a result, on the Gulf side the water is much warmer and evaporation is much higher than on the Pacific side of the peninsula. Although the high rate of evaporation from the Gulf and warm temperatures makes the Gulf of California a tropical zone, Loreto receives very little precipitation. On average it has 360 days a year of sunshine. The Sierra de la Giganta captures most of the precipitation from the Pacific in addition to the fact that the peninsula overall is positioned outside of most of the major weather systems that influence western North America. On average, Loreto receives 190 mm (7.48 inches) of rain annually. Much of this precipitation is due to tropical storms in the summer and sporadic rains in the winter. Although the gulf side of the peninsula has slightly warmer temperatures, they vary much more than temperatures on the Pacific side of the ocean. In January the average daily temperature in Loreto is 64˚ F while in August the average daily temperature is 88˚ F (although daytime temperatures easily surpass 100˚ F in the summer). Exposure to strong northeasterly winds in the winter also makes the Gulf colder in winter.

After several unsuccessful attempts by the Spanish to settle California, Loreto was established in 1697 by Jesuit priests as the first European settlement of the Californias. It was chosen because of a small freshwater spring that provided a good water source. Originally the Guaycura, who depended on hunting and gathering, inhabited the area. Upon their arrival, missionaries estimated that approximately 4,000 indigenous people lived in a 2,500 square mile area surrounding Loreto. Within 100 years, nearly the entire indigenous population had been wiped out by infectious diseases brought by the Spanish

settlers, including typhus, malaria, smallpox, measles, and syphilis. The remainder were forcibly integrated into the Loreto Mission by the priests (first the Jesuits and later the Franciscans) and their armed guards (O'Neil and O'Neil 2001).

After the Spanish conquest, the primary economic activities in Loreto were ranching supplemented with subsistence farming and fishing. Agriculture in Loreto was, and continues to be, severely limited by access to fresh water. While some concessionaires from the mainland harvested pearls off the islands in the Loreto area in the 19th century, it was entirely unregulated and the local population benefited very little from this source of income. By the early 20th century the pearls in the Loreto area, as with the rest of the peninsula, had largely disappeared from over harvesting and disease. As Loreto grew, it served as the base for California exploration. Throughout its history, Loreto has served as the hub for local producers. People from smaller communities would make trips by mule or boat to trade their products for staples. It continued to prosper until 1829 when a hurricane destroyed much of Loreto and La Paz became the new capital of Baja California.

Loreto remained virtually unpopulated with the exception of occasional immigrants, many from England, who settled the area and established ranches in the 1850s and 60s. In 1857, there were about 500 residents of Loreto. At about the same time, the Mexican government began giving concessions to harvest salt from the salt bed on Isla Carmen, which is two miles long and a half-mile wide. Eventually the Mexican government sold the island to private companies. A small settlement was established on

the island for workers and their families. The salt plant provided the primary source of employment until it closed in 1944.

Loreto remained largely isolated from the rest of the world until World War II, when it began to develop a small commercial and sport-fishing industry. Shark liver oil became a valuable commodity during the war as a source of vitamin A for allied soldiers. After the war, Loreto became renowned as a prime fishing area and began to attract American sport fishermen. Loreto's first hotel (one of only four resorts on the entire peninsula at that time), the Flying Sportsmen Lodge, was established in 1950 by Edward Tabor, an American who also built the hotel airstrip. He flew two times a week from Mexicali to Loreto to bring the sports fishermen that filled his hotel. Most tourists were adventure types who came by plane or who traveled the rugged dirt road to Loreto.

Commercial fishing in Loreto began in the early 1940s, with help from the Mexican government. Beginning with the 1938 General Law for Cooperative Societies, the government organized fishermen into a system of local cooperatives that were grouped by regions and incorporated into the National Confederation of Cooperatives. During the 1940s and 50s, the fishing industry expanded through a migration known as the *Marcha hacia el Mar*, in which the national government encouraged people to move from depleted agricultural lands on the mainland to the littoral by providing credit and other financial resources for cooperatives. These policies led to the rapid growth of coastal populations. While some cooperatives were established in Loreto during this time, they were severely limited by access to markets. Because there was no road to connect them with packing and freezing plants, most of the commercial fish caught in

Loreto was salted and dried. Commercial fishing in Loreto did not really begin to take off until the completion of the trans-peninsula highway reached Loreto in the early 1970s, enabling buyers to access local producers and eventually the construction of a fish processing plant in Loreto.

Loreto's current population is approximately 12,000 (INEGI 2000) with about 2,500 households. Today the landscape in and surrounding Loreto is highly uneven in terms of its spatial distribution of income. In the town of Loreto and the community of Nopoló, developed specifically for tourism, homes worth hundreds of thousands of dollars overlooking the ocean or golf course are only occupied for several months of the year. Large boats and sport utility vehicles fill the garages. Residents of these homes come mainly from the United States and have all the luxuries of home (and more given low prices in Mexico), including electricity, satellite television, running water, gardeners, and maids.

Figure 5.2 Example of an American home in Loreto.

Figure 5.3 Example of middle-class Mexican home in Loreto.

On the margins, however, families crowd into two-room homes of concrete block, wood paneling, and woven palm fronds (*petate*) without electricity or running water, trying to make a living by providing tourist services or fishing. This uneven landscape is a relatively recent phenomenon due in large part to the trans-peninsula highway opened in 1974, which made Loreto accessible to the rest of the world.

In 1976, FONATUR (Fondo Nacional de Fomento al Turismo), the agency in charge of developing infrastructure for tourism investment and development, announced its plan to develop Loreto as a major tourist destination (along with Los Cabos, Cancún, Huatulco, and Ixtapa). As Loreto developed as a tourist destination, people came from other parts of Mexico to capitalize on the boom. Loreto's population grew from approximately 1,500 to 10,000 between 1950 and 1995. Today tourism is the defining economic activity for the community of Loreto (Ayuntamiento de Loreto 1999). Tourism grew from about 12,000 visitors in 1976 to over 58,000 in 2000. Approximately 72% of tourists to Loreto come from other countries, mostly the United States (FONATUR 2003).

In 1993, Loreto became its own municipality. Up to that point, it had been a part of the *municipio* based in Ciudad Constitución, over 150 kilometers (93 miles) away. This was a very important political change for Loreto. Because the Ciudad Constitución is located on the western side of Sierra de la Giganta, it is economically geared toward agriculture than towards fishing or tourism. In addition, Ciudad Constitución has much stronger political ties to the state government in La Paz. Loreto, given the influx of new arrivals from the mainland with interests in tourism, is much more independent from the

state government. This became evident in the first election, when the *municipio* was the first ever to elect a municipal president representing the PAN despite the fact that the state was controlled by the PRD and national government was controlled by the PRI.

Despite the tourism development in Loreto, surrounding communities continue to depend on small-scale commercial fishing, defined by the use of 24-foot long fiberglass boats (*pangas*) powered by 45-75 horsepower outboard motors. Because these small-scale fishermen depend much on their own physical labor, handcrafted implements (nets, rods, and lines), and an intimate knowledge of the ocean, they are referred to as *pescadores de artesania* (artisanal fishermen).

Figure 5.4 Typical panga used by small-scale commercial fishermen.

Tourism development in Loreto has increased the economic and social divide between urban and rural. First, residents of Loreto have been access to tourism revenue, while those in the rural areas do not. Therefore, there are more job opportunities in the service sector for those in Loreto. Most residents of Loreto work in stores, guide businesses, or in homes as domestic labor while residents in the rural communities work almost exclusively in the fishing industry. Second, Loreto has benefited from private and state financing for infrastructure development as a result of tourism. In comparison, many surrounding communities remain without basic amenities such as electricity and potable water. Although there communities occupy *ejido* land, they function much differently from *ejido*s in other parts of Mexico. The *ejido* land is primarily for occupancy, not encompassing parcels for agricultural land.

5.3 Connection: Neoliberal Reforms and the Loreto Bay National Park

The connection between Mexico's neoliberal reforms and the creation of the Loreto Bay National Park is tourism development. This connection is hidden, however, by the park's official story, which justifies the park exclusively on it biological diversity and community involvement. Both of these justifications cast the state as objective and neutral without economic or political motive. Furthermore, the story centers the creation of the park at the local level, ignoring complex scalar interactions between many actors. The official story is a powerful discursive tool that justifies the establishment of the park and its regulatory authority. Therefore, in this section, I examine the official story of the park and how it obfuscates the tourism connection by focusing on biodiversity and

community. In section 5.4, I analyze tourism and demonstrate how the park enables tourism development – and Mexico's neoliberal agenda.

5.3.1 The Official Story of the Park

The park's official story is easy to find. Part of what makes it official is its repetition and wide distribution. The more the story spreads, repeated by different people, the more it becomes accepted as truth. I heard the story before I visited Loreto. In fact, I went to Loreto because of the story -- told to me by one of my professors, involved in conservation in Baja California and married to a former employee of The Nature Conservancy. The story she told me was that the community had pressured the national government to create a park to protect the resources from large-scale commercial fishing vessels. Because I was interested in community-based management, I went to Loreto and there heard the story repeated to me by those involved in the effort to have a park created. I also read the story in formal documents, such as the park's management plan, and informal documents, such as an informal history of Loreto as written by one of its residents and in newspaper articles. This written recording of the story also demonstrates its official status. The park's management plan provides a succinct example of the official story:

> "Until the coastal area in from of the municipality of Loreto was decreed a national park, human activity was responsible for the deterioration of several habitats, the decline of several species that used to be abundant because of commercial exploitation, as well as the decline and extinction of several populations of species that are endemic to the islands. There was also a lot of pollution caused by the accumulation of trash.

> For these reasons, the community of Loreto and its authorities organized so that the area, understood as the area north of Isla Coronados to the southern end of Isla Santa Catalina, could be protected. Their efforts were realized in formal petitions sent to the Executive Office beginning in 1992, but it wasn't until 1994 that this petition went anywhere when it was given to the Governor and Secretary of Tourism. Thanks to the formation of the Municipal Advisory Council on the Environment and Natural Resources, the community of Loreto maintained its interest and finally was rewarded on July 19 of 1996 when the area was declared as a National Park (CONANP 2000: 3) ".

5.3.1.1 The Official Story: Biological Diversity

A major component of the official story is the importance of the area's biodiversity and the deleterious effects of fishing nets. An often repeated "fact" is that for every pound of catch caught by nets, there is X pounds of by-catch (the number of pounds changes from person to person – usually 20 pounds of by catch is cited), including sea turtles and dolphins. In addition, another often repeated "fact" is that nets are dragged along the ocean floor, killing coral reefs and destroying other important marine habitats. Therefore, according to the official story, nets are indiscriminate killers of marine species and their habitats. Several people told me stories of waking up in the morning after the trawlers had been operating off the coast at night to find dead fish and other animals littering the beaches.

Of course, trawlers operate throughout the Gulf of California, so a special case had to be made for the area off the coast of Loreto. To this end, the region's biodiversity is often cited by proponents of the park. According to the park's official decree, the area "represents a particular type of habitat where unique ecological processes, biological communities, and physiographic characteristics of national relevance coincide (Diario

Oficial de la Federación: 2)." In addition, the park's management plan justifies the park based on a long list of endangered species found in the area. Therefore, the official story of the park relies on the argument that Loreto is a unique area of biological diversity that required protection from commercial fishing nets. While the Loreto area undoubtedly harbors a great deal of biodiversity, there is little evidence that it supports more diversity than other similar areas in the Gulf. In other words, the Loreto Bay may not be particularly unique. The Gulf of California, on the whole, is a very diverse area. The islands in Gulf are particularly rich in species diversity because they create underwater habitats for many different animals and plants. While all the islands of the Gulf are protected, including those off the coast of Loreto, it is unclear why they are not all surrounded by a protected area, as they are in the Loreto Bay National Park.

Absent from the story is any history of who the pressure was from and how and why commercial fishing trawlers began putting so much pressure on the resources of the Gulf in the late 1980s and early 1990s. As discussed in Chapter 4, neoliberal reforms to the fishing sector opened up the Gulf's fisheries to greater exploitation by private firms with greater capital. Also absent is consideration for the biological diversity of the entire Gulf, of which Loreto is just one small part. In short, the official story makes Loreto out to be a unique case severed from history or geography. This severance makes it possible to justify the creation of a park without addressing the fundamental threat to the entire region's biodiversity which is rooted in a much larger economic and political system.

In essence, what is missing from the official story is scale. Both the community and the problem are localized without consideration for the complexity of either. This

next section looks more specifically at how scale has played a role in the creation of the park by describing the complexity of the network of actors involved.

5.3.1.2 The Official Story: Community

One of the most important aspects of the official story is the role of community. Regardless of how the story is told, the park is attributed to the work of "the community". This is perhaps the most often repeated aspect of the story. Less obvious in the story is the implication that the park benefits the community – particularly through revenue created by tourism. This aspect of the story was told more frequently early on, but has become less central because of tensions between the tourism and commercial fishing sector which undermines from the story's main assertion that the creation of the park was the result of a community effort.

Both of these aspects of the story match the model of community-based conservation used internationally to justify the establishment of protected areas. And with good reason. As discussed in Chapter 4, the concept of community-based conservation has legitimated the creation of national parks around the world. The Loreto Bay National Park is no exception. A pre-investment analysis to determine if The Nature Conservancy should sponsor the Loreto Bay National Park through its Parks in Peril program declared,

> "What is significant about this reserve is that its existence is due to the lobbying of local stakeholders and community residents concerned about the over-exploitation of local marine resources. Loreto residents have organized and supported patrols of the reserve by federal authorities to help stop resource piracy. This protected area, although currently lacking

> funding for staff, could become a model for community-based conservation in the Sea of Cortez because of its high level of support" (Dedina 1997: 21).

Clearly the idea that the park was requested by the community makes it attractive to "investors." Community support and involvement in the park provides a guarantee that the park will not be hampered by local resistance and has a greater chance to succeed – making it an attractive investment. It also justifies TNC involvement to its members and donors, to demonstrate that it is doing work in other countries that supports local desires instead of imposing foreign ideals.

To make the park into a reality required money. As the first director of the park explained, he arrived in Loreto with "nothing but a pencil". There was no staff, no equipment, and no office. TNC provided a large chunk of the initial money necessary to get the park running through its PiP. This demonstrates that the role of community in the official story was important to attracting and legitimating investment in the park.

5.3.2 The Park as Strategy for Capital Accumulation

In this section, drawing on state theory described in Chapter 2, I demonstrate how the Loreto Bay National Park, through regulation of human-environment interactions, enables capital accumulation through neoliberalism. In this way, I disturb the official story that the park was created exclusively for the purpose of protecting biodiversity from large-scale commercial fishing.

I argue in Chapter 5 that natural protected areas in Mexico enable the accumulation of capital through bioprospecting and tourism development. The Loreto Bay National Park provides an excellent example of this, particularly in regard to tourism. Along with Ixtalpa, Hualtuco, Cancun, and Cabo San Lucas, Loreto was one of the areas slated in the 1960s as a place for large-scale tourism development. In the original plan, the tourism development was to encompass a five-mile corridor from Puerto Escondido to Loreto. The objective was to build 3, 900 new hotel rooms, 3, 850 villas and apartments, and 450 residential lots by 1990. The plan also provided for the urbanization of 860 acres in Loreto and 8,777 acres in Nopoló with golf courses, tennis club, commercial zone, and recreational beaches. In addition, the plan called for the development of 16,815 acres in Puerto Escondido as a harbor with hotels, restaurants, and condominiums (FONATUR 1981).

The project began, but was never completed because of the debt crisis in the early to mid-80s. Originally, a French company partnered with the Mexican government on the project in Puerto Escondido but pulled out when the Mexican government defaulted on its loans. Despite economic recovery, the project has been further delayed as the French company has held the Mexican government in court over complications with missing funds. With a settlement close at hand, the Mexican government is again courting foreign investors for the project. In 2002, a group of American investors, including golfer Greg Norman, announced plans to invest $200 million to build a golf course, hotels, and time-shares in Puerto Escondido. One of the developers is said to have called the development “Palm Springs by the sea” (Gori 2001). In addition, FONATUR is

looking to complete a major development which would involve the construction of several new ports for recreational boating along the Gulf of California. Puerto Escondido is included in the development proposal.

Figure 5.5 Infrastructure development left incomplete in Puerto Escondido.

In the FONATUR plan, prominently featured among the architectural sketches and aerial images are photos of sunbathers on the decks of sailing ships, mountain islands rising up from a blue ocean, couples walking on pristine beaches, palm-thatched *palapas* silhouetted against the sunset, lounge chairs around a pool, and children playing in the surf. Nowhere in the plan are there pictures of fishermen or their clustered communities of concrete-block and *petate* houses. Clearly, the proponents of this plan envisioned a landscape of fun and sun.

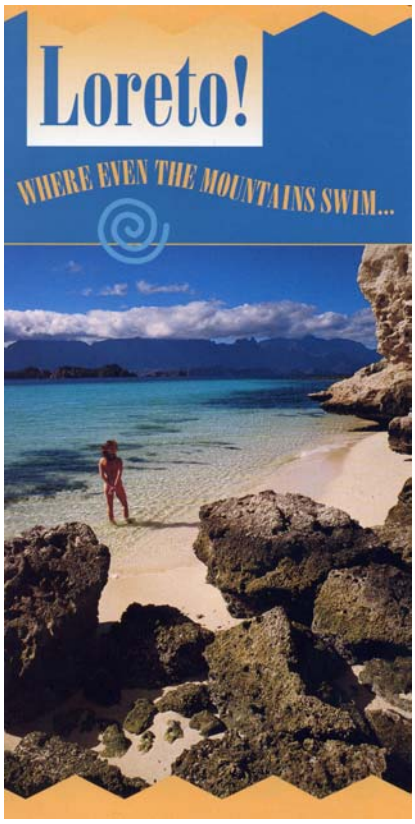

Figure 5.6 Tourist brochure for Loreto showing a landscape of leisure.

Despite what the photos showed (and did not show), that landscape only partially existed. Alongside it was a landscape of production, which included *pescadores de artesania* as well as large commercial fishing boats and shrimp trawlers. Not surprisingly, the idea for a natural protected area soon emerged from individuals involved with the FONATUR development. A natural protected area would limit these production activities, leaving a landscape free for recreation.

All together, there were three separate attempts to establish a natural protected area off the coast of Loreto. The initial attempt at establishing a park came from the first director of the FONATUR office in Loreto, a transplant from Mexico City. He wrote in

the late 1980s (the exact year was not recalled) a letter to the President suggesting a natural reserve to protect the waters and islands off the coast of Loreto. Unfortunately, despite repeated attempts to contact him, I was unable to get a hold of the director from that time to discuss the contents of the letter he wrote.

The second attempt to establish a park came from a manager in the French company[6] that partnered the development in Puerto Escondido. Shortly after arriving to the job in the late 1980s, his supervisor asked him to draft a proposal to protect the area from trawlers, to protect tourism. His company had a vested interest in assuring that the attractions of Loreto were protected for the tourists. The project manager developed a proposal that included all of the islands. There was a core zone that "would not allow anything" and outside of that there was a buffer zone for limited uses. As he explained to me, "the islands are important because they are virgin, which is rare. It was evident to me from the beginning that the islands needed to be protected for the development in Puerto Escondido because someone with a yacht could go and have a picnic or spend the night on the island… They are perfect for tourism. And tourism is important to fight against unemployment in Loreto. You can get more money for a virgin island." This economic rationale for protecting the islands contrasts against the official story of the park, which purely states a biological rationale for creating the park as well as a strictly local interest.

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[6] Upon the request of the informant, the name of the company is not mentioned to maintain his anonymity and because the company is still in negotiations with the Mexican government.

The final effort was led by GEA beginning in 1992 with petitions and editorials. However, it was not until the Secretary of Tourism came to Loreto for a meeting that they gained any headway. During the meeting's lunch, GEA presented the Secretary with a letter that had been signed by municipal officials, the general director of FONATUR in Loreto, tour guides, and other business representatives.

After thanking the president for several development projects, including his effort to resume the "mega-project" in Puerto Escondido, the letter explains that there is an "alarming decline of marine species as the result of massive and indiscriminate illegal fishing by boats from other regions that use forms of fishing that…are used for their ability to overexploit." The letter continues, "considering your government has declared three percent of the country's territory as protected areas…we are sure that you will support our petition." The letter concludes by soliciting an enforced national marine park that includes the waters off shore as well as the five islands.

The Secretary of Tourism apparently delivered the letter because it was not long after that a representative of the environmental Secretariat (SEDUE) arrived in Loreto to discuss the proposal. Although the proposal languished in the transition between presidents Salinas and Zedillo, it was resurrected by Julia Carabias, the secretary of the new environmental agency (SEMARNAP). GEA heard nothing about the proposal until Zedillo went to Loreto to give a speech on his new environmental agenda for the country. They thought that he was going to announce the park during his speech, but he did not. On the return ride to the airport, the municipal president asked Zedillo about the proposal to establish a natural protected area. Julia Carabias, who was accompanying the

President, responded that the proposal was ready; it only needed approval from Congress and the President. Hearing this, Zedillo told her to proceed. Again GEA heard nothing, until they received a call from the president's office telling them to watch the Zedillo's Earth Day speech. In that national address, Zedillo announced the declaration of a national park in Loreto.

Why was this last effort successful? While the official creation story emphasizes the role of the community in establishing the park, processes occurring at multiple scales enabled their request. While local environmentalists enabled by a newly formed and elected municipal government in Loreto sought to establish a park, on the national level Salinas was adopting neoliberal reforms that would stimulate an economy still suffering from the debt crisis of the 1980s. As part of his efforts, he was trying to create a "green image" for Mexico that would quell the protests by environmentalists against NAFTA.

A key component of these reforms was encouraging private investment. As mentioned in the letter, Salinas had tried to resurrect the development in Puerto Escondido after the French backed out and was looking to attract new investors to the project. It is not unlikely the Secretary of Tourism (like the first FONATUR director in Loreto and managers of the French company involved with the project), saw that a park would help in that endeavor. According to the current FONATUR director of Loreto, the park *has* helped attract the attention of foreign investors. As he told me in an interview, "It is important for FONATUR that the area in front of the beach is a marine park. This permits that when we invite investors to do business here we can insure that there will not

be big changes that affect what can be offered in terms of biodiversity, the landscape, the islands."

The key mechanism by which the park has attempted to reshape the landscape of Loreto is through its management plan. Although the plan purports to be an objective document based on science and supported by the local community, as we will see in the next section, the plan is both the product and subject of stories about the park. The plan provides further evidence that the park was created to re-regulate human-environment interactions in Loreto in favor of tourism.

Although the plan was supposed to be done within a year of the park's decree, the park did not have the funding to do the studies required to create a plan. FONATUR donated the funds to complete the park's plan and gave the contract to a team of scientists at the Universidad Autonoma de Baja California Sur. The lead scientist on the project, a biologist, presented his work simultaneously to FONATUR and the Secretary of the Environment (then called SEMARNAP). Hence, FONATUR and SEMARNAP had an equal part in the development of the plan.

The relationship between the park and tourism development reveals how the Loreto Bay National Park enables the accumulation of capital under Mexico's neoliberal reforms. In essence, the park captures "nature" in the romantic sense – pristine, virgin – and it makes it available for consumption for tourists. In this way, the park enables the commodification (or capitalization) of nature as predicted by neo-Marxist theory. The next section describes how the landscape is being reshaped through regulation of human-environment interactions so as to make this envisioned nature into a reality.

5.4 Process: Creating the Loreto Bay National Park

This section envisions the park as the nexus of many different actors situated at different levels, each influencing the landscape of the reserve. These diverse actors occupy different roles within government, the non-profit sector, and the private sector. Together these actors influence, albeit unevenly, how the landscape of the park is shaped discursively and materially. As I will show in this section, environmentalists and the tourism sector in Loreto have attempted to reshape the park's human-environment relationship through zonification – rules on where, when, and how certain activities can occur. However, as I show by looking specifically at rules placed on the capture of *jurel*, conservation discourses are used for legitimizing these zones.

5.4.2 A Network of Actors: Defying Scale and Sector Categorizations

As discussed in Chapter 4, one of the criticisms of community-based conservation is that it glosses over differences within communities – treating community as though it is a homogeneous whole. This is certainly one of the problems with the official story as well. The story makes no distinction in the "community". This has become a point of weakness in the discursive authority of the official story.

When I began interviewing different residents, I quickly realized there were segments of the Loreto population who were unaware of efforts to create a park and who currently oppose the park. This is particularly true of the local commercial fisherman.

As the former municipal alcalde told me, “One of the reasons INE (Instituto Nacional de Ecología) supported the idea of the park is because they saw that the community wanted it. Even though some commercial fishermen were in opposition to the idea, they didn't know how to organize. If they had organized, perhaps there wouldn't be a park. They were sleeping and didn't organize. This benefited us.”

In actuality, there were very few residents who were involved in or aware of the effort to establish a protected area. Those who were involved defined themselves by eventually creating an organization called GEA, or Groupo Ecologista Antares. At its height, GEA was comprised of 12 individuals. While based in Loreto, most members of GEA were not from Loreto originally nor live regularly in Loreto. At least three members were U.S. citizens, one a Frenchman involved in a mega-tourism development with FONATUR. The remainder came from mainland Mexico, primarily Mexico City. With one or two exceptions, all were involved in the tourism sector. GEA began when this group of friends began meeting informally to discuss what to do about the large fishing vessels trawling off shore. They began writing letters to the president and opinion columns in the local paper arguing for a protected area. Eventually, they decided to become a formal civic organization.

Today, GEA is essentially one person: Fernando Arcas Saiz. While some of the other members stay minimally involved as board members, Arcas is responsible for the day-to-day workings of the organization along with running his own guide business. There is no doubt that Arcas is deeply committed to protecting the marine species and has a love of nature – he once rescued a lion from a traveling circus and kept him in his back

yard —he also recognizes the tourism potential of a park. Arcas came to Loreto in the 1980s as the manager of the golf course in the new FONATUR development. Eventually he began his own guide business. Arcas has been criticized as benefiting economically from the park, as he advertises his own guide business alongside GEA's office, described as the Marine Park's Visitor Center and Museum (Figure 5.7).

Despite the rhetoric of the official story, the people involved locally in the effort to establish a park do not represent the entirety or the diversity of the community. Rather, they represent a very small subset of the community, comprised of middle-class outsiders with economic interests in tourism. As such, their ideas about environmental protection are very similar to mainstream environmentalist ideals in the United States and other industrialized areas.

Figure 5.7 The Entrance to GEA's Office

While the official story emphasizes the role of the local community, it ignores the complex involvement of many different individuals and organizations situated at multiple levels and positions of power. This section envisions the park as the nexus of many different actors situated at different levels all attempting to reshape the landscape of the park. These diverse actors occupy different roles within government, the non-profit sector, and the private sector. Together these actors influence, albeit unevenly, how the landscape of the park is shaped discursively and materially. As shown later in this chapter, through the use of conservation and scientific discourse some actors have been more effective in realizing their vision for human-environment interactions off the coast of Loreto. Although others are resisting this territorialization, they have not successfully challenged the dominant discourse with a counter discourse.

While it would be tempting to try to strictly organize these actors according to level (international, national, regional, local) or by sector (private, government, non-profit) these attempts negate the complexity of interactions that places actors in a tight network of relationships that transcends scales and sectors. Instead, this section loosely groups organizations and individuals together by their outward appearance of geographic placement and sector, but also demonstrates through specific examples how these groupings are false and should be viewed with skepticism in any story told about the park.

There are several multinational environmental NGOs involved with the LBNP. Most notable is The Nature Conservancy, although the WWF and Conservation

International also are involved. These organizations provide financial and logistical support to the park directly and indirectly through local partners. TNC has supported the park and local environmental groups through its Parks in Peril program. Initially, TNC supported ISLA, a small non-profit group in La Paz as a partner organization. ISLA worked with the park to develop a plan of action for developing staff, supplies, equipment, and more funding from government and private sources. Eventually, GEA was also brought in as a partner and ISLA was replaced by Niparajá. TNC has also paid for park staff to attend special training sessions in the U.S. and it has hosted local workshops bringing together "experts" to develop management priorities for the park.

Other multinational organizations do not directly interact with the park on the same level as TNC. But like TNC, these organizations influence the park through their support regional and local groups that advance their missions. An example is NIPARAJA, an organization based in La Paz and supported by TNC. NIPARAJA was founded by a U.S. expatriate who was a former Grand Canyon river runner and now operates an ecotourism business specializing in kayak trips along the peninsula. As such, even through they are based in Mexico and staffed by Mexicans; these organizations represent a perspective that tends to be in line with mainstream environmentalism in the United States.

Also at the international level are foreign companies who invest in Loreto through the tourism and fishery sectors. These actors have limited contact with the park, but they do have some influence as they work with other government agencies such as PESCA and FONATUR who are in constant negotiation with the park management.

There are also organizations with a focus on the Californias or the Sea of Cortez. Mostly based in southern California, these organizations have a more direct and personal connection with Loreto. They work directly with the park's management and have provided small bits of funding for the park and local environmental groups. A perfect example of one such organization is WiLDCOAST. Based in San Diego, WiLDCOAST is an international conservation organization dedicated to preserving endangered marine species and threatened coastal wildlands of the Californias. Another is Vagabundos del Mar, a travel club for RV and boat recreation on the Baja Peninsula in which most of the American ex-patriots in Loreto are members.

In addition to non-profit organizations, there is the government and its many different (and sometimes conflicting) agencies and levels. Given the centralized nature of the Mexican government, the federal government has the biggest role in the park. The park itself is managed by a federal agency – the Comisión de Areas Naturales Protegidas (CONANP) under SEMARNAT. Although the park staff has shifted over time, in 2002, there were about 10 staff members. There was the director and two deputy directors, one responsible for tourism and the other commercial fishing. All three of these upper-level managers had advanced degrees in biology. There was also a staff member in charge of education and public outreach, tourist affairs, and a personal assistant for the director. The remainder of the staff worked primarily on general duties, including responding to park violations, serving as liaisons with other agencies, and meeting with fishermen.

FONATUR and PESCA also play a large part in the park's management. Both federal agencies have local offices. PESCA had two officers in charge of enforcing

federal fisheries laws. Although the federal government employed these officers, they were local residents with family, friends, and foes at the local level. These officers also had connections to private boat operators and companies working regionally in the Sea of Cortez. These personal relations had as much to do with how PESCA operated day to day in the park as with the federal law they were entrusted to enforce.

The employees of FONATUR had fewer connections to the local community, since their interactions dealt more with financing the tourism development in Loreto, Nópalo, and Puerto Escondido. Local FONATUR employees, particularly those in the upper management, mostly came from the mainland and had few ties to long-time residents. Rather, FONATUR employees were much more likely to have connections to the Americans and other foreigners who purchased homes and made other investments in the development.

With different agendas, these federal agencies frequently find themselves simultaneously in conflict and collaboration, real or staged. The relationship between the park and PESCA is particularly opaque and complex. While PESCA is supposed to be an enforcement agency, park staff would frequently complain about the inability or unwillingness of the agency to enforce a violation of park rules. Other times, the two work together to rectify a rule violation. More often than not, however, these collaborative efforts are to make an isolated public example than real comprehensive action.

There is also state and municipal government. While the municipal government has generally supported the park (especially early on), the state government has not. The

municipal government, newly emerged in 1992, helped lobby the federal government for a park and in the beginning provided a lot of logistical and political support to the park. More recently, the municipal government has been more reserved in its support especially since the *alcalde* elected in 2002 has been more sympathetic to local fishermen. Although the municipal government has no sway over the federally managed park, it is important politically to the park in terms of maintaining support from local residents. When the newly elected municipal government in 2002 publicly criticized the park's director in the local press, it was an embarrassment to the park staff and made it more challenging for them to make the claim that they had the support of the local community. Based in La Paz, the state government has little to gain from the presence of a federal park. The state government initially protested the creation of the park most likely for political reasons as the state was controlled by the PRD at the time. However, its protests received little consideration by the federally run PRI.

Transcending the levels of government are political parties, which have also played a role in the park. Loreto was the first municipal government to be born under a PAN candidate. For that reason, it held the interest of the PAN party as it came into power throughout the 1990s. It wanted to see Loreto succeed. For that reason, the first municipal president, Alfredo Green, received a great deal of support from the party. As Green explained to me, the state and the municipal government had a tense relationship because the state was occupied by the PRD at that time. In the three years that Green occupied the municipal president's office, the state governor only received him three times. The governor also witheld funds – a common problem with the decentralization

scheme. So when Green was having difficulties getting funds or had a dispute with federal agencies, he went to the party for assistance. As the PAN gained power in the 1990s, this became more and more important to the *municipio*'s ability to get things done.

Within Loreto there are many different formal and informal groups who influence the park including professional associations, families, and non-profit organizations such as GEA. Examples of informal professional groups are the hotel owners, tourism operators, and sport fishing guides. Commercial fishermen are another professional group, but have diverse opinions that depend more on their location or family identity than their professional identity. While most commercial fishermen disagree with the park rules and regulations on commercial fishing, some family groups outwardly support the park because they have a special relationship with the staff.

The lines between the different actors are often fuzzy sometimes blending from private corporation, to environmental organization, to government agency. A prime example is the ambiguous relationship between Grupo Vitro (a multi-national company based in Monterrey that specializes in glass products) and environmental organization working in Loreto called OVIS (Organización Vida Silvestre). The largest island in the park, Isla Carmen, is privately owned by a subsidiary of Grupo Vitro. Since the middle of the 19th century, as previously noted, the island has been used to produce salt for a variety of purposes. Grupo Vitro, via Salinas del Pacífico, purchased Isla Carmen in 1944, to produce salt it needed to make glass. In 1984, the plant closed because of the declining rates of extraction and quality of the salt. In the 1990s, OVIS became involved with the management of Isla Carmen and the Loreto Bay National Park. Among other

things, OVIS has initiated studies that inventory the species on the islands in the park and determine their geographic distribution and population. Its biggest project includes a recuperation program for bighorn sheep (*Ovis canadensis weemsi*). In 1995 and 1996, bighorn sheep were introduced to the island. A coffee table book on the islands of the Sea of Cortez that was published by Grupo Vitro, says this program "underscores new, productive uses that may be developed on the islands in the Gulf of Cortez (Fernandez 2001)". While the book does not elaborate on what those productive uses are, most likely it has something to do with the tremendous economic potential for big horn sheep hunting in Baja California, where corporate executives pay as much as $50,000 for a permit to kill a male big horn (Knudson 1999).

These players defy easy categorization based on scale or sector. This defiance supports the notion that the state cannot be understood as a distinct entity, sector, or group of actors. Rather, the state is a continually shifting strategy that enables the accumulation of capital. This is evidenced by the fact that on the whole the government has provided economic opportunities for large-scale commercial fishing enterprises. However, in the case of the Loreto Bay National Park, the federal government has aligned itself with environmental groups and the tourism sector against large-scale commercial fishing vessels. In doing so, the Loreto Bay National Park provides a means for overcoming the second contradiction of capital (O'Connor 1994) and opens "nature" for new forms of capital expansion related to tourism.

5.4.3 Territorializing the Loreto Bay National Park

To this point, I have discussed the official story of the Loreto Bay National Park, the participants in the story, and I have put forward my own story for the creation of the park based on neo-Marxist ecological theory incorporating what was happening in Mexico at the time of its neoliberal reformation. In this section, I describe how the park is reshaping the landscape from one in which humans interact directly through production into a landscape of tourism consumption. In doing so, I am answering the third sub-question regarding the process of creating a protected area. That is: "How are dominant conservation discourses used locally to justify the creation of natural protected areas and impose rules regarding appropriate human-environment interactions?" Although park rules and regulations ultimately define what are appropriate human-environment interactions within the park, these are justified by conservation discourses used by those who favor greater restrictions on production activities. In the next section, I also show how these discourses are being resisted by local producers.

The park's management plan is perhaps the best source for understanding the official story. The plan is what outlines the parks regulations and provides the justification for those regulations. The plan must be official to be effective. And to be official means that it must accepted as the only, the true, story of the park and its creation. While many actors have tried to make the plan official, they have met considerable resistance. All actors involved recognize the significance of the plan and for that reason, it has provided the focus of much of the discursive struggle over the story of the park.

While there are many aspects of the plan that are the object of struggle, in this section I highlight one that represents many of these struggles – the struggle over *jurel*. While I lived in Loreto, it was a struggle discussed much by all parties as they sought to have their story about jurel become the official story – the story accepted as truth and made real or not through the plan's regulations.

A critical part of the management plan is zonification, which determines where and what type of activities are allowed. The definition of use zones has been the greatest source of conflict between the *pescadores de artesania* and the tourism sector. In particular, certain fishermen have resisted zones that prohibit the use of nets within 300 meters of the shore. The controversy over these zones is best understood through the various discourses over the use of yellowtail jackfish (*Seriola lalandi* known locally as *jurel*), a migratory fish that is important to the tourist sector as well as *pescadores de artesania*. During interviews with people in tourism and *pescadores de artesania*, the subject of yellowtail inevitably came up without any prompting.

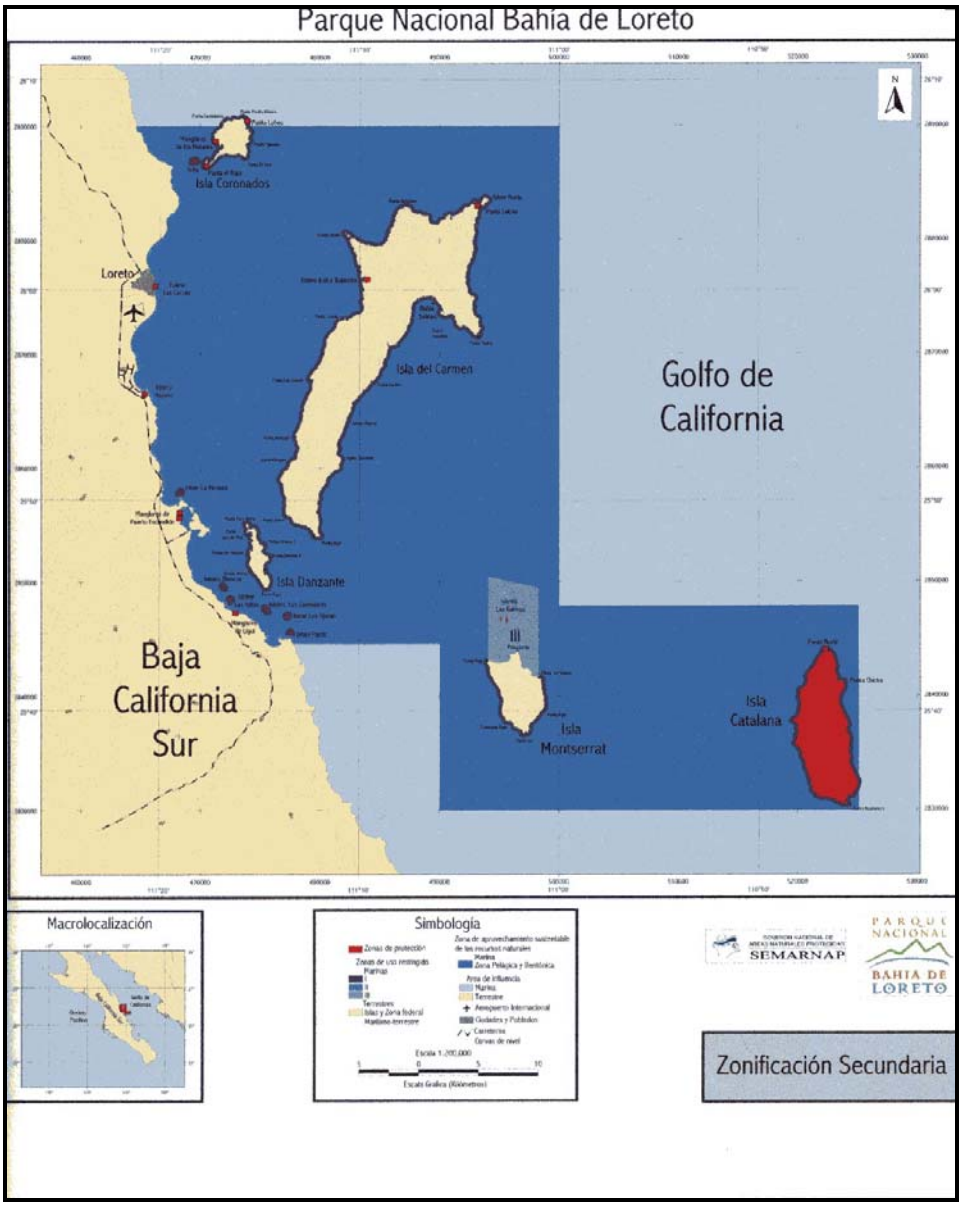

Figure 5.8 Map of Use Zones of the Loreto Bay National Management Plan (CONANP 2000).

What makes this fish important to both user groups is the timing of its migration and spawning. While juvenile yellowtail can be found in the area throughout the year, adult yellowtail are mostly present in the winter months. This is important to those in

tourism because the yellowtail attract sport fishermen to Loreto at a time when most other sport fish are not present in large numbers. It is important to commercial fishermen because as the adults pass through, they spawn off shore (Gutierrez-Barreras 2002). It is unclear if Loreto is the only place where migrating yellowtail spawn.

Several fishing families in Loreto take advantage of the spawning activity by encircling the spawning yellowtail with nets (*encieres*) while divers go below and sew the net together from the bottom. Using this technique, a family can capture several tons of yellowtail at once. Capturing yellowtail this way is hard work because winter to early spring is the windy season in Loreto, and fierce winds can easily capsize a *panga*. Often, fishermen must take refuge on the islands for several days waiting for the wind to die down so they can make the trip home. There is a chance their ice won't last and the catch will be lost. In addition, the nets are extremely heavy. It requires several men to toss the net in the water and then to pull it out again full of fish.

Despite (or because of) the hard work involved, this method is a source of pride to fishermen who use this technique. Explained one fisherman:

> "My dad was the first one who started it here. At first we didn't know what we were doing. We heard about this technique from other fishermen from other parts. We started with a six-inch mesh, but the fish kept getting caught by the gills and it was hard to get them out. Then, we went to La Paz and got a three-inch mesh that was 48 arm-widths long and seven deep. That worked much better. Then, we learned to sew up the sack. At first we free dove, later we started using dive tanks. At first it was just two families that did it, at the highest point it was eight. Charo's (pseudonym) family did it too. They have been traditional fishermen all their lives."

To the fisherman telling this story, use of nets to capture spawning yellowtail represents innovation and honest work by people who have lived by fishing. It requires an intimate understanding of the ocean and its creatures as well as a physical conditioning to difficult work. His story counters the story told by those in the tourism sector about commercial fishing of *jurel*.

To those in the tourism sector, the capture of yellowtail with nets has a different meaning. Interviewing a hotel manager in her office, she grabs a tourist brochure on Baja California to emphasize this perspective. She turns to a center page on Loreto. There, in the full-paged photo are several *pangas* pulled up to dock. On the bow of each is strewn nylon fishing nets. Pointing at them she says,

> "Here, here, here. All of these boats have nets on them. If I were a tourist and saw this, why would I want to come here? I have visited Yosemite. You don't go there and see people cutting down the trees. No, then it wouldn't be a national park. Here, they continue to use the park, they continue to use nets. How would it be if you spent all of this money to come down here to go sport fishing and you get out there and you don't see any fish but you see nets"?

This statement parallels comments made to me by American sport fishermen who told me they didn't feel it was right that they were only supposed to take two yellowtail a day when they see commercial fishermen taking out tons with nets. These comments reveal a perspective that recreational activities (such as sport fishing) are appropriate human-environment relationships in national parks, while capturing fish through labor for the purpose of production is not.

To erase these "inappropriate" relationships from the park's landscape, those in the tourism sector have sought to prohibit the capture of spawning yellowtail and other fish. To this end, restricted use zones along the park's shorelines are very useful. To reify these zones, the tourism sector has adopted conservation and scientific-type conservation discourses about the biological importance of protecting spawning fish in these areas. The following quotes represent these discourses:

> "When they use nets, they capture all of them when they have eggs inside them and they don't have a chance to lay them. It doesn't take a genius to figure out that if you take the older ones and the babies, even before they are born, that you aren't going to have any in the middle. This area is an incubator. They should wait until they leave this area. You can't find yellowtail anymore because they have taken them all. This should be regulated..."
>
> - Hotel manager

> "If you ask the old fishermen here they will say that you used to be able to go fishing for yellowtail from shore. But over time, it became harder and harder to find. You had to go further to find it...like all the way to Isla Carmen or to Pulpito. The problem was over exploitation…There are times of the year when yellowtail are in schools and it is easier to capture them. If it is established that they can't be caught in this time, then it will benefit everyone. With the nets, they can catch 10 tons at once, this is a lot, and it doesn't leave them to reproduce."
>
> - Owner of a sport-fishing business and of member of GEA

At the heart of these discourses are two "truths." Although these truths are conveyed with certainty, they may be much less definite. First, capturing spawning fish limits their reproductive capabilities. Frank Hester, a retired biologist from the U.S. National Marine Fisheries Service who is also developing yellowtail aquaculture in the area, suggests that it doesn't matter when you catch an adult yellowtail. Regardless of when it is caught, it

can't reproduce (Hester, personal correspondence, April 24, 2002). The scientific literature also suggests that concern over harvest of spawning aggregates has to do with the amount of catch, not the timing. Parrish (1999) notes; however, that there is a limit to how much artisanal fishermen can catch. "Although artisanal fisheries worldwide displayed impressive local knowledge which aided in school capture, they were technologically limited to extremely confined sections of the ocean. What makes the modern approach so potentially devastating is the marriage of behavioral ecology to energy-intensive technology, a marriage capable of overexploiting many of the world's schooling stocks (Parrish 1999:175).

The second truth that those in the tourism industry seek to establish is that capturing spawning fish with nets has led to a decline in the population. The second "truth" is also less definite because the decline in yellowtail populations is likely due to multiple factors including: diminished stocks of sardine and mackerel, prey species of yellowtail that were heavily exploited by throughout the 20th century; climatic changes due to global warming and El Niño; and the capture of juvenile yellowtail in gill and shrimping nets on large trawlers. There is also evidence that sport fishermen also impact the yellowtail population, possibly even more than the *pescadores de artesania*, because they take throughout the year (Gutierrez-Barreras 2002).

Figure 5.9 Fisherman holding a *jurel*, yellowtail jackfish *(Seriola lalandi)*.

5.4.4 Resistance to Territorialization

Although many actors are using dominant conservation discourses to establish rules about resource use, others are resisting these discourses. Creating truths about the capture of spawning yellowtail fish with nets represents efforts by the tourism sector to justify regulations on production activities in the park in favor of tourism development. This contradiction was captured by a fisherman when he said,

> "The management plan allows yellowtail to be taken in some places and not in others. (Those in the tourism sector) justify (these rules) by saying that yellowtail spawn in those places and that we capture a lot of them. (Those in the tourism sector) make all of these arguments, but they do it to justify what they want. But they don't say what they really want which is, 'We want you to prohibit commercial fishermen because we want it all for ourselves.' The whole park is a farce. It doesn't conserve. If you really want to conserve things why build these big hotels and tourism areas that destroy things"?

This quote reveals the emergence of several counter discourses being put forward by the fishing community to the park. The first one takes advantage of the lack of scientific evidence showing the impact of sport fishing and commercial fishing on fisheries. Fishermen point out that there is no evidence demonstrating that small-scale commercial fishing practices contribute to the decline in fisheries in comparison to sport fishing. This counter discourse may have been effective in reaching the sympathetic ear of a park employee, who ran a few numbers to determine if there may be any validity to the argument that sport fishermen take as much jurel as commercial fishermen. He indeed found that based on the number of sport fishermen who visit Loreto and their average catch, that sport fishermen could be taking more fish overall (Gutierrez-Barreras 2002).

The second counter discourse also takes advantage of a lack of evidence or transparency about the environmental impacts of tourism development. Fishermen point out that tourism development also has the potential to negatively impact the fisheries and other environmental resources more extensively than small scale commercial fishing, but that this contradiction is overlooked by those who want to limit commercial fishing for the benefit of the tourism sector.

In addition to these counter discourses, fishermen have resisted park rules passively and actively. Passively, fishermen have refused to attend workshops, meetings, and conferences intended to foster participation. As more than one fisherman told me, these workshops are fake because they don't really take into consideration the needs and requests of fishermen. Instead, they only give the appearance of incorporating fishermen.

Therefore, their very presence bolsters this image while enabling the park to ignore them. Many fishermen cited the first management plan as an example. They put their names on a sign up sheet showing they attended the meeting on the plan before the plan was discussed in the meeting. Although they didn't agree with the plan and opposed many aspects of it in the meeting, later their signatures were used to "prove" that the process had been participatory and that fishermen had understood and agreed with the plan. As a result, many fishermen now refuse to attend park meetings. By doing so, the fishermen are passively resisting the official story which claims that the park has local support.

Actively, fishermen are resisting park rules through illegal acts, such as fishing where it is prohibited and catching species that are protected. While many fishermen do not flaunt this illegal behavior and many justify it based on economic need, it is nonetheless another form of resistance to park rules (Vasquez-Leon 1999). As long as fishermen continue with behavior that contradicts the appropriate human-environment relationships defined by the management plan and supported by the tourism industry, they are creating an alternative reality that creates a direct contradiction to the commodification of nature.

5.4.5 Conclusions: Process

The territorialization of the park has occurred primarily through the creation of use zones. However the rationale for the zones has depended on scientific and conservation discourses that are used by conservation organizations and local environmental groups as well as by the local tourism sector (which many times include

the same people). The conflict over use zones has taken place on a discursive level, with those interested in maintaining restrictions on commercial fishing developing arguments that rely on a scientific tone of authority and expertise. However, the actual scientific basis of these claims is still in doubt.

Fishermen have resisted these claims by essentially ignoring the park (and park staff) and not giving legitimacy to its claims of community support by avoiding public meetings about the park. In addition, some fishermen are deliberately breaking park rules as a more active form of resistance. Finally, fishermen have attempted to reshape the discourse by not fighting back on a scientific level (for which they have no claims to expertise) but by pointing out the contradiction between environmentalists and their support of tourism development.

What this case highlights is that the park is not simply a bundle of rules that are implemented and enforced by the government. Rather, the park is a nexus for many different actors who are all engaged with another over what is considered appropriate human-environment interactions. Most powerful in this nexus have been those with access to resources (financial and discursive) from international environmental organizations. They have used with some degree of success scientific discourses to support their vision of human-environment interactions. Mexico's process of democratization has allowed for the development of connections between international and local environmental groups. By forming a non-governmental organization, GEA was able to attain a level of legitimacy beyond their individual identities as individuals

working in the tourism sector. In addition, as an NGO, GEA was able to receive direct support from international environmental groups.

The park, as a nexus of actors, has managed through conservation discourses to reshape the human-environment relationships in the reserve. Activities that were once seen as an honest way of providing for a family are now illegal, wrong. Fishermen are forced to resist these discourses to preserve their livelihood strategies.

5.5 Outcomes

In this section, I address the final question that I set out for myself at the beginning of this study: what have been the outcomes of creating protected areas within the context of neoliberal reforms? First I look at the outcomes for local resources, then for small-scale producers, and finally at how human-environment relationships.

5.5.1 Outcomes for Natural Resources

Unfortunately, very little fisheries data exists. Therefore it is difficult to make any claim about the impact of the park on fisheries. While park staff and some fishermen claim that the stocks have rebounded in recent years, there is little to substantiate this claim. At the same time, other fishermen claim they need to go further and fish longer to catch the same amount as they have in years past. It is difficult to know if perceived changes are real and if they are real what they are attributed to. It is very possible that some species are rebounding while others are not and it is also possible that these

rebounds may be attributed to natural cycles or other causes unrelated to the presence of the park.

There is also no clear data on the number of fishermen, boats, or the amount of catch, so it is difficult to know the level of fisheries exploitation. What is certain is that there is a great deal of pressure on the Gulf of California's fisheries. This, combined with decreasing nutrient load and loss of habitat in the Gulf's delta region, have likely caused an overall decline in the gulf's species diversity. Given the enormity of the gulf, it is questionable how much the park can really do to protect the species that inhabit the entire gulf – especially pelagic species. As one fisherman asked, what good is the park if there are trawlers lined up on the boundary waiting for the fish to come out the other side? The park only protects a small proportion of the entire Gulf. This points to an enormous debate occurring in the journals of conservation science around the question of the efficacy of marine parks and reserves given the mobility of marine species and the multiple threats on marine habitats and populations (Jennings 2000; Jones 2000; Roberts, Bohnsack, Gell *et al.* 2001). There is no clear answer, and most likely there will not be one in the near future.

5.5.2 Outcomes for Pescadores de Artesania

Throughout the early to mid-90s Mexico adopted several economic and political reforms that have had direct consequence on the fisheries industry. The first batch of reforms is related to macro-economic policy including trade liberalization, financial deregulation, tax reform, and privatization (Ibarra *et al.* 2000). In general, these reforms

have led to greater private investment, increased consolidation of the fishing fleet, and overcapitalization of the fisheries (Thorpe et al. 2000). Of particular significance to small-scale fishermen has been financial deregulation, which has led to the withdrawal of state credit sources. In Loreto, the absence of credit was frequently stated as a major problem by fishermen and their families, particularly for purchasing motors for their pangas. One fisherman explained that he hadn't been out fishing in his own boat for a year because his motor was broken and he couldn't afford another one, nor could he get credit to buy another one. Several fishermen told me even if they could get credit, they wouldn't want to take out a loan from the bank because the repayment schedule was set so high there was no way for fishermen to pay it off on their incomes, particularly if they have a bad season.

Lack of credit intensifies the cost-squeeze problem faced by most small-scale fishermen. This problem was the one most frequently talked about by fishermen. As the cost of inputs has steadily risen, the prices that fishermen get for their product has remained the same. Of particular concern to fishermen are the high prices of gasoline. On a typical fishing trip a fishermen might use as much as much as 70-75 liters of gasoline, which in 2002 could cost as much as $450 pesos. As shown in Figure 5.10, the cost of a liter of gasoline has risen since making a wild 66% leap in 1995 as gasoline prices were increased to pay off Mexico's foreign debt accrued during the 1994 peso devaluation crisis.

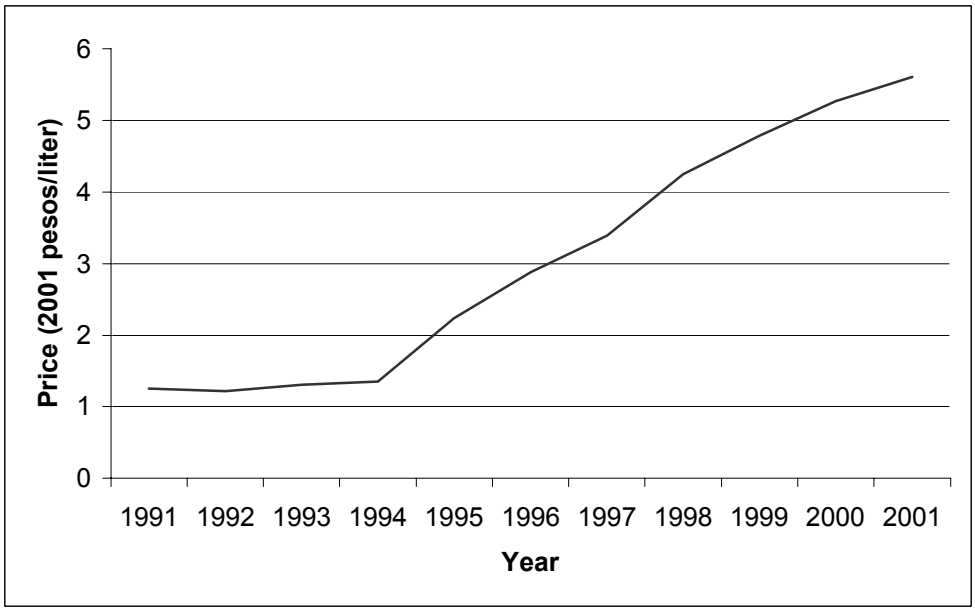

Figure 5.10 Gasoline Prices in Mexico from 1991 to 2001 (PEMEX 2002).

In the mean time, the price of most fisheries products have remained the same. Every small-scale commercial fisherman I spoke with mentioned the price for giant squid (*Dosidicus gigas*). These squid range along the pacific coast and migrate through the Loreto area every summer between June and September (Ehrhardt 1983). Given the timing of their migration, giant squid offer an important source of income for local fishermen. The heat of summer in gulf makes fishing nearly impossible. Not only is the heat difficult to work in, but it also spoils the fish. Squid are active at night and that is when they are caught. Night fishing allows fishermen to work in the summer.

However, fishermen I spoke with were concerned about the prices being offered for giant squid. In June 2002, just before the season started fishermen expected to receive between 2.4 and 1.3 pesos/kilo. All said that the price had gone down every year.

Five years ago, the price was at 3 pesos/kilo. Most attributed the decline in price to a "monopoly" held by Korean buyers. They are the only ones who buy and they set the price. One fisherman said, "if you ask them to raise the price, they threaten to go to Peru". This monopoly in the context of global markets points to just one of the many contradictions inherent to Mexico's open market policy. Many said that at the price offered they had to work very hard all night just to earn a little extra. Some said they weren't going to catch squid because they couldn't cover the cost of the gas and paying someone to help.

All fishermen I spoke with agreed that the price for all of their products, not just squid, had declined. They felt part of the problem is that they had to use intermediaries to sell their product, individuals who had access and permits to sell to buyers. Because there are so few in the area, they also set the prices. Fishermen feel helpless in bargaining with intermediaries because they have no way of preserving their catch to wait for a better offer. In the rural communities there is no electricity and therefore no way to freeze their catch. There must accept the price offered or throw it away. Many fishermen without transportation have a patron system with a buyer. The patron brings them gas, ice, and other equipment in exchange for the exclusive rights to buy their catch.

Figure 5.11 shows the price of squid in markets in Mexico City and Jalisco. The prices are considerably higher than what fishermen are getting. However, the prices in those markets have also declined, indicating that there is a larger trend influencing the price of giant squid.

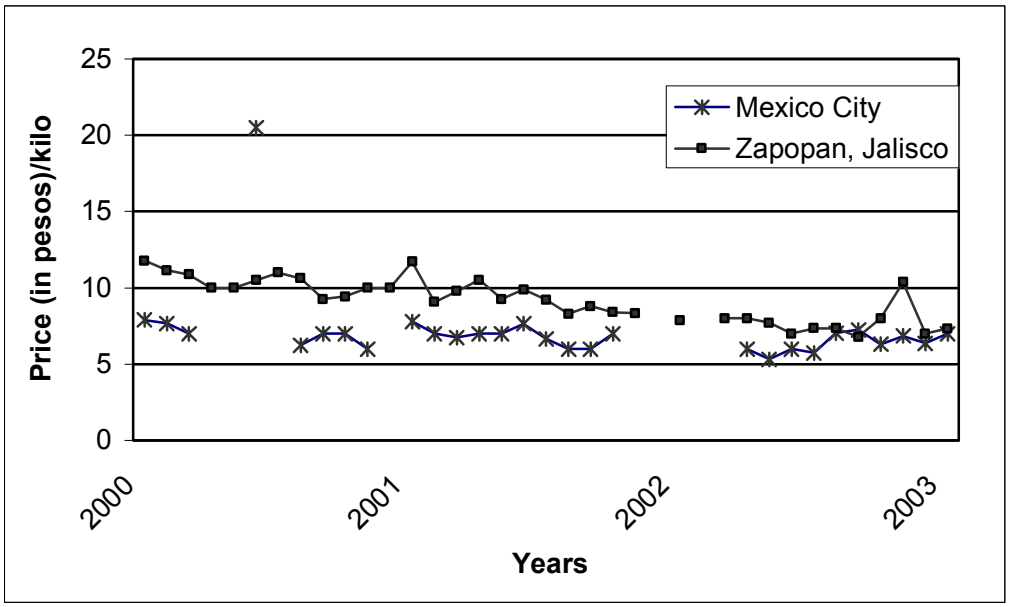

Figure 5.11 Prices in Mexico City and Jalisco for Giant Squid from 2000 to 2003 (Sistema Nacional de Información e Integración de Mercados 2003a).

The problem with intermediaries and a lack of control over the price of product relate to the history of Mexico's fisheries legislation, which further disadvantages small-scale fishermen. Historically, cooperatives held exclusive access to inshore fisheries. The 1992 fisheries law, however, withdrew these rights and replaced them with a system of permits and concessions that essentially privatize Mexico's fisheries. The new laws and their enforcement give large private investors an advantage. Meanwhile, small-scale fishermen are highly restricted to the point that almost any activity they do is considered illegal (Vasquez 1999).

In the Gulf of California and the Pacific Coast of Baja California, these changes have led to increased conflict and corruption (Thorpe et al. 2000; Vasquez 1999; Vasquez and McGuire 1993) while encouraging resource poaching (Young 2001). The same is

true in the LBNP, where most fishermen interviewed did not have legal permits for fishing. Often, they would show me a note of permission or a receipt of having paid for a permit from the local authorities in the fishing agency. While these would suffice and prevent harassment from local enforcement officials, they did not represent authentic permits. In addition, fishermen often confessed to using illegal methods of fishing (such as night diving) and catching rare and endangered species that fetch a good price on the black market, including sea turtle. While most of the time enforcement authorities look the other way, there is an increased risk associated with these activities. Occasionally, fishermen are caught and to set an example and their catch or equipment is confiscated when they cannot pay the fines.

In addition to illegal activities, some families seek out alternative sources of income. This may include one or more family members working in the local tourism industry as guides, construction workers, janitorial and wait staff, or security guards at local resorts. While alternative income to fishing can frequently be found in the tourism sector, most fishermen are either resistant or pessimistic. As one fisherman explained to me, he was born and raised a fisherman. He is good at what he does and he is his own boss. Even though he works hard and there is risk, he would rather fish than work for someone else as a construction worker or servant for a big hotel. As another fisherman explained, to really make money in the tourism business you need direct access to the tourists themselves, but only a few tourism operators in Loreto have that access. These operators have their own websites and often contract directly with the hotels and tour companies. The best that an individual fisherman can hope for is to be employed by one

of these operators. However, as he explained the schedule for payment often means that these fishermen are paying for the gas out of their own pockets until they get paid by the hotel. Several other fishermen also corraborated that of the amount paid to the hotel, they receive only a small portion once gas is paid for.

Another form of alternative income for fishermen is renting out part of their land to American retirees who build homes. Many fishermen have beach-side parcels of land coveted by American expatriates. In Juncalito, families rent out their land to several Americans at once, which has led to a crowding of the beaches of trailer homes. Unfortunately, this has led to feelings of animosity between fishermen and their tenants because many times families enter into these agreements reluctantly. Americans are frequently culturally insensitive, taking advantage of their landlords. So far, no *ejido*s have sold their land to Americans although this could become a possibility.

The challenges faced by small-scale fishermen under Mexico's new regulatory framework have implications for the management of the LBNP. The park ostensibly has sought to help small-scale fishermen overcome problems associated with access to markets by organizing cooperatives that have permits to sell directly to buyers. However, this effort has largely failed for a variety of reasons. First of all, the costs of forming a cooperative are prohibitive. Once a cooperative forms, it is unlikely that it will the permits it desires because they have already been over allocated, mainly to private investors.

Being in a cooperative also means greater restrictions on individuals. Not only do cooperative members have to register and pay taxes on their boats and equipment, but if a

member of a cooperative is caught fishing without a permit, the entire cooperative is punished. For this reason, there is an additional incentive for the park to form cooperatives because it establishes mechanisms for self-regulation.

At the suggestion of the park, several commercial fishermen took a gamble in 2001 by forming an association for the purpose of gaining income through tourism. The goal was that through the association they would be able to reach the tourists directly. However, at the point of this writing, many who had joined were dissatisfied. While the park provided space for them in their office building near the wharf, the fishermen found that by creating an association they were now more easily regulated. When one fishermen was caught allowing their clients to catch more than the quota for sport fishing, the group was fined. In addition, fishermen in the association had to register their boats with the port captain, which meant they had to begin paying federal taxes. They soon learned that port captain required them all to have life vests and radios to be able to take out tourists. Before joining the association they could get around the regulations more easily, but once they formalized themselves they were subject to regulation. Unfortunately, while doing my research, the association had not brought in the revenue they had hoped for. For these reasons, fishermen have largely resisted efforts by the park to form cooperatives or associations.

The park staff and NGOs frequently argue that the park can benefit local commercial fishermen by attracting eco-tourists. They argue that commercial fishermen could begin to profit from tourists coming to the park to view wildlife. To this end, SEMARNAT has offered training sessions to guides, particularly on whale watching. While helpful, these sessions are not comprehensive enough to enable commercial fishermen to become exclusive eco-guides.

In addition, the demand for eco-guides is small and faces tough competition from other areas – particularly the calving lagoons for gray whales on the other side of the peninsula. Most of the demand for ecotourism in the Loreto area is based on kayaking and diving. Both of these activities require years of training and expensive equipment that commercial fishermen do not have. Therefore, most of the ecotourism dollars go to American-run companies who tend to employ young Americans with the skills to be kayak and diving guides.

In the larger context of neoliberalism, the Loreto Bay National Park represents one more obstacle to small-scale commercial fishermen in the area. As a result, fishermen are putting greater pressure on themselves and their resources. While the park and non-profit groups that support the park claim that tourism revenue will provide an alternative income for tourism, this claim has not materialized into a reality. On the contrary, efforts by the park to organize fishermen as tourism guides have led to greater restrictions and costs. Only a few companies with the right equipment, skills, and access to the tourism market are poised to benefit from any extra tourism that may be brought in because of the park. Overall, the Loreto Bay National Park locally exacerbates the widening income gap in Mexico between rural and urban, where small scale producers are finding it ever more difficult to make a living in the face of neoliberal reforms.

5.5.3 Outcomes for Human-Environment Relations

Overall, the outcome of creating a park in the context of neoliberal reforms has been has been to create an uneven or patchy landscape (seascape?). Within the park, there is a struggle to create a landscape of leisure – to replace productive activities in

which humans engage directly with nature though labor with passive consumptive activities. Small-scale commercial fishermen are finding it harder to continue production with the combined impacts of neoliberal reforms and park regulations. Meanwhile, the state is actively promoting tourism as the only acceptable human-environment relationship within the park. Within park boundaries, nature is separated and commodified in the name of conservation. Outside of park boundaries, neoliberal reforms have not slowed down decades of intense pressure on the fisheries. In many ways, neoliberal reforms have intensified fisheries exploitation through the privatization of fishing rights to large businesses. While the outcome is unclear, it is most likely lead to an overall decline in fisheries.

The park has become a metaphorical "pleasure island" in a sea of exploitation. It is questionable how much the park can really do to ameliorate the effects of fisheries exploitation that is occurring throughout the Gulf. Unfortunately, environmental groups have focused most of their attention on changing human-environment relationships within park boundaries. Rather than engaging in the larger political economy that has lead to fisheries exploitation, conservationists have relied on creating more parks as a way to confront the environmental impacts of neoliberal reforms. This strategy is most likely only going to create more patches while at the same time further disadvantaging small-scale commercial fishermen.

5.6 Conclusions

The Loreto Bay National Park demonstrates a connection between neoliberal reforms and the establishment of natural protected areas. The official story of the park tries to obfuscate this connection. By justifying the park based on its biological diversity and claiming the park was requested by "the community", the official story masks the connection between tourism development and the park. In so doing, the official story casts the state as neutral and objective – doing what is necessary based on scientific evidence and civic responsibility.

However upon closer examination, it is clear that through the park nature is transformed into a commodity as a tourist attraction. Because large-scale tourism development attracts foreign investment and helps reduce the trade deficit, it is an essential part of the neoliberal agenda. The park is a strategy by which to create and commodify "nature" in the romantic and enlightenment sense. This nature is an attraction for tourists and tourism developers – particularly given the increased interest (and money spent) in eco or adventure tourism. The Loreto Bay National Park was and is seen by developers as an essential part of the region's large-scale tourism development plan. Given this connection, it is not surprising that in the same year (on the same day) the only other parks that were created were also marine parks surrounding the major tourist development of Cancun.

The park as strategy for capital accumulation occurs through a *process* of establishing re-regulation of human interactions with the environment. Nature is created through rules and regulations on human behavior. However, these rules and regulation

are not a simple matter. A whole host of actors across scale and sector are involved in the creation of rules. And these rules go far beyond what is printed on the pages of the park's management plan. Rather, these rules involve a fundament reworking of what is considered appropriate human interactions with the environment such that resource users internalize a new vision of nature. Small-scale commercial fishing, once considered a legitimate way of earning a living – in fact encouraged by the state – is now considered wrong and in many ways illegal.

This fundamental shift in how human-environment relationships are established is evident in the debate over the appropriate use of *jurel*. Although sports fishermen may, in fact, take as much *jurel* as commercial fishermen, the approach used by commercial fishermen is attacked using scientific "truths" (although there is no scientific evidence to support the claims made). This is because the use of nets violates the image of romantic nature that state seeks to create. Sport fishing, on the other hand, is considered a more appropriate use of the resource. Although commercial fishermen are passively resisting these new rules and regulations, alternative discourses have yet to effectively confront the dominant scientific and conservation discourses.

The outcome of this strategy is to create a patchy land/seascape in which nature is separated out and passively consumed within the park boundaries while fisheries are heavily exploited in unprotected waters. While there is little evidence to show the outcome of the park on biodiversity, the question has been raised within the scientific community how effective marine parks are in the face of wide spread exploitation. It is clear, however, that the outcome for small-scale fishermen has been negative. Already

hit hard by a cost-price squeeze created by neoliberal reforms and a decline in the fish stocks, fishermen are also facing the regulation of their livelihood strategies within the park. While some fishermen turn to other ways of making a living locally or by migrating some of the time, most frequently this circumstances cause them to take greater financial and physical risks in their activities.

As I write this, the shore and water of the Sea of Cortez is under increasing pressure from tourism development and fisheries exploitation. The Mexican government has launched an enormous tourism development (Escalera Nautica) project that will open up the coasts on both sides of the gulf to roads, condos, hotels, golf courses, and marinas. In response to these developments, environmentalists have proposed a network of reserves to mitigate the impacts of these developments. When considered in the context of Mexico's neoliberal reformation, it is not surprising that the state has been amenable to this idea. In the end, tourism, not fisheries, may hold more potential for generating economic revenue. A network of parks would ensure an attractive playground for the American tourists and part-time residents who would populate the shores of the Gulf. The environmental costs of large-scale tourism development may be even greater than the exploitation of the fisheries – particularly because these parks would do little to stop development along the coasts. A network of parks would only compound the patchy landscape problem.

The Loreto Bay National Park demonstrates why environmental groups based in the U.S. working in other countries, such as The Nature Conservancy, must expand their efforts and not focus on protected areas as a way to confront changes brought about by

neoliberal reforms. Rather, TNC and other similar groups must engage with political economy and question the environmental and social ramifications Mexico's transformation to a neoliberal society. Failing to do so will only lead to greater unevenness across the landscape in terms of resource exploitation and social well-being.

CHAPTER 6: CUATRO CIÉNEGAS

6.1 Introduction

The Cuatro Ciénegas valley has received limited federal protection as a recreational area since 1987. In 1994, President Salinas declared the valley an Area Protegida de Flora y Fauna, a wildlife reserve, which encompasses 84,347 hectares (32,566 square miles) (Figure 6.1).

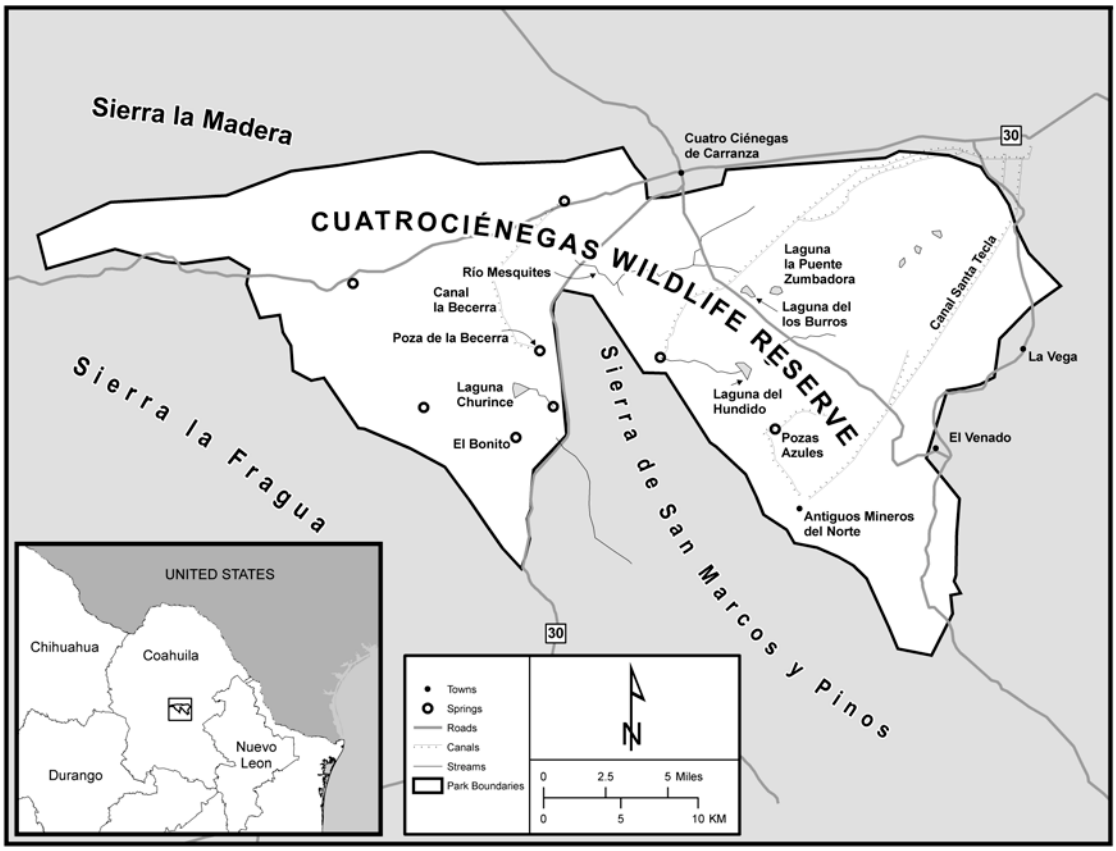

Figure 6.1 The Cuatro Ciénegas Wildlife Reserve and surrounding communities.

Like the Loreto Bay National Park, I will examine the creation and outcomes of the Cuatro Ciénegas Wildlife Reserve based on the three questions outlined in Chapter 1. The biggest difference between the two cases lies in the connection between the creation of the reserve and the passage of neoliberal reforms. Neo-Marxist theories help explain the creation of the reserve in Cuatro Ciénegas in the context of neoliberal reforms, although the nature of the connection is different from that in Loreto. While the Loreto Bay National Park supports neoliberalism through the direct commodification of "nature" for the purpose of tourism development, Cuatro Ciénegas has experienced no such commodification. The potential link between its establishment and neoliberal reforms has much to do with what Mumme (1992) has called Salinas's pre-emptive strategy, in which the Salinas Administration adopted environmentally-friendly programs and policies as a way to earn the support of environmental groups for neoliberal policies – foremost NAFTA. This linkage is explored in greater detail in section 6.3.2.

Cuatro Ciénegas does provide an excellent case for understanding the remaining two questions using the theoretical framework outlined in Chapter 2. Like the Loreto case, the process of creating Cuatro Ciénegas is based on a complex network of actors based at different geographic levels and across sectors. However, this network was very different in character than the Loreto case. Biologists at the national and international level had a great deal to do with the creation of reserve in Cuatro Ciénegas. There was no strong local, state or national contingent with an economic interest in creating a reserve. As the reserve has evolved, so have the actors. In particular, international and national environmental groups and multi-national financial institutions have become

more involved in its management, thereby changing the process by which the reserve is territorialized. Unlike Loreto, where it is territorialized through the implementation of use zones, in Cuatro Ciénegas the strategy is based on community based conservation projects and land purchases by conservation groups.

In addition, this case supports the predicted outcomes of creating the reserve in the context of neoliberal reforms. As many geographers have theorized and described in other cases, the reserve in Cuatro Ciénegas has led to a patchy landscape in terms of human-environment relations (Zimmerer 2000; Demeritt 1998; Katz 1998). This is particularly true given regional resource exploitation enabled by neoliberal reforms. Many of the environmental organizations working in the reserve have attempted to restore a pristine image of the basin without engaging in broader political economy and its impacts on the surrounding areas. Large scale agricultural development on the fringes of the reserve have impacted water sources in the basin and may threaten the freshwater sources the feed the pools that the reserve is intended to protect.

In the first section of this chapter, I describe the history and current conditions of Cuatro Ciénegas Basin. Next, using ethnographic information collected in the field, I look at each of the three major questions I presented at the outset of this study under the headings of Connections, Process, and Outcomes. I examine how well the theoretical framework presented in Chapter 2 helps me to interpret the information.

6.2 History and Background

6.2.1 Natural History

Cuatro Ciénegas Basin is located in the middle of the state of Chihuahua, approximately 150 miles south-southeast of the Río Grande (Río Bravo del Norte) and Big Bend National Park. Geologically, the basin is located in a region is characterized by basin and ridges approximately 80 to 40 million years ago when the Sierra Madre Oriental underwent folding and thrust faulting (Winsborough 1989). The valley floor is located at 740 meters (2,400 feet) above mean sea level, and is surrounded by limestone mountains with peaks up to 3,000 meters (9,800 feet) in elevation (Minkley 1969). The basin is approximately 40 km (25 miles) east to west and 30 km (19 miles) north to south (Minkley 1969). For its relatively small size, Cuatro Ciénegas exhibits an amazing amount of geologic diversity. Says Marsh, the surrounding mountains of the basin "interdigiate bajadas, canyons, and alluvial fans; dune fields; and divers aquatic and semi-aquatic habitats including springs, marshes, rivers, lakes, playas and canals (Marsh 1984:3)"

In general, the climate on the valley floor is hot and dry, although, typical of desert climates, temperatures fluctuate greatly between from lows below 0° C (32° F) in the winter to highs above 45° C (113° F) in the summer. The average annual rainfall in the valley is less than 300 mm (12 inches) (Canales-Santos 2000), which occurs primarily in late summer during monsoon-like thunderstorms. Winter rain, while less dramatic, also contributes much to the annual rainfall.

The valley floor is characterized primarily by vegetation typical of the Chihuahuan Desert, characterized by creosote (*arrea tridentata*), tarbush (*Florensia cernua*), mesquite (*Prosopis glandulosa*), acacia (*Acacia* spp.), cacti, and agave (WWF). However, the diversity of aquatic habitats within the basin as well as the changing elevation along its slopes makes the Cuatro Ciénegas basin an area of significant vegetative diversity and endemism (Pinkava 1984). What makes Cuatro Ciénegas a place of extraordinary significance to biology and conservation are its marshes and pools. When the first Spanish and Mexican settlers came to this region, they found the valley saturated with water. They named it Cuatro Ciénegas after four primary marshes. Today, there are known to be 200 individual pools fed by underground streams.

Figure 6.2 Poza Azul in the Cuatro Ciénegas Reserve.

The basin's water enables a variety of unusual wildlife, including as many as 70 possible endemic species (Calegari 1997), which have evolved in isolation from other water bodies in response to the particular environment of the basin. Among the most famous endemic species is the Coahuilan Box Turtle (*Terrapene coahuila*), which is the only known tortoise to have a shell that shuts close and lives primarily in water, even though they are also known to migrate up to 25 miles across the valley each year between pools (Howeth 2005).

Perhaps most unusual and most significant to science are the stromatolites – lithified, carbonate deposits built by microbial communities – which are also found in the valley pools. These microbes are known from the fossil record to be among the first living organisms on the planet. And yet today they are found in only three places on Earth. Most of these places are extreme environments where there are no other living creatures that graze on the stromatolites. Cuatro Ciénegas is the only place where stromatolites are known to co-exist with creatures that graze upon them, in this case, snails. Therefore, Cuatro Ciénegas has the potential to provide answers about the emergence of early life on Earth. For the past five years, NASA has funded a major project through Arizona State University and the Universidad Autonoma de Nuevo Leon to understand the ecological dimensions of the stromatolites in Cuatro Ciénegas as representatives of Earth's earliest life forms. Early results suggest that phosphorous availability early in the Earth's history may have played a major role in early ecology,

including possible limitations on the emergence of higher animals prior to the Cambrian explosion (Elser and Farmer 2003).

Despite the ecological and scientific value of the Cuatro Ciénegas basin very little is known about the origin of the water that feeds the pools. No surface streams enter the basin that directly feed the pools. One fish species found in the basin, the Rio Grande chiclid (*Cichlasoma cyanoguttatum*), is common throughout the Rio Grande drainage indicating that at one point the Cuatro Ciénegas basin was linked to that drainage system. Therefore, it is possible that the water in the basin travels from a very long distance. Another theory is that the water comes from more local sources, particularly the Sierra de San Marcos. Since many of the pools are located at the base of this range, it is thought that the precipitation is collected on the mountain and drains through cracks and fissures before it hits a layer of bedrock on the valley floor and is pushed to the surface. There are also a number of adjoining basins where water is clearly being collected below the surface, yet there is no surface water. It is believed that this sub-surface water may then be draining through cracks and fissures into the Cuatro Ciénegas basin. Perhaps a combination of all of these sources feeds the pools of the basin. So far, the Mexican government and scientists have lacked funds to do the level of analysis necessary to determine the water source of Cuatro Ciénegas.

6.2.2 Human History

It is believed that people arrived in the region 11,000 years ago (Canales-Santos 2000). Very likely over thousands of years, different groups of people came and went in

this region continuously subsumed or conquered by new groups. At the time of the Spanish arrival, it is believed the valley were nomadic people, members of a larger group who were named Chichimeca by the Spanish. Very little is known about the original inhabitants, except that they appeared to be migratory, using the caves on the valley slopes for shelter. They did not appear to inhabit the area for any length of time. Most likely they used the valley as an annual hunting ground and perhaps as a place to gather grasses that could be used to make woven items (Gilmore 1947). They did not make any alterations to the pools themselves for the purpose of cultivation, which is surprising given that their contemporaries in Sonora and Arizona had developed extensive irrigation systems.

The early history of Cuatro Ciénegas as a permanently inhabited area is unclear. Throughout the 16th century, Cuatro Ciénegas may have been a stop along a well-used trade route (Alessio-Robles 1938). It appears that the first, albeit brief, settlement in the valley may have been from between 1577 and 1582 by miners who sought silver in the mountains. Throughout the 17th century, Jesuits attempted to establish a mission in the area, but were unsuccessful because of attacks by native residents. The Franciscans established a mission in the vicinity of Cuatro Ciénegas and San Buena Adventura in 1673, however the exact site is unknown. In 1744, Cuatro Ciénegas became part of the immense hacienda del Marquesado de Aguayo and by 1761, a small ranching settlement had established. But by 1797, the ranch had been abandoned because of frequent attacks by Apaches and Comanches (Canales-Santos 2000).

In 1800, Cuatro Ciénegas was officially established by the governor of the province because it was strategically necessary to reclaim the land from the Apaches. In that year, the town began with 29 families that started to build their houses and plant wheat as well as corn, beans, cotton, chile, and vegetables for their own consumption. The town was established on top of the Aguayo ranch on the northern side of the basin, to take advantage of the Rio Canon, natural river that emerged in the canyon that separated the Cuatro Ciénegas Valley from the basin to the north (Valley de las Calaveras). Throughout the first part of the 19th Century, the town was frequently invaded by Apaches and Comanches (Canales-Santos 2000).

Early on, the primary activity was wheat cultivation and ranching. Water from the Rio del Canon was used to irrigate the wheat fields. Over time, other agriculture was established, primarily pecans, peaches, and grapes. In the late 1800s, several Italian families settled in Cuatro Ciénegas and began producing wine. The wineries became an important part of the cultural identity of Cuatro Ciénegas, which began celebrating an annual week-long grape festival in the early 20th century, drawing crowds from all over the region to nightly dances and a carnival.

Despite its success as an agricultural community, cattle ranching largely shaped the social structure of Cuatro Ciénegas. Few prosperous families owned the land surrounding the valley for cattle ranching. With the completion of the railroad, ranchers had greater access to markets and their businesses thrived. The family of Venestiano Carranza, the first president after the Mexican Revolution father of the Mexican Constitution of 1917, owned a large part of the Calaveras Valley.

Industry at the turn of the 20th Century included rubber from the guayule (*Parthenium argentatum*) plant. Weeks (1918) described how the rubber was extracted from the shrubs hundreds of miles to the northwest and brought to town by wagons. The rubber was then shipped elsewhere on the railroad that passed through town on the way to Monclova and Monterrey. This industry declined with other, cheaper and more readily accessible sources of rubber in the western hemisphere. Weeks also mentions briefly that salt was produced on the valley plains.

During the height of its prosperity at the turn of the century, the town of Cuatro Ciénegas was described as very beautiful. George Weeks, an American, spent a summer in Cuatro Ciénegas sometime before he published a small book on this experience in 1918. He describes a town of lush gardens with trees that keep the entire city shaded. All of this vegetation was fed by water that flowed along little canals in the streets that diverged into the inner courtyards of the homes and plaza.

> "In the deep shade of the shrubbery, in rich soil kept moist by the constantly flowing irrigation rivulets, the plants grew heavy and dense, while the blossoms were luxuriant and odorous far beyond anything known in less favored climes" (Weeks 1918: 15).

Despite the prosperity of Cuatro Ciénegas, like most of Mexico at that time, it was highly uneven. While there were a few wealthy, land-owning families in Cuatro Ciénegas at this time and a small middle class, there was also a large population of peons, or lower class who were primarily responsible for the manual labor on the farms and ranches. It is remarkable, given the timing of his publication that Weeks never once mentions the Mexican Revolution or Venestiano Carranza, who was a leader of the

Revolution, wrote the Mexican Constitution in 1917, and took office as the first Mexican President in 1914-15 to 1920.

The Mexican Revolution had a profound effect on Cuatro Ciénegas in terms of the redistribution of land as well as politics. From the time of the revolution, up to 2002, Cuatro Ciénegas was dominated by the PRI. Venestiano Carranza demonstrates the contradictions of the emergent government that still influences politics in Cuatro Ciénegas today. Carranza was a member of the elite, landowning class in Cuatro Ciénegas. So it is at first surprising that he wrote the constitution that would enabled the redistribution of land from large land owners to *ejido*s, including his own family's extensive ranch. However, the Mexican Revolution demonstrated to emerging leaders the necessity of maintaining the support of the Mexico's population base (poor, rural peasants). Land redistribution was key to maintain that support and develop a system of clientalism and patronage that helped the PRI maintain a relatively stable system of power for over 70 years.

In Coahuila, the PRI has maintained a system of control that has helped keep it in power. Throughout its history it has always had a PRI governor, despite the fact that many other northern states have come under the PAN in recent elections. Since the establishment of the PRI, the Alcalde of Cuatro Ciénegas has always been a member of the PRI as well as a member of the elite class – descendants of the original land owning class who still maintain some private land ownership.

As a result of Article 27 of the 1917 Constitution of Carranza, much of the land within the *Municipio* of Cuatro Ciénegas was redistributed beginning in the 1930s and

ending in the late 1980s. The first *ejido* established was Cuatro Ciénegas, which received much of the land immediately adjacent to the city. The *ejido* of Cuatro Ciénegas is perhaps the most well off of all the *ejido*s because it receives its water from La Bacera spring. Most of the peons working the farms and ranches in and around Cuatro Ciénegas at that time became members of the *ejido*. Other *ejido*s were established later and were created to meet the requests of peasants living in other places. Many of these *ejido*s were established in close proximity to a spring.

6.2.3 Cuatro Ciénegas Today

According to the 2000 national census, the *municipio* of Cuatro Ciénegas has approximately 12,150 residents, with approximately two-thirds living in town and the remainder (1,300) living in 11 *ejido*s. With an area of approximately, 7,861 square kilometers (3,035 square miles), the population density is four people per square mile. Although the population grew from 10,850 to 12,302 between 1980 and 1990. Since 1990, the total population has been stagnant with possibly a minimal decline.

Today the town is a shadow of its former beauty and prosperity. With the development of large-scale agriculture just north of town in the adjoining basin, the river that once supplied the town water is now just a trickle. The famous gardens and lush vegetation are now gone. Pecan, peach, and pomegranate orchards are dying as well as the vineyards. A small winery established in the late 1800s no longer grows its own grapes, but instead buys them from Las Parras several hundred miles to the south. The

major winery in town manages to still produce some of its own grapes and pomegranates with assistance from a well, but not nearly in the same quantity as 30 years ago.

Figure 6.3 A dried up *solare*, or home garden, that once supported pecan trees.

Figure 6.4 Remnant of Cuatro Ciénegas' former grandeur.

Now the primary industries that offer significant employment are *maquiladoras* and two gypsum plants. Government agencies also provide some employment, the largest of which includes the local *secundaria* (high school) and agricultural extension training program, the *municipio*, and the reserve (SEMARNAT). The remaining employment comes from small shops and businesses around town. A few jobs have been generated recently by restaurants and hotels catering to tourists, but these are still largely seasonal, low paying service positions.

Ejidatarios still depend primarily on farming, collection of non-cultivated products (such as *jule* and mesquite wood), and raising livestock (primarily horses and goats). Increasingly these activities are supplemented by family members (generally the

younger men) migrating to Cuatro Ciénegas, Monclova, Monterrery, or the United States for work. In addition, as privatization of the *ejido* community lands is implemented, many *ejidatarios* are selling off pieces of their land to supplement their income. In extreme cases, entire *ejido*s in the *municipio* have sold their land and used the revenue to purchase small home sites near Cuatro Ciénegas where they hope to find work.

Figure 6.5 The hot and dangerous work of extracting wax from c*andelilla.*

The availability of water is the greatest determinant of the income generating activities in the *ejido*s. Where water is available, most *ejidatarios* decide to produce

alfalfa for sale. Some of these *ejidatarios* have somewhat technical systems of farming, employing mechanical cutters and bailers. These *ejidatarios* are most likely associated with the Cuatro Ciénegas or Santa Teresa *ejido*s. Despite having some technical capacity, *ejido*s manually deliver surface water through canals, very rarely using mechanized systems (e.g. pivots sprinklers). Only large-scale private producers have the capital to install these expensive water delivery systems and pay for the electricity required to power the pumps (these systems use ground water pumped from deep wells, not surface water).

Where water or access to markets is limited, *ejido*s are more likely to produce subsistence crops such as corn and beans along with some livestock, primarily horses or goats. They will supplement this with some income-generating activities such as collecting mesquite wood or collecting *candelilla*, which they will then process and make into wax for sale to local buyers. There are a few *ejido*s where there is no water available for any form of cultivation. These *ejido*s are the poorest and rely almost exclusively on the collection of natural products, primarily candelilla for income.

6.3 Connection: Neoliberal Reforms and the Cuatro Ciénegas Wildlife Reserve

6.3.1 Absence of an Official Creation Story

Unlike in Loreto, there is no official creation story for the reserve in Cuatro Ciénegas. There is no story circulated, volunteered, repeated about the history of how or why the reserve was created. As a result, when asked, different people provide a

different history or only pieces of a more complete story. For example, ask many local residents and they will tell you the current reserve director, and former *alcalde* of the municipo, Susana Moncada, was behind the establishment of the reserve. This response is based on their immediate speculation, not on an often repeated narrative. Moncada herself claims she was only involved at the end of a long process. It is through many interviews that I pieced together a history of the reserve's creation at the local level. As I will show in the next section, the impetus for the reserve's establishment was due primarily to biological scientists and conservationists, working at the national and international level.

6.3.2 Possible Connections

What is important about the lack of an "official" story is that no one is trying to sell a justification for establishing the reserve. There are several potential explanations for this. First, it may be due in part to the fact that the biological reasons for creating a park are very tangible to the local population and very well documented in the biological sciences. Given that its biological uniqueness is so well known – something that the local population is aware of and even proud of – there is little need to justify a reserve intended to preserve those species. As Calegari (Calegari 1997) demonstrated, most residents of the valley appreciate the valley's uniqueness and are familiar with endemic plants and animals. While most residents at that time expressed concern that the reserve would limit their current economic activities, in the years since there has been little conflict between the reserve and local residents. Another reason for the absence of an official creation

story may be that there was no direct economic agenda behind the establishment of a reserve. While tourism has increased in recent years, it has not become a major or constant source of revenue. Cuatro Ciénegas simply is not suitable for wide-scale tourism development. Although the state of Coahuila has attempted to publicize the area as an international tourist destination, the majority of tourists are regional. Only a few families have taken advantage of tourism by opening small hotels or restaurants, but tourists only come at certain peak times of the year – primarily around Semana Santa – and they usually camp and bring their own food.

While it is possible that the creation of the reserve was supported by the neoliberal concept of "biodiversity banking", none of the species protected by the reserve have been identified as a species of value for bioprospecting. As a biodiversity bank, the reserve may be considered (in the neoliberal way of thinking) a smart economic move to preserve option values. However, I did not uncover any language in texts or interviews that led me to believe that this thinking was used extensively to justify the creation of the reserve. On the contrary, most of the written arguments at the time focused on the intrinsic value of the basin and its endemic species. Because there was no obvious economic agenda for creating the reserve that would benefit a group of people at the expense of another, there was no reason to create a story that justified the reserve to cover a more base economic incentive that would benefit one segment of the local population over another – as is the case in Loreto.

Although there may not have been a direct economic incentive for creating the reserve, there is still room for a neo-Marxist interpretation using regulation theory.

Given the biological uniqueness of the Cuatro Ciénegas Basin, it is well known within the ecological community – particularly amongst aquatic biologists. Throughout the 1980s and early 1990s, biologists wrote journal articles and held conferences on the importance of the basin and its protection. This biological community came together creating an international network with a common purpose of protecting the reserve. This network still exists, as evidenced by a listserv of scientists working in the basin who correspond regularly to everyone abreast of local developments that are of interest to the reserve and the protection of the basin.

Although this network of international scientists worked for decades to protect the basin, their efforts were not rewarded until the mid-1990s. The timing begs the question: why then and not earlier? The answer may lie in Mumme's observation of Salinas's pre-emptive environmental strategy (Mumme 1992 and1995). When Salinas came to power and sought to legitimate his leadership and the neoliberal agenda, he made a special point to appease the environmental movement, which was emerging as a political force in Mexico and which was skeptical of the environmental outcomes of neoliberal policies. Given the importance of the Cuatro Ciénegas Basin to the biological community, which had become quite active in its effort to protect it, the Salinas administration may have recognized a political advantage in creating the reserve as a way to keep conservationists happy and project an environmentally friendly image at the same time he needed their support as he transformed Mexico's political economy.

This was particularly true in the context of NAFTA. As discussed in Chapter 3, NAFTA was the keystone of Salinas's reforms. The power of U.S.-based environmental

organizations to threaten NAFTA negotiations troubled Salinas. In an effort to appease environmental groups in the United States as well as in his own country, Salinas green washed his entire agenda, passing some of the most advanced environmental policies and programs in Mexico's history (Liverman 2005, personal correspondence). Given the clear biological importance of the Cuatro Ciénegas basin and the network of ecologists concerned with its protection, the establishment of the reserve may have served as a tool for the Salinas administration to win support of the ecological community at home and abroad.

Although Salinas' environmental reforms may appear contradictory to his neoliberal agenda, regulation theory demonstrates that they are not. According to regulation theory, the pre-emptive strategy could be viewed as a way to reorganize society to overcome the contradictions of capitalist accumulation – the overexploitation of labor and resources that are required for production and consumption. By working to appease the environmental community and protect environmental resources, Salinas pre-empted any serious social movement or environmental "crisis" that would have threatened his economic reforms. James O'Connor argues that a similar process occurred in the United States in the early to mid-1970s during the modern phase of capital (O'Connor 1998). In this way, Salinas adopted a new mode of environmental regulation that, while appearing to hinder capital (may have limited individual capitals), nonetheless furthered the neoliberal agenda, which enables capitalist accumulation on a much larger scale.

Unfortunately, this motive for creating the reserve is largely based on circumstantial evidence based on Salinas's environmental record and agenda at that time. While environmentalists in Mexico were aware that Salinas was more willing to make concessions during this time in order to get his reforms passed (Liverman 2005, personal correspondence) it is not clear that this same motivation was behind the establishment of the Cuatro Ciénegas reserve. To determine the motivation behind the adoption of the reserve would require sleuthing beyond the scope of this study.

6.4 Process: Creating the Cuatro Ciénegas Wildlife Reserve

This section envisions the reserve as the nexus of many different actors situated at different levels, each influencing the landscape of the reserve. These diverse actors occupy different roles within government, the non-profit sector, and the private sector. Together these actors influence, albeit unevenly, how the landscape of the park is shaped discursively and materially. As I will show in the next section, through development projects and land purchases, conservationists have attempted to reshape the human-environment relationship within the reserve.

6.4.1 History of the Reserve's Creation: The Scientific Community

The history of the reserve is bound up in a complex network of scientists in the United States and Mexico, working in various sectors. Their collective efforts to protect the basin lasted three decades, from the mid-60s until the reserve was designated in 1994.

Most likely their combined voices are ultimately responsible for drawing the state's attention to this area.

The basin was "biologically discovered" in 1939 by E.G. Marsh Jr., an American scientist who was conducting a general biological survey of northern Coahuila during United States-México field surveys for a possible Sierra del Carmen-Chisos Mountains (Big Bend) International Park. When taxonimists examined Marsh's collections, they recognized a high degree of endemism for this region. It was not until the 1960s that the degree of endemism uncovered by Marsh was described in publication (Hubbs and Miller 1965) and the scientific community began to notice. At that same time, two important players in the creation of the reserve entered the story.

The first was W.L. Minkley from the Zoology Department at the University of Arizona, who visited Cuatro Ciénegas for the first time in 1958. For him, it would be the beginning of a love affair with the basin. Minkley was almost single-handedly responsible for exposing American scientists to the biological treasures of the valley. He visited the basin at least twice a year and literally introduced hundreds of students and other researchers to the basin. Many of these researchers would go on to contribute significantly to the scientific understanding of the basin's ecology. Most notable among these students is Dean Hendrickson, at the University of Texas at Austin. As a respected researcher fluent in Spanish and the local culture, Hendrickson is today at the center of the web connecting the scientific and the local community.

The second major lead in the story of the reserve is Salvador Contreras-Balderas, one of Mexico's most respected ichthyologists. Working on his Ph.D. at Tulane

University in the early 1960s, Contreras-Balderas spent many weeks collecting samples in the Cuatro Ciénegas basin. Since then, he played a major role in the establishment of the reserve. Like Minkley, Contreras-Balderas introduced many researchers to the basin. Several of his students would go on to work in NGOs and government agencies where they also worked to protect the area. Among them would be Eglantina Canales, who would go on to become director of the non-profit environmental group, PROFAUNA, cited as s co-sponsor for the reserve in the official declaration. Also among Contreras-Balderas' students was Graciela Patricia Arocha-Gómez , who worked for the SEMARNAT delegation in Coahuila. As a Mexican citizen, Contreras-Balderas was better able to access Mexico's political system and provide a certain level of legitimacy to the efforts to create a reserve than U.S. scientists.

By the late 1960s, both Mexican and U.S. scientists began to become concerned about human development in the basin and its effect on aquatic habitats. In particular, there was concern regarding the construction of new canals from the pools to irrigate fields. In contrast to older canals, these were lined with concrete, which did not permit water to seep back into the wetlands en route. In 1964, the Bacerra canal was constructed. As a result, Minkley observed a decline in the Rio Garabatal system, which paralleled the canal.

Minkley was among the first to express concern in writing about human activities that might affect the viability of the springs and the maintenance of the ecosystem and its endemic species, but he certainly wasn't the last. For the next three decades, Minkley and other scientists wrote about the need to protect the basin from activities that may

irrevocably alter the basin's aquatic ecosystems. It was from this community that the idea of a reserve emerged. It is unclear exactly when or how the idea of the reserve began to emerge, but no doubt it was an idea that drifted in the minds of scientists early on. The problem was getting the idea made into reality.

Particularly active in the struggle to create a reserve was the Desert Fishes Council (DFC), a group of scientists who study desert fishes and their ecosystems in North America. In 1983, the DFC held a special symposium on the biota of Cuatro Ciénegas. The result was the compilation of scientific articles that highlighted the basin's unique biological and ecological diversity. Although a few contributors discussed conserving the basin, the overall tone of the papers was one of neutrality.

The Desert Fishes Council hosted another special symposium in 1993 dedicated to the Cuatro Ciénegas Basin. Unlike the symposium that took place a decade earlier, this one had a much more active objective. Rather than providing a detached inventory, the contributors to this symposium directed their papers toward the definition of use zones. At this meeting, the DFC adopted a resolution to urge "all private, municipal, state, and federal individuals and agencies dealing with the Cuatro Ciénegas basin to redouble their efforts so that this showcase of biological diversity for Mexico, the Chihuahuan Desert, and for the World will not be damaged or lost, but will be conserved for future generations (DFC 1993: 65)."

Throughout this time, Contreras-Balderas was working in Mexico to draw attention to the need to protect the basin. Not only was he writing and presenting within the scientific community, he was also searching for a political opening to pitch

the idea of the reserve. In 1973, Contreras-Balderas presented a proposal to the National Congress of Biologists for a protected area in Cuatro Ciénegas. Attending that meeting was Jose Lopez-Portillo (1976-1982), then a candidate for president. Given the opportunity, Contreras-Balderas presented Portillo with a letter soliciting the creation of a reserve. It would be the first of many such occasions for Contreras-Balderas, who at any given opportunity met with numerous government officials at all levels to push for a reserve. Through meetings, presentations, and letters Contreras-Balderas sought and made the connections necessary to find a political opening for the idea of a reserve.

From the yearly 1980s, the scientific community in Mexico independently presented at least three proposals to SEDUE. In turn, SEDUE responded with at least two proposals of its own. The first time in an official proposal emerged was in 1983. This proposal may have been informed largely by a master thesis from a student at the Universidad Autonoma de Mexico that outlined a management plan for the basin. However, the proposal did not go anywhere for unknown reasons.

Contreras-Balderas and Almada presented a new proposal to SEDUE at the regional and national Conference Ecología 1984 and 1985. In 1987, SEDUE responded by developing a comprehensive plan for a biosphere reserve. Although the basin received limited protection as a recreation area in 1987, the biosphere reserve proposal again fell through. In 1993, yet another proposed management plan was put forward by a member of the academic sector as a master's thesis.

Finally, the basin was formally protected in late 1994 just as Salinas de Gortari was leaving office. It is entirely unclear to those who worked three decades for the establishment of a reserve why the idea was accepted at this point in time. Many speculate it had much to do with Susana Moncada, a highly controversial actor who was municipal mayor at the time. Like her predecessors to the office, Moncada came from the land-owning upper class of Cuatro Ciénegas that was intertwined with the PRI party, which has a strong hold on the political landscape of Coahuila. Moncada is an ambitious and politically-driven actor who derives her power from her connections within the PRI network.

Although previous mayors had lent support to the cause, Moncada had a more personal connection to the idea of the reserve. As she explains it, Moncada had known Minkley since she was little girl, since he was close with her uncle who worked as a guide. Moncada had a great fondness for Minkley and it was he who planted the idea in her head at an early age that the basin and its species were precious and needed protection. While her critics doubt her apparently altruistic motivations, Moncada nonetheless wrote a formal *solicitud* on behalf of the *municipio* requesting a reserve. This most likely helped the reserve's cause in an era where conservation programs required local support most likely gave the proposals a greater legitimacy. In addition, Moncada's personal affiliation with the PRI governor of Coahuila may have helped persuade him to lend his support for the reserve. Whatever the means or motivation, it is evident that the Moncada, as *alcalde*, was also a significant player in the creation of the reserve.

As discussed earlier in this chapter, there were also processes occurring at the national level that may have enabled the establishment of the reserve. Salinas was also in the process of trying to win the approval of environmentalists in the United States and Mexico for his neoliberal agenda. In particular Salinas was trying to appease of environmental groups who might otherwise delay or weaken the NAFTA negotiations. Given the high profile of the Cuatro Ciénegas Basin within the global scientific community, designating it at that point in time may have been a part of his preemptive strategy for gaining support from the environmental community (Mumme 1992).

Overall, the creation of the reserve was the result of a long and complex process involving many actors, although most of them were situated within the scientific community. While there is not one obviously deciding factor that opened the political space for the reserve to be realized, more research at the national level may show that continued pressure by a network of international ecologists, along with support from local actors, found its moment of success while Salinas was making environmental concessions to win the approval of the environmental community in Mexico and the United States for his neoliberal strategy.

6.4.2 Territorializing the Cuatro Ciénegas Wildlife Reserve

The territorialization of the Area de Protección Flora y Fauna de Cuatro Ciénegas has occurred through an entirely different process than that of the Loreto Bay National Park. Although use zones were created for the reserve, as Canales told me, it would be absurd to try and enforce them given the level of activity that already takes place in the

reserve. Whereas the LBNP has been territorialized based on use zones created for the management plan and realized through scientific and conservation discourses supported by the tourism sector, the APFFCC has been territorialized through two different routes. The first involves more "proactive" community-based conservation programs designed to provide local resource users an incentive to shift their livelihood strategies. The second involves the outright purchase of land and water rights.

The state actors involved in this territorialization involve some of the most powerful conservation organizations in the world and in Mexico. Foremost among them is The Nature Conservancy and its Mexican partner, PRONATURA, one of the largest environmental organizations in Mexico with offices throughout the country. The World Wide Fund for Nature has also been involved with the reserve more tangentially as it has sought to develop and implement an ecoregion plan for the Chihuahuan Desert.

Most recently, another powerful state actor has come into play – the World Bank via the Global Environment Facility, which identified Cuatro Ciénegas as a priority area. Cuatro Ciénegas was one of four protected areas targeted for these funds. In total, the reserve will get $789,500 pesos ($US 87,666) a year for eight years.

6.4.2.1 Development Projects: Community-Based Conservation in Action

How global conservation and development discourses are attempting to reshape human-environment interactions within the reserve became obvious to me within the first week in Cuatro Ciénegas when the reserve staff offered to take me around the with them

so I could observe a women's project they were developing in the communities of El Venado and La Vega.

The women's project was the direct product of the GEF funding. The reserve designated eight major uses for this money, including the promotion of water efficiency, controlling exotic species, reduce the benefits of illegal resource use, organize tourism, regulate horse ranching, increase community participation in the reserve, foster institutions that promote conservation and sustainable use, and increase visitors' and community's awareness of the value and importance of the reserve.

Clearly, these objectives mirror those laid out by the global environmental and development community for integrating local communities into natural protected area management. While regulating what are considered inappropriate human-environment interactions (horse ranching, illegal extraction of natural resources) the reserve is also given the responsibility for finding and implementing projects that provide incentives for appropriate human-environment interactions. This objective is so important, that the single largest allocation of funds given to the reserve was for fostering institutions that promote conservation and sustainable use. The development of the women's project falls under that objective.

I witnessed the execution of that objective as I accompanied reserve staff to several *ejido*s with land inside the reserve. The staff I accompanied were hired with GEF money explicitly to develop community-based programs that would provide alternative sources of income to resource exploitation. I would return with the staff two more times

to both communities for meetings with the women and then return for individual interviews.

In these meetings it was clear that the reserve staff and the women had different objectives. Although these projects were supposed to come directly from the women, the discussions were initiated and guided by the staff. During introductions, the staff told the women that they were there to listen to the women and help them achieve their objectives. In particular, the staff were there to help them find money for development projects. As one staff member said, "the reserve has been focused on plants and animals, but the most important species, people, have been forgotten."

The women came up with several ideas for development that reflected what they knew about ways of earning an income. These included a *maquiladora* (c*ostura*) plant that was already in operation but in need of greater funding, raising goats for milk, a *tortilleria*, and raising garlic and flowers. However, the reserve staff strongly promoted the idea of crafts and ecotourism. In the end, it was these projects that the reserve attempted to enact. In particular, the reserve began a program to teach women to make wood carvings out of mesquite similar to the carvings made out of ironwood by the Seri Indians in Sonora. The idea, as explained to me by reserve staff, was to give the mesquite a value besides collection for firewood. Since carvings demanded less wood and could be made of dead material, they were a better use of the resource. Clearly this concept and subsequent discourse is one passed down from U.S.-based financial backers. According to TNC's website, "PiP is also working with ejidos (communal lands) [in Cuatro Ciénegas] to develop sustainable resource alternatives such as artisan co-

operatives for making souvenirs from mesquite. These souvenirs provide income to ejidos and reduce impact of the natural environment (The Nature Conservancy 2005a)".

It is little surprise that it was these projects were implemented and not those proposed by the women. They met the ideals promoted by the global environmental community of making nature pay its way-- the commodification road to conservation (Schroeder 1995). With economic gains made from crafts and ecotourism, these women and their families would put down their axes and shovels and begin to recognize the value of an unfelled tree, an unmarred pool. In the minds of reserve staff, a *tortilleria* just isn't sexy enough way to make an alternative living in the environmental-development network.

The crafts and ecotourism projects have yet to take off. The initial interest in the projects by the women appears to be the result of the cloud of clientalism that still hangs over rural Mexico. These craft and ecotourism projects come in a long line of failed government-sponsored programs aimed at generating income for *ejidatarios*. Tin etchings, beauty products, mesquite flour – all projects are pitched as ways to help earn a little extra income for the family. The reserve programs appear to be one of many such projects. In the minds of many women I spoke with, it is just another government program.

But mesquite figurines and ecotourism are the imaginings of a foreign mentality. Most women are happy to entertain the idea but when the benefits do not materialize, they get frustrated and stop attending the meetings. There were several occasions when women would see the reserve truck drive by, and they would choose to stay in their

homes instead of meeting the staff. Why should they waste their time in another useless meeting? As one woman said, “we are tired of people coming here to offer things and then leave [without following through] ”.

Figure 6.6 A women’s craft project for sale to tourists – tin etchings.

A similar problem has arisen in Antiguos Mineros, where the reserve along PRONATURA have tried to get an ecotourism venture started with financial support from several global environmental groups, including TNC. There, PRONATURA organized the community, primarily women, to clean up the area around their pools, build outhouses, sinks, picnic tables and barbeque grills. In addition, they encouraged the community to keep their livestock out of the pools by fencing them off. The promise was that the tourists that flock to La Bacera and Las Playitas pools would also want to stay at the pools at Antiguos Mineros. So far, there have been very few visitors and the

community is divided over the project. Many have begun allowing their livestock to graze around the pools in a passive resistance to the commodification of their pools for ecotourism. According to the president of the project, they are angry because they do all the work but when the money starts coming in, they will have to share it with the rest of the community.

Figure 6.7 The ecotourism project in Antiguos Mineros. Signs, barbeque pits, and trash cans redefine this as an area for recreation not for grazing livestock.

These projects represent efforts on the part of the state to change human-environment relationships within the reserve. Currently, communities engage in direct labor with their environment to earn a living and sustenance. They transform their environment and their resources for farming, ranching, collection of wild plants and use their product to feed a family or build a fire. These development projects funded by

outside multi-national organizations and environmental groups attempt to reshape that relationship by separating nature from humans in the romantic sense. Nature cannot be broken down into parts for use but rather as a whole that is better without human intervention. The irony is that, in the case of the ecotourism development in Antiguos Mineros, to create that nature requires human labor and intervention.

6.4.2.2 Privatization of Conservation

In addition to development projects, the Cuatro Ciénegas Wildlife Reserve is being reterritorialized through the direct commodification of land. Because Mexico's reserves are layered on top of already existing land holdings, it is possible for land within the reserves to be purchased by private interests. In this case, The Nature Conservancy has purchased 7,000 acres (2,800 hectares) in the reserve, one of the largest private land purchases for conservation in Mexico. Although purchased with money from large donors in the United States, PRONATURA holds the title.

This land purchase allows for two significant changes within the reserve. First, as landowners, PRONATURA now is a legitimated in a dual role as a "stakeholder" in the reserve. This presents an ironic twist on a piece of legislation that is supposed to make natural protected areas in Mexico more transparent and guarantee community involvement. Each protected area is required to establish a *consejo assessor* (an advisory board) that consists of representatives from local communities, local landowners, scientists, conservationists, and others who have a "stake" in the protected area. As the

distributors of the GEF funds and TNC's partner in the Parks in Peril program, PRONATURA already is heavily involved in the reserve's management.

However, these positions are from the outside. As landowners, PRONATURA now has a stake from the inside. As Ernesto Enkerlin, then director of PRONATURA said, "We are working as active partners with the local community in conserving their unique resources, not just outsiders assisting or telling them what to do. Ownership in Pozas Azules will help to legitimize and strengthen this local stakeholder status" (The Nature Conservancy 2000). PRONATURA can now sit at the table with other landowners and *ejido* members and claim its interests as equals at the local level. But PRONATURA is backed by the most powerful conservation organizations as well as some of the most powerful environmentalists in Mexico, both with strong ties to private corporations and government – hardly making it a local stakeholder. Nonetheless, PRONATURA does have a very strong presence in the management of the reserve and for a while even had a local coordinator living there to work directly with the reserve.

The land purchase by TNC via PRONATURA has another major tangible significance for the reserve that directly relates to its reterritorialization. Although the Rancho Pozas Azules was owned by a single owner before its purchase by TNC, it purchase by PRONATURA has resulted in significant changes in human-environment interactions within the reserve. Previously the land was used for horse ranching and fishing. Now, however, the land is fenced off, pools are fenced in and numbered, and canals that once connected pools have been closed off. Signs at the entrance to the property demonstrate a list of unacceptable human activities (Figure 6.8). Signs at the

pools tell us who contributed to the purchase of the land, the hidden owners…foundations, wealthy donors, corporations based in the US.

All of this signals a redefinition of the landscape. Land and water are not to be used for production or collection, activities that go to the direct survival of a person and his/her family. Nor are they to be used for non-commercialized recreation. Human interaction is no longer allowed through skin, muscle, and bone. It is through the eyes only – consumable only through observation. This is obvious from the photos of Rancho Pozas Azules that have graced The Nature Conservancy Literature. TNC magazines, calendars, website, promotional literature, and fiscal reports bear serene images of the Cuatro Ciénegas as one of the world's "Last Great Places." Rather than letting humans enter and engage with the pools and surrounding landscape, their image is captured and brought into the "human environment". Images of the pools radiate from coffee tables, office walls, desks, and mail boxes. Nature seen and not touched, admired from a distance for its physical beauty but not for its bounty. This consumption of landscape is evident from the following description of Cuatro Ciénegas that appears on the TNC website:

> "Deep in the heart of the Chihuahuan Desert in northeast Mexico lies the 200,000-acre Cuatro Ciénegas Valley. This striking landscape is characterized by hundreds of azure freshwater springs, desert gardens and white gypsum dunes surrounded by mountains rising to 10,000 feet. Beyond its almost surreal beauty, Cuatro Ciénegas is home to at least 77 species of plant and animal found nowhere else on Earth (The Nature Conservancy 2005b)."

The redefinition of human-environment interactions in Ranchos Pozas Azules appears to remove the landscape from commodification since nothing on it can be taken and sold, in actuality. Paradoxically, it does the opposite by fundamentally reifying the concept that nature itself is a commodity. In essence, this land purchase is based on the principle that nature, land, resources must be owned, privatized, to be appreciated and managed well. Resources will be preserved when they have clearly defined property rights. In this way, such a property purchase such as the one in Cuatro Ciénegas signals that nature can be bought and sold – and furthermore that it needs to be bought and sold as a means to its protection. Therefore, at the most fundamental level, the purchase of conservation and water rights signals that nature is a commodity something external to the human experience.

Figure 6.8 Sign at the entrance of Rancho Pozas Azules. No hunting, fishing, swimming, collecting turtles, or clearing. "Conserved in perpetuity" by The Nature Conservancy, PRONATURA, and DeSuValle.

Through the purchase of Rancho Poza Azul, the reserve is being reterritorialized by the state as predicted by neo-Marxist theory. It is not surprising that the purchase of land and water rights has become a conservation tool in neoliberal Mexico. The concept that property rights are necessary for environmentally sound management of resources is founded in neoclassical economics. Nor is it surprising that the purchase of land for conservation has been made possible by U.S. money via U.S.-based environmental organizations. As Fitzsimmons (1994) noted, the conservation movement in the U.S. and other industrialized nations emerged in a society that values neoliberal concepts.

Purchasing land outright allows for the reterritorialization of the reserve without the messiness of working with local community members. As owners, environmentalists and their backers gain the right to impose their concepts for appropriate human-environment relations onto their own property. In doing so, they are also reifying the neoliberal notion that nature can be defined by ownership.

6.4.3 Conclusions: Process

The territorialization of the reserve has occurred in multiple ways. Here, I have highlighted two ways the state has tried to reshape human-environment interactions to conform to a vision born the international conservation movement. The first is through development projects, the second is through the outright purchase of conservation rights. Both projects ultimately legitimate the separation of nature from society and in so doing enable the commodification of nature according to the neoliberal agenda. As such,

although the reserve was not created for the explicit purpose of commodifying any particular resource, the reterritorialization of the reserve by the state has led to shifts in human-environment interactions based on the commodification of nature.

These processes have been made possible by state transformations under neoliberal reforms – most notably democratization, which has created a greater partnership between non-governmental organizations, capital, and the government. Non-governmental organizations such as PRONATURA have greater power and authority than ever before. This organization is responsible for much of the territorialization that is occurring in the reserve – from the purchase conservation land to the implementation of ecotourism projects. But it is important to note that the power of this organization does not represent a withdrawal of the state – or a replacement of government by a non-governmental organization. PRONATURA receives a substantial amount of resources from international organizations and from capital. In addition, PRONATURA has strong connections to the Mexican government, particularly within SEMARNAT and INE. Therefore, the growth of PRONATURA's influence is an example of how the Mexican state is simply transforming itself into a greater network of multi-scaled network of actors, but that overall the state's goal remains the same. In this case, it is the reterritorialization of the reserve's human-environment interactions in such a way that supports the separation of nature from society by and for the commodification of nature.

6.5 Outcomes: Limited Protection from Exploitation

The APFFCC clearly demonstrates why geography is so important to conservation. Although scientists worked for years to establish a reserve that would protect the basin's water resources and the reserve staff has worked to induce changes in the way that local residents relate to their resources, the resources remain in jeopardy from a much larger threat. The water of Cuatro Ciénegas and the life that depends on it is not safe until the source of the water is also protected. Agricultural development in the surrounding basins may threaten that source. This development on the fringes of Cuatro Ciénegas Basin is a direct result of large-scale changes taking place in Mexico's political economy associated with the neoliberal trend. Although the reserve protects the pools themselves, it does not protect the water source.

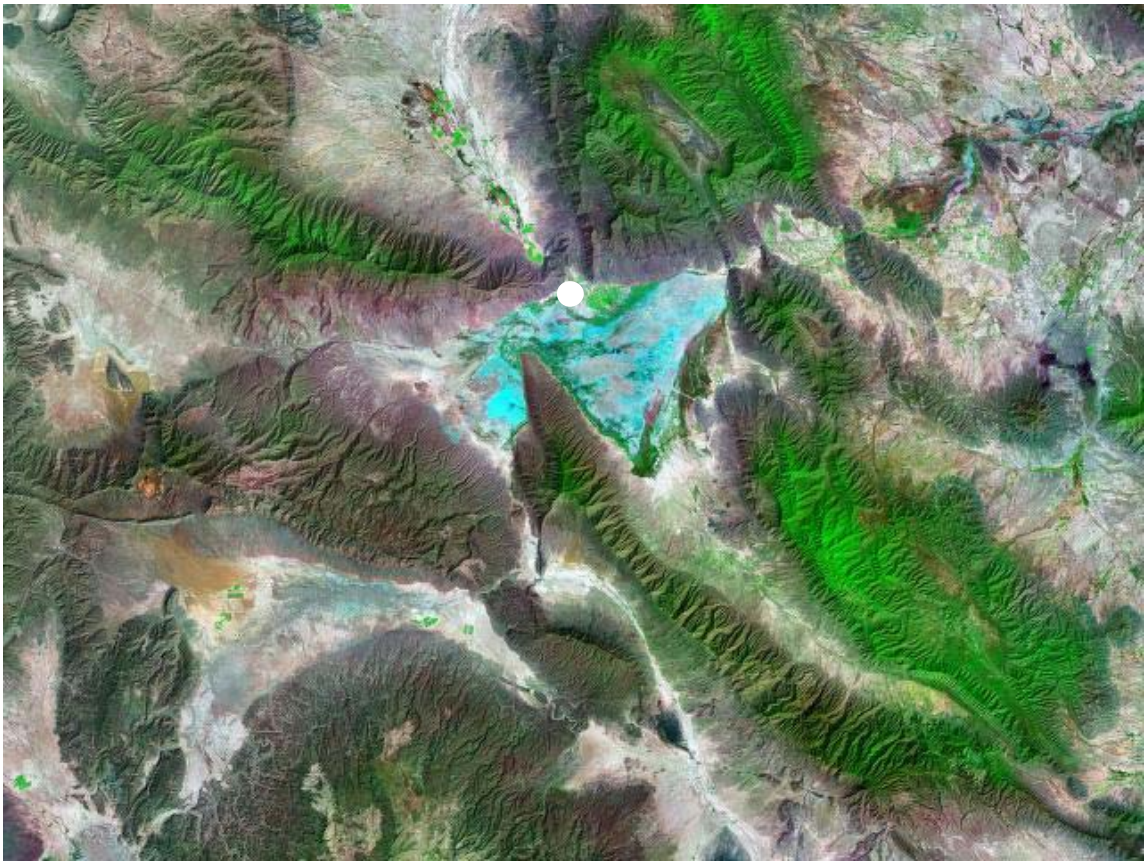

Figure 6.9 A 2000 satellite image showing the Cuatro Ciénegas Basin in the center, Las Calaveras Basin to the North, and El Hundido Basin to the Southwest. The white dot (author inserted) shows the community of Cuatro Ciénegas (NASA Landsat 2000).

Similarly, the reserve, in an indirect way, provides protection for small-scale farmers from predation by large-scale agricultural ventures while at the same time placing mild restrictions on what farmers can do within the reserve's boundaries, particularly related to siphoning off water from the pools. The outcome is a contradiction. Although the state created a reserve that provides protection on a limited basis, it also enables large-scale exploitation on the fringes that may negate its own conservation efforts. This section presents that contradiction by first looking at the

outcome of neoliberal reforms for farmers in and around Cuatro Ciénegas and then looking at the implications for the region's environmental resources.

6.5.1 Outcomes for Farmers

The primary outcome for small-scale producers is a landscape of unevenness, where neoliberal reforms on the outskirts of the reserve have led to intense agricultural development. Meanwhile inside the reserve, small-scale farmers are somewhat sheltered from pressure to sell.

Agricultural development outside of the basin is highly mechanized and run by large corporations, not like the small-scale *ejido* and private landowners in the basin. Most of the agriculture is cattle feed, primarily alfalfa. A hundred miles southwest of Cuatro Ciéngas Basin to the north of Torreon, is a region know as "La Lagunera". This region became a major dairy-producing region for several reasons. First, as the name implies, there was a great underground aquifer, a giant lake of water beneath the surface. Although the water was plentiful, like much of the subterranean water in the region it has a high salinity, thereby limiting what could be grown. Alfalfa, a forage crop, is perfectly suited for these conditions being tolerant of high-salinity. In addition, it grows well in warm climates. Because of these conditions, La Lagunera became one of Mexico's major dairy producing regions. This large source of dairy production spurred other local producers, large and small, into alfalfa production as well. In addition to its other benefits, there is always a local guaranteed market for alfalfa.

Today La Lagunera is associated with one company, LaLa (short for La Lagunera). LaLa is Mexico's number one milk-producing company – owned and operated by the Tricio family. In addition, LaLa has strong political ties, not the least of which include Cristóbal Jaime, the current director of CNA who was CEO of LaLa immediately prior to his appointment.

The alfalfa production has created environmental havoc in La Lagunera, where the aquifer is severely exploited. In search of new sources, LaLa has begun to buy up land in el Valle Hundido, to the south of the Cuatro Ciénegas Basin. This land is available as a direct result of Article 27 Reform, a keystone in Salinas' neoliberal restructuring of Mexico's political economy. All of the land in el Valle Hundido belonged to five *ejido*s, Santa Teresa de Sofía, Tanque Nuevo, Morenas, Cierros Prietos, and Campizal. With the exception of Santa Teresa de Sofía, most of these *ejido*s are impoverished with limited access to water. In Tanque Nuevo, *ejidatarios* have five wells, but no equipment for withdrawing the water and no electricity. They draw the water by hand for domestic purposes and live exclusively on the collection of *candelilla* for income. A collection of small, dusty one-room houses with few amenities and no gardens, Tanque Nuevo is a stark contrast to their neighbor to the west, the Ejido Santa Teresa where colorful multiple-room homes made of concrete block have gardens are collected around a central plaza with a play area. The difference is water, or rather, electricity. Santa Teresa is the only *ejido* that has access to electricity, which enables them to pump the water from their wells and irrigate their fields.

Despite Santa Teresa's relative wealth, they are still vulnerable to the elements and the market. According to the Comisariado, Santa Teresa has been growing alfalfa since the early 1990s. In 2001, they attempted to grow cotton, hoping to get a better price than they did for alfalfa but were unsuccessful because a flooded market prevented them from getting enough for their crop to cover their expenses. As a result, they made the decision to return to growing alfalfa. By this time, however, their machinery was worn out and they were not able to afford new equipment. At the same time, they were facing cutbacks in government subsidies and credit.

A difficult decision was made to sell portions of their common lands. Between 2001 and 2002, Santa Teresa sold 6,000 to 7,000 hectares (23-27 square miles) of their land for $1,500-$1,700 pesos/hectare ($US411-$US466 /acre). With the income, the *ejido* reinvested the money in new equipment for planting and harvesting alfalfa. The Comisariado explained that this was a good decision for them because it allowed them to continue to produce. However, he also said that the *ejido* was concerned that the new owners would drill bigger wells and compete with their water supply. For this reason, when he ran for the office of Comisariado he promised that if he were to win he would not sell any more land.

Other *ejido*s have made similar decisions. Together, the five *ejido*s have sold between 10,000 and 12,000 hectares (24,710- 29,652 acres) between 1998 and 2002. During interviews with *ejidatarios*, the primary reason for selling was out of necessity. An ejidatario from Cerros Prietos told me, "We don't get any water here. Without water, there is nothing that we can do with our land. We can't even grow our own food." He

continued saying that they would not sell their land that was further up in the mountains, because it gets enough rain water to grow food. Similarly, the Comisariado of Tanque Nuevo told me, "We sold our land because we have no water. Since there is nothing we can do with it, so why not sell it for our betterment?"

Many *ejidatarios* also cited that the lack of government support as a reason for selling. The Comisariado of Tanque Nuevo told me that they had solicited help from the State and from the Federal Government for assistance to develop their water supply, but only received a very little amount from PROCAMPO that was barely enough to plant their solares (personal gardens for growing food). An *ejidatario* from Las Morenas explained that the lack of electricity made it impossible for them to irrigate their land. They had been promised electricity, but the government only extended the electrical lines as far as a ranch that the *ejido* had recently sold to a member of the Tricio family. They were upset that the new owners benefited from electricity they felt had been promised to the *ejido*. In Santa Teresa, the Comisariado explained that they had requested assistance from the government to place a new well. The Secretary of Agriculture (SEGARPA) sent out a team to drill a well, but did no studies on where to best place the well. The well they drilled did not yield any water.

To farm in such an arid environment requires a lot of water. To access underground water requires electricity (or gasoline), wells, and pumps. Once there is water, the *ejido*s also require equipment. Without government assistance to help the *ejido*s overcome the costs of farming in such an arid environment, there is little that they can do with the land that has been given to them besides the collection of candelilla.

While this provides some income, it is a meager existence. Even *ejido*s with access to water and equipment often face market and climate risks that make them vulnerable. As Santa Teresa has learned from their experience with cotton, their decisions are influenced by global markets. For this reason, they have chosen to stick with alfalfa, even though they face depressed prices, because they know there will be a local market for it. As the Comisariado of Santa Teresa explained to me, "The problem is that we can't compete with the U.S. market. U.S. farmers are getting subsidies from their government, but we aren't. I know farmers who are growing tomatoes and *chile*, but they are losing production to the U.S. Their tomatoes just rot."

Figure 6.10 A gasoline-run water pump not used because of the high cost of gasoline.

With the challenges facing them (producing in an arid environment, withdrawal of government support, and the uncertainties of the global market) it is not surprising that, when given the option, *ejido*s in Hundido have chosen to sell their land. With the reform of Article 27 of the Constitution, *ejidatarios* now have that option. And it is not surprising who has bought the land. Although the information is difficult to come by because it is not publicly accessible, based on interviews with the Comisariados of the *ejido*s, it is apparent that the majority of their land has been sold to affiliates of the Tricio family and other dairy producers from Torreón. The law prohibits any one landowner from holding too much land under one name, but many businesses have gotten around that law by using family members or business associates as front men to buy the land.

The result has been devastating for many *ejidatario* families, which have migrated to Cuatro Ciénegas, Monclova, and beyond searching for work opportunities. Even in a small community like Cuatro Ciénegas, the outcome is clear. On the south side of town, small shacks have been thrown up by the new arrivals. There is no infrastructure, and the houses are barely refuges from the elements.

To find out why *ejidatarios* were selling their land, I interviewed several families from the *ejido* Gavino Vasquez, approximately 36 miles from the town of Cuatro Ciénegas. They explained that their situation had never been particularly good since the *ejido* was formed in the late 1960s. Their land was poor and they did not grow much. Regardless, they were able to grow their own food and raise goats and collect candelilla for sale. When their well pump broke, they did not have the resources to fix it. Despite requests to the government, they received no financial assistance and their crops dried

out. Around the same time, a neighbor launched a land claim dispute against the *ejido* which caused the *ejido* some legal problems. For these reasons, many sold their land to a wealthy man from Monclova. They sold their land for 35,000 pesos each ($US 3,888 in 2002). There were 36 families in the *ejido*, 24 of them left. The remaining 12 families decided to stay.

The families I spoke with had used their earnings to purchase small plots of land just outside of Cuatro Ciénegas, hoping that they could find work in town. While some have found work in the maquiladoras, most have not. Their situations are still desperate. One family I interviewed had their bed out of doors and the children slept in the cab of their truck. The mother told me, "Life was hard there. But life is hard here too." The *ejidatarios* from Gavino Vasquez were familiar with what was happening in Hundido with the other *ejidatarios* selling their land. Ticking off the names of all the *ejido*s that had sold their land recently, the Comisariado of Gavino Vasquez told me, "Sometimes I think the end of the world is coming." In a sense, it is. As the municipal coordinator for *ejido*s said, "We are returning to the Porfiriato", referring to the period of Mexico's history when landless peons made up the majority. Ejido privatization definitively signals the end of Mexico's post-revolutionary ideals and the end of a way of life for many *ejidatarios*.

In this context, the reserve indirectly provides a safe haven for small-scale farmers. Although the reserve does put limitations on the amount and method of water exploitation, it is these same limitations that shelter existing farmers. Limitations on water use grandfathered in existing water rights and usage. Therefore, farmers who were

already using water could continue to do so. However, further development of water resources was not allowed – meaning no more canals could be built or wells drilled. Therefore intensive agricultural development was impossible. Without the reserve's protection, it is very possible that the large agricultural interests operating in Hundido and Calaveras would have purchased land from *ejido*s there. As it is, small scale farming as it currently exists, is the only kind of farming permitted. As such, the reserve is a patch that protects small-scale and subsistence producers in a region where large-scale agricultural production is becoming the more predominant mode of production. In the reserve, although production is regulated, farmers are still the owners of their own land as a source of food and security.

6.5.1 Outcomes for Natural Resources

The new owners of the Hundido have the capital to drill wells, pump the water, and irrigate their fields. They also have the political clout to get government support, such as electrical lines. Their clout enabled them to purchase least 10,000 hectares (36 square miles) of desert in the valley. As of 2002, approximately 2,000 hectares (7.7 square miles) had been cleared. As the Comisariado of Santa Teresa noted, PROFEPA used to harass the *ejidatarios* all the time about clearing brush without a permit but looked the other way when the new owners bulldozed thousands of acres without the proper authorization. According to Eglantina Canales, of PROFAUNA, an unknown number of endemic cacti species were lost to the land clearing. The effect of the development on water resources is less clear.

The political clout of the new landowners also has also had an effect within CNA, the commission responsible for issuing permits for wells. Although el Valle Hundido is technically a "free zone", where wells can be drilled without a permit, the reserve has served as a rallying point around which conservationists, scientists, and local residents have been able to intersect the development plans. Perhaps in anticipation of this, CNA commissioned a study in 2001 by a private consulting firm, Lesser and Associates, to determine the potential underground linkages between the Cuatro Ciénegas Basin and the two adjoining basins, Calaveras and Hundido. The results of the study concluded there was no subterranean connection between the three valleys.

Needless to say, CNA used the results of the study to justify their unwillingness to impede the agricultural developments in these areas. However, the initial release of the report was given to select state and federal agencies. It was difficult for local residents and scientists to get a copy. Residents were told that if they wanted to see the report, they had to go to the CNA office in Saltillo to request a copy. Not even the reserve itself was initially given a copy of the report. Finally, the report was given to PRONATURA, who distributed it to interested parties.

The report pushed the debate about agricultural development in Hundido into the scientific realm. The weight now rested upon opponents of the project in Hundido to produce contrary scientific evidence. This strategy was initially somewhat effective at deflecting from the highly politicized nature of the development that involved connections between LaLa and the Fox administration. Scientists rallied to argue that the CNA study was based on poor scientific evidence.

Juan Manuel Rodríguez Martinez, a geo-hydrologist from the University Autónoma of Nuevo Leon with years of experience in the Cuatro Ciénegas Basin, argued in an interview with a local newspaper, "After careful analysis of the study by Lesser and Associates I can say that the study suffers from many technical deficiencies, which demonstrates substantial problems with their hypotheses regarding the nature of the aquifers in the three valleys [Calaveras, Hundido, and Cuatro Ciénegas] as well as their theory that there is no connection between them. Regardless, they suggest that the valleys can be exploited without any effect on the environment. This is an outrage!" (Torreon 2003). Rodriguez-Martinez argued that development should halt until further studies could be done to determine the rate of recharge in el Valle del Hundido.

Eventually, scientists not only began to attack the scientific validity of the CNA study, but also the agency itself. Valeria Souza de Saldívar, a prestigious biologist from UNAM, argued more directly against the political connections of Cristobal Jaime of the project. She used this political connection as well as her own scientific credentials to attack the scientific validity of the report. "You cannot be LaLa and CNA at the same time. The truth is that we are confronted with someone who has political teeth. We are scientists, not politicians. While they can move the boat though political will, we use scientific evidence. The CNA is purely political, not a piece of evidence in their report is well done" (Souza quoted in Cardona 2003). Despite her claim of political neutrality, Souza is herself well connected with close alliances to INE as well as the scientific and ecological branch of SEMARNAT.

In response to the CNA report, Souza conducted her own study examining the DNA of bacteria found in the aquifers of both Hundido and Cuatro Ciénegas. She found sufficient evidence to indicate there may be a connection. These results have defined the sides of the debate with CNA and the State of Coahuila on one side and UNAM and INE on the other. In an effort to discredit Souza's findings, CNA published the Lesser report in the Diario Oficial de la Federación to give the study legitimacy as the official study on Hundido Valley. On November 14, Crisobal Jaime and the Governor of Coahuila declared that the CNA report proved a lack of connection between Cuatro Ciénegas and Hundido. They also cited another study done by a "prestigious Italian research center" which reinforced the CNA report. Most likely they were referring to a well-funded group called La Venta, an organization that organizes trips for "explorers" with an interest for expeditions to unique places. In 2002, La Venta organized a trip for about 20 participants to Cuatro Ciénegas. They spent several months in the fall of 2002 exploring caves around the basin, particularly in the Sierra San Marcos.

At the end of their expedition, La Venta offered to present their "findings" to the community, which included community leaders as well as state representatives. During the presentation, La Venta put forward a potential hypothesis for further explanation that the pools at the base of Sierra San Marcos may be fed by rainfall percolating through the mountain range. In actuality, this was not a new suggestion. Regardless, this hypothesis, made at a time when the issue of development in Hundido was beginning to heat up, was snatched up by audience members. At the end of the presentation, during questions, one audience member asked what implications their findings had for the development in

Hundido. The presenter responded they did not find any evidence to indicate there was a connection with Hundido, then again, he added, they were not looking for this kind of evidence either. The use of this statement, however unsubstantiated, by proponents of the development to legitimate their purpose demonstrates how "expert" scientific knowledge was used by the state to mask the broader political and economic context.

In addition to the scientific community, most local residents are also opposed to the development. This is particularly true of farmers in the Cuatro Ciénegas Ejido who fear that the development in Hundido threatens their water source (La Bacera Poza). Community groups have drafted letters to President Fox requesting a halt to the development. A frequently repeated story in the community involves the story of the Rio Canon and the development in Las Calaveras. This story is derived from the very real daily experience of local residents who have witnessed the depletion of water in and around Cuatro Ciénegas as the result of industrial agricultural development to the north, in the Calaveras Basin. There, Soriana (the equivalent of Walmart in Mexico) began renting land from *ejido*s in the 1980s (most likely illegally) and developed alfalfa fields watered with rotary sprinklers. Shortly after the agricultural development began in Calaveras, the residents of Cuatro Ciénegas noticed a change in the Rio del Cañon, which emerged from underground in the canyon between the Calaveras Basin and the entrance to the Cuatro Ciéngas Basin, where the town is situated. The river water was canalized to water pecan, peach, and pomegranate orchards as well as the vineyards. In town, the water flowed through canals along the street and into the inner courtyards of homes and their *huertas* (personal gardens) of fig, grapes, pecans, peaches, watermelon, flowers, and

other things. Since the 1930s, the Rio del Cañon provided the town with water for indoor plumbing. Today, the Rio del Cañon is little more than a trickle. Not only have the *huertas*, orchards, and vineyards dried up, but the town frequently experiences water shortages where little or no water makes it into the homes for days.

When the papers reported that the CNA study determined no subterranean connection between Calaveras, Cuatro Ciénegas, and Hundido basins, the town had good reason to disbelieve. A letter written signed by representatives of the major civic organizations in Cuatro Ciénegas states,

> "It was 15 years ago that we protested the drilling of wells in the Calaveras Valley, when they told us exactly the same as they do now with the overexploitation of the Hundido Valley. They told us the aquifers of these valleys and that of Cuatro Ciénegas are independent. We know they lied to us because of the reality that we are living and suffering now. Already there is an obvious shortage of potable water and we are unable to irrigate our land, which is now dry." (Letter to Enrique Martinez y Martinez from the Community of Cuatro Ciénegas September 16, 2002).

Residents sought to disrupt the scientific legitimacy of the CNA report by drawing on the images of threatened and drying springs and pools. Because the drying pools cannot easily be pegged to one determining factor (climate change, cleaning and lining existing canals, or exploitation of aquifers), scientists have shied away from these images as a basis for deterring the development in Hundido. The Bacera Water User's Association had no such qualms, however.

Given my interest and possession of a camera, Benigno Vasquez, president of the association, gave me a tour of all the drying pools in the basin. Even though some of the drying may be partially due to the renovation of canals used by local farmers,

nonetheless, the pictures I took were used to "prove" that the pools were drying because of the development in Hundido (Figure 6.11). The pictures were used during meetings with local officials and *ejidatarios* and were distributed to the press. I enabled this endeavor by emailing the photos to a reporter (and environmental activist) from Torreon who contacted me at the request of Vasquez. While very few of the images actually made it to press, on one occasion the photos I sent the reporter were aired on a local TV station based in Torreón during his regular Saturday morning commentary show dedicated to environmental issues. This was enough for Vasquez to receive a visit from men who identified themselves as with the developers in Hundido who made a veiled threat that he should stop making an issue of the development there.

Figure 6.11 Photo taken by author and used by Vasquez to demonstrate drying of pools that he linked to groundwater exploitation in surrounding valleys.

Although it is not clear what the impact of the development will be in Hundido and other nearby basins on the resources in the Cuatro Ciénegas Basin, what is clear is that the intense development on the fringes of the reserve had created an uneven landscape in which the reserve is an isolated patch amidst heavy exploitation. This case demonstrates what geographers and ecologists such as Katz (1998) have noted – that protected areas may not be effective enough to protect the ecological processes on a larger geographic scale and may even enable development on the fringes of these protected areas to the extent that the reserves themselves become ineffective.

The exception to this is the way in which some environmentalists have resisted the development in Hundido by using the reserve as a rallying point. In particular, the conservation movement has utilized the valley and its resources as an image of Mexico's patrimony and heritage. For example, in an editorial column appearing in the Milenio of Torreón, environmentalist Francisco Perezgasga describes the valley as "a pride for Mexicans, for Coahuilenses, and for Cienegueros" and a treasure for Mexico (Perezgasga 2002) in another column appearing in the national paper, La Jornada, Ivan Restrepo writes,

> "This valley is unique in the world, ecologically it has not changed in 35 thousand years…its importance has been recognized internationally…One would hope that Cuatro Ciénegas would be free from danger. That the resources of this jewel in the desert would be protected. But its not so…" (Restrepo 2002).

This discourse relies on a nationalistic argument – a pride in Mexico's natural heritage. That an internationally recognized treasure belongs to Mexico. The argument goes that as a nation, Mexico is obliged to protect the resources that make it unique, great. A similar strategy was used more extensively with great success in the effort to protect the Grey Whale breeding grounds from development (Dedina 2000). In this regard, the reserve has helped to at least slow down the development and make it more difficult to justify. Unfortunately, the appeal to Mexico's natural heritage has not trumped the lack of scientific evidence demonstrating that the development in the Hundido Valley could deplete the Basin's water resources.

6.5.3 Outcomes for Human-Environment Relations

In general, establishing a reserve in the context of neoliberal reforms has lead to a patchiness – an unevenness – across the landscape. Outside the reserve, human-environment relations are categorized by intense and highly mechanized agricultural production that relied heavily on a massive amount of ground water extraction and has led to the clearing of thousands of hectares of desert. This is a landscape in which the owners rarely, if ever, place a foot on their land. Rather, it is given over to managers who organize paid labor and machines to convert the land from desert to alfalfa fields.

Given the massive and highly mechanized nature of this development, it extirpates small-scale farmers who have a more direct relationship with land and resources through their labor. Nature and natural forces that present challenges to small-scale farmers are abated by access to ground water, fertilizers and pesticides. Nature is to be controlled, used, and depleted for the production of a commercial product.

The reserve protects the Basin of Cuatro Ciénegas from this type of natural exploitation through regulations on increased water exploitation. As such it shelters existing activities, which are characterized by subsistence and small-scale agricultural production as well as resource collection. Ideally, the state seeks to transform these small-scale productive activities inside the reserve to more appropriate human-environment interactions, such as ecotourism or handicrafts. These "sustainable development" activities (albeit not entirely successful) remove small-scale producers from nature, making it into a commodity for passive consumption. Rather than focus attention on the environmental damage caused by large-scale agricultural development on

the fringes, the state (as represented mostly by international development and environmental groups) focuses on small-scale producers within the reserve.

Rather than a more homogeneous landscape characterized by small-scale production that depends in a limited way on resources, the regional landscape is becoming characterized by patchiness. Patches where small-scale production as a way of life is sacrificed for economic growth – and patches where nature is crafted in the image of enlightenment and romantic ideals and small-scale producers are expected to become the stewards of this new nature through economic incentives. If this transformation continues, direct interaction between humans and their environment through small-scale production will become less. Rather than an egalitarian landscape of small-scale producers working their land for production, there will unevenness that distinguishes nature from society and rich from poor. The vision of the Mexican Revolution of countryside full of a self-sustaining egalitarian peasantry will give way to the unevenness created by capitalism.

6.6 Conclusions

Why the reserve in Cuatro Ciénegas was created by President Salinas at the height of his neoliberal reformation of Mexico is still unclear. There was no obvious economic rationale. Large-scale foreign tourism is not likely. And none of the basin's species is known to have any value for biochemical companies. It is possible that it was created simply as a biodiversity bank for the option value that its endemic species hold. Or it is possible, given its value to the scientific and conservation community, that it was

designated to lend Salinas and his reforms some political legitimacy, particularly during NAFTA negotiations.

While this explanation does not conform to the ecological phase of capital defined by direct commodification, regulation theory does provide an explanation through the modern phase of capital. According to this phase, the state introduces environmental rules and regulations to protect capital accumulation. While this appears contradictory, in fact environmental regulations help maintain the production factors necessary for capitalist accumulation. In this case, the creation of the reserve may have been part of a larger strategy to satisfy environmental social movements which have the potential to threaten neoliberal reforms, particularly NAFTA negotiations. In so doing, it may have enabled the neoliberal reform. More historical research at the national level must be conducted to determine this connection for certain.

Neo-Marxist theories also help explain attempts to territorialize the reserve since its establishment. In this case, a network of government agencies, non-governmental organizations, corporations, and multi-national lending institutions is attempting to shift human-environment relationships from productive activities that rely on the direct interaction between residents and their resources to activities that separate people from nature. This separation depends on the commodification of nature – either directly through the purchase of land for conservation or indirectly through ecotourism and craft projects. Neoliberal reforms have enabled this territorialization through its "democratization", which has created new mixtures of business, government, and civil society to implement the state's goal of enabling capital accumulation.

In the context of neoliberal reforms, the separation of nature from society has led to a patchy regional landscape. Neoliberal reforms outside of the reserve have extirpated small-scale farmers and enabled large-scale agricultural production that intensely exploits ground water reserves. This patchiness – a landscape of exploitation next to a landscape of protection has created a science war over a development in the Hundido Valley between developers and environmentalists in which winner has the potential to take all.

Conspicuously absent from the brawl are international conservationists working to transform the human-environment relationship in Cuatro Ciénegas. So far, those fighting against the development on behalf of the Cuatro Ciénegas Basin have been small-scale farmers, scientists, and few independent environmentalists/environmental groups. PRONATURA and TNC have kept a low profile adeptly side-stepping any public admonition of the Mexican government or the developers.

As TNC's representative for the region told me, "We don't get involved with politics." However, what he fails to recognize is that TNC's strategy of land preservation through privatization is inherently political in that it supports a solution that legitimizes the very foundational ideals of neoliberalism. Furthermore, it encourages a patchy approach to protecting the environment, which this case clearly shows, has the potential to fail absolutely. Similarly in a heated conversation with PRONATURA's local representative, he implied that the developers of the project in Hundido had too many business ties with PRONATURA's board for PRONATURA to be effective stopping the development.

This case demonstrates that environmentalists – particularly those in positions of power within the United States –must not focus their efforts exclusively on protected areas. But rather to engage with political economy and question the environmental and social ramifications Mexico's transformation to a neoliberal society. Unfortunately, this will not happen until environmentalists place themselves and their ideals in political-economic context.

CHAPTER 7: CONCLUSION

This study set out to answer three major questions regarding the simultaneous establishment of an unprecedented number of protected areas in Mexico and the adoption of neoliberal reforms in Mexico throughout the early 1990s. In this final chapter, I return to these questions by comparing the insights provided by each case study in answering these questions. Although both cases are characterized more by their similarities, there are also significant differences between them – particularly in their establishment.

It is important to note that an essential similarity of these two cases is in their geographic location. As both cases are located in the north, they share certain cultural, social, political, and economic similarities. These similarities may help explain some of the shared processes and outcomes experienced in these two cases. Even within these case studies, there is a great deal of variation in how reserves have reshaped in the landscape in the context of neoliberalism. However, Mexico is a diverse country, particularly from north to south. As Snyder (1999) has shown, geographic diversity within Mexico in general greatly affects the spatial outcomes of neoliberal reforms depending on place-based institutions. Therefore, it is important to note that in other parts of Mexico there may be variations in the process and outcomes of establishing reserves in the context of neoliberal reforms. The two cases offered here, however, provide a starting point for understanding how these dual policies are effecting the rural landscape of Mexico.

I leave this study by reviewing the professional contributions it makes to geography and to other fields that seek to understand the role of the state, the

consequences of neoliberalism for rural livelihoods and landscapes, and the way that natural protected areas are reshaping nature-society relations. While numerous studies have sought to understand the privatization and commodification of nature, the management of natural protected areas, and the outcomes of neoliberal reforms for rural landscapes, there has been no overarching attempt to bring these areas of research together. This study makes one small step toward a greater understanding of how deeply neoliberal ideals have penetrated the discursive and material terrain of conservation efforts and the outcome for rural people and places. In addition, this study also demonstrates the utility of regulation theory as a theoretical tool for understanding the linkage between protected areas and neoliberalism.

I conclude this study by drawing out lessons for conservation efforts in Mexico and in other countries. Although the case studies have been based in Mexico, this study's ultimate aim was to provide information to environmental organizations based in my own society, particularly large organizations like TNC, that work in areas like the case studies. My suggestions, however, are not superficial. They require conservation groups operating in other countries to examine their own position within the broader political economy and to question what they perceive to be a neutral position regarding their role in helping to territorialize protected areas in rural, poor areas. I leave with no suggestions for alternatives, recognizing that my own position limits my imagination of what is possible. However, I do believe that by opening up the conservation network to alternative perspectives regarding the role of nature and society would be a good direction. While the conservation community has attempted to get back to the local

through community-based conservation projects and other changes in the protected area model, many of these attempts are still born of the neoliberal ideology that ultimately ends up leading to the separation and capitalization of nature.

7.1 Comparison of Case Studies

Regulation theory proved to be an effective tool for understanding the linkage between the establishment of these reserves as well as the territorialization. Regulation theory predicts that the state will shift social relations (or nature/society relations) in order to overcome contradictions in capital accumulation. In Loreto, the park was established to reshape nature-society relations to enable the direct commodification of nature for large-scale tourism development. This commodification reflects what Martin O'Connor (1994) calls the ecological phase of capital, in which nature is "codified as capital incarnate, regenerating itself through time by controlled regimes of investment around the globe" (M. Connor 1994: 131). This commodification of nature for tourism directly supports the neoliberal agenda.

In Cuatro Ciénegas, more data needs to be collected at the national level, but the argument was made that the creation of the park was part of a larger strategy on the part of the Salinas administration to pre-empt the environmental movement's resistance (Mumme 1992) to his neoliberal agenda – particularly to NAFTA negotiations (Liverman 2005, personal correspondence). Given Cuatro Ciénegas's value to the international biological community, it can be interpreted as a symbolic move on the part of the Salinas government to appeal to the environmental community. Although the reserve may have

limited capital on a local scale, by helping to gain the support of the environmental community, creating the reserve may have enabled the neoliberal revolution – thereby enabling capital on a much larger scale. This interpretation is also supported by regulation theory. In this case, the state was reshaping the relationship between capital and resources within the reserve in order to protect resources in the reserve from overexploitation. In so doing, it was preventing what James O'Connor calls the "second contradiction" of capital while at the same time preventing social movements that have the potential to disrupt modes of capital accumulation – in this case neoliberalism.

To understand the process of creating new protected areas in the context of neoliberalism, neo-Marxists theories of the state along with Foucauldian discourse analysis were useful illuminate how territorialization has occurred in both areas. However, analysis of discourse is more useful in Loreto, where territorialization depends more on discursive transformations of human-environment interactions than in Cuatro Ciénegas.

The greatest similarities between these two cases is in the outcomes of creating protected areas in the context of neoliberal reforms – for small-scale producers and for the regional landscape. Based on Smith's concept of uneven development (Smith 1984), protected areas in a capitalist societies have lead to "patchiness" – in terms of social inequality and human-environment interactions across landscapes. The geographic perspective applied to these outcomes has perhaps the greatest value for the conservation and development community striving for environmental and social justice in these areas and across Mexico.

7.1.1 Connection

While regulation theory provides insight in both cases to the connection between the establishment of these protected areas and neoliberal reforms, one lesson is that the nature of this connection differs across space. While there is a clear trend nationwide linking protected areas and neoliberal reforms, this link is not always the same. Nationwide, natural protected areas are clearly linked to neoliberal programs such as bioprospecting and tourism development. Loreto clearly conforms to the national trend by linking a major tourism development with commodification of nature. However, Cuatro Ciénegas shows that other protected areas may not involve the commodification of resources yet still support the neoliberal agenda.

Chapter 4 demonstrated that the establishment of protected areas in Mexico at the time of neoliberal reforms can be explained *in large part* by the commodification of nature through tourism and bioprospecting. International conservation discourses that took hold at the same period of time enabled the commodification process through concepts such as community-based conservation that link economic development and natural protected areas -- what Schroeder has called the "commodity road" to conservation (Schroeder 1995). This connection is particularly evident considering the majority of protected areas established in Mexico throughout the 1990s are located in areas of mass tourism development or bioprospecting potential.

Both eco-tourism and bioprospecting depend on the separation of nature from society and the subsequent commodification of nature. In this way, ecotourism and

bioprospecting fit nicely with global ideals of neoliberalism. According to neo-Marxists, such as James and Martin O'Connor (O'Connor 1998; O'Connor 1994), nature itself is created and commodified to enable capital accumulation. Since "nature" (as in the romantic and enlightenment ideals) is itself a social construct, it must by created through new form of regulation that reshapes human-environment interactions. To this end, natural protected areas can be very useful. According to regulation theory, natural protected areas regulate human behavior within their boundaries (territorialize) so as to create a distinct nature.

The Loreto Bay National Park clearly demonstrates this connection. The reserve is located in an area slated for mass tourism development for more than three decades. After slogging through Mexico's debt crisis and peso devaluation, the tourism development project in Loreto needed a jump-start to get going again in the 1990s. Rather than exclusively marketing its sun and sand aspects as was *de rigeur* in 1970s and 80s, the Mexican government saw an opportunity to market the Loreto Bay National Park as an ecotourism destination. While the local tourism sector had long understood the need to limit commercial fishing and creating a "virgin" landscape for attracting tourism to the area, the federal government did not adopt these ideas until it sought to revitalize foreign investment in the project. In this way, neoliberalism was a necessary condition for creating the park. Although the natural landscape was commodified before, neoliberalism enabled it to be commodified it new ways that depended even more on the separation of nature society by restricting productive activities.

International conservation discourses provided the discursive approach the government needed to establish a reserve that would regulate the livelihood activities small-scale fishermen. These discourses have been developed into an "official creation story" used by the local tourism sector and environmentalists to hide the connection between tourism development and the park. The official story's discourse of community-based conservation and biodiversity conservation enabled the state to adopt an appearance of objective neutrality as it reshaped the area's human-environment interactions for the commodification of nature for tourism consumption. With a little scratching at the surface, however, the linkage between tourism and the park is evident. If Loreto had not been targeted as a mass tourism development, it is unlikely that a park would have been established there. Despite earlier efforts by the local tourism sector, the park wasn't established until the 1990s because that is when international conservation ideas converged with Mexico's neoliberal economic makeover.

In contrast, the Cuatro Ciénegas Reserve does not support the neoliberal agenda through the capitalization of nature or natural resources. There is little tourism development potential and there has been no interest in bioprospecting. The government's motives for creating the park appear self-evident. The basin's astounding biological significance and the efforts of the Mexico's leading scientists, with support from the international scientific community, was enough justification for creating the reserve without an official creation story.

However, further research on the national level may reveal a more complicated and less objective rationale for the park's establishment. The fact that it took three

decades of advocacy by the scientific community before the Mexican government established the reserve begs the question: why not earlier? Most likely, Mexico's neoliberal reformation *did* create conditions necessary to establish the reserve. At the very least, the international movement to create protected areas was gaining popularity around the world because they fit so well with the ideals of neoliberalism. The notions of sustainable development and community-based conservation demonstrate that economic growth and conservation are not only compatible but necessary partners.

It is also likely that the establishment of a reserve such as Cuatro Ciénegas provided an opportunity for the Salinas administration to legitimate itself to its skeptics. Salinas was the president responsible for reopening Mexico to the world through neoliberal reforms. But the Salinas administration also had a crisis of legitimacy at home. Creating a reserve in an area of such obvious biological importance sent a message to both the international development/conservation community as well as to native environmentalists that Mexico was moving in a positive direction in terms of environmental issues. This was a critical move in a time when environmental groups in the United States were threatening the NAFTA negotiation process. Since NAFTA was critical to the Salinas administration, it is not surprising that he would go to great lengths to appease the environmental community at home and abroad. Given the obvious biological value of Cuatro Ciénegas Basin and its importance to both Mexican and American scientists, protecting the basin may have served as a symbolic move on the part of the Salinas government to demonstrate its commitment to environmental issues.

This argument, although requiring further substantiation, is predicted by regulation theory. As James O'Connor explains, environmental regulation (in which the state re-organizes relationships between capital and natural resources) enables capital accumulation on a large scale. It does this by protecting resources from overexploitation as well as by ameliorating social movements that may protest environmental degradation by capital. In so doing, it enables capital accumulation on a large scale. In this case, it specifically enables the neoliberal reformation.

Therefore, regulation theory connects neoliberal reforms to the establishment of protected areas in both case studies, although for slightly different reasons. In both cases, protected areas reorganize social relations to support the neoliberal agenda. Loreto supports the neoliberal agenda by legitimating the capitalization of nature and by making nature available for tourist consumption. Cuatro Ciénegas most likely supports the neoliberal agenda as part of a larger program to greenwash Salinas's programs and gain the support of the environmental movement in the U.S. and Mexico.

7.1.2 Process

Although the creation of the reserve in Cuatro Ciénegas and the park in Loreto have different connections to neoliberal reforms, over time, they have converged in terms of the processes by which each is being territorialized. Within both, human-environment interactions are being reshaped so that nature is separated from society. How this occurs varies slightly between the two cases. In Loreto discursive transformations are much more important whereas in Cuatro Ciénegas, the transformation is taking place primarily

through development programs. In both cases, the non-profit sector is critical in this process. Democratization in Mexico, which has occurred in hand with neoliberal reforms, has enabled the non-profit sector's involvement in these transformations.

In both cases the process of separation and commodification is motivated by a complex network of actors that cross scale and sector. Particularly important in these networks in both cases are international environmental and development organizations, which have provided the financial and logistical resources to locally or regionally-based organizations to initiate and implement projects and programs that seek to change the way that local residents, particularly small scale producers, interact with their resources. For example, in both cases TNC has supported local and regional environmental groups and enabled them to become legitimate local voices working with the protected areas to influence management plans and programs aimed at local residents.

By providing financial and logistical resources to local environmental groups, international groups and actors have facilitated the movement of conservation discourses from the international community to the local level. This is particularly evident in Loreto, where conservation discourses have been used more extensively than in Cuatro Ciénegas to legitimate human-environment transformations that separate nature from society for the purpose of tourist consumption. This was evidenced in the case of *jurel*, in which those in the local tourism sector (which also overlapped with local environmentalists) used ideals of national parks developed in western industrialized nations to reinforce the concept of use zones that would limit the capture of *jurel* during the spawning season. These kinds of discourses are creating a new reality in Loreto, in

which small-commercial fishing methods are "bad" for the environment and also for the economy. Inherent in these discourses is the assertion that fishing activities (and fishermen) are backwards.

In place of productive activities, other "sustainable" activities such as ecotourism are being promoted in both Loreto and Cuatro Ciénegas. While in Loreto, fishing is being portrayed as bad and backwards, ecotourism is portrayed as the future. It is good because it represents a modern concept of sustainable development – a way to capitalize on Loreto's resources without directly exploiting them. This is largely a discursive transformation occurring in Loreto against which fishermen are passively and actively resisting. A similar transformation is occurring in Cuatro Ciénegas, where through programs funded by the GEF, the park is promoting sustainable development programs in an effort to find economic alternatives to ranching and gathering activities (collecting mesquite and *candelilla*). Although the discourse of sustainable development is used to portray these productive activities as less desirable, discursive mechanisms are not as apparent as the outright "carrot" approach in which residents are given economic incentive to participate in these programs through the promise of additional household income.

Both cases demonstrate the importance of Mexico's "democratization". In both Loreto and Cuatro Ciénegas, the presence of the non-profit sector has been critical in the process of territorializing the reserve. By appearances, these organizations have taken on much of the responsibility of the government to enact and enforce formal and informal rules on resource use. In this way, it supports the idea that the government has retreated

and allowed the non-governmental sector to fill in. However, upon closer examination of the networks involved in each case, it is clear that the non-governmental sector has close ties to both government and capital.

Therefore, these cases support what Miraftab (Miraftab 1997), Gilbreth and Ortero (Gilbreth and Otero 2001), and Williams (Williams 2001) argue – that despite moves toward democratization in Mexico, NGOs have limited autonomy. In other words, the non-governmental sector is not necessarily outside of the state, but rather are part of it in terms of promoting solutions that enable the accumulation of capital. This is case in both Loreto and Cuatro Ciénegas where the non-governmental has helped to reshape human-environment interactions within protected area boundaries for the commodification of nature. Therefore, though the process of territorialization, both cases support theory that neoliberalization, although it creates the appearance of a "state withdrawal", instead strengthens the state.

7.1.3 Outcomes

Overall, the establishment of protected areas in both Cuatro Ciénegas and Loreto has led to greater patchiness across the landscape in terms of human-environment relations. Although the protected areas in both case studies shelter resources from intense development, exploitation outside of the protected boundaries has intensified due to neoliberal reforms. Inside the protected areas, direct interaction with resources through production activities is being limited. This patchiness in human-environment relations across the landscape is reminiscent of what Smith describes as the uneven development

associated with capital development (Smith 1984). In essence, neoliberal reforms are further perpetuating a trend already in existence. The trend is to replace an even landscape of small-scale producers who directly interact with their environment with a patchy landscape in which large-scale production intensifies exploitation in some areas while little or no production occurs in other areas. In both case studies, the implications of this patchiness are significant for large-scale ecological processes and for small-scale producers.

7.1.3.1 Natural Resources

The outcomes for natural resources in both cases are unclear due to a lack of current and historical data on species populations, water levels, habitat quality and range, and so on. Although both areas have provided a haven within their borders from large-scale exploitation, the resources being protected in both areas are literally fluid and their survival depends upon processes that extend beyond the borders of the protected areas. In Loreto, pelagic species migrate through the park and depend on habitats throughout the gulf. In Cuatro Ciénegas, the pools depend on an unknown water source beyond the reserve boundaries. Therefore, neither protected area offers full protection to all resources within their boundaries.

Paradoxically, to some extent, both protected areas focus attention away from large-scale problems that influence the health and well-being of resources needing protection regardless of the existence of a protected area. This falls in line with what Katz (1998) and Colchester (1998) have argued, which is that protected areas, when

created without regard to the larger political economy, often lead compensatory exploitation in other (often proximate) places, which lessens the effectiveness of protected areas themselves. In the Gulf of California, a network of parks like Loreto has been proposed as the primary mechanism for protecting ecosystems from large-scale fisheries exploitation and mass tourism development rather than focusing on the political economy that has led to fisheries exploitation and mass tourism development. Although these areas would be protected, exploitation continues on the edges. In the case of tourism, the parks would actually provide an additional attraction for visitors and tourism investors – as it has in Loreto.

A similar situation exists in Cuatro Ciénegas, where international organizations, primarily TNC, have focused attention on efforts within the reserve and refused to engage with broader threats to the basin's habitats caused by large-scale agricultural development outside the reserve. These developments may threaten underground water sources that feed the pools that TNC and its partner, PRONATURA, aims to protect in the basin. Cuatro Ciénegas is a little different, however, because many environmentalists and activists within Mexico who are working to protect the basin, but are not supported by international dollars, have used the reserve as a nationalist rallying point for halting large-scale water exploitation for agriculture in the regions adjacent to the Cuatro Ciénegas Basin. In this example, the reserve has been useful for not only protecting resources in the basin, but also for drawing attention to a larger regional problem associated with the overexploitation of ground water for alfalfa production.

However, in both cases, environmentalists and activists have focused primarily on the direct threats to resources and how to shelter them with protected areas. In both cases, there is no direct engagement with neoliberalism on a national or international level as being one of the primary causes for increased threats at the local level. This may be due in large part to the fact that neoliberalism, and political economy in general, is more frequently evaluated in terms of social indicators rather than biological ones.

7.1.3.2 Small Scale Producers

In both cases, neoliberalism has adversely affected small-scale producers. In Loreto as in all of Mexico, *pescadores de artesania* are stuck in a price-cost squeeze, making it more difficult for them to earn a living. At the same time government assistance in the form of subsidies and low-interest loans for equipment have been cut back. Finally, the ability to pool resources has been made more difficult by government regulations on fishing cooperatives. In this context, the Loreto Bay National Park has only made livelihood strategies more complicated for fishermen. Overall, the park has only put greater limits on what fisherman are able to do. While the park has attempted to organize fishermen for cooperatives to help them cope with the difficult economic situation, this effort has been resisted because it involves a great deal of regulation which would in many ways make it even more difficult for fishermen to make a living. Although this kind of organization appears to benefit the fishermen, it would, in fact, do more to benefit the park and state to regulate fishing activities.

In Cuatro Ciénegas, neoliberal reforms have also complicated the livelihood strategies of small-scale farmers in the region. Farmers attempting to work marginal arid lands have experienced a withdrawl of government support, which had enabled their production. In particular, the government is no longer providing assistance with drilling wells and maintaining pumps as well as other farm equipment. In addition, with increasing gasoline prices, farmers have been unable to afford operating well pumps. Without access to ground water, many farmers have had to give up farming. Article 27 reforms allow farmers to sell their land to private corporations with the capital to begin large-scale agricultural operations. In the basin to the south Cuatro Ciénegas *ejidatarios* have sold as much as 10,000 hectares to business affiliates of the largest milk producer in Mexico, who promptly cleared the land and began drilling wells. For this reason, many *ejidatarios* are becoming displaced and seeking residence and employment in nearby cities and towns.

Within the reserve, current water use has been grandfathered into the management plan, but new wells or canals are not allowed. Therefore, *ejidatarios* with land in the reserve have not received offers for their land from large-scale agricultural producers. In addition, many *ejidatarios* have access to water from the pools and springs in the basin so they are not in the same difficulty as farmers outside of the basin. Nonetheless, some farmers are having a hard time finding access to water and other necessary resources and are depending more on the gathering of wild plants such as candelilla and mesquite, or on ranching, to generate income. Some of the luckier households have family members working in maquiladoras in town. Others have family members working in further places

such as Monclova, Monterrey, or the United States. Although the reserve and development/environmental groups have tried to help small producers diversify their incomes, these efforts have so far focused on tapping into the tourism to the basin. These projects have yet to provide a stable, long-term source of income. Although some *ejidatarios* complain that the reserve places limitations on their ability to extract more water, on the whole, the reserve has not significantly complicated circumstances any further for small-scale farmers.

7.2 Contributions

This study ends by reviewing its professional contributions to as well as practical contributions to conservation efforts based in the industrialized world.

7.2.1 Contributions to Research

The outcomes that result from creating protected areas in the context of neoliberal reforms demonstrate the contradiction of conservation efforts that emerge from capitalist societies and reinforce neoliberal ideals in less industrialized nations. This contradiction has not gone unnoticed by geographers. As Smith (1984) and others have noted, nature (or "first nature") disappears and becomes just another product packaged within National Parks. And as Colchester (1994), Peluso (1992), and Neumann (1997) have noted, this packaging of nature often leads to proximate exploitation elsewhere.

Despite these insights, there has been no study that looks directly at the linkage between the neoliberal reformation and the growing number and size of natural protected areas in the "developing" world. While many studies have looked specifically at the privatization and commodification of nature, the management of natural protected areas, and the outcomes of neoliberal reforms for rural landscapes, none have looked specifically at understand the linkage between neoliberal ideology, the recent creation and management of natural protected areas, or the implications of this relationship for rural people and environments.

This study tackles this linkage head on by examining the ideological congruencies between neoliberalism and conservation through natural protected area model. This study makes clear that the ideals underlying many conservation efforts in protected areas are born of the same logic that motivates neoliberal reforms. Both are founded on the principle that the free market can best manage environmental resources. In protected areas, this logic manifests itself in community-based conservation programs that commodify resources as products – mostly as tourist specter and biochemical building block.

However, this study also demonstrates that it is necessary to critically examine the state. Although the logic of neoliberalism and conservation are founded on free market principles, the state is necessary to make nature into a commodity. This was evident in the territorialization that occurred in both cases where a complex and multi-scaled network of actors was responsible for regulating human-environment relations either directly through incentive programs or indirectly through discursive transformations of

acceptable resource use. In both cases, regulation or territorialization of human-environment interactions has enabled the commodification of nature and natural resources, as predicted by regulation theory.

In addition, this study demonstrates how protected areas directly enable the neoliberal agenda. This is particularly true of the case in Loreto and similar areas developed specifically as tourist attractions. As shown in the Loreto case study, protected areas in these tourism sites ensure that the attraction, nature, is available in conformity with enlightenment and romantic images of nature held by tourists from wealthier, industrialized nations. Not only does this provide insurance for tourists, but also for foreign investors in tourism projects. The inflow of tourism dollars and foreign investment meets two goals of the neoliberal agenda. Tourism has long been one of the primary income generators for Mexico, and under neoliberalism, it is even more important as a trade good. While Neumann (1995) discusses the connection between tourism growth and wildlife conservation in Tanzania, he does not explore in depth the relationship between economic liberalization and tourism. This study, primarily through the case study of Loreto, makes clear the connection between tourism, neoliberalism and protected areas. Although this same linkage did not exist in Cuatro Ciénegas, this case also demonstrates how reserves enabled the neoliberal agenda by greenwashing neoliberal reforms and gaining the support of the environmental community.

Finally, this study also contributes to a larger understanding of the outcomes of neoliberalism for rural landscapes and livelihoods. Overall, protected areas in the context of neoliberalism are transforming landscapes of work to landscapes of leisure. The

emphasis on tourism as the appropriate form of income in protected areas has shifted the role of the small-scale producer. While farmers and fishermen were sheltered by the government by subsidies and land grants up to the 1980s, neoliberalism has made it much more difficult for small-scale producers to survive. The protected areas in this study generally assist that trend at the same time that they produce questionable results for protecting ecological landscapes at a broad scale.

7.2.2 Contributions to Environmental Justice

Mexico provides an excellent example of what happens when protected areas are established in conjunction with neoliberal reforms. Mexico fully embraced the neoliberal agenda for development in the early 1990s, reforming all sectors of its economy and political system to conform with the ideals propagated by the industrialized world, primarily the U.S. At the same time, Mexico adopted the concept of protected areas being propagated by the international conservation community as the primary mechanism for conserving biodiversity. As this study shows, this dual embrace is not coincidence. Rather, on the whole, protected areas in Mexico further enable the neoliberal agenda by making natural resources available for capitalist accumulation – primarily through tourism and bioprospecting.

In Mexico, protected areas are bound up in the country's political economy. For those trying to tackle Mexico's social and environmental justice issues, this is an entanglement that cannot be overlooked. Neoliberal reforms have had significant consequences for the country's economy. Reforms have produced fewer jobs and lower

wages. Reforms have been particularly hard on rural poor agricultural households (Kelly 2001). In addition, reforms have lead to increased exploitation of natural resources in certain areas (DeWalt 1998; Ibarra, Reid and Thorpe 2000; Ibarra, Reid and Thorpe 2000; Wexler and Bray 1996; Zabin 1998). This political-economic context cannot be ignored when considering the effectiveness of protected areas for meeting the objectives of social and environmental justice. As shown by the two cases in this study, failing to look at Mexico's larger political economy can has had negative implications for large-scale ecological processes as well as for local residents. As a result, protected areas fall short of their stated goal, which is to protect resources while providing alternative "sustainable" incomes for local residents.

And yet, many conservationists working in Mexico – particularly those associated with international environmental organizations like The Nature Conservancy – continue to support conservation based on neoliberal ideals moving closer and closer to outright privatization. The Maderas del Carmen reserve in Coahuila provides a dramatic example of this. Although the reserve was designated in 1997, all of the land was in private ownership, primarily by ranchers. The reserve's rules so alienated the ranchers/land owners, they barred government officials from entering. Since then, drought and low cattle prices have forced many ranchers to sell. Cemex, one of Mexico's largest cement companies and industrial conglomorates, has purchased over 60% of the reserve's area and has plans to acquire the rest. Cemex plans to use the reserve to breed desert bighorn. Although this appears to be an altruistic venture, it is not. Permits to kill a big horn sheep, particularly a male, sell for as much as $50,000 as hunting these rare animals has

become a good old boy networking opportunity for corporate executives from the United States and Mexico (Knudson 1999). It is not surprising to also note that Cemex is one of several Mexican investors that entering the growing hotel industry (Clancy 1999).

The case of the Maderas del Carmen reserve has been called precedent setting. However, it is only one more example of the ways in which green developmentalism integrates private capital in the process of commodifying natural protected areas. While McAfee (1999) described the underlying principle of green developmentalism as "selling nature to save it", it appears that with regard to natural protected areas Mexico is doing the opposite – saving nature to sell it. This commodification of nature enables the continuation of capitalist accumulation under a neoliberal agenda at the expense of environmental and social justice.

Because of Mexico's dual embrace of both programs, it serves as an excellent case for other countries following a similar path. For example, Gabon announced in 2002 that it would create a network of 13 parks that would cover 11 percent of the country's territory. This network of parks was developed by international conservation groups including the Wildlife Conservation Society and the World Wildlife Fund. These organizations pitched the plan for its potential to provide tourism dollars (Nichols 2003). It is not surprising that Gabon adopted the proposal put forward by these environmental ambassadors of the industrialized world, given its acceptance of neoliberal reforms. Like Mexico, Gabon sees tourism brought by these environmental attractions as advantageous to opening its economy and securing foreign investment.

Given the role of international environmental organizations in propagating the protected area model (along with affiliated concepts of development), this study is truly aimed at those organizations rather than the protected areas that they have helped to transform. While much work on protected areas seeks to address ways to better balance conservation efforts and the need for local economic development, this study has sought to understand the larger context in which these efforts take place.

Before proposing a network of parks in a country following a neoliberal path, conservationists working in Gabon and other countries would be advised to look at Mexico as an example of what kinds of outcomes that dual policy can produce. While protected areas may shelter specific areas from exploitation while attracting foreign tourism and provide some jobs, their success will be limited in countries where neoliberalism is overall increasing the income gap for rural poor and opening up resources for large-scale exploitation.

Furthermore, conservationists and development experts need to also be aware of their place within the larger political-economic system. This was made very clear to me when I talked with employees of environmental organizations based in the United States, who viewed themselves as being outside of the political and economic system. In their minds, they were not involved in the politics of Mexico. However, this simply reflects the fact that they have not theorized the state or their role in it. By accepting neoclassical economics as tools, such as privatization and commodification of resources, for environmental protection, these organizations have helped to legitimate the neoliberal agenda at home and abroad. Therefore, they are far from being non-political, as they

claim to be. Rather, their support of protected areas and the transformations of landscapes to areas of passive commodification through tourism, makes them inherently political in the sense that they are supporting the status quo. Their definition of political is equated with resistance to dominant government programs or policies. Their work to support the territorialization of protected areas and the commodification of resources makes them contributors to the dominant political economy of neoliberal reformation taking place in Mexico. Ironically, it is this system that threatens resources and social well-being in Mexico on a large scale. The result is an inherent contradiction in the work of conservation organizations that are based in industrialized countries (primarily the U.S.) working in less industrialized countries undergoing political and economic reforms subscribed by the neoliberal agenda.

Ultimately, I leave this chapter, and this study, with a call for the international conservation community to become more aware of the connections, process, and outcomes of creating protected areas in the context of neoliberal reforms. To do this will require conservationists to take a more geographic perspective by becoming aware of the relevance of political economy for protected areas. More importantly, I hope to demonstrate through these cases that international conservation groups need to become aware of their own position within the political economy and how their ideas are not inherently objective or non-political, but rather are rooted in capitalist society from where they emerged. This realization may be the first step to finding alternative approaches for protecting ecological processes and biodiversity beyond protected areas. It may also be what is necessary to bridge the gap between those who are working for environmental

and social justice in countries in which neoliberalism has greatly transformed rural lifestyles and landscapes.

APPENDIX A: ACRONYMS

CBD: Convention on Biological Diversity

CI: Conservation International

CITES: Convention on International Trade of Endangered Species

COMPITCH: Council of Organizations of Indigenous Traditional Healers and Midwives

CONAGUA (CNA): Comisión National de Agua/ National Water Comission

CONABIO: Comisión Nacional para el Conocimiento y Uso de la Biodiversidad
National Commission for the Understanding and Use of Biodiversity

CONANP: Consejo Nacional de Areas Naturales Protegidas/National Advisory Council on Natural Protected Areas

DFC: Desert Fishes Council

EZLN: Ejército Zapatista de Liberación Nacional / Zapatista National Liberation Movement

FND: Frente Nacional Democratica/ National Democratic Front

FZLN: Frente Zapatista de Liberación Nacional/Zapatista National Liberation Front

FONATUR: Fondo Nacional de Fomento al Turismo / National Fund for Tourism Development

GATT: General Agreement on Trade and Tariffs

GEF: Global Environment Facility

ICBG: International Cooperative Biodiversity Groups

IMF: International Monetary Fund

INE: Instituto Nacional de Ecología / National Ecology Institute

IUCN: International Union for the Conservation of Nature

LBNP: Loreto Bay National Park

LEEGPA: Ley General del Equilibrio Ecológico y la Protección al Ambiente / General Law for Ecological Equilibrium and Environmental Protection

MAB: Man and the Biosphere

NAFTA: North American Free Trade Agreement

NPA: Natural Protected Area

PEMEX: Petroleos Mexicanos/Mexico's Petroleum

PESCA: Mexico's Fisheries Secretary

PiP: Parks in Peril

PRI: Partido Revolucionario Institucional / Institutional Revolutionary Party

PRONASOL: Programa Nacional de Solidaridad / National Solidarity Program

SEGARPA: Subsecretaría de Desarrollo Rural / Subsecretary for Rural Development

PROFEPA: Procuraduria Federal de Protección al Ambiente / Federal Enforcement for Environmental Protection

SEDUE: Secretaria de Desarrollo Urbano y de Ecologia/Secretary for Urban Development and Ecology

SEMARNAP: Ministry for Environment, Natural Resources and Fisheries

TNC: The Nature Conservancy

UNAM: Universidad Nacional Autonoma de México / National Autonomous University of Mexico

WWF: World Wide Fund for Nature

WRI: World Resources Institute

APPENDIX B: HUMAN SUBJECTS DOCUMENTATION

Human Subjects Protection Program
http://www.irb.arizona.edu

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6 January 2004

Lydia Breunig, Ph.D. Candidate
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PO BOX 210076

RE: PESCA Y POZAS IN NORTHERN MEXICO: THE PROCESS AND OUTCOMES OF CONSERVATION AREAS UNDER NEOLIBERALIZATION

Dear Ms. Breunig:

We received your application concerning the above-cited project. According to recent correspondence data collection has already been completed for this study. Had this application been submitted prior to initiation, you would have been informed that regulations published by the U.S. Department of Health and Human Services [45 CFR 46.101(b) (2)] exempt this type of research from review by our Committee.

Thank you for informing us of your work. If you have any questions concerning the above, please contact this office.

Sincerely,

Rebecca Dahl

Rebecca Dahl, R.N., Ph.D., CIP
Director
Human Subjects Protection Program

cc: Departmental/College Review Committee

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