DISSERTATION

THE IMPACTS OF NATIONAL SECURITY AND SUSTAINABLE DEVELOPMENT: A COMPARATIVE STUDY OF SHARED PROTECTED AREAS

Submitted by

Janeane Harwell

Department of Political Science

In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Fall 2012

Doctoral Committee:

Advisor: Steven Mumme

Dimitris Stevis
Marcela Velasco
Jane Kneller

ABSTRACT

THE IMPACTS OF NATIONAL SECURITY AND

SUSTAINABLE DEVELOPMENT:

A COMPARATIVE STUDY IN SHARED PROTECTED AREAS

National security and sustainable development paradigms shape national goals, priorities and policy in shared protected areas. The two paradigms define the physical, economic, social, and political infrastructure of shared protected areas through competing frameworks of national interests and environmental protections. This comparative study builds on international thinking about the relationship between sustainable development to answer the hypothesis that national security impacts most the environmental pillar of sustainable development. The research methodology is a triangulation of comparative document analysis with qualitative and quantitative interviews for a rich description of the two paradigms in two shared protected areas. Sustainable development is assessed in the four park conservation management plans using the Lockwood and Kothari traditional versus emergent sustainable development indicators as independent variables and the organizing framework. The impacts of national security doctrine, policy and projects are systematically assessed on sustainable development in the parks. This research formalizes one step toward the study of national security and sustainable development and the challenges of developing environmental protections in a national security environment.

TABLE OF CONTENTS

LIST OF FIGURES

ACRONYMS

ABI 2004	Arizona Border Initiative 2004
ADWA 1990	Arizona Desert Wilderness Act of 1990
AFR	Asociación de Fomental Rural
AI	Action Item
AIDTT	Arizona Interagency Desert Tortoise Team
ALCOPAZ	La Asociación Latinoamericana de Centros de Entrenamiento Para Operaciones de Paz
ANC	Arizona Nature Conservancy
APN	Administración de Parques Nacionales
APN PNL	Administración de Parques Nacionales Parque Nacional Lanín
BEC	Barry M. Goldwater Executive Council
BLM	Bureau of Land Management
BMGR	Barry M Goldwater Range
BR	Brundtland Report
CCP	Cabeza Prieta Comprehensive Conservation Plan Wildlife Stewardship Program and Environmental Impact Statement
CEC	Commission for Environmental Cooperation
CONABIO	Comisión Nacional para el Conocimiento y Uso de la Biodiversidad
CONANP	Comisión Nacional de Áreas Naturales Protegidas
CBP-BP	Customs and Border Protection-Border Patrol
CPNWR	Cabeza Prieta National Wildlife Refuge
DAP	Durban Action Plan
DEA	Drug Enforcement Administration
DHS	Department of Homeland Security
EIS	Environmental Impact Statement
EID/CCP	Environmental Identification/Comprehensive Conservation Plan
EPGDA	El Pinacate-Gran Desierto Area Biosphere Reserve
EO	Executive Order
ESC	United States-Mexico Executive Steering Committee on Twenty-First Century Border Management
G	Goal
GEF-PNUD	United Nations Development Program-Global Environmental Facility
IDB	International Development Bank
INE-SEMARNAT	Instituto Nacional de Ecología-Secretaría de Medio Ambiente y Recursos Naturales
IMADES	Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora
INS	Immigration and Naturalization Service
ISDA-AIDS	International Sonoran Desert Alliance
MDG	Millennium Development Goals
MLWA (1986)	Military Land Withdrawal Act of 1986
MLWA (1999)	Military Lands Withdrawal Act of 1999
MOU	Memorandum of Understanding

NWF	National Wildlife Federation
NWRS	National Wildlife Refuge System
NWRSAA	National Wildlife Refuge System Administration Act of 1966
OAS	Organization of American States
OAS/CICAD	Organization of American States Inter-American Drug Abuse Control Commission
OAS DSA	Organization of American States 2003 Declaration of Security in the Americas
OPCNM	Organ Pipe Cactus National Monument
PA	Protected areas
PG	Plan de Gestión
PiP	Parks in Peril Program
PM	Plan de Manejo
PNL	Parque Nacional Lanín
PNV	Parque Nacional Villarricca
PNL/PNV	Parque Nacional Lanín/Parque Nacional Villarricca
PRODERS	Programa de Desarrollo Rural Sustentable
PROFEPA	Procuradiría Federal de Protección al Ambiente
RRA	Refuge Recreation Act
SARH	Secretaría de Agricultura y Recursos Hidraúlicos
SEDESOL	Secretaria de Desarollo Social
SEDUE-EPA	Environmental Protection Agency
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales
S	Strategy
SIA	Systema Integral de Administraci6n
SNAP	Sistema Nacional de Áreas Protegidas
SNASPES	Sistema Nacional de Áreas Silvestres Protegidas
SO	Strategic Objective
SPA	Shared Protected Area
VFM	Viveros Forestales Militares
WA 1964	Wilderness Act of 1964
WSP	Wilderness Stewardship Plan
WWF	World Wildlife Fund
USCS	U.S. Customs Service
US DOI	U.S. Department of the Interior
US NRWS	U.S. National Wildlife Refuge System
US FWS	U.S. Fish and Wildlife Service

CHAPTER ONE

INTRODUCTION: NATIONAL SECURITY AND SUSTAINABLE DEVELOPMENT

This dissertation examines the influence of changing national security policy on sustainable development policy in two shared protected areas. The goal of this research is to understand how national security projects impact the environmental pillar of sustainable development in shared protected areas. In order to understand how national security impacts sustainable development, this research looks at national security and sustainable development policy in two shared protected areas.

The efforts to reconcile national security projects with sustainable development goals for shared protected areas elucidate a uniquely interactive interface between sustainable development with national security. Past efforts to reconcile national security and sustainable development range from international and hemispheric security doctrines and global sustainable development principles to local resource management frameworks that tailor sustainable development to the ecosystem and communities of individual protected areas. Shared protected area conservation management exists within legal and territorial governance structures that are themselves enveloped by social and economic development. Ironically, the ecosystem that makes the protected area worth saving has no voice of protest, no voting rights to express its preference, and is the most complex entity to understand and maintain. The health of ecosystem—or the part of the ecosystem that is contained within a shared protected area—often conflicts with programs to secure frontier territory, the control of border crossings and border crime, and is dependent on shared ideas of collaboration and the idea of ecosystem health and management.

This examination of the impacts of national security on sustainable development in shared protected areas takes advantage of the cumulative nature of comparative research to contextualize, compare, and interpret basic elements of the interactive relationship. This study creates a rich description of national security impacts on protected areas by looking at the conflicting and sometimes mutually beneficial strategies of national security in two sets of contiguous national protected areas located on international boundaries.

This comparative research proceeds through the international and regional sustainable development principles, shared protected area management strategies for sustainable development and national security goals and projects. The research looks at how the principles and practices at these levels come to bear on the management of the two specific shared protected areas studied here. At the field level, this study records the views of individuals that work with sustainable development policy in the two shared protected areas. Interviews probe natural resource managers and park employees concerning their experience with sustainable development for the shared protected areas. Out of this body of research a disquieting observation becomes evident: that of the triple bottom line of sustainable development; social justice, environmental sustainability, and economic growth; national security challenges most—and is most challenged by—the environmental pillar of sustainable development.

The idea that traditional national security challenges sustainable development presented itself as an epiphenomena of the divergent state responses to new threats since the initiation of the post WWII international system. International and national security goals and strategies toward humans and the environment have blurred the disciplinary border between national security and sustainable development. Establishment of a dialectical relationship between the two sectors is not a simple joining of doctrines, forces or resources. The distinctive vocabularies,

underlying assumptions and goals of each sector confound shared perspectives on problems and solutions. The barriers to a nexus of national security and sustainable development are shaped and impacted by divergent strategic responses to the perceived presence, scope, and prevention of threats.

National security's adaptation to new threats means that security doctrine interfaces with the permanent evolution of political, economic, and environmental change. National security doctrines and projects are actually plastic elements in the national security toolbox of strategies to respond to new and perceived threats. New threat responses rewrite national security strategies, priorities, and projects. In shared protected areas, national security goals and border security strategies reshape and reorder, and can trump decades of conservation policy and sustainable development environmental goals. This research looks at the evolving national security goals, strategies, and projects that are reshaping the vision for managing shared protected areas in these two pairs of adjoining nations in the Americas and their shared protected areas. Admittedly, national security goals do not always conflict with environmental protection aimed at sustainable development. A security goal or environmental protection can result in mutual benefit. The interactive relationship between national security and sustainable development is a double edged sword of mutual benefit or one-sided loss. In some cases a security response to a new threat can result in shared goals and outcomes between national security and sustainable development in the protected area. The example of mutual benefit created by the U.S. national security project that reduces illegal human traffic crossing the U.S. Sonora desert reduces one form of ecosystem degradation. At the Chilean and Argentinean border, the Parque Nacional Lanín and Parque Nacional Villarrica shared protected areas

function as a buffer to protect biodiversity and provide local resistance to the permeation of organized crime in sparsely populated areas.

On the other hand, other security projects, goals, and outcomes—such as the construction of the U.S border wall at the southern U.S. border—do not benefit the environmental sustainable development goals of shared protected areas. The U.S./Mexico border wall overrides existing environmental protections for biodiversity and rewrites the purpose for the protected area as a staging area for border enforcement. The shared protected area management programs that protect biodiversity and enable animal migration are trumped by the physical, surveillance, and management needs of the wall. In the case of the U.S.-Mexico border wall, the U.S. national security aim to control narcotics and human trafficking without economic disruption opposes the sustainable development principle to protect biodiversity. The security approaches and protected area paradigms are in opposing corners. The conflicting aims between the U.S. southern border wall and protected area biodiversity protections often result in a one-sided conversation between highly prioritized and politicized security goals that trump the long term sustainability goals of protected area management.

This comparison of two shared protected areas finds surprising parallels in the two case studies. Even though the two cases have very different physical characteristics, development histories and binational relations, both cases exhibit a relationship that is not a simple dichotomy of sustainable development versus security. Each of the four countries' political thinking about conservation and national security goals shapes sustainable development and may indicate possibilities for generalization of a pervasive, persistent, complex, and interactive relationship between national security and environmental protection in the modern world that seeks sustainable development.

The "shared" character of the two case studies overarches the stark differences and provides a research advantage for studying shared protected areas. For this research, the term "shared" means that the protected ecosystem, species, and/or habitat cross national borders. The border locations provide a research advantage because national security projects become more visible to park management, employees, and visitors. These protected border areas provide some access to the security project staging areas. As a researcher I can observe and gather data on national security project impact on environmental protections for sustainable development in relation to the park and the larger ecosystem. The location of the research in shared protected areas takes advantage of a "fish bowl" effect of security goals that are implemented through border security projects.

The decision to compare shared protected areas at the U.S/Mexico border and Argentinean/Chilean border reflects my understanding that shared protected areas are visible and accessible sites for studying national security operations and sustainable development projects.

This comparative study of national security and sustainable development is located in two shared protected areas: the Cabeza Prieta/El Pinacate shared ecosystem at the U.S./Mexico border, and the Villarrica/Lanín shared ecosystem at the Argentinean-Chilean border. Both protected areas are administered and governed from various levels. Both also face challenges to the environmental pillar of sustainable development as the moves toward security and economic performance rewrite the purpose and function of these protected areas. The "shared" character of the protected areas also highlights the effect of national security policy on binational cooperation in each of the shared protected areas. Decades of collaborative cross border conservation efforts for species population management are impacted by the security projects at the U.S./Mexico border. The mutually "shared" and "protected" nature of the two cases presents similarities and

differences that highlight unique struggles for collaboration between protected area paradigms that aim for ecosystem health with sustainable development and national security doctrines that constantly change to new threat priorities.

Lockwood and Kothari's Emergent Sustainable Development Paradigm

Sustainable development in shared protected areas creates opportunities to change the purpose of conservation management and the shared protected area. Michael Lockwood and Ashish Kothari's (L&K) emergent sustainable development framework (Lockwood & Kothari 2006) is a model for conservation management intended to address the particular needs of protected areas. The framework's four baskets of indicators clarify the unique needs and requirements for a protected area, the surrounding ecosystem, and its resident human community to sustainably develop. The four L&K indicator baskets set out an operationalized paradigm of traditional and emergent sustainable development strategies that guide the comparative intersectoral analysis of this research. Just as the borders provide a "glass bowl" view of national security goals and values that are implemented in border projects, shared protected areas are "glass bowls" for identifying and comparing traditional versus emergent sustainable development goals.

A comparison of the four countries' natural resource management plans and national security projects could reveal a confusing mismatch of management styles, despite governments' official claims of embracing the international goals of sustainable development. L&K's international environmental sustainable development indicators provide a useful benchmark with which to compare the four national natural resource management plans and are used here to guide the interview and survey design for interviewing park managers and employees used in

this study. The L&K criteria for protected areas collects best management practices and development strategies that have proven successful over decades. This research chooses to focus on the implementation of those indicators of sustainable development that are most salient to the national security goals and projects implemented within the two protected area case studies.

Order of Research

The aim of this study—to understand the impacts of national security projects on sustainable development in shared protected areas—is actualized here in a cumulative process of comparative research. The analysis aggregates a rich body of data for a thick description of the issues confronting each set of shared national protected areas. The study builds on the existing context of sustainable development principles and indicators to guide the analysis of the impacts of national security projects in the two areas. This investigation of national security doctrine and sustainable development management trace(s) the tenuous but inevitable merger of sustainable development goals with security goals in shared protected areas through policy arenas that span four levels of inquiry: international principles of sustainable development for shared protected areas; the declaration of sustainable development as a security issue for the western hemispheric region; national approaches to sustainable development for conservation management in the parks; and national security goals and projects in the protected areas. Chapter 1 explores the policy and theoretical context of the relevant concepts of sustainable development. Chapter 2 discusses the methodology of the study. Chapters 3 & 4 compare the four management plans in relation to the L&K sustainable development indicators. Chapters 5 and 6 compare and assess the impact of national security projects on sustainable development in the two case studies.

Chapter 7 reviews the policy comparisons found in the study and reflects on the policy implications for balancing security and sustainability in shared protected areas.

Summary

This study of the relationship between national security and sustainable development is a particularly timely inquiry. The research explores that relationship in two shared protected areas through a framework of sustainable development indicators and national security doctrine and projects. The body of data generated by the comparative policy and project study provides a contextual foundation for understanding how environmental protections are either advanced or diminished in a national security environment. The research framework provides a rich description of the shifting public terrain of national security doctrine in relation to sustainable development indicators. The disquieting observation that national security challenges most the environmental pillar of sustainable development presents questions on many levels. In order to facilitate building that body of research this dissertation frames an inquiry into how principles of environmental protection for sustainable development are valid indicators to generate questions and weigh decisions about sustainable development and national security. The remainder of Chapter One tracks the international precedence for a security that is inclusive of sustainable development and environmental concerns.

Contextualizing National Security and Sustainable Development

This literature review investigates the overarching political and development context that shapes protected area conservation management thinking about national security and sustainable development. It first considers the impact of the 1987 Brundtland Report and subsequent

thinking at the level of the Organization of American States on the contemporary effort to reconcile these two conflicting policy spheres. It then reviews the Michael Lockwood and Ashish Kothari's protected areas paradigm as a basis for comparing how particular protected areas are being managed at a time of amplified national security concerns that impinge on the management of protected areas in the Americas.

Compared to traditional national security doctrines and programs, sustainable development is a newcomer to resource management and borders. The principles of sustainable development that emerged and were embraced by the international community at the 1992 United Nations Conference on Environment and Development (UNCED) are the foundational thinking that relates shared protected areas and sustainable development to national security. Sustainable development principles challenge and broaden notions of national security to include the environment as a competing value into the mix of national and international priorities for the management of shared protected areas, even where national security is concerned or might be affected.

This research places the starting point for national security and sustainable development at the international and regional levels. The paradigm for the study of national security project influence on sustainable development in shared protected areas is founded on the observations, conclusions and principles presented in the Brundtland Commission Report "Our Common Future" (United Nations 1987) and the doctrine articulated in the Organization of American States 2003 Declaration of Security in the Americas (OAS 2003). Sustainable development is defined in the U.N. 1986 Brundtland Report (United Nations 1987). Sustainable development principles merged with ideas about Western Hemispheric regional security when the environmental standards presented at 1992 UNCED were folded into ideas about human security

in the Organization of American States 2003 Declaration of Security in the Americas (OAS DAS) (Organization of American States 2003). The OAS definition of human security and the Brundtland Commission principles formally declare that the prevention of biodiversity loss through the protection of areas and the issues of shared protected areas are valid security issues.

The principles stated in the two documents aim to reconcile conflicts between a nationally centered perspective on security and the environmental, economic, and social pillars of sustainable development. The two documents establish global norms of sustainable development that shape thinking at the national level for shared protected area conservation management and sustainable development practices. The principles presented in the two documents build avenues to integrate nationally protected areas into a global network of representative ecosystems aimed to sustain life support biosystems as a vital part of human security. At the implementation level of shared protected areas management Lockwood and Kothari's adaptation of the Brundtland Report's sustainable development principles as applied in the Durban Action Plan (DAP) of the World Commission on Protected Areas frames the assessment of sustainable development in these protected zones.

International and Regional Sustainable Development Principles

The idea that a causal relationship exists between security and sustainable development for shared protected areas can be located in the principles and doctrines of international sustainable development and regional security. Early efforts to identify cause and prescribe change are located in international statements that express the urgent need to rethink the vision of shared protected area conservation in terms of sustainable development. These statements call for a reexamination of existing mechanism for the coordination of international, regional, and

national resource management conservation policy and action. The U.N.'s 1986 Brundtland Report (WCED 1987) and the Organization of American State's 2003 Declaration of Security in the Americas each identify a causal relationship between national security projects and environmentally destructive, unsustainable development practices. The two documents point out the inadequacies of traditional resource management approaches and the limits of nationally centered approaches to security for shared protected areas. The principles presented in the two documents rewrite the roles of protected areas as basic elements of sustainable development. National conservation efforts are reworked to integrate and comply with international goals and environmental conservation efforts. The principles in the BR and OAS DSA redefine the practice of attaining strong security in transborder ecosystems as a multidimensional approach with multilateral cooperation capability that is integrated into the sustainable development process. Specifically, national security must develop multidimensional and multilateral response capability in order to coordinate with the global scope of prevention of environmental stress.

The Brundtland Report

The Brundtland Report (BR) conclusions draw from data analysis of three years of public hearings on environmental protection and human development throughout the world (Paragraph 5). From that data the Commission identified systematic linkages between development sectors that hinder sustainable environmental development. The Commission redefined human development and linked all sectors to sustainability as: "…development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED 1987)." The new definition rewrites traditional development and security approaches to

environmental protections and sustainable development from a long perspective on the future and unifies the three pillars of sustainable development: economic, social, and environmental.

The sustainable development principles presented in Chapters 1, 6, and 11 of the BR identify new strategies for problematic development practices and national security approaches that impede sustainable development in shared protected areas. Achieving concurrence between the aims and strategies of national and border security with sustainable development is not a simple blending of border security projects and the economic, social and environmental development sectors. Synchroneity across development and security sectors is a complex, interactive, and contentious process that includes all three pillars of sustainable development. Chapter 1 of the BR sets the parameters for the reconciliation of national security and environmental protection with a challenge to traditional economic development and environmental protection approaches that fail to consider the negative development impacts of environmental stress at a global scale (Paragraph 8). An important element in environmental stress is the tendency for development to simplify ecosystems and to reduce their diversity of species. The Commission argues that the loss of plant and animal species can greatly limit the options of future generations; so sustainable development requires the conservation of plant and animal species (Paragraph 13). The BR findings relate the cross border nature of environmental stress to developmental disaster. Environmental stress crosses thresholds that endanger the "integrity of ecological systems" (Paragraph 23). The term expresses pressure on the network of life systems in the biosphere. In economic terms environmental stress is a downward spiral of poverty caused by the overuse of resources and thus further impoverishment (Paragrah 3). In political terms environmental stress is generated from the widening impact of economic decisions that spill across national frontiers (Paragrahs 4 & 8).

The BR analysis of environmental stress finds that traditional patterns of economic development are linked in cycles that duplicate destructive practices. The consequences of the inexorable linkages between environmental resource use and all sectors of human development (Paragraph 40) place economic growth and environmental protection as equally important to all sectors of sustainable human development. The BR rewrites the idea of economy to be…

> "…not just about the production of wealth, and ecology is not just about the protection of nature—they are both equally relevant for improving the lot of humankind (Paragraph 42)."

The impacts of destructive development practices are visible in the struggle to conserve transboundary habitat and migrating species in shared protected area. Biodiversity conservation in shared protected areas is repeatedly shown to be most impacted by the duplication of historically destructive economic development, human settlement, public policy, and management practices (Varady & Ward 2009; United Nations 1987).

Traditional resource use and development practices create the unintended consequences of negative environmental impacts that cross both territorial and economic borders (Paragraph 4). The borderlands receive a double set of negative impacts from traditional economic growth practices that are further supported by the growing demand to protect economic development in politically charged borderlands. Cross border environmental stresses are the result of duplicated and destructive economic development practices of land clearing and intervention in water cycles (Paragraph 20), and harmful practices of food distribution and fossil mineral and fuel extraction (Paragraph 21). Pollution, poor land use and resource management practices create the unintended cross border consequences of acidification (Paragraph 26), desertification (Paragraph 28), and the loss of species and ecosystems. The BR reworks appropriate cross border resource management strategies as long term programs (Paragraph 19) that aim to deal with population

pressures (Paragraph 25) and the negative impacts of large scale farming and ranching (Paragraph 29).

Sustainable development in shared protected areas is hindered by systemic links between patterns of economic development (Paragraph 42) and social and political factors (Paragraph 43) that orchestrate the elements for a spiral of poverty and generate environmental stress. The systemic links between destructive environmental, economic, social and political practices threaten economic development (Paragraph 42). In shared protected areas the negative impacts of systemic linkages within and between destructive development practices are compounded as political and economic boundaries are increasingly blurred (Paragraph 44) within the global economy (Paragraph 45).

National policies and programs for environmental resource management are designated as the appropriate tools to sustainably develop and expand the Earth's resource base and to address the stresses that threaten the future (Paragraph 7). But, the BR stresses that management approaches must change. Traditional resource management is critiqued as politically driven approaches that "…(fail) to place responsibility for environmental damage on those that cause it" and result in "after the fact" damage repair (Paragraph 46). Traditional resource management does not have the capacity to link or network national resources and shared protected areas into a global network of life systems. The BR counteracts the problem of national resource management that is unlinked to the biosphere with a rewrite of environmental sustainable development at the national level. The rewrite of the "after the fact" national conversation strategy means that ecosystems and species are no longer sacrificed to economic development for later restoration. Nor are ecosystems and species placed in protected "islands." National

approaches to resource management and sustainable economic development are linked in a new integrative and active process in which...

> "…all nations aim at a type of development that integrates production with resource conservation and enhancement, and that links both to the provision for all of an adequate livelihood base and equitable access to resources (Paragraph 47).

The role of national resource management is rewritten as a basic element of sustainable development. The function of resource management is reworked to correct the sources of environmental problems, rather than to mitigate symptoms (Paragraph 50).

Chapter 6 of the BR integrates the global scope of environmental stress discussed in Chapter 1 with changes to national resource management goals that create strategies for sustainable development. The problem of traditional resource management's inability to network shared protected areas from the national level into the global network of life systems is addressed by specifying preventative strategies to reduce environmental stress through protection of the planet's life processes. The elements of the strategies are the conservation of species and genetic material (Paragraphs 2 &4), reduction of the threats to development posed by habitat alteration and species extinction (Paragraph 9), and the creation of integrated plans for national conservation. Priorities for national resource management action are rewritten to reflect the heightened value of species that surpass the traditional economic value of genetic material. Species and species variety have ample grounds for conservation beyond traditional economic value in aesthetic, ethical, cultural, and scientific considerations provide (Paragraph 30). The resource management approach that isolates national parks as "islands" for species conservation is rejected as reactionary. Conventional "after-the-fact" mitigation and reactionary management

strategies are replaced with an "anticipation and prevention strategy" (Paragraph 39) that seek to change the economic and development source of species depletion (Paragraph 40).

The BR argues that the conservation problems of species loss, "islanding", and "after-the-fact" restoration are amplified in shared protected areas by destructive national development approaches that are duplicated in government policy (Paragraph 41), national economic goals (Paragraph 42), destructive trade patterns (Paragraph 43), and land ownership policy (Paragraph 44). The Commission argues that the alteration of the destructive national development patterns begins with increased national development compatibility with the global efforts to preserve biological diversity (Paragraph 39). National levels of action are linked to global conservation and development goals through National Conservation Strategies (NCS). The NCS set the national level model for community participation in sustainable environmental development by incorporating all stakeholders from all levels in the analysis of natural resource issues and assessment of priority actions (Paragraph 40).

The new strategies for resource conservation link environmental protections for species conservation to development in national parks. National parks change from isolated "islands" to "parks for development":

> "Parks serve the dual purpose of protection for species habitats and development at the same time. National efforts to anticipate and prevent the adverse consequences of development policies in any of these areas would surely yield much more for species conservation than all the measures of the past 10 years in support of park building, ranger patrols, anti-poaching units, and the other conventional forms of wildlife preservation (Paragraph 47)."

Shared protected areas would benefit from the BR plans for governmental action that aim to remediate how agriculture, forestry, and human settlements degrade and destroy species habitat (Paragraph 64). Existing strategies that aimed to better wildlife and protected-area

management are reworked to create protected areas of a non-conventional type (Paragraph 65), incorporate regional and local genetic resource stocks into a national level resource accounting system that directs attention to species as high-value yet little-appreciated resources (Paragraph 65), account for the impact of the extinction of a species the biosphere or on the integrity of a given ecosystem (Paragraph 67), and establish additional protected areas (Paragraph 71 & 72).

The BR completes the analysis on global sustainable development by relating peace, security, development, and the environment in Chapter 11. The report identifies the negative impacts of environmental stress as one primary cause of major conflict. Environmental stress is named as a fundamental element in the web of causality associated with any conflict. The importance of environmental stress is emphasized in relation to security and peacekeeping and it is argued—in some cases—to be catalytic (Paragraph 5). Although the immediate cause of insecurity may appear to be political upheaval and military violence, the BR argues that the underlying causes of major conflict often include the deterioration of the natural resource base and its capacity to support the population (Paragraph 6).

In terms of security, the impact of environmental stress as a source of conflict is the only impact that surpasses the corrosive impact of the arms culture. The BR uses a future(s) possibility approach to argue that the cost of the arms culture in development terms is the cost of what could have been (Paragraph 27). The BR critiques national security spending priorities that fund an arms race, pointing to lost opportunities for economic, human, research, and environmental resources. The national and border security script for shared protected areas casts the spaces as highly charged, hyper-secure theaters to stage arms control and the prevent terrorism. The illicit arms, narcotics, and human trafficking that cross borders in the relative lack of surveillance of shared protected areas are problems that cannot be addressed at the level of

nationally centered protected area management and security. New national security and integrated shared protected area management for sustainable development must build tools for cross level cooperation, collaboration and multidimensional strategies.

The BR rejects the notion that national security alone can deal with the needs of a global ecological system and the global scope of development. Paragraph 38 states that:

> "…there are no military solutions to 'environmental insecurity'. And modern warfare can itself create major internationally shared environmental hazards. Furthermore, the idea of national sovereignty has been fundamentally modified by the fact of interdependence in the realm of economics, environment, and security."

Interdependence is a key principle of international political relations (Keohane, Nye, 1977)[1]. From the view of sustainable development, interdependence among nations is itself dependent on the healthy life systems of the biosphere, or the global commons. The national interest perspective that views shared protected areas as theaters for border protection block ecosystem integration into the global ecosystem network and obstruct coordination with global environmental protection aims. The political and security issues that are magnified in shared ecosystems are raised to the level of global concern. The Commission observes that:

> The global commons cannot be managed from any national centre: The nation state is insufficient to deal with threats to shared ecosystems. Threats to environmental security can only be dealt with by joint management and multilateral procedures and mechanisms."

[1] The theory of interdependence outlined in Keohane and Nye's book Power and Interdependence (1977), posits that the utility of military force as an instrument of policy had diminished in a world of nuclear-armed superpowers. As such, states seeking to enhance their security should seek to safeguard their access to strategic economic resources and form alliances with a broad range of international actors and institutions. In other words, economic issues had now entered the realm of "high politics" (OAS, 2003).

Shared ecosystems require conservation approaches that are generated from a global perspective of collaboration and cooperation between nations. The scope of traditional national security concerns does not have the capacity to foresee how environmental stress can damage core national interests (Paragraph 43). National security approaches need to rework priorities toward the integration of national environmental protection and resource management into global efforts (Paragraph 44). The BR rewrite of security priorities aims to move military spending away from an arms race to address environmental threats (Paragraph 45). Nations are called to "turn away from the destructive logic of an arms culture," and to "face the common challenge of providing for sustainable development and act in concert to remove the growing environmental sources of conflict (Paragraph 48)."

The Organization of American States' Declaration of Security in the Americas

The BR critique of traditional security approaches that support destructive economic development practices is applied to hemispheric security in the principles and doctrines of the OAS 2003 Declaration of Security in the Americas (OAS DSA)[2]. The OAS 2003 Declaration places human development and social justice under a doctrinal umbrella of peace, national sovereignty, human rights, and democratic values. Paragraph 2 of the OAS DSA frames regional security strategies as a western hemispheric multidimensional security response to new threats of terrorism, extreme poverty and social exclusion, natural and man-made disaster, environmental degradation, human trafficking, damage from radioactive and toxic waste, attacks on cyber security, and weapons for mass destruction (Section 2, Paragraph l). The vulnerability of traditional security to the new threats opens human development to the new threats as well. The

[2] Consistencies between the BR and OAS DSA are not surprising since both documents are derivative of the original 1945 U.N. Charter.

OAS DSA drafts new roles for hemispheric security that integrate development with national sovereignty at the regional, national, and civic levels:

> 2. Our new concept of security in the Hemisphere is multidimensional in scope, includes traditional and new threats, concerns, and other challenges to the security of the states of the Hemisphere, incorporates the priorities of each state, contributes to the consolidation of peace, integral development, and social justice, and is based on democratic values, respect for and promotion and defense of human rights, solidarity, cooperation, and respect for national sovereignty (OAS, 2003).

OAS DSA articles e through i of Section II, Part 4, build new norms for hemispheric security, incorporating sustainable development criteria from the U.N. Charter and BR principles. A new multidimensional security approach is located within and interacts with respect for human rights, freedoms, and development (Article e)[3]. The OAS DSA multidimensional security approach includes the human right to participate in social and economic development and reorders national security concerns to integrate environmental sustainable development that aims to prevent the destabilizing cycle of poverty and environmental stress. The OAS DSA multidimensional security approach continues the BR critique of the top-down, hierarchical national security interests that prioritize "high politics" over human development and devalue ecosystem integrity.

The vulnerability of traditional security to new threats creates vulnerability in human development as well. The OAS DSA carries forward the BR reworking of traditional security toward a multidimensional response to the negative impacts of environmental stress on sustainable development by equating strong security with human security. Human security

[3] e. In our Hemisphere, as democratic states committed to the principles of the Charter of the United Nations and the OAS, we reaffirm that the basis and purpose of security is the protection of human beings. Security is strengthened when we deepen its human dimension. Conditions for human security are improved through full respect for people's dignity, human rights, and fundamental freedoms, as well as the promotion of social and economic development, social inclusion, and education and the fight against poverty, disease, and hunger (OAS, 2003).

combines the U.N. principles of national sovereignty with a concern for the individual as a citizen with rights, dignity, participation in economic and social development, and the guarantee of basic securities. Sustainable development is advanced as a valid security concern because the new threats are diverse elements that insinuate themselves into all levels of society to impact all three pillars of sustainable development, as well as political, health and environmental aspects (Article i)[4].

The new security threats challenge traditional national security assumptions of shared protected areas as public theaters of national heritage and sovereign territory. International security adapts to global threats by returning to the original U.N. principles to create new norms and principles for the problems of the era (Thakur 9 February 2008). Traditional security must also adapt to the new problems and build mechanisms for multidimensional action and cooperation (Paragraph j)[5]. A multifaceted international and national security response is redefined as an adaptive, flexible and inclusive element with a long term perspective on sustainable development that responds within sovereign nations and across borders. The OAS DSA multidimensional approach to national security defines new national security norms of shared responsibility and transnational cooperation (Article k)[6].

[4] i. The security threats, concerns, and other challenges in the hemispheric context are of diverse nature and multidimensional scope, and the traditional concept and approach must be expanded to encompass new and nontraditional threats, which include political, economic, social, health, and environmental aspects (OAS, 2003).

[5] j Traditional threats to security and the mechanisms for addressing them remain important and may be different in nature from the new threats, concerns, and other challenges to security and from cooperation mechanisms for addressing them (OAS, 2003).

[6] k. The new threats, concerns, and other challenges are cross-cutting problems that require multifaceted responses by different national organizations and in some cases partnerships between governments, the private sector, and civil society all acting appropriately in accordance with democratic norms and principles, and constitutional provisions of each state. Many of the new threats, concerns, and other challenges to hemispheric security are transnational in nature and may require appropriate hemispheric cooperation (OAS, 2003).

The multidimensional security concept rewrites traditional national security priorities. The BR observation that military spending is a loss of opportunity to send resources to other sectors for human development is directly applied to the balancing act between national security and sustainable development appropriation of funds. Appropriation of funds underlies the inevitable and political challenge to assumptions of legitimate defense needs versus legitimate development needs. Multidimensional security does more than research and purchase new technology to arm a nation. Multidimensional security spending is transparent in the determination of allocation of funds and in the definition of need (Paragraph 15)[7]. Terrorism security issues of cyber security, biological terrorism, and threats to critical infrastructure have reordered national border security at binational, subregional, and hemispheric levels. National security is rewritten to support the delicate balance that controls the movement of terrorists and terrorism funding while at the same time enabling the flow of people and commerce (Paragraph 23)[8].

The concept of a multifaceted approach to hemispheric security reinforces the principle of transnational cooperation. Multilateral cooperation builds inroads between nations by

---

[7] 15. We reaffirm our commitment to continue to strive to limit military spending while maintaining capabilities commensurate with our legitimate defense and security needs and fostering transparency in arms acquisitions. Continued implementation of confidence- and security-building measures is conducive to the creation of a favorable environment for this purpose.

[8] 23. In the legal framework referred to in the previous paragraph, we shall foster, in the countries of the Hemisphere, the capacity to prevent, punish, and eliminate terrorism. We shall strengthen the Inter-American Committee against Terrorism and bilateral, subregional, and hemispheric cooperation, through information exchange and the broadest possible mutual legal assistance to prevent and suppress the financing of terrorism, prevent the international movement of terrorists, without prejudice to applicable international commitments in relation to the free movement of people and the facilitation of commerce, and ensure the prosecution, in accordance with domestic law, of those who participate in planning, preparing, or committing acts of terrorism, and those who directly or indirectly provide or collect funds with the intention that they should be used, or in the knowledge that they are to be used, in order to carry out terrorist acts. We undertake to identify and fight new terrorist threats, whatever their origin or motivation, such as threats to cyber security, biological terrorism, and threats to critical infrastructure (OAS, 2003).

advancing the principles of shared responsibility and trust between sovereign nations. Today, the threats that permeate sovereign national borders are primarily the production and trafficking of narcotics (Paragraph 27) and the illicit manufacture and trafficking of firearms (Paragraph 27-29)[9] Multilateral cooperation in support of a multidimensional security response helps to coordinate security efforts across borders and mutually recognizes state sanctions and regulations.

The OAS DSA supports the BR's reframing of security away from a top-down application of safety onto society toward a participatory security decision making process. The OAS DSA reprioritizes civil society and the citizen as primary elements for the determination of legitimate security concerns and multifaceted response. Security is now considered strengthened when civil society participates in the development and implementation of security approaches is strengthened (Paragraph 33).

The OAS DSA redefines the primary task of security in the Hemisphere at a human rather than national level. The urgent primary task of the Hemisphere is to overcome extreme poverty, inequality, and social exclusion through development that embraces the U.N. Millennium Development Goals (MDG) and coordinates action among states (Paragraph 35-

[9] 27. We reaffirm that multilateral cooperation, based on shared responsibility, integrity, balance, mutual trust, and full respect for the sovereignty of states, is essential for addressing the global drug problem and related crimes, which constitute a threat to the security of the region. We shall strengthen CICAD and the Multilateral Evaluation Mechanism, so as to advance the fight against the illicit production, trafficking, and consumption of narcotic drugs and psychotropic substances and related crimes.

29. We shall combat the illicit manufacturing of and trafficking in firearms, ammunition, explosives, and other related materials by, among other actions, destroying excess stocks of firearms designated by each State, securing and managing national stockpiles, and regulating firearms brokering, including sanctions for illicit arms brokering for the purpose of avoiding their diversion through illicit channels and their proliferation. Likewise, we shall strengthen efforts at bilateral and multilateral cooperation and, in particular, coordination and cooperation among the Consultative Committee of the CIFTA, CICAD, CICTE and the United Nations (OAS, 2003).

37)[10]. Security becomes a basic element of the MDG. The new multifaceted security response is reworked to function as a support system for sustainable development rather than as a protection system for national territory. Strong human security for disaster response means strengthening inter-American cooperation mechanisms for prevention and mitigation that adapts to reduce environmental, cultural, infrastructure, and human damage (Paragraph 39)[11].

Environmental deterioration is recognized as a direct challenge to national security and echoes the BR warnings on environmental stress. The function of national security is reworked to prevent environmental deterioration through long term commitment to environmental protections. Strengthening each nation's capability to sustainably use natural resources for the purpose of integral development and promote preservation of the environment is not only a national security priority, but a cooperative, interstate effort (Paragraph 40)[12]. At the regional

[10] 33. We agree, in the context of our commitment to a democratic culture, to strengthen civil society participation in considering, developing, and implementing multidimensional approaches to security.
35. We shall strengthen cooperation mechanisms and actions to address extreme poverty, inequality, and social exclusion on an urgent basis. Overcoming these unacceptable conditions is a primary task of the states of the Hemisphere, which requires continued commitment and actions to promote economic and social development, and education, and should be complemented with coordination, cooperation, and solidarity among states, and action by international financial institutions, including innovative financial mechanisms that emerge in the competent fora. We also reaffirm our commitment to combating extreme poverty within our states by adopting and implementing actions in accordance with the Millennium Development Goals, the Monterrey Consensus, and the Declaration of Margarita, inter alia, promoting development through economic cooperation of the Hemisphere, and fully utilizing national, regional, and international development agencies (OAS, 2003).

[11] 39. We express our concern over natural and man-made disasters that afflict states of the Hemisphere and cause greater devastation in the most vulnerable states that have not yet developed adequate prevention and mitigation capabilities. We pledge to strengthen the existing inter-American mechanisms and develop new cooperation mechanisms to improve and broaden the region's response capability in preventing and mitigating the effects of these disasters. We will effectively and swiftly address natural disasters by strengthening existing bilateral, subregional, and multilateral actions and institutions, such as the Inter-American Committee for Natural Disaster Reduction and, when possible, using technology and scientific resources to prevent their occurrence, as well as taking adaptive measures to mitigate their effects in order to avoid or reduce damage to the environment, productive and critical infrastructure our heritage, and, most importantly, our peoples (OAS, 2003).

[12] 40. We recognize that environmental deterioration affects the quality of life of our peoples and may constitute a threat, concern, or challenge to the security of states in the Hemisphere. We undertake to strengthen our national capabilities, as well as inter-American mechanisms, in order to promote the sustainable use of our natural resources and advance toward integral development, and to promote preservation of the environment in a cooperative manner (OAS, 2003).

level, global climate change is a potential threat to hemispheric security. The call to build national capacity for environmental protections integrated at a global scale means national conservation and resource management should be compatible with and supportive of international efforts for this purpose (Paragraph 41).[13]

The Brundtland Report and OAS-DSA: Implications for Protected Area Management

The findings of the Brundtland Commission and the principles of the OAS 2003 Declaration of Security in the Americas establish norms that bridge traditional security issues with sustainable development goals. The principles in the two documents link the three pillars of sustainable development at every level of security. Previous to these norms social and environmental sustainable development issues had little or no place in the "high" politics of national security concerns. Both documents are a response to the post-Cold War international politics rewrite that redefined national security to include threats to human development (Paragraphs 86-88) (WCED 1987). The Brundtland Commission rejects the narrowly defined political and military threats as an inadequate model to design and implement national security (Paragraph 83) (WCED 1987). The OAS DSA also responds to the reactionary post September 11 homeland security response by the Bush Administration. These two documents affirm that national security must include environmental stress as threats and human development as a concern. The traditional approach to security priorities and projects must be reworked in order to solve environmental insecurity (Paragraph 86) (WCED 1987).

[13] 41. We recognize that global climate change could constitute a threat, concern, or challenge for the security of the states of the Hemisphere. We commit to working in coordination in order to mitigate the adverse effects that global climate change could have on our states and to develop cooperation mechanisms in accordance with the international efforts in this field (OAS, 2003).

The BR and OAS DSA approaches to security do more than broaden security concerns to include sustainable development as a security issue. Changing the negative impacts of national security projects on environmental protection for sustainable development in shared protected areas is stipulated as beginning at the national level of action in a manner that includes species and ecosystems as vital elements of development and security concerns. The traditional top down security programs that protect sovereign territory and traditional economic growth and development practices are reversed by the Brundtland Commission's findings and the principles as presented in the OAS DSA. The BR argument that peace and security bear directly on the concept of sustainable development frames the OAS DSA principle that strong security is security at the human level, or human security.

Taken together, the observations, principles, and strategies presented in the two documents describe a relational security that is interdependent with sustainable development. Security not only stabilizes society for economic growth and development, but is itself strengthened by healthy ecosystems integrated into a global network and cooperative cross border sustainable development in shared protected areas. The BR rewrites the role for biodiversity—and thus environmental protection— for national security projects in shared protected areas. Environmental protections are renamed as vital elements for strong security. The BR findings on environmental stress as a primary cause of major conflict alter the traditional view of the prevention of biodiversity loss by raising habitat and species protection and the need for healthy shared protected areas to the level of international security concern. The idea that sustainable development is a vital element of security clearly moves environmental protections into the security category. Environmental protections for shared protected areas have special mention as important national cooperative efforts across borders. The protection of large areas

for species and ecosystem biodiversity becomes a valid security concern worthy of "high" priority and security funding. Protected areas are an important security element and are worthy of a place on local, national, regional, and global political agendas (Paragraphs 52-57) (WCED 1987).

The Emergent Protected Area Paradigm

This research applies one resource management framework that identifies international sustainable development principles for shared protected areas. Michael Lockwood and Ashish Kothari's (L&K) (Lockwood & Kothari 2006) emergent protected area paradigm frames sustainable development principles in four categories of indicators. These four categories—or baskets—of environmental sustainable development indicators apply the logic and principles set out the BR and the cross level coordination of the Durban Accord and Action Working Group (IUCN 2003) to the level of the two shared protected areas. The indicators, or benchmarks, may be used to identify and compare the sustainable development principles and practices embraced by resource management in the two shared protected areas examined in this study. Utilization of the L&K emergent protected area paradigm unifies the comparison of the four national park management plans examined in this study by organizing the complex and integrated nature of sustainable development into four categories.

The global scope of the Brundtland Report's observations and prescriptions that are strategized in L&K's emergent protected areas paradigm is a theme repeated in later thinking about sustainable development in shared protected areas (UN 1987; UNCED 1992; UNEP 1992; IUCN 2004; CBD 2007). Local application of the global perspective on protected areas means that shared protected areas cannot be understood in isolation from the social, political, economic,

and ecological processes that affect them (McNeely 1995; Scherl et al 2004). The L&K emergent protected area paradigm embodies the BR's vision of shared protected areas as "parks for development" (UN 1987). Sustainable development of shared protected areas integrates these spaces into the global conservation network and heightens their value as basic mechanisms for protection of biodiversity vital to local community sustainable development. The reality that ecosystems are part of the global life network links national park management to global conservation efforts. On that thinking the mutual, long term benefits of healthy shared protected areas are fundamentally linked to national security concerns (UN 1987).

While L&K's emergent protected area program follows the initial BR norms of biodiversity protection, it also draws on the cumulative findings of the World Database on Protected Areas (WDPA 2010) and the findings of the Durban Accord and Action Plan Working Group (IUCN 2003). The Durban Accord core aims of biodiversity protection, safeguarding human basic needs, and climate stabilization are strategized in the Durban Action Plan (DAP) (IUCN 2004). According to the DAP, the principle of *in situ* biodiversity conservation (IUCN 2004) is to be implemented as a best management and planning practice through the establishment of protected areas. The principle of *in situ* biodiversity conservation is supported by findings from the Convention on BioDiversity (CBD 1993), the World Heritage Convention (UNESCO 1972), and the findings of the Vth IUCN World Parks Congress (IUCN 2003a). The Durban Accord core aims and *in situ* biodiversity conservation principles are the foundation of the DAP 10 Outcomes. The 10 Outcomes prescribe deepening cross cutting and cross border coordination of national resource management efforts through *in situ* habitat and species protection in an ecologically representative, efficiently managed, global network (IUCN 2004). The unified principles of the DAP 10 Outcomes thus identify synergy between conservation and

development. They advance the importance of the maintenance of life support systems that enable protected areas to fulfill their role in biodiversity protection (Outcome 1), make a full contribution to sustainable development (Outcome 2), and receive support from other constituencies (Outcome 7).

The four indicator categories of the L&K emergent protected area paradigm are derived from the workshop streams of the Vth World Parks Congress (WPC) and serve as the organizing principles of the Durban Action Plan (DAP) 10 Outcomes for Protected Areas (IUCN 2004). The WPC workshop streams critique the limited scope of nationally centered conservation and management goals. Nationally centered goals are replaced with broader goals that aim to fulfill protected areas' critical role in global biodiversity protection through their integration into a global network of protected areas. This construction of protected areas as having a vital role in sustainable development accentuates their value for alleviating, rather than exacerbating, poverty. L&K operationalize the DAP's 10 Outcomes for Protected Areas global biodiversity protection and their role in sustainable development as building awareness, supporting governance through new ways of working together, capacity-building for management, and strengthening management effectiveness in the maintenance of protected areas for now and the future (Lockwood et al 2006c).

Lockwood and Kothari's four baskets of sustainability criteria identify social, economic and environmental indicators to measure and assess the sustainable development principles and practices embraced by protected area management. Traditional conservation notions of pristine protection, exclusion of humans, and national heritage are rejected in favor of principles found in the international and regional documents discussed above (Lockwood & Kothari 2006b). In this manner, L&K's emergent protected area paradigm implements the new vision for protected areas

as functioning social spaces that blend natural resource extraction and resource use with sustainable conservation of biodiversity, wilderness protection, and maintenance of environmental services (De Lacey et al 2006).

The four L&K baskets of sustainable development criteria operationalize the BR redefinition of protected areas as "parks for development" by specifying sustainable economic, social, and environmental development indicators of protected area integration (Lockwood & Kothari 2006). The DAP regional action plans for "parks for development" call for nations to establish transboundary initiatives and networks to support park development because reducing the rate of biodiversity loss at the global, regional and national levels functions as a contribution to poverty alleviation. These national and local action plans apply the DAP Working Group findings to identify gaps in existing national park systems, create training programs for capacity building, create community conservation areas, and strengthen the placement of protected areas on the government policy agenda. The measurement of sustainable development principles and prescriptions that are embraced in shared protected area management plans begins with the identification of the complex interaction of variables that is, literally, a moving target. Changes to shared protected areas are caused by complex social and natural forces at play in protected areas. Natural variability (in ecosystems) has been shown to be exacerbated by human activity (Varady & Ward 2009). The driving forces that most significantly affect conservation are those that result in landscape changes (Varady & Ward 2009) and can be directly driven by management practices (Lopez-Hoffman et al 2009). The L&K four baskets of indicators identify change factors by grouping the social and natural forces at play into four categories or baskets of Conservation and Sustainable Development; Knowledge, Science and Management; Capacity Building for Management; and Governance and Livelihoods. The four baskets of sustainable

development indicators formulated by Lockwood and Kothari serve as the benchmarks for sustainable development principles and practices in the two cases studies examined in this dissertation.

The integration of shared protected areas into global network of life systems as "parks for development" is vital to strengthen security by reducing environmental stress and degradation through habitat and species protection. The problems that come with inclusive decision-making and transboundary collaboration efforts have no simple solution. The truth that decision-making problems increase exponentially with each added decision-maker directly challenges the principles of community inclusion for participatory decision-making.

Conclusion

The principles of sustainable development and human security that are presented in the Brundtland Report and the OAS 2003 Declaration of Security in the Americas describe the interdependence of strong security with ecosystem integrity and sustainable development. The BR and OAS DSA findings and principles argue that the reduction of security vulnerability requires a multidimensional capability to address new threats that permeate all levels of civil society. The traditional security relationship with people and development is reversed. Strong security can no longer protect national interest at the level of "high politics" but is dependent itself on strong human development. The recognition that strong security depends on sustainable development rewrites security concerns to include environmental protections and prioritizes ecosystem integrity to reduce biodiversity loss through habitat protection. The national security view of shared protected areas as theaters for border protection is recognized as inadequate to

address the global impacts of environmental stress and isolation of protected areas from the global network of life systems.

The new security approaches interrelate with new approaches to protected area management. The principles of sustainable development and strong security rewrite the role for shared protected areas in both sectors. The sustainable development principles of the Brundtland Report, the economic and development rights for human security in the OAS 2003 Declaration of Security in the Americas, and the coordinated sustainable development plans of the Durban Action Plan rescript shared protected areas as vital elements in economic and social development. Lockwood & Kothari's four baskets of criteria unpack the general principles of the BR and OAS DSA to make visible the basic elements of sustainable development for protected areas and allow for systematic comparison of sustainable development practices in the two shared protected areas examined in this dissertation.

The integration of environmental protection with national security depends on an open dialogue between security doctrine and sustainable development principles. The environmental pillar of sustainable development meets national security concerns on the new territory of strong security that depends on human development. The unique political issues of shared protected areas highlight the inability of nationally centered, traditional security to integrate with the need for human development and dependency on global life systems of the biosphere. Shared protected areas magnify the conflicts between national security approaches and sustainable development principles. Shared protected areas are the optimum theater to view our human struggle to build a sustainable relationship with nature, to collaborate in conservation projects across our borders, and to cross the human/nature divide within our own selves.

CHAPTER 2

SUSTAINABLE DEVELOPMENT, NATIONAL SECURITY, AND THE ANALYSIS OF TRANSBOUNDARY PROTECTED AREAS: METHODOLOGICAL APPROACH

This research argues against the assumed separateness of the fields of national security and sustainable development to look at how national security influences the environmental pillar of sustainable development. The notion of sustainable development as advanced in the BR and OAS DSA and as operationalized and applied in the two cases of this study draws on a decades-long track record of best practices in conservation, management, capacity building, and governance through collaboration across a wide institutional and administrative network. This network integrates environmental, social, and economic principles within the protected areas, across borders, and within a global conservation system. It is the recent changes to national security policy that disproportionately impact the environmental protections and conservation principles of sustainable development in the shared protected areas studied here. The on-the-ground national security policy practices seen in these protected areas cases exhibit a non-unified policy toward sustainable development. National security takes the short term and reactionary approach to environmental protection that returns shared protected areas to the mistakes of the traditional resource management approach even while taking advantage of the protected areas as buffers to security operations.

The two objectives of this research are to assess sustainable development principles and practices in the two shared protected areas and to identify the influence of national security approaches on sustainable development in the shared protected areas utilizing a comparative methodological approach. The impact of national security projects on sustainable development

in shared protected areas is examined comparatively using a mixed methodological approach. This mixed methods approach allows for a rich description of sustainability practices in these protected areas that identifies important variations between the two cases in shared protected areas management as managers seek to accommodate national security aims and practices affecting these reserves. It also allows for a case-sensitive interpretive approach to these problems (Hesse-Biber 2010). This case-descriptive mixed methods approach is supported by combining document research, qualitative field research, and a follow-up survey (Hesse-Biber 2010, Strauss & Corbin 1990). An explanation of the methods used follows below.

Comparative Research Methodology

This study compares sustainable development policy and practice in two shared protected areas in order to understand the impacts of national security on these reserves and, more broadly, to talk about the environmental politics of national security. The comparison of a small number of relevant cases has been shown to help to identify combinations of conditions that produce change (Ragin 1987). This cross regional research investigates two shared protected areas in order to assess the influence of changes to national security on sustainable development. The two cases represent two very different regions of the Americas, two very different borders and two very different cross border relationships. As a comparison of a small number of cases, the unique nature of the physical borders, national security doctrine, and environmental management for sustainable development present important topics to consider in the reconciliation of national security and sustainable development as advocated by the Brundtland Commission and the OAS Security Council.

The comparative methodology used in this study aims to clarify the influences that drive each country's national security policy in the two shared protected areas. The two cases present distinct examples of the difficulty of harmonizing protected area paradigms that aim for sustainable development and national security doctrines that constantly change to new threat priorities. Both protected areas are administered and governed from various levels. Both areas face challenges to the environmental pillar of sustainable development as the moves toward security rewrite the purpose and function of these protected areas. The identification of influences on protected areas management through comparative document research, qualitative interview data and quantitative survey data makes it possible to better comprehend the way national security challenges the environmental pillar of sustainable development in managing shared protected areas.

Choice of Case Studies

This inquiry compares the impacts of national security on sustainable development in two case studies: the Parque Nacional Lanín and Parque Nacional Villarrica and Reserva at the South American border (Figure One) and the Cabeza Prieta Wilderness Area/ El Pinacate y Gran Desierto de Altar Nacional Biological Reserve at the North American border (Figure Two). Both cases are internationally recognized and categorized by the IUCN, and are also categorized as protected areas at the national level with specific resource management plans. The federal governance and ownership of both sets of protected areas means that the areas are important elements that define national security approaches and border security strategies in the parks. The recent changes to national and border security projects in these parks are visible indicators of

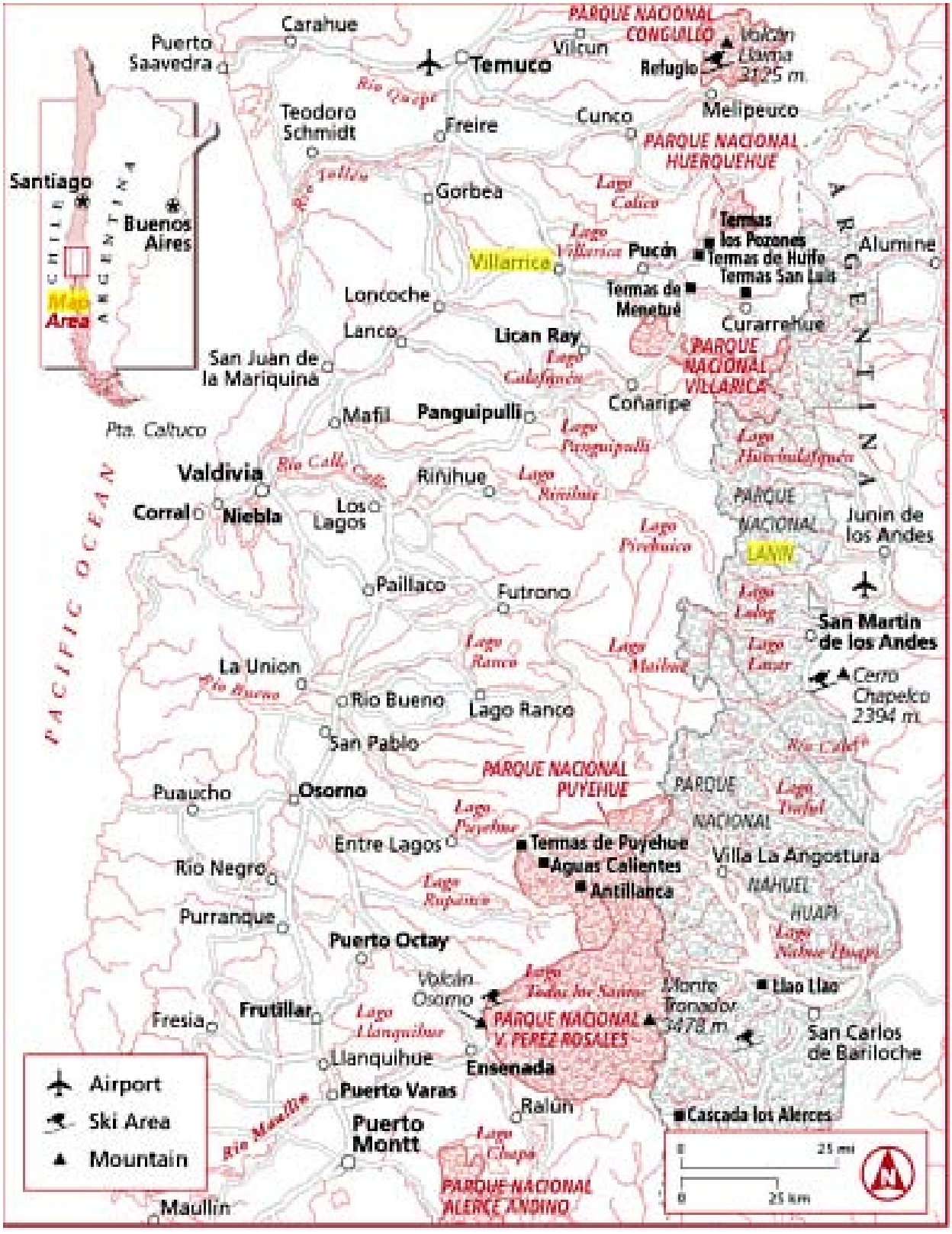

Figure One: Parque Nacional Villarrica and Parque Nacional Lanín (Mroue et al 2005).

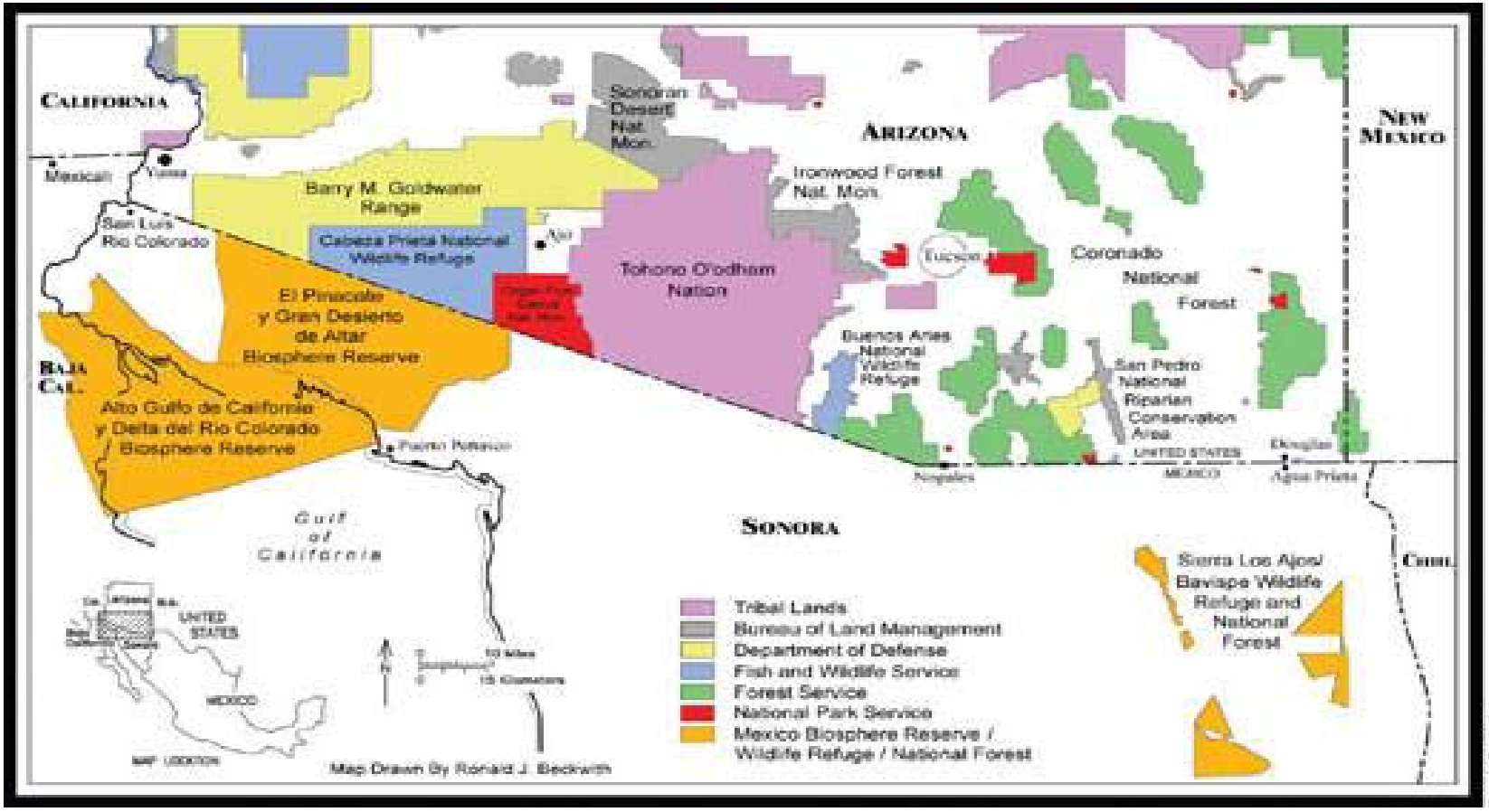

Figure Two: El Pinacate/Gran Deseirto Altar Biosphere Reserve and Cabeza Prieta National Wildlife Refuge (Gwynne & Ingram 2011)

future binational relations, and the national priority accorded to environmental principles and sustainable development.

One unifying factor, the fact that these protected areas are shared, overarches the stark differences between the two cases. Shared means the protected areas span national borders. The shared protected areas provide a research advantage by enhancing research accessibility and the opportunity to observe security approaches implemented at the border. The border projects are highly visible expressions of national security doctrine. The protected border areas are staging areas for observing national security projects as they impact environmental protections for sustainable development. The location of the research in the two shared protected areas takes advantage of a "fish bowl" effect of security doctrine implemented through border security projects.

The Lockwood & Kothari Emergent Protected Area Paradigm as an Assessment Framework

Comparison of four versions of sustainable development for shared protected areas requires a common framework of principles, goals, and assessment criteria to describe and evaluate the character and quality of sustainable development in these protected areas. This study uses an adaptation of the Protected Area Emergent Paradigm framed by Michael Lockwood and Ashish Kothari (L&K) (Lockwood & Kothari 2006) as a general guide for determining whether or not an inclusive approach to sustainable development is practiced in these protected areas. The L&K indicators are derived from the vocabulary and "best sustainable development practices" found in international conservation research. The L&K framework establishes clear and consistent criteria for identifying the complex and interacting elements of sustainable development in shared protected areas and disentangling the disproportionate impacts of national

security projects in their physical and financial infrastructure. These criteria fulfill several functions. They provide a benchmark to comparatively assess the character and quality of sustainable development programs manifested in the shared protected areas; they direct the document research on the four national park management plans; and they frame the categories and vocabulary that shape the open-ended interview questions, and the qualitative post-interview survey.

The traditional versus emergent management approaches can be characterized as exclusive versus inclusive approaches to managing protected areas (Lockwood & Kothari 2006). This dichotomous approach to the problem of assessing protected areas management on the basis of sustainable development is analytically helpful. The inclusive/exclusive assessment provides a foundation for discussing the impacts of national security on sustainable development. Although the national park management plans may frame a highly inclusive and developmental vision of sustainable development in the protected area, the reality may reflect a less inclusive and sustainable actuality. Drawing on the L&K assessment categories, the influence of national security must be discussed in this context and determined either to enable or push away from sustainable development strategies.

The simplicity of the L&K emergent protected area paradigm works to clarify the complex and interactive management strategies and sustainable development goals in the protected areas. However the research goal is not to strictly measure sustainable development projects in the protected areas but rather to assess and compare the state, or character, of sustainable development within each case study. The strictly dichotomous "either/or" characterization of the management of these protected areas is refined by the qualitative nature of the study. The document research, open ended qualitative interviews questions help to avoid

more rigid characterizations based on stark dichotomies by drawing on more nuanced observations derived from personal experience in the shared protected areas.

The four baskets of sustainable development indicators that organize the emergent protected area paradigm distinguish the unsustainable nature of a traditional conservation management approach that isolates protected areas in contrast to an emergent approach to integrated protected areas. The L&K categories follow the four workshop streams of the Durban Accord and Action Working Group (IUCN 2004). These workshop streams and corresponding L&K categories are, Conservation and Biodiversity; Knowledge, Science and Management of Protected Areas; Capacity-building and Awareness Raising; and Governance and Livelihoods. The four categories – or baskets of indicators – target issues that enable or destabilize long-term progress towards sustainability. The L&K matrix (see Appendix One Table One) establishes criteria for identifying the interacting elements of sustainable development in shared protected areas, and disentangling the disproportionate impacts of national security projects in the physical and financial infrastructure of the protected areas.

The Conservation and Sustainable Development basket bundles indicators of national protected area management and conservation efforts that comply with global sustainability goals. The indicators rework the vision of protected areas as pristine wild islands to a view of protected areas as integrated spaces located in a local, national, regional, and international network of life systems (Lockwood & Kothari 2006). Management conservation adapts to the new paradigm with inclusion of the sustainable use of land and biodiversity protections at the ecosystem scale (Chapman et al 2006). The destructive economic development and human settlement practices that script protected areas as visual theater for tourists are replaced with the new view of shared

protected areas as spaces for strong, functioning ecological networks for sustainable community development and element in global protected area network.

The L&K emergent ecosystem paradigm is the research tool that links local shared protected area management for sustainable development to the scientific understanding of global life system networks. The second basket of indicators: Knowledge, Science, and Management lists best practices for protected area management performance indicators for community support through the education and the dissemination of knowledge, planning as a political exercise through collaboration, partnership and participation, and a long term view of the protected areas. These indicators identify management decision-making capacities such as the types of knowledge included, the integration of conservation science in management decisions, and a long term view for sustainability. In the study of national security impacts on the sustainable development, this basket of indicators highlights the importance of science as a guide for management decisions that struggle to conserve habitat and species within the politically charged border environment.

The capacity-building basket (Basket 3) of criteria for protected area management shifts park management away from dysfunctional and inadequate legal, economic, cultural and political relations toward understanding ecosystem support as a broad base of ideological, social, and financial tools that engage the local community in the maintenance and protection of these reserves. The criteria delineate important capacity building aspects of protected areas that are conceptualized as a community rather than a national asset. The new protected area management approach builds capacity to consider community goals which may then serve as a wide reference base for management. Transborder relationships are usually characterized by asymmetries, complementaries, linkages, and obstacles (Clement 2001). Bridging gaps between national

resource management strategies and the transborder economies of scale, externalities, and transaction costs requires cross-national consultation and coordination (Clement 2001). The capacity building indicators identify the management practices in the parks that build relationships across borders at the scale of the ecosystem.

The governance, equity, and livelihoods criteria (Basket Four) highlight decentralization, poverty, and the costs of the protected area to the community. Each principle delineates the related governance responsibilities available to managers and actors concerned with the park. These governance principles are particularly appropriate tools for examining the impact of border security projects on shared protected areas. The governance basket aims to meet the needs of locals and reduce inter-societal conflicts generated by lack of capacity for consensus building and limited participation in decision-making. The argument that territorial integration fosters antagonistic communities and makes difficult processes more complicated suggests that cross-border institution building such as the Commission for Environmental Cooperation (CEC) (Mumme et. al. 2009) may be the best means of building sustainable development (Blatter 2001). Cross-border institutions may be better placed to support local resource management. Cross border institutions may organize local politics because of their capacity to establish a regulatory regime, function as a transfer hinge, create an innovation pole, and facilitate cross-border coalition building (Blatter 2001). Cross border institutions may have the capacity to stabilize the impacts of political changes to border areas that change the roles of shared protected areas in border communities (Nagy 2001).

This assessment of the character of sustainable development in the two shared protected areas is not a quantitative measurement. Applying a numbered scale to the comparative document research and qualitative interviews on sustainable development in this research would

be cumbersome and counterproductive. Comparative research on sustainable development in shared protected areas is best served by a mixed methods approach that allows for a thick descriptive and interpretive approach of the many factors at play in the protected areas. It is this interpretation of qualitative data that places the problem of national security influence on the environmental pillar of sustainable development at center stage (Hesse-Biber, 2010).

In chapters 5 and 6 the conservation management practices that were judged as emergent sustainable development using the L&K paradigm sustainability principles will be loosely regrouped into the three pillars of sustainable development. The grouping is intentionally loose in order to preserve the interactive nature of sustainable development. The conservation management emergent sustainable development strategies for local economic development will be grouped as economic sustainable development. Strategies that reflect sustainable governance, funding will be grouped as the social pillar of sustainable development. Conservation management strategies for environmental sustainability and ecosystem health will be grouped as environmental sustainability.

The Three Investigative Tools

1. *Comparative* Document Research

Determining how sustainable development is defined, articulated and operationalized in the two case studies starts with document research on the national management plans for each side of the two shared protected areas. The initial research systematically compares sustainable development practices in the two shared protected areas by examining the national park management plans for each of the four countries: Argentina, Chile, Mexico, and the U.S.

1a. Sustainable Development in the Two Shared Protected Areas

The initial document research will apply the Lockwood &Kothari (L&K) emergent protected area paradigm to each of the four national conservation management plans. The Argentinean and Chilean regional and national conservation and sustainable development goals are set out in the Plan de Gestión: Parque Nacional Lanín (Administración de Parques Nacionales Noviembre 2011) and the Plan de Manejo Parque Nacional Villarrica-Hualalafquen (CONAF 2008). Mexico's El Pinacate y Gran Desierto Biosphere Reserve is defined by the Programa de Manejo El Pinacate y Gran Desierto (INE-SEMARNAT 1996) and the Programa Nacional de Áreas Naturales Protegidas 2007-2012 (CONANP 2007). The Cabeza Prieta National Wildlife Reserve is defined and managed by the Cabeza Prieta National Wildlife Refuge Comprehensive Conservation Plan, Wilderness Stewardship Plan and Environmental Impact Statement (US FWS 2005).

The findings in Chapters 3 and 4 concerning the four baskets of emergent sustainable development indicators—as strategized in the conservation management plans and operationalized as projects in the park—are loosely regrouped in Chapters 5 and 6 into the three pillars of sustainable development: economic, social, and environmental. The purpose of the regrouping is to clearly assess the impact of national security on each pillar of sustainable development.

1b. National Security in the Shared Protected Areas

The thinking that drives the national security and border protection projects in the shared protected areas is embedded in national and historical contexts of national security doctrine particular to the Northern and Southern American regions. This research focuses on the impacts

of national security by examining changes to national security policy, and how security considerations and measures have influenced implementation of sustainable development values in the two shared protected areas. The starting point for the study of national security doctrine is located in the National Security White Papers. The White Papers are the benchmark to relate to current national security policy and projects on each side of the park. Each country's White Paper on National Security is available on the Military Education Research Library Network (MERLN 2012). Recent updates to the U.S. National Defense Plan published by the Obama administration will be included (The White House 27 May 2010). Current national and border security projects in the park will be considered in light of the national security doctrines that are applicable to the shared protected areas.

2. *The Interview Questionnaire*

The qualitative interview questionnaires for this research synthesize the Brundtland Report's (UN 1987) sustainable development terms, findings, and principles with the human security doctrine of the OAS 2003 Declaration of Security in the Americas, and Lockwood and Kothari's emergent protected area paradigm to discuss sustainable development. The interview questions aim to unpack the multiple visions and overlapping authorities of the complex sustainable development and national security relationship. The use of personal interviews provide the "on-the-ground" view of sustainable development visions and the competing agendas that impact sustainable development in the two shared protected areas (See Appendix Two).

The open-ended interview questions support the focus of this inquiry: to assess the quality of sustainable development principles and practices implemented in the shared protected areas and identify destabilizing factors. The interview questions honor all Colorado State

University Institutional Review Board requirements to reduce risk to the participant. No names will be associated with the data and all participants will have the same interview questions and post interview survey. The data will ultimately be grouped and compared by region: South or North America.

Field research in all four countries is necessary because personal interviews asking for self reflection about sustainable development are difficult to recruit online. Different institutional cultures may not respond to the interview without a personal involvement by the investigator. Also, protected area administrators and agents may resist online questions that touch on the political nature of environmental protections that interact and contend for authority in the two case studies. In total, ten interviews were administered. The participants are all protected area employees whose positions range from administrative to park guard level. Each participant has faced issues of sustainable development in the protected areas and the surrounding communities. The wide variation of participant education and experience is reflected in the answers to the open ended questions, but all participants were familiar with and respected the interview and survey process (See Appendix Three).

This research will not code the interview data. Rather, to enable the thick description of the protected area manager experience the research will quote in full sentences and/or paragraphs. Although coding the terms for a grounded analysis could contribute to the comparative nature of this research, the use of a grounded theory methodology would step outside of the precedent set by Fall[14]. In the interest of creating the foundation for future

[14] My precedent for using interviews for shared protected area conservation management in is Juliet Fall's exploration of the multiple visions of European shared protected areas in *Drawing the Line* (Fall, 2005). Fall has adapted the new medievalism approach to understand the problem of national and transboundary resource management in a comparative study in several European shared protected areas. Fall employed the new medievalism viewpoint at the level of the individual experience of resource managers to make visible the often invisible level of strategy that individuals create to navigate the multiple and confounding visions for shared protected areas. For this

research on this topic, the data will be used as excerpts to highlight the political nature of the agents experience with sustainable development and national security in the shared protected areas.

Although national security projects are the focus of this study, the sensitivity of national security as a research topic means that the subject must be allowed to emerge spontaneously. The use of an indirect approach to national security does not utilize any deception. In consideration of the sensitivity of national and border security issues, participant risk has been greatly reduced through the use of the anonymous, qualitative survey. The anonymous, qualitative interview benefit the participants by opening a channel for them to express their views on their experience with conflicting policies, authorities, and projects implement within the protected areas while avoiding the risk of directly expressing an opinion about national security.

3. Post Survey Questions

The brief follow-up survey is a quantitative reflection on the issues discussed in the interviews. The 10 quantitative surveys cross check the 10 qualitative interviews, particularly those conducted in another language. The post-interview survey quantifies the park administrators or agent's personal view of the tasks of the shared protected area, the character of

---

research, the new medievalism perspective is used to flesh out the policy and political context and conflicts facing protected areas managers in these shared protected areas as individuals struggle to fulfill national security goals as well as environmental protections for sustainable development. Fall's postmodern view of borders in shared protected areas are inherently hybrid, changing and political expressions. The view of borders as political spatial entities sets the stage for this research on shared protected areas to use her dynamic, conceptual toolbox to look at protected area sustainable development that is overlaid by military, national, and environmental visions. This research links Fall's characterization of shared protected areas as power expressions that are at play within the complex spatial scenarios of shared protected areas to the sustainable development paradigm. Fall's transformation of traditional territorial borders into Albert's "spatial scenarios" is a post modern tool to study the tension between the scale of the sustainable development ecosystem approach and political borders that is also highlighted in this research.

sustainable development in the shared protected area case studies, the existence of unifying sustainable development principles and practices, and multiple visions and agendas.

The follow-up survey format reflects the structure of the interviews. Participants rated their perception of the tasks of the protected area; rated four brief sets of L&K sustainable development indicators; rated their perceptions of scale of scope of cross border relations for their protected areas; and rated their perception of multi-level governance identifying U.N. terms specific to transborder protected areas. Although the post survey is quantitative, the comparative and interpretive nature of this study means that many statistical tools would generate inappropriate generalizations for this research. In this research, the quantitative post-interview Survey supports or challenges the qualitative interview material. Analysis of the quantitative post-interview survey is a basic scorecard to check the content of the interview questions.

Conclusion

The research methodology employed in this study combines document research with policy, projects and interviews to examine how national security impacts the environmental pillar of sustainable development in the Americas. The study draws on international policy development and the widely disseminated emergent principles of sustainable protected areas management to set the context and benchmarks for assessing sustainable development in these two shared protected areas. It then compares national sustainable development policies in each of the two case studies (four countries). It then supplements these comparisons of national management plans and policy statements with on-the-ground interviews and surveys of park employee experience with sustainable development. The international policy provides a foundational context for examining the working conservation management plans of the four

countries. Comparative analysis of these four conservation plans is unified by using the Lockwood and Kothari emergent sustainable development indicators, and the implementation of these policy measures in turn provides a basis for looking at national security projects and their impacts within the parks. The point of using the L&K indicators is to approach the problem of assessing national security impacts from a common frame of reference across the four conservation management plans. Finally, the individual interviews with park employees are modeled from Juliet Fall's use of interviews to identify institutional complexity and authoritative overlapping within the parks. The next chapter compares the four conservation management plans as the contextual foundation for discussing national security in the two shared protected areas.

CHAPTER THREE

COMPARISON OF THE FOUR MANAGEMENT PLANS: BASKETS ONE AND TWO

This chapter looks at the first two baskets of sustainable development indicators identified by Lockhart and Kothari (L&K) as interpreted by the four conservation management agencies in their conservation management plans. The L&K four baskets of sustainable development indicators provide a framework of emergent sustainable development principles. This chapter addresses the first two baskets of emergent sustainable development indicators; 1) those addressing conservation and sustainable development, and 2) those dealing with the linked issues of knowledge, science, and management of protected areas. Sustainable development is a transformative rather than a reproductive approach to society (Albert et al 1986). Sustainable development principles generate transformation in protected area management by redefining the roles of protected areas and management. The L&K indicators clarify what transformation through sustainable development means for protected areas, and suggest benchmarks for assessing progress in moving towards these objectives. The extent that recent management plans incorporate these indicators reveals how each national conservation management agency applies sustainable development principles to specific issues within each of the four parks. In the four protected areas of this study, the presence of planning elements that conform to these sustainable development indicators indicates emergent thinking that aims to build and integrate fractured ecosystems.

The Four National Governments

This comparison of the four management plans accepts a state centric unit of analysis. In this research each of the four protected areas are legally designated by the national government as part of a national protected area system. The state is the political body that contains the physical territory, provides the political structure to manifest protected area ideals, fund those ideals, and defines the function of the protected area. This research recognizes that a bureaucratic distance separates conservation management agency praxis from national ideals. In this research the four management plans are considered documentation of the intersection between agency goals and the evolving national vision for protected areas.

An institutional analysis of the four national governments does show that constitutional structure does shape some of the management policy for the shared protected areas. As federal republics Argentina, Mexico and the U.S. share policy making power with the states or provinces, while Chile's unitary government could centralize regional environmental policy. This section will briefly look at how each national government frames the shared protected area and shapes the balance of the three pillars of sustainable development. Admittedly exterior drivers and political tradition affect federal, state or provincial government impact on the shared protected areas. In relation to this research the significant drivers of past border change have been increased economic integration at the Argentinean/Chilean border (Mares 2000) and population change and economic status at the U.S./Mexico border (Varady & Ward 2009).

Argentina's national government decreed Parque Nacional Lanín as a federally protected area in 1932 (APN 2011). The Park and Reserve are managed by the Administración Parques Nacionales (APN). The government's strong centralization in the capital means that Buenos Aires' traditional lack of political stability has impacted the development of a national idea of

conservation for the park. Buenos Aires' limited power to direct consistent environmental policy across the provinces has historically frustrated the development of a strong national environmental law (IIED-AL 1992). Slow progress has been made on national environmental policy since redemocratization began in 1983 and national environmental policy implementation remains fairly weak (Espach, 2006: 64). More recently, however, in the last nine years of Kirchner administrations, Argentina's historically "tragic cycle" of consensus breakdown (Erro in Hopkins 1995) has been somewhat stabilized. In this recent political context, the appearance of a weak federal role in relation to environment and sustainable development for protected areas may be deceiving. The perception that the Christina Kirchner administration has not yet commanded national environmental policy across the province fails to consider a robust level of economic growth that supports investment in the National Park Agency and returns funds to provinces to use at their discretion (Benton 2008).

The Argentinean response to a growing nationalism of the native Mapuche population (Anderson 2010) evolves out of a history of broken national promises, regional and provincial resistance to native land rights, and most recently European intervention. President Alfonsin's unfulfilled 1985 national promise to return the Alumine province land to the native Mapuche could not resolve a regional and provincial refusal to accept the constitutionality of ceding the land. Land restitution is the result of European Parliament criticism throughout the 1990's that pressured the province and region to recognize the government's Decree No. 1410 providing for the return of Mapuche land (UNPO 29 March 2011). Since the 1990's, growing national recognition of Mapuche land rights, and the internationalization of indigenous rights movement has pushed Argentina to reshape regional and provincial resistance to returning native land. The recognition of Mapuche rights is an important factor shaping Argentina's approach to park

management at Parque Nacional Lanín. The recent return of 400 hectares of land to the Mapuche, some of which is Parque Nacional Lanín (Seelau 2 December 2011), sets a statutory precedent to override the legal history of disrespecting Mapuche land treaties through nationalization of the territory, eviction and destruction of homes under emergency law that enables new ownership to treaty protected property (Seelau, 21 September 2012, Seelau, 17 February 2012).

Chile's adjoining Parque Nacional Villarrica and Reserva was created by the national Ministry of Industry and Public Works, Decreto Supremo N°1722 in 1912 (CONAF, 2008). At the national level the Park and Reserve are Member Protected Areas of the Systema Nacional de Áreas Silvestres Protegidas (SNASPE). SNASPE is part of the federal Ministerio de Agricultura and the Corporación Nacional Forestal (CONAF), and is administered by the Programa Patrimonio Silvestre (CONAF, 2008). The location of protected area administration at the national level centralizes regional dependence on Santiago as the primary shaper of environmental policy. Decentralization throughout the 1990's to the fifteen Regions has had limited impact as conservation policy continued to depend on acceptance by the propertied and powerful (Remmer in Hopkins, 1995). Funding for environmental organizations and programs remains dependent on action by the Congreso Nacional (Gobierno de Chile 2012).

During the administration of Michelle Bachelet (2006-2010) Chile acted on a growing national concern for increased environmental protections and healthy protected areas by making changes to the institutional structure of protected area administration. The Bachelet Administration environmental reforms created a new Ministerio de Medio Ambiente in order to consolidate biodiversity protection and protected areas under a single agency. The consolidation of protected area management out of sustainable forestry may open protected area management

to environmental thinking concerning natural resource protections that differ from those of forestry (Advanced Conservation Strategies January 2011).

Santiago's domination of Chile's regions reinforces the state's unwillingness to make right the nationalization of some Mapuche lands by designating these as protected areas whose inhabitants enjoy the full privileges of citizenship. The central government recognizes the Mapuche as an "ethnicity" rather than as a "people." This distinction allows the Chilean government to evade recognition of international laws that apply to the independence and self determination of peoples. The limited recognition of ethnicity allows Santiago to maintain control over contested protected area territory. Land restoration to the Mapuche inside or outside of protected areas comes only through Santiago, not from Regional governance. The recent European interest in the status of the Mapuche in both Argentina and Chile may eventually pressure to Santiago to alter land policy (UNPO 29 March, 2011), but this has not yet occurred. Parque Nacional Villarrica and the Cerro Ñielol public park are flashpoints for state conflicts with Mapuche. The capital city of Temuco surrounds the Cerro Ñielol public park that is a spiritual center of the Mapuche. Temuco plazas, the university steps, the public park, and the Villarrica protected area are theaters where the state, citizens, police (Carabineros), students and Mapuche increasingly play out the conflicts over land rights, tenure and land use (Melinawu 23 October 2012).

Turning to the U.S and Mexico cases in North America, Mexico's El Pinacate/Gran Desierto Altar Biosphere Reserve (EP/GDA) became a protected area by Mexican President Carlos Salinas de Gortari's decree in 1993. Mexican biosphere reserves fall under federal jurisdiction and are under the responsibility of the national Secretaria de Desarrollo Social (SEDESOL) as mandated in the General Law of Ecological Equilibrium and Environmental

Protection. This federal act provides national solutions to environmental problems through guidelines for the use of natural resources, the protection of natural areas, the protection of flora and fauna, and the management and prevention of pollution. Presently, the reserve is managed by the Comisión Nacional de Areas Protegedas (CONANP), the decentralized, federal commission of SEMARNAT that is charged with the administration and operation of Natural Protected Areas (SEMARNAT 2011). At the state level the biosphere reserve maintains close relations with the Institute of Environment and Sustainable Development of the State of Sonora (IMADES) through the Parks in Peril Program (PiP) (Morales 2003).

Nationalization of the EP/GDA territory presents both benefits and problems for park management and the ecosystem. As a benefit, the protected area status eliminates use of the Biosphere Reserve's natural resources for private profit (Brusca & Bryner 2001). The rich biodiversity of the EP/GDA places the reserve in the evolution of national thinking about environmental protection that challenges the traditional unsustainable economic land use by military and border police actions, hunting, ranching and mining versus environmental protections. Drug trafficking within the biosphere reserve has traditionally been accommodated by the judiciary and local police. Federal jurisdiction over EP/GDA allows for a military presence in the Reserve. Mexican jurisdiction over drug cartel investigation resides with the Mexican National Army. The negative side of the military presence is that conflicts occur between military and park management. The military presence can leave park attendants in conflict with the army over environmental protections versus security needs (Piekielek 2009).

Mexico's relationship with indigenous people is a history of colonization and broken promises. Constitutional reform and changes to the National Indigenous Law of 2001 resulted in heteronymous relations that while reinforcing protections for cultural expression also subject the

indigenous to external laws and empty gestures (Burgete Cal y Mayor & Goméz Goméz in Anderson 2010). Continuous invasions of tribal lands by Mexican farmers have been overlooked by the government. The Tohono O'odham tribes at the U.S./Mexico border regularly encounter criminal drug traffickers that invade indigenous land and threaten the Tohono O'odham traditional way of life (Gaynor 2 December, 2007). Tribal governments north of the border cannot cross the border to help their southern relations, and the Mexican government maintains a de facto posture of minimal interference the "ungoverned space" inhabited or used by indigenous people (Anderson 2010). The disjunct between border security jurisdiction and Tohono O'odham land rights is an old story, evident historically in the Gadsden Treaty failure to acknowledge the O'odham tribal council and the decision to split O'odham territory to establish the U.S./Mexico border in 1853 (Boswell 20 December, 2010).

Across from Mexico's EP/GDA Reserve, the Cabeza Prieta National Wildlife Refuge (CPNWR) is a member of the U.S. National Wildlife Refuge System (NWRS). The National Refuge System was formalized in 1997 in the National Wildlife Refuge System Improvement Act (P.L. 105-57). This Act is an "Organic Act" that aims to ensure that protected areas in the Refuge System are effectively managed as a national system of lands, waters, and interests for the protection and conservation of national wildlife resources (USFWS 2006). The US NRWS currently shares jurisdiction over Cabeza Prieta with the US Fish and Wildlife Service (US FWS), the U.S. National Wildlife Refuge System (US NWRS) and the Bureau of Land Management (BLM).

National security and state border policing projects in CPNWR are subject to the security allowances set in the 1964 Wilderness Act. The 1964 Wilderness Act was written to ensure no impact on U.S./Mexico border operations. Policing and drug interdiction were allowed motorized

access, and military training was not affected (Gorte 22 February, 2011). CPNWR is located in the Arizona/Sonora Corridor that is labeled a site for high levels of cooperation to fight transnational threats (CBP 8 February, 2011). The federal DHS and CBP border security project overrides the park mission at both federal and state levels. The Bush Administration Secure Fence Act (2006) and the REAL ID Act (2005) give the DHS "sole discretion" to waive all existing laws necessary along the U.S. borders, including the existing conservation legislation in CPNWR.

The U.S. relationship to the Tohono O'odham tribes at the U.S. southwest border maintains the land policy when the land policy was originally nationalized by the Treaty of Guadalupe in 1848. The occupation of native communal land grants by white settlers ignored the Treaty's protections for pre-existing land rights. Currently the U.S. recognizes the legal right for natives to govern their tribal lands as a sovereign state. But internal U.S. policy conflicts repeat the history of land rights abuse. The recent alleged secret removal of ancestral remains to make way for the U.S./Mexico border fence violates the National Preservation Act and the Native American Graves Protection and Repatriation Act (Anderson 2010). Recently revealed Customs and Border Patrol (CBP) plans to build a border patrol station on reservation lands underscore fundamental questions raised by the Secure Fence Act and Real ID Act about DHS immunity to existing environmental protections and its eminent domain authority over private land and reservation property rights versus (Norell 18 September 2012).

This brief overview highlights important aspects of the national governance frameworks that shape administrative and political approaches as they relate to conservation in the four protected areas. Since the creation of the four protected areas, the four national governments' traditional approaches to conservation management have largely been characterized by

unsustainable practices. The next section examines the most recent conservation management plans for these protected areas through the lens of the L&K emergent sustainable development indicators to understand how current management plans are or are not transforming traditional protected area conservation thinking in the direction of a more sustainable, integrated ecosystem approach.

The Four National Management Plans

Protected areas are public goods and are subject to national interests. The four federal management plans articulate the conservation management application of current national interests in each protected area studied in this research. Each management plan aims for a unique balance of human development and environmental protections. The balance of development between humans and ecosystems blends conservation knowledge and practice with sustainable socio-economic development principles across all institutional levels. The plans also privilege current views of land use, tenure, and environmental protections.

The Lockwood and Kothari Typology Categories and the Protected Areas Plans

The first two baskets of L&K indicators frame environmental and management goals and strategies for the four protected areas. The traditional versus emergent sustainable development indicators point out issues that are unique to each national park management plan. Basket One (Conservation and Sustainable Use) establishes the conservation starting points of the human/ecosystem relationship in larger, regional ecosystems. Basket Two (Knowledge, Science, and Management of Protected Areas) identifies changes to the conservation management approach.

The Lockwood and Kothari traditional versus emergent sustainable development indicators systematically identify the sustainable development process in the parks and universalize the identification of management efforts for sustainability in each park. The indicators crosscut the Brundtland Commission's three pillars of sustainable development concept into categories that are appropriate to thinking about sustainable environmental protections, conservation management, capacity building, and governance in shared protected areas. The systematic drill-down to local level issues brings the abstract sustainable development principles to the scale of the communities, the parks and the ecosystems.

A. Basket One: Conservation and Sustainable Use

The L&K Basket One indicators identify how each federal conservation agency balances ecosystem conservation priorities with sustainable development principles and goals. The L&K Basket One emergent sustainable development indicators pinpoint conservation management agency efforts to replace and mitigate the effects of destructive management focused on structure and policy. They also locate new starting points for conservation management at ecosystem health and integrity based on the understanding that humans and ecosystems shape one another through time. Human impact on the South American Valdiviana ecosystem and the North American Sonoran Desert ecosystem is not unidirectional. Ecosystem integrity that protects unique species and embeds the parks in larger regional ecosystems supports social and economically sustainable development.

Ecosystem Integrity: Islanded vs. Integrated and /Networked

The L&K sustainability indicators identify the ecosystem approach as a sustainability goal to restore a complete ecosystem through integration into ecological networks and enhancing biodiversity through rehabilitation and protection (Lockwood & Kothari 2006). Conservation management from an ecosystem approach moves away from the idea of the protected area as an "islanded" ecosystem. The "islanded vs. integrated" ecosystem dichotomy builds on the insight that the original designation as a "protected area" was a political process founded in historically contingent notions of progress, wilderness protection, and national heritage or patrimony. The emergent "integrated" sustainable ecosystem approach recognizes the protected area within national, regional and international biosystems.

The four conservation management plans frame how each of the conservation agencies rework the original park vision toward ecosystem integrity. If we look at the ecosystem approach to conservation management integrates the protected areas within larger, regional ecosystems. Parques Nacionales Lanín (Argentina) and Villarrica (Chile), these parks are defined by their management plans as situated within the larger Valdiviana ecosystem that is part of the regional north Patagonian and the South American Austral Temperate Forest (APN 2011, CONAF 2008). Argentina's integration of Parque Nacional Lanín into the transborder Valdiviana ecosystem (APN 2011) situates conservation for Special Value biodiversity protection of regional species within the scale of the north Patagonian region (APN 2011). The park species are recognized as vital elements in the biodiversity of six regional ecosystems (APN 2011) that are themselves situated within the wooded bioma of the Temperate Forest of the South American Austral (APN 2011). This integrated placement transforms Parque Nacional Lanín away from traditional values of parks as agricultural and mining resources (APL 2011). Chile's Parque Nacional Villarrica

management plan intends the park to function as more of L&K's characterization of traditional thinking of the park as a protected object of visual beauty (CONAF 2008).

Mexico's conservation management plan for the EP/GDA advances the principle that strong ecosystems resist change better (CONANP 2007). It directs environmental protections in EP/GDA to integrate humans and the ecosystem as an interdependent set of natural communities. The EP/GDA, like it's counterpart the CPNWR is defined as parts of the Gila/Salt/Verde ecosystem in the Sonoran Desert ecosystem (INE-SEMARNAT 1996, US FWS 2007). Preservation and restoration of the larger Gila/Salt/Verde ecosystem underlie efforts to safeguard genetic diversity (INE-SEMARNAT 1996) and the expansion of environmentally protected territory in the North American Sonoran ecosystem (CONANP 2007). Expansion for environmental protection is a continuation of early efforts to integrate EP/GDA into a state level System of Natural Protected Areas of Sonora (SNAPES) (INE-SEMARNAT 1996) and ongoing efforts to cooperatively link wildlife corridors across EP/GDA, CPNWR, and Organ Pipe Cactus National Monument (OPCNM). The EPGDA/ CPNWR /OPCNM corridor system aims to reduce and mitigate wildlife barriers (US FWS 2007). The corridor system builds a strong ecosystem by maintaining viable wildlife populations through the protection of species from genetic and disease problems caused by species isolation and transplantation (US FWS, 2007).

The ecosystem approach was a foundational goal for CPNWR. Early management efforts strategized park restoration and protection at the ecosystem scale (US FWS 2007). The US FWS ecosystem approach is defined in the 1997 National Wildlife Refuge System Improvement Act as the protection of species biodiversity and habitat based on sound science (US FWS 2007). The US FWS ecosystem approach is framed by scientific and legal limits that focus on species management for biodiversity protection. The scientific orientation of the CPNWR Cabeza Prieta

conservation management plan applies dominantly technical data to understand the historic and current human impacts on the Sonoran Desert ecosystem, to develop management practices that mimic natural process, and to fulfill the mandate to provide wildlife oriented education and experiences for visitors (US FWS 2007).

Land use change for environmental protection

The L&K indicators for ecosystem strength originate from the recognition that the restoration of traditional land use values will help to create a complete ecosystem and enhance biodiversity. All four of the management plans strategize planning and management resources to create a balance between environmental protection, land use and sustainable human development. The plans identify management tools to address various issues of land tenure, land use values and decision-making from an ecosystem scale.

The Argentinean and Chilean management plans build networks that include multiple conservation values for sustainable land use. The 2011 Argentinean Parque Lanín Management Plan incorporates land use values that generate from the spiritual history and land tenure rights of the Mapuche (APL 2011). Argentina's inclusion of the Mapuche rejects a top-down style of management in favor of co- management through shared decisions that are shaped by Mapuche conservation values (Table 2 APN 2011). In a similar move Chile's Parque Nacional Villarrica Management Plan aims to resolve historic colonizer and Mapuche land rights and sustenance issues at the local level (CONAF 2008). The Chilean Mapuche land use and tenure conflict resolution strategies originate from a sustainable and integrated conservation approach that recognizes of the relationship between Mapuche land values and the biodiversity of the Valdiviana ecosystem (CONAF 2008). CONAF's inclusive conservation approach is a response

to the Mapuche from a very different scale of the national governance approach to Mapuche citizenship and ethnicity.

Turning to the U.S./Mexico border, Mexico's original Plan for the EP/GDA sought to preserve and restore the Sonoran Desert ecosystem (INE-SEMARNAT 1996). Later conservation thinking aims to mitigate the impacts of unsustainable outside activities on the infrastructure of all federal protected areas of outside activities that generate unsustainable activities (CONANP 2007). In fulfillment of the land use mandate CONANP has collaborated with The Nature Conservancy to eliminate unsustainable mining practices in the Biosphere Reserve. Proposals are pending for a purchase of private ejiditos in-holdings in the most sensitive region of the reserve--the active dunes (The Nature Conservancy 8 March, 2012).

In contrast to the Argentina, Chile and Mexican land use plans, the US FWS Cabeza Prieta conservation management plan is not defined as a land management instrument. The U.S. conservation agency strategy maintains a singular focus on building ecosystem strength by intertwining the park with the heritage and future of the National Refuge System and the support of concerned citizens (US FWS 2007). The US FWS protected management approach to integration is of a narrower scope than L&K's emergent ecosystem approach. US FWS integration of the Tohono O'odham tribes into land use decisions is part of the protected area original mission to conserve and develop wildlife resources. The US FWS mission to intertwine indigenous and community concerns focuses on the protection of sacred sites, the use of the sites for religious rites, and the restoration of artifacts to the tribal councils (US FWS 2007).

Basket One Summary

The L&K Basket One Conservation and Sustainable Use indicators identify a universal pattern of conservation management priorities for some form of the ecosystem approach across the four management plans. L&K Conservation and Sustainable Use principles are reflected in the dedication of management resources to balance environmental protection and land use for sustainable human development. Emergent sustainable development tailors management tools to address issues of land tenure, land use values and decision-making to restore ecosystem integrity and enhance biodiversity.

L&K's Basket One Conservation and Sustainable Use criteria affirm the conservation management ecosystem approach goal to balance sustainable land use with the appropriate scale of environmental protections. The Argentinean and Chilean conservation management strategize the ecosystem approach as an integration of the protected areas into larger, regional ecosystems and build community networks to include multiple conservation values for sustainable land use, biodiversity protection and ecosystem health. Mexico's comparatively socio-environmental ecosystem management approach networks humans within ecosystems as interdependent natural communities for strong ecosystems that resist change better. The U.S. ecosystem approach contrasts with the three previous integrative management strategies. L&K Sustainable Use indicators affirm emergent sustainable development in the US FWS use of science, legal definitions and policy to enhance biodiversity. But L&K's benchmark of ecosystem integration for the appropriate scale of environmental protections is less prevalent in the national policy scale of U.S. conservation management. The specificity of the US FWS legal mandate to manage species for biodiversity protection and balance sustainable land use through the preservation of

sacred sites is a less integrative approach than the three approaches and may island the protected area.

The resolution of land use rights and ownership is one of L&K's emergent sustainable development indicators to restore fractured ecosystems. Restoration of indigenous traditional land use values integrates human land use and development with the ecosystem at a sustainable scale. Argentina's APL Management Plan coordinates Mapuche land use values to enhance biodiversity and unify the Argentinean side of the fractured Valdiviana ecosystem. The Argentinean scale of land use coordination is not matched by the smaller scale of Chile's forest protections (APN 2011). The Corporación Nacional Forestal (CONAF) management of PNV and the Reserva islands the area from integration with the Valdiviana ecosystem, a practice that L&K see as exemplifying unsustainable management thinking. The Bachelet Administration's effort to separate protected area management from the resource extraction motive of forestry management may move the PNL and Reserva toward L&K's emergent, sustainable restoration of land use values for rehabilitation at the ecosystem scale.

Mexico's strong ecosystem approach fulfills L&K's sustainability goal for a complete ecosystem through coordination of land use. CONANP's aim to mitigate the negative impacts of unsustainable mining activity through the purchase of ejiditos is a commitment to integrate the ecosystem through sustainable land use. In contrast to the South American and Mexican restoration of fractured ecosystems through land use values appropriately scaled to the surrounding ecosystem, the US FWS intertwines the park with the heritage and future of the National Refuge System and the support of concerned citizens. Interpretation of the U.S. protected area conservation approach through the lens of the L&K paradigm locates the US FWS integration of contending private, tribal, military and national security interests in CPNWR as

one indicator out of the basket of emergent indicators that interact to restore the fractured Sonoran Desert ecosystem.

The L&K Basket One Conservation and Sustainability indicators group the four countries as three and one. The group of three: Argentina, Chile and Mexico, invest time, manpower, and resources in multiple strategies to sustainably integrate ecosystems, people and land use. The three conservation management ecosystem approaches fulfill L&K's criteria for sustainability through restoration of the fractured ecosystem. In contrast the U.S. maintains a singular focus on the park as a national heritage and public good. Inclusion of citizen support is limned by the boundaries of the legal definitions of a U.S. protected area. The L&K metric distinguishes the U.S. as a less socio-environmental blend and more scientific and legally defined approach toward a complete ecosystem management approach. Part Two of this chapter further examines the management plans in terms of L&K Basket 2 indicators for Knowledge, Science, and Management of Protected Areas. The Basket 2 indicators assess conservation management strategies that aim to transform traditional approach to protected area management into sustainable conservation management at the ecosystem scale.

B. Basket Two: Knowledge, Science, and Management of Protected Areas

L&K's Basket Two of Knowledge, Science, and Management of Protected Areas emergent sustainable development indicators identify the conservation management strategies that aim to overcome the unsustainable view of protected areas as "islanded" territory in favor of integrated ecosystems. Basket Two indicators look at how each management agency operationalizes their redefinition of conservation management as a political act, updates

conservation efforts with knowledge generation, builds networks and integrates reform through long term goal building.

Redefinition of Management

In parallel moves to resolve controversies over land tenure and use, both Argentina and Chile assign park management the role of conflict resolution. Both the Parque Lanín and the Villarrica Management Plans strategize tactics to resolve existing land use conflicts with the local Mapuche, Criollo, and colonial families. Park management is redefined acting as a protector of national territory to acting as a problem solver at the level of the community and families.

Argentina's 2011 Parque Nacional Lanín Management Plan transforms the original top-down vision of the park as a natural resource for national heritage to integrate human values with a healthy ecosystem. The new Parque Nacional Lanín management philosophy repositions the protected area management starting point to Cultural, Cultural Diversification, and Intercultural considerations (APN 2011). This multicultural approach revalues Volcano Lanín as a historical, spiritual, and development site that transforms the idea of tourism in the park. Sacred areas are repurposed as primary elements in park definition, function, and economic development. Chile's conservation management aims for a similar goal using different land management tools. The Management Plan for Chile's Villarrica Park and Reserve restructures the original mandate to comply with legal modifications and resolve issues with colonizers and Mapuche land rights (CONAF 2008). Management objectives for land use values are rewritten to address community issues as well as soil, species and water conservation.

On the U.S./Mexico border Mexico's EP/GDA conservation management plan maintains the original links between the protected area and national identity while embracing the balancing of ecosystem with human values. The EP/GDA is asserted to be important to the development of the identity and culture of the Mexican state (INE-SEMARNAT 1996). The original INE-SEMARNAT Management Plan is a hybrid national conservation management approach that blends social human development needs with environmental protection in order "to gain the most social benefit, conscious of the relevance of programs of the related natural areas with biological and ecologic values (INE-SEMARNAT 1996). The balance of human-to-ecological values is an early example of a sustainable management approach built on the co-management of restoration, management and protection of protected areas (CONANP 2007).

The CPNWR Management Plan also embraces restoration and protection of the ecosystem. The scale of the Plan situates the CPNWR, EP/GDA, and Organ Pipe Cactus National Monument (OPCNM) within the larger Sonoran Desert ecosystem (USFWS 2007). The conservation management for CPNWR does not embrace the sustainable principle of socioeconomic development of residents or the surrounding communities as a valid role for the US FWS. Any transformation of conservation management is in response to species population changes and border security projects within the park. Border security patrol police, projects, vehicle roads and construction needs have changed park management to the role of mitigating and recording environmental impact on CPNWR biodiversity and habitat.

Management as a Political Act: Redefinition of Park for WHOM?

Each of the four protected areas suffer the consequences of the nationalization of occupied land and natural resources that sought to build national heritage, national identity, and

military and border security (INE-SEMARNAT 1996, US FWS, 2007, APL 2011, CONAF 2008). The L&K emergent sustainable development indicators, however, stress the transformative nature of the sustainable ecosystem management approach, challenging the dominant nation-centric approach to protected areas management. This ecosystem approach rewrites top-down "expert" management approaches and protected area land rights in terms of land use, tenancy, and ownership in the protected areas in favor of at least a partially decentralized approach engaging local inhabitants in park management.

Argentina's multicultural approach to ecosystem integrity in Parque Nacional Lanín transforms the "expert-centered" approach to conservation management. A new blended management approach replaces the national ownership and management of protected areas with a blended comanagement process (APN 2011). This blended management approach is the result of an altered legal definition of protected areas that shifts the parks from strict national dominion to a hybrid systems that incorporates the principle of community jurisdiction (APN 2011). The dual public dominion/community jurisdiction management approach reverses part of the original Ley 14.408 that converted provincial Neuquén (Mapuche) territory to strict national status (APN 2011).

Across the border, Chile's centralized and exclusionary management plan for Parque Nacional Villarrica has been transformed through conservation management efforts to improve the quality of human life in the park. Families and communities residing in the territory prior to the protected area status are recognized as having lost livelihoods and land tenure rights from the national protected area designation (CONAF 2008). The conservation management plan redefines PNV as "an area whose natural resources are necessary to conserve and apply special care to the sensitivity of these who suffer degradation, and to the importance to the welfare of the

community (CONAF 2008).” Chile has moved from an over-generalized, nationally centered protected area zoning scheme to a sustainable management approach based on feedback systems that generate new data directly from the surrounding communities. The relationship between the park and land rights becomes a transparent legal project that “generate(s) (the) conditions to initiate a process of territorial coding of the cultural and natural resources" (CONAF 2008).

In the northern hemisphere the shift away from traditional conservation management towards sustainable land use in EP/GDA and CPNWR is less advanced. Protected area management in both parks focuses less on comanagement and conflict resolution and more on supporting cross border economic and security relations and in this respect remains highly centralized. The border security agendas privilege risk orientation and security informed values in the sister parks. Mexico’s EP/GDA defines the park as a vital, cross border IT communication corridor for the state of Sonora (INE-SEMARNAT 1996). The IT communication corridor designation views the parks as a theater for Mexican/ U.S. security cooperation allowing national governments to construct and monitor tactical infrastructure for cross border trade and security within the parks. This management orientation bears greater resemblance to L&K’s traditional conservation than emergent sustainable development practice.

New Types of Knowledge

Lockwood & Kothari list the generation of new knowledge as an indicator of emergent sustainable development that supports a sustainable ecosystem approach. All four of the management plans provide resources to gather cross-sectoral data to produce some form of knowledge that will shape the scale of management conservation strategies. The new data and knowledge vary across science and social sectors, create linkages from the human to ecosystem

scale, and define substantive focus on water, carbon sequestration, soil erosion, species and human population change, tourist and employee knowledge.

The Parques Nacional Lanín and Villarrica management plans mandate systematic gathering and analysis of local demographic data to identify problems in relation to the regional ecosystems. The conservation management vision for the Lanín/Villarrica sister parks increasingly blends human economic development needs with ecosystem health and integration. The data on recently developed populations around Parque Nacional Lanín points out shortages in civic infrastructure and predicts future community development needs (APL 2011). Demographic analysis shapes Chile's management goal to systematize sustainable, long term strategies for four central problems within Villarrica Park and Reserve: the illegal use of pasture, the importance of the piñon harvest to indigenous culture and economy, the impacts of forestry and dead wood collection, and tourism development that benefits those within zones of influence (CONAF 2008).

Mexico embraces knowledge creation in order to build sustainable, long term problem solving and project definition of the EP/GDA Biosphere Reserve. Conservation management continues a six year tourist survey on the concepts of environmental protection and management. The level of data detail is increased in order to appropriately shape the goals and projects of the Management Plan (CONANP 2007). The demographics contribute to an iterative learning process that aims to clarify and build new management programs and projects from the 2001-2006 Strategic Plan Mission and Vision (CONANP 2007). The new data supports a long term goal to integrate ecosystem health and protections by creating a permanent regional ecosystem restoration plan (CONANP 2007).

The US FWS Management Plan Environmental Identification/Comprehensive Conservation Plan (EIS/CCP) development process uses legally defined process and diagnostic tools to adapt conservation management to sustainably overcome the intrinsic uncertainties of protected areas (US FWS 2007). The synthetic nature of the EIS/CCP process allow for some shuffling of research and management priorities and activities within the EID/CCP guidelines (US FWS 2007). The US FWS Cabeza Prieta management development team sought input on management practices from interested parties in Yuma, Ajo, and Tucson in 2000, 2003, and 2005. FWS scoping meetings included the U.S. Border Patrol, OPCNM, Pima County, Tohono O'odham nation, and joint scoping with BMGR (USFWS 2007). Since 2006 the increase in border patrol roads within the park for the wall project as well as border patrol access to interior areas have created the need to record the recent damage to the park (Interview, 2011). The increase of border patrol access roads repeats a pattern of litter left in the wildlife refuge by military and air force bombs that shine throughout the park (Interview, 2011). The CP NWR Management Plan includes strategies and resources to address the long term BMGR training litter and site cleanup, but the exponential increase in border patrol access roads presents a new set of negative impacts for assessment, funding and mitigation.

Management Networking

Lockwood & Kothari identify networking as an indicator of sustainable development in conservation management that promotes ecosystem health and enables land use change through the horizontal integration of knowledge and communities, at the national level across institutions, and across state borders. At the national level all four of the parks are networked as representative ecosystems in the national protected area system. Argentina's Parque Nacional

Lanín is networked into the National System of Protected Areas (SNAP) (APL 2011). On the Chilean side Parque Nacional Villarrica is a member of the Chile's System of Wild Protected Areas (SNASPE) (CONAF 2008).

In comparison Mexico builds a highly integrated cross network system by encouraging sharing of geographic, biologic, ecologic, social, economic and environmental data across horizontal and vertical levels to facilitate local, national, and regional decision management (CONANP 2007). CONANP leads the four management agencies in sharing conservation knowledge across organizational sectors and levels. The El Pinacate Management Plan uses conservation knowledge to link the Action Program for the Conservation of Species and the Conservation Program for At-Risk-Species (CONANP 2007). Sustainable economic and social development resources are consistently managed through cross-ministry goal sharing. The 1996 El Pinacate Management Plan's use of the Sustainable Rural Development Program (PRODERS) development resources in the protected areas and zones of influence (CONANP 2007) provides a guideline to create horizontal linkages between federal development and environmental ministries and commissions. Sustainable economic development at the border is linked to the ecosystem health of the Reserve. CONANP takes into account the impact of the maquiladora and agricultural border economies that create a unique social environment surrounding the EP/GDA that impact the U.S. and Arizona border (INE-SEMARNAT 1996).

Cabeza Prieta NWR, in turn, is networked into the U.S. National Wildlife Refuge System (NWRS). As a Member Protected Area of the NWRS, conservation management efforts to protect habitat and biodiversity in Cabeza Prieta habitat are supported by the Refuge System's biodiversity, land use and education goals (USFWS 2007). The "islanded" nature of the Cabeza Prieta protected area is somewhat mitigated by networking across multiple agencies: the

U.S.CBP, OPCNM, Pima County and the Tohono O'odham Nation. The cross institutional and organizational links intersect various types of data and practices with management decision-making (USFWS 2007).

Sustainable management of a shared ecosystem requires binational networks for information sharing and project coordination at the transboundary ecosystem scale. The Parque Lanín and Villarrica Management Plans build shared ecosystem goals. Argentina networks demographic tourism data across the border to build sustainable economic development within the cross border Valdiviana ecosystem (APL 2011). The two conservation agencies share information to build funding possibilities and advocacy for the protected areas as a unified social, economic, political and biological entity, and builds shared conservation goals for Volcán Lanín (APL 2011). Local, regional, national and international research projects are operationalized within both protected areas (APL 2011). Conservation goals are shared across borders to help understand economic opportunity and security in the protected areas. Argentina creates and shares demographic tourism knowledge with CONAF for cross border management of Volcano Lanín (APN 2011). Border security Statistics of the thirteen access roads and three Chilean/Argentinean border crossings are used to understand the movement of people within Parque Nacional Lanín (APL 2011).

On the U.S./Mexico border the US FWS and CONANP network to coordinate the binational management coordination of a representative population of the Gila/Salt/Verde biodiversity resources within the Sonoran Desert region (INE-SEMARNAT 1996, CONANP 2007, US FWS 2007). CPNWR collaborates across interstate and binational conservation management levels with horizontal inter-organizational linkages. Cooperative U.S. federalism invites state wildlife managers to participate in the refuge's comprehensive planning process (US

FWS 2007). Biodiversity protections across national organizations name the Sonoran Pronghorn sheep as an EPA refuge management priority (US FWS 2007). The USFWS works across interagency levels to cooperate with the Tohono O'odham Nation, International Sonoran Desert Alliance (ISDA), and with the Barry M. Goldwater Executive Council (BEC) to build companion natural resource programs, GIS programs, to coordinate archeological resource issues and discuss cultural interpretation and development (US FWS 2007). USFWS scientists and officials are also members of the trinational (Canada, U.S., Mexico) Trilateral Committee for the Protection of Wildlife which organizes data sharing and transboundary species protection programs in the North American region (Mumme, et.al, 2009).

Long Term Goal Building: the shape of future management

L&K's long term goal building indicator assesses how management is changing to intertwine ecosystem history with human history. Both Parques Nacional Lanín and Villarrica are situated and transformed within ecologic and social systems that reach far beyond the early nationally centered vision of pristine and resource abundant territory. Argentina's management plan now incorporates the 2300 year human archaeological history of people that has impacted the protected area within the larger Valdiviana ecosystem. The Valdiviana ecosystem is now acknowledged to have a history of human impact prior to the nationalization of the park (APN 2011).The long term goals for the protected area is to rebuild the human/ecosystem relationship through wilderness education, the identification of the services needed in recently developed areas (APN 2011) and by incorporating the understandings generated from resident and tourist demographics (APN 2011).

The recognition that pre-existing communities suffered degradation from the nationalization of the Parque Nacional Villarrica and Reserve relocates CONAF's conservation management starting point. The new management starting point begins with sustainable development analysis and prioritization of the problems and needs of surrounding communities (CONAF 2008). The data pinpoints four central problems in PNV and the Reserva that are publicly identified as long term concerns in Phase One of the Management Plan. The four central problems are the illegal use of pastures, the importance of piñon harvesting to the indigenous culture and economy, the impacts of forestry and dead wood collection, and the development of sustainable tourism that will benefit those within zones of influence (CONAF 2008). The targeting of these problems within the management plan is evidence of the socio-environmental problem-solving focus found throughout the four phases of the PNV conservation management plan.

The long term goals for the U.S./Mexico sister parks focus on ecosystem rehabilitation and health. CONANP's Protected Area Management Plan builds on the earlier Strategic Plan (2001-2006) Mission and Vision (CONANP 2007) that aims to build a permanent regional ecosystem restoration plan to preserve the environmental balance of the Sonoran ecosystems (CONANP 2007). Long term strategies include tactics to combat invasive species (CONANP 2007), plant native species near the Reserve (CONANP 2007), and reduce biodiversity loss through coding land use change (CONANP 2007). Across the border the CPNWR management plan's long term goals mandate the use of U.S. U.S. National Wildlife Refuge System (US NWRS) resources by describing (and circumscribing) the desired outcomes for the next 15 years in terms of species protection and management (US FWS 2007). The US NWRS shapes the future of CPNWR as a comparatively islanded protected area by directing conservation to mimic

natural processes in order to conserve, maintain and restore the wilderness character of the park (US FWS 2007).

Basket Two Summary

Lockwood & Kothari's Basket Two of Knowledge, Science, and Management indicators advance conservation management strategies aimed at overcoming the negative consequences of traditional thinking about ecosystems. Judged by the metric of the Basket Two indicators, the four management agencies' do embrace emergent sustainable ecosystem approaches by the generation of knowledge, science and management elements that aim to enhance biodiversity and human/ecosystem integration in order to appropriately scale environmental protections.

L&K's Basket Two sustainable development strategies identify policies that transform protected area management. Argentina, Chile and Mexico's conservation management styles characterize L&K's emergent sustainable management through legal comanagement and multicultural considerations. Argentina's APL uses indigenous knowledge to repurpose PNL as a spiritual tourist destination. Chile restructures the state centric vision of the park in CONAF's land use conflict resolution because planning and management is recognized to be a political exercise. Mexico has adapted the early cultural hybrid management approach to co-manage the restoration, management and protection of the Biosphere Reserve.

In contrast to the seemingly universal comanagement trend the U.S. follows a narrower approach to ecosystem integrity. The US FWS management approach reflects L&K's knowledge generation in the mitigation and data gathering response to the impacts of the wall and border security access roads (CBD 19 May 2011). However, the US FWS conservation management goals are transformed by the exogenous border security project rather than the endogenous factor of comanagement for sustainable development blended with ecosystem health. The U.S.

approach to data gathering on the fence and border patrol impacts is concerned with the overriding US FWS mandate to manage the CP NWR species. But, the border fence related monitoring is a reactive response by the CP NWR that is not yet grounded in sustainability thinking or strategic planning for ecosystem protection.

Chile and Argentina's continuous cycle of incorporating new tourist and community demographic data into the plans for yearly review is one aspect of L&K's transparent management for emergent sustainable development. CONAF places the relationship between the nationalized park territory and land rights in a transparent legal project that "generate(s) (the) conditions to initiate a process of territorial coding of the cultural and natural resources." Mexico and the U.S. also exhibit emergent sustainability in collaborative management efforts that aim to create new conservation knowledge that will help to protect biodiversity and restore the Gila/Salt/Verde ecosystem despite the fact that environmental protections are subject to cross border economic and security stressors.

L&K's ecosystem emergent sustainable development for networking requires that the parks be integrated into the national protected area system. Argentina and Chile network information for shared ecosystem and sustainable tourism development goals. Mexico's advanced conservation and development network supports a balanced sustainable development and a commitment to sharing geographic, biologic, ecologic, social, economic and environmental data across horizontal and vertical levels that facilitates local, national, and regional decision management. In contrast to the creation of an ever-widening network U.S. FWS policy remains consistent with a more traditional practice of following narrow, legal management definitions that limit data sharing to environmental concerns such as species populations and migration.

Argentina, Chile and Mexico share a conservation management style of socio-environmental integration that generally approximates L&K's emergent sustainable development Basket One and Two indicators. Both Argentina and Chile have adopted a long term goal of ecosystem restoration expressed in terms of the 2300 year history of human impact on the Valdiviana ecosystem, and both are reframing park management in terms of social development in terms of land use resolution. In Mexico and U.S. some emergent conservation management practices are seen in the efforts aimed to build a permanent regional ecosystem restoration plan that will preserve the environmental balance of the Sonoran ecosystem. The North American conservation aim for emergent sustainable development through biodiversity protections and restoration of the wilderness character of the parks contrasts with South America's hybrid blending of human/ecosystem integration for sustainable environmental protections.

C. Baskets One & Two Comparative Conclusions

L&K's Baskets One and Two indicators assess emergent sustainable development cross two dimensions in the four conservation management plans. The first basket of indicators operationalizes ecosystem approach strategies for environmental protections at an appropriate scale for the surrounding ecosystem. The second basket of indicators emphasizes human/ecosystem integration in order to redirect park benefits to park residents and surrounding communities. Judged from the metric of the L&K paradigm Argentina, Chile and Mexico exhibit emergent sustainable development characteristics in knowledge generation, reworking of land tenure, use and jurisdiction for comanagement, and rewriting conservation management starting points to include residents, the surrounding communities and the surrounding ecosystem. The U.S. conservation strategies focus less on community and more on biodiversity protections and

generation of knowledge about and the mitigation of exogenous impacts of military and national security projects within the Cabeza Prieta protected area. There is a caveat. While Mexico has adopted some of the emergent sustainable development practices advanced by L&K and implemented in Argentina and Chile, it is compelled to accommodate some to the narrow U.S. legal approach to protected area management that is so heavily influenced by domestic by politics north of the border.

L&K's protected area emergent sustainable development paradigm also assesses the transformation of traditional to emergent conservation management thinking through appropriately scaled environmental protections that balance the three pillars of sustainable development. L&K's key strategy for appropriately scaled environmental protections is comanagement with the in park resident and surrounding community. Argentina and Chile and Mexico have moved toward comanagement and integrated land tenure using the tools of decentralized protected area governance, land rights definition, and land purchases. Unique to Mexico are the impacts of the U.S. bilateral agreements and border security project. Emergent sustainable development in EP/GDA is interrupted by the U.S. demands of the border as military theater and strategic communications corridor. The exponentially damaging impacts of the border wall and increased border patrol roads in CP NWR has generated a reactive response by the US FWS to gather data for future EIP/CCP processes and to raise community awareness of the impacts. The narrow conservation management mandate that defines CPNWR as a Wilderness Reserve that is subject to military and border projects has left the park comparatively islanded as a social or economic benefit to the surrounding community, and did not prepare management for the assault on the ecosystem by the security sector. In the next chapter the L&K Baskets 3 & 4 emergent sustainable development indicators further assess traditional versus

emergent sustainable development in the parks for organizational capacity and transformative conservation management that is the sustainable management of shared protected areas.

CHAPTER FOUR

COMPARISON OF THE MANAGEMENT PLANS: BASKETS THREE AND FOUR

In Chapter 4 the Basket One and Two emergent sustainable development indicators pinpointed protected area conservation management strategies that were generated from a sustainable ecosystem approach. However, just as protected areas are embedded in the regional ecosystem, land use conflict resolution is embedded in surrounding politics and institutional structures. In this respect, Baskets One and Two of the L&K indicators highlighted management goals that frame the Basket Three and Four themes of sustainable management capacity and governance strategies. Basket Three Capacity Building and Awareness indicators identify strategies that aim to build management and political capacity for sustainable ecosystem protection and socio-economic development. Capacity building transforms management goals to repurpose the protected area as a community asset and as a member of the global environmental commons. L&K's Basket Four of Governance, Equity, and Livelihoods indicators identify structural and local conditions that impact sustainable development of the protected area, particularly in the area of the land use and ecosystem health.

A. Basket Three: Capacity Building and Awareness

The incorporation of emergent sustainable development norms and practices in protected area management aims to transform traditional protected area visions in order to overcome unsustainable management practices. The L&K Basket Three Capacity Building and Awareness indicators contrast traditional dysfunctional conservation management practices with emergent

conservation management capacity building. The Basket Three indicators identify management policies that restore ecosystem health through awareness raising, conservation education and developing sustainable sources of funding, and network building that better integrates protected areas into the international and regional context for environmental protection.

Awareness Raising versus Dysfunctional Relations

The preceding review of the four protected areas' vision and management practices though the optics of the Basket One and Two emergent sustainable development indicators has shown that the successful resolution of land conflicts requires conservation management that balances human development with ecosystem health and integrity. Basket Three Awareness Raising indicators link human development to protected areas by untangling competing paradigms that bear on sustainable development of the regional ecosystem. Awareness raising strategies for sustainable development in the four protected areas focus on solving local land use problems with the aim of strengthening environmental protection from an ecosystem perspective.

Application of the Basket One and Two emergent indicators has assessed all of the four protected area management plans goals to replace unsustainable protected area vision and management practice with emergent sustainable conservation practices. The successful resolution of land conflicts that were identified in Baskets 1 & 2 require conservation management to balance human development with ecosystem health and integrity. Basket Three Awareness Raising indicators link human development to protected areas by untangling competing paradigms that bear on sustainable development of the regional ecosystem. Awareness raising strategies for sustainable development in the four protected areas support environmental protection goals from an ecosystem perspective by solving local land use issues.

Argentina and Chile's land conflicts are telling examples of the negative environmental consequences of competing land use visions. The competing visions are manifest in the protected area zoning that originated with nationalization of the territory. The over-generalized protected area zoning of both Parques Nacionales Lanín and Villarrica excluded tourism development and resource use by in-park residents. The exclusion places in-park tenants and management in conflict with sustainable environmental and economic development goals (APN 2011, CONAF 2008). Argentina untangles the dysfunctional zoning through land use data generation and analysis that informs the rezoning of park lands for small production that was eliminated by (APN 2011). Argentina further raises awareness by printing and distributing existing and new zoning maps for tourism development, community safety awareness and emergency disaster response. The newly published zoning maps detail volcanic activity risk in relation to the surrounding communities, land use, and volcanic tourism activities (APN 2011).

Chile uses awareness raising to overcome dysfunctional community relations and build sustainable economic development capacity in the Parque Nacional Villarrica and Reserva. CONAF now mitigates the negative consequences of an over-generalized "zone of influence" mandate by applying new demographic knowledge in a manner that redefines the function of specific zones of influence (CONAF 2008). This functional redefinition of zones of influence[15] is meant to help repair residential and community relations within the park. The Parque Nacional Villarrica Management Plan distinguishes Mapuche community and primary colonial family land zoning within a framework of 10 zones of economic subsistence (CONAF 2008). Publishing the names of the primary colonial families and the Mapuche communities in the

[15] As discussed earlier the zones of influence are protected areas that have representative species habitat, cultural and natural representatives of the ecosystem, areas of local community dependency on natural resources, the existence of commercial production dependent on the natural resources of the protected area, an area in need of inter-institutional coordination, and territorial regulation (p14, CONAF, 2006).

Parque Nacional Villarrica Management Plan allows the document to serve as a defacto public forum for resolving land tenure and resource use rights. Connecting the 10 zones with family names transforms land use in the park from the preservation of an exclusive nationally protected area to management of a hybrid mix of land uses for local sustenance and profit. The new zoning builds capacity for long term, sustainable, local economic development compatible land usage that reduces ecosystem fragmentation across the 10 zones (CONAF 2008).

Turning to the protected areas at the U.S./ Mexico border, Mexico's aim with awareness-raising is to generate community interest for conservation projects (CONANP, 2007). The national commitment to eliminate dysfunctional cross institutional relationships is founded on the principle that the Biosphere Reserve and it's human residents should be integrated into the larger Sonoran Desert ecosystem. SEMARNAT's early strategy for human/ecosystem integration connected the national goal of protecting the biological richness of the Sonoran Desert with social well being (INE-SEMARNAT 1996). CONANP later applied the human/ecosystem integration approach to enhance tourist ecosystem awareness by sensitizing visitors to the conservation of ecosystems and biodiversity. The publication "Tourism in Protected Areas 2007-2012" instructs park guards to apply federal communication techniques that build on an existing Mexican environmental consciousness.

Cabeza Prieta NWR management works within legally defined management roles to build awareness of the adverse ecological impacts of the military activities and border security projects. The US FWS uses awareness building as a tool to counter negative impacts on park biodiversity by the Barry M. Goldwater Range air force training program (BMGR). Although the military does not own the protected area land they do own the air space and land targets for low-level flight training (US FWS 2007). The US FWS investigates and records the impacts of the

training routes on native wildlife versus the impacts on wildlife in enlarged buffer zones. The comparative data provides evidence for the FWS to fulfill their responsibility to the 1964 Wilderness Act mandate to protect the species and ecosystem (USFWS 2007).

Awareness-raising about CPNWR and the border fence project is operationalized in wilderness education activities. The Management Plan mandates that park employees provide visitors with wildlife-dependent recreation and education experience designed to foster appreciation, understanding, and protection of biodiversity and wilderness resources (US FWS 2007). The US FWS collaborates with the local Cabeza Prieta Natural History Association mission to stimulate interest in and provide knowledge about the natural history of the Sonoran Desert and the Refuge (CPNHA 2012). The US FWS also partners with the International Sonoran Desert Alliance community alliance (ISDA) in dawn and sunset lectures at the Watchable Wildlife site on Child's Mountain. The lectures make use of the site's spectacular view of the military training bombing targets near the pronghorn deer habitat and migration routes (USFWS 2007).

The DHS border security project has changed the diplomatic relationship between national interests and CPNWR conservation management at the U.S. southern border. The border security and wall project trump the CPNWR mandate to fulfill the "leave-no-trace" policy of the 1964 Wilderness Act. Unlike the BMGR, the CBP is not subject to environmental laws. The CBP uses the special provisions of the 1990 Arizona Desert Wilderness Act (ADWA) to continue uninterrupted enforcement of illegal alien and drug interdiction activities in protected areas (USFWS 2007). Motorized law enforcement vehicle use has increased under the Arizona Border Initiative (ABI 2004) and the 2006 Secure Fence Act. Thousands of miles of vehicle access roads crisscross the park as border agents address illegal border crossings at the Arizona

border (USFWS 2007, Personal Interview, 2011). The CPNWR administration gathers, publishes and presents evidence of the roads to raise awareness of the damage to the fragile ecosystem. In a preventative awareness raising tactic, the US FWS Region 2 and the Tucson Sector Border Patrol collaborate to raise border patrol awareness for habitat protection. The agencies work to educate border patrol trainees about environmental concerns in the training video *Patrolling in a Desert Ecosystem* (USFWS 2007).

Sustainable Financing

The L&K emergent sustainable development indicators for sustainable financial capacity building point to a range of management efforts that transform protected area funding beyond the traditional protected area roles of research for national interests, the protection of species "islands" and unsustainable tourism development. L&K's emergent sustainable financing principle reorients funding to develop the park as a community asset. Management strategies for sustainable financing originate in the recognition that the inherent conflicts of protected area tourism that require management financial practices be shaped toward transparency and responsibility to local community livelihoods. Emergent sustainable financing in these four management plans must address increasing tourism, inclusive and transparent decision-making and collaboration with institutions beyond the national government.

Argentina's Parque Nacional Lanín (PNL) management plan considers funding from an integrative and socio-economic approach that aims to build capacity on human valuation in markets, modern human development, and the development of scientific and traditional knowledge (APN 2011). At the national level Argentina aims to control and mitigate the

negative impacts of a 50% increase of Parque Nacional Lanín tourism[16] (APN 2011). Financing management capacity for increased tourism is an exercise in the vertical transfer of federal funds to build tourist destination sites. Sustainable funding for PNL requires an institutional network with the international development community for park and economic development support. The APN collaborates with the IDB and the Program for Competitive Financing to finance tourism development and construction (APN 2011). In the last 26 years more than 360 research projects have progressed in the Parque Nacional Lanín. Ninety local, regional, national and international institutions from 15 countries have channeled diverse foreign and national funding sources to invest ten to hundreds of thousand of dollars (APN 2011).

The transitional condition of national funding for Chile's Parque Nacional Villarrica and Reserva reflects CONAF's historical lack of capacity to carry out all of the duties mandated for protected area management. Chile's centralized government's historic lack of will to protect natural resources has left administration of protected areas problematically grouped with industry and forestry ministries (IUCN 1992). The Bachelet Administration changes to that administrative grouping have yet to reveal any funding loss or gain from separating the protected areas from the industrial forestry management sector (Advanced Conservation Strategies January 2011). The CONAF Management Plan does not discuss changes to national funding for CONAF or the protected area management department Silvestre Patrimonio. CONAF is left to build funding capacity by welcoming local, regional, national and international research projects in Chilean protected areas (CONAF 2008). Funding projects specific to Parque Nacional Villarrica and the Reserva follow the international conservation organizations' assertion that sharing research opportunities builds capacity for sustainable protected areas.

[16] This statement is based on tourism data 2003-2009 (APN, 2011).

Mexico is the comparative leader in aggressive development of sustainable financing of EP/GDA. Current government funding is recognized to be inadequate to achieve the protection, management and restoration of each protected area (CONANP 2007). The use of state resources is guided by identifying the social and economic pressures that result in environmentally destructive activities (INE-SEMARNAT 1996). The financial history of the EP/GDA is the long term struggle to prevent and mitigate negative impacts from surrounding *ejidos* that profit through increasing irrigated agriculture with nonnative plan species, cattle grazing, hunting for hare and wild boar, and mining for volcanic rock (INE-SEMARNAT 1996). CONANP's response to the inadequate environmental protection provided by federal funding is to adapt SEMARNAT's Conservation Strategy for Development strategy to replace unsustainable dependence on the ecosystem and biodiversity in order to promote sustainable economic development that improves the quality of life of the local people by (INE-SEMARNAT 1996, CONANP 2007).

Planning for biosphere reserve funding must reach outside of the Reserve to partner vertically and horizontally with international conservation and national organizations. The 1996 management plan called for inter-institutional consensus building on the EP/GDA Management Plan with 5 collaborating agencies (INE-SEMARNAT 1996). The agency seeks funding partners with GEF-PNUD, international and national NGO's, national and local social organizations, and academics (CONANP, 2007, Interview 2011). The tensions that arise from CONANP's inadequate budget for an ever increasing number of protected areas push the agency to build funding capacity by decentralization, relying on alternative ecosystem management mechanisms such as carbon markets and community based certification schemes (CONANP 2007).

Developing sustainable CPNWR funding as a community asset or with international partners is not directly addressed by the US FWS protected area mandate. Cabeza Prieta's current funding is a mix of state and matching federal funds, revenue sharing for salaries and park maintenance funding that has accumulated through the years in legislative layers (USFWS 2007). Congressional efforts to create additional funding created the Refuge System Trust as a national effort to fill the funding gaps for all National Wildlife Refuge System protected areas through stamp sales and taxpayer overpayment (H.R. 2735 I.H). Cabeza Prieta's specific funding needs now include the imperative of addressing recent border security projects that have damaged the park with roads, traffic, noise, litter and equipment. Under recent arrangements with the DHS, the mitigation and environmental impact analysis costs will be shared with the CBP and the military. Funding for mitigation of border security impacts will require cooperation, data sharing, and legislative approval (US FWS, 2006).

The International/Regional Context

All shared protected areas are parts of regional ecosystems that cross political and geographical borders. International conservation principles and guidelines for emergent sustainable development management practices in protected areas embed protected area sustainable development in a global context. The L&K Basket Three Capacity indicators relate conservation management agency responsibilities and duties to membership enrollment in international conservation and ecosystem networks. The IUCN categorizations of the two shared protected areas examined in this study are categories IV and VI. Categories IV and VI both define the parks' overarching mission as extending beyond the IUCN context. Category IV parks are defined as "habitat/species management areas for conservation through management

intervention" (Zbicz 1999). Cabeza Prieta NWR and the Villarrica Reserve Nacional each manifest increased levels of protection as Category IV parks. Category VI areas are "managed resource protected areas for the sustainable use of natural systems" (Zbicz 1999). The Parque Nacional Lanín and Villarrica and El Pinacate/Gran Desierto Altar are Category VI protected areas.

Argentina embraces international categorization of APL as part of the UNESCO Andean North Patagonian Biosphere Reserve and as one of the WWF Global 200 sites (APL 2011). International goals authored at the international level are a foundation of the APL's hybrid ecosystem approach to conservation management. Chile builds capacity for environmental protections at the ecosystem scale by publishing international and federal legal definitions and regulations in the PNV Management Plan (CONAF 2008). Chile and Argentina support a partnered ecosystem and biodiversity policy based on the perspective that both the Parque Lanín and Reserva Villarrica are part of the Austral Temperate Forest of South America.

Mexico networks across vertical and horizontal cross-organizational levels to prioritize the development of interagency and intercommunity links. The EP/GDA Management Plan goals are based on the international objectives of the IUCN, UNCED, and Rio 1992 statements (INE-SEMARNAT 1996). The later CONANP Management Plan supplements this emphasis on networking by developing a leadership role for the agency. CONANP leads the network in the promotion of a global culture of conservation through participation in international events (CONANP 2007).

The US FWS focuses on building on binational and regional networks that support the U.S. National Wildlife Refuge System goals rather than building strategies based on international policy. The US FWS cooperates with CONANP to link CPNWR, EP/GDA and OPCNM wildlife

corridors across borders in order to reduce and mitigate wildlife barriers. Within the U.S. borders the US FWS establishes community relations with the local advocacy nonprofit International Sonoran Desert Alliance (ISDA) to formulate a regional plan to consistently survey and monitor GIS information on the Sonoran pronghorn habitat for restoration of the Sonoran Desert (US FWS, 2007). The role of CP NWR in the Sonoran Desert Ecosystem is formally defined and updated by the EID/CCP investigative process. The linking or embracing of international goals for CPNWR environmental protections are not directly addressed in the Cabeza Prieta management plan.

Basket Three Summary

L&K's Basket Three Capacity Building indicators integrate awareness building, knowledge generation, sustainable financing, and international standards and networks to promote sustainable development of protected areas. Applied to the shared protected areas in this study, the Basket Three Indicators assess ecosystem integration by looking at new vertical and horizontal relationships that hold promise for mitigating community and policy dysfunctions in all four conservation agency management plans. The contentious issues of land use, land tenure, and environmental protections at the regional ecosystem scale that were identified in the preceding analysis of how Basket One and Two indicators are applied in these parks are further strategized by the Basket 3 capacity building reforms.

Each of the four conservation management agencies exhibits some form of awareness building through the transparent use of information. Three of the management plans use knowledge transparency in relation to re-zoning for improvements to existing land utilization. In order to untangle the consequences of the historically dysfunctional approach to protected area

zoning both Argentina's and Chile's conservation agencies have committed to the transparent use of knowledge generated from the analysis of local land use and tenant data. In the EP/GDA, Mexico's long term commitment to an integrated human/ecosystem conservation model connects the national goal of protecting the biological richness of the Sonoran Desert with social well being and sets the stage to build a socio-ecological development capacity for awareness raising for tourism and sustainable resource use. CPNWR conservation management does not directly address land use planning and zoning within the park but does demonstrate an understanding of the political nature of border projects in the reserve. The recent collection and publishing of data moves the conservation agency into an advocacy role beyond those described in the management plan yet within legal definitions of the EID/CCP.

With respect to L&K's embrace of sustainable funding as a basis for sustainable protected areas management it is worth considering Argentina's and Mexico's funding outreach to the international development community. Both conservation management plans commit to building an institutional network with the international development community to support ecosystem protection and economic development in the parks. Mexico's leadership in aggressive and innovative financing exhibits an emergent approach in their openness to building the protected area as a community asset through international networking. CONANP's response to federal funding inadequacies is to build a sustainable decentralized funding network that repurposes protected area funds from traditional *Patrimonio* ideals to improving the quality of life of the local people and mitigating negative impacts on ecosystems and biodiversity (CONANP 2007).

Neither Chilean nor U.S. protected area management exhibits an effort to build a more sustainable base of protected area funding as recommended by L&K. Both protected areas

struggle with inadequate traditional funding schemes that are dependent on centralized, politically determined national funding. The historical lack of alternative funding possibilities push both the EP/GDA and CPNWR protected areas away from emergent sustainable environmental protections. The inadequacies of national funding provisions have left the PNV embedded in the forestry ministry and traditional thinking about the area as a national resource. The subjugation of CPNWR environmental protections to military and security needs has changed in the last years from a diplomatic Memorandum Of Understanding (MOU) process with the Barry M Goldwater Range ((BMGR) to one of picking up the pieces by recording damage and determining mitigation cost and responsibility through the EID/CCP process.

The openness or lack of openness to international funding returns the comparative study to the three and one grouping that is the pattern in Baskets One and Two indicators. Argentina, Chile and Mexico exhibit emergent and sustainable characteristics of openness to international responsibilities and networking. The CPNWR management plan does not reflect emergent conservation as informed and guided by international goals but retains a regional and local network and relationship building orientation.

B. Basket Four: Governance, Equity, and Livelihoods

Baskets One through Three of L&K's emergent sustainable development indicators set the stage to identify the political nature of the nationalization and management of protected areas. The sustainable development indicators map out the long term consequences of state oriented perspectives on protected areas that lead to patterns of unsustainable traditional conservation management practices. Admittedly the protected area designation can safeguard a small part of a regional ecosystem with conservation management and regulate unsustainable

resource extraction by private interests. The downside of this nationalization of territory has been shown to be the tendency to override longstanding resident land rights and community ecosystem values.

Basket Four emergent sustainable development indicators tie the previous themes of land conflicts and ecosystem management values into a political perspective. The privileging of certain types of economic development, protected area management approaches and the control of land use are political acts. Resolving land conflicts and operationalizing emergent, sustainable conservation management from an ecosystem approach entails a policy mix of conservation management efforts that aim to restore equity and livelihoods within a healthy ecosystem. Applying Basket Four emergent sustainable development indicators to protected area management plans for these shared protected areas allows an assessment of how sustainable development principles advance equitable opportunities and incorporate ecosystem values into legal definitions and administrative structures and responsibilities.

Legal and political systems

L&K's sustainable development paradigm frames protected area legal and political systems in a loose dichotomy that juxtaposes inadequate governance in the traditional protected area paradigm with the promotion of a full range of governance types in the emergent sustainable development paradigm. Conflicts over protected area land use, land tenure and subsistence rights as well as conservation management values are unsolvable without adequate governance structures and policy definition.

The political nature of sustainable development is evident in the recurring themes of sustainable land use and ecosystem values in the two protected area case studies. Throughout the

preceding surveys the L&K indicators have been applied to Argentinean and Chilean conservation efforts to resolve land conflicts in the face of growing indigenous protests. The recurring themes of sustainable land use and ecosystem values are elements in the political nature of sustainable development in the two protected area case studies. Throughout the preceding surveys the L&K indicators assessed Argentinean and Chilean conservation efforts to resolve land conflicts in the face of growing indigenous protests. The emergent indicators of ecosystem integrity, developing the protected area as a community asset and the integration of indigenous land use values have indicated management commitment to sustainable resolution of land use conflicts. Argentina's APN invests a large percentage of conservation management resources to mitigate and reverse land policies that impoverish the Mapuche (APN 2011). The restitution of land through the transference of protected area territory now favors Argentinean Mapuche communities. The recategorization of the ceded land into public dominion or community jurisdiction creates a new space to widen the range of governance types (APN 2011). Comanagement of the protected area transforms a top down management style by inclusion of Mapuche thinking about land use to create ecosystem scale environmental protections. Across the border the Chilean response to the Mapuche demand for resolution of land tenure and rights in Parque Nacional Villarrica does not recategorize land jurisdiction. Instead, Chile works to build adequate governance for land rights, tenure and use through the PNV park administration. CONAF's systematic efforts to gather and publish data on park resident families and tribes are a model use of transparent protected area policy to resolve land conflicts within national park territory.

The U.S. and Mexican approach to governance of protected area land rights and tenure does not link families or tribes to specific tracts of land within the parks. The protected areas

remain under national and state jurisdiction. Strategies for inclusive decision-making about land use and conservation are included in the management plans. Mexico promotes inclusive governance by establishing representative authority that is functional, participatory, supporting, subsidiary and effective (CONANP 2007). The early SEMARNAP management plan included local land owners, ejiditos, community and tribal authorities, environmentalists and NGO's in the plans for the Reserve (CONANP 2007). Since designation of the EP/GDA protected area status Mexico has struggled less with inclusive governance and more with institutional communication to coordinate conservation efforts and cross-ministry coordination. Communication gaps that evolved between central, regional and protected area bureaucracy are recognized as creating major barriers to sustainable management of the Biosphere Reserve (CONANP 2007). Mexico's early restructuring of inter-institutional consensus building (INE-SEMARNAT 1996) set a foundation to build synergy with PROFEPA for park inspection and monitoring, and coordination with federal and state programs (CONANP 2007). The most recent management strategies jettison polices that limit coordination between internal government ministries (CONANP 2007).

In contrast to Mexico, the protected area legal framework for Cabeza Prieta NWR has always been published in management plans. The legal structure of the Cabeza Prieta NWR defines the reserve in a framework of federal and state law and funding. Conservation values are defined by the national Refuge System Trust goals for species, the ecosystem and biodiversity (USFWS 2007). Post-2006 national security projects at the border have overridden the WA 1964 environmental protection mandates. The existing governance system for CPNWR is dependent on the legal framework in the EID/CCP process that circumscribes the administrative and

management roles and assignments for protecting and managing species population and migration in the Reserve.

Management to Benefit the Needs of Locals as Beneficiaries

The L&K emergent sustainable development governance defines the function of protected area management as an organization to benefit the needs of local community and residents as the beneficiaries. L&K's emergent indicator of management to benefit the needs of locals links the Basket Three capacity building strategies to the political nature of organizations. Management to benefit the needs of locals is the locus for organizational transparency and the elimination of interagency capacity obstructions are thus relevant to this study of protected area strategies for sustainable protected area governance.

The four national plans strategize L&K's emergent indicator of management to benefit the needs of locals with efforts toward organizational transparency and eliminating interagency capacity obstructions within protected area governance structures. Argentina promotes organizational transparency by publishing the legal distinctions of the Lanín Protected Area, the Nature Reserve, the Wildlife Reserve and the history of the Parque Nacional Lanín finances in the 2011 Management Plan (APL 2011). Chile publishes international and federal legal definitions and regulations in the Management Plan (CONAF 2008).

Argentina eliminates bureaucratic obstructions by building on the recategorization of ceded park territory from public dominion to community jurisdiction (APL 2011) to legally recognize the resident families and communities named in the Management Plan as legitimate governing bodies of the ceded territory. In Chile CONAF's Protected Area Management Plan builds conservation management transparency by publishing management hierarchy and position

flow chart in the Parque Nacional Villarrica Management Plan. Chile also strives to eliminate inter-regional confusion through the consolidation of protected area land use rights at the national level (CONAF 2007). Along the U.S.-Mexico border, Mexico's CONANP has worked to eliminate interagency capacity obstructions by ending decades of cross institutional confusion about whether a single Conservation and Management plan should prevail. CONANP's efforts eliminate the political wrangling over which agency is the principle management operational agency that originated in the earlier SEMARNAT management plan (CONANP 2007). CONANP has also recognized that communication gaps between central, regional and protected area bureaucracy also make room for political opportunism that excludes local needs (CONANP 2007). The cross institutional communication gaps and obstructions create dangerous legal vacuums that allow political decisions to trump environmental protections (CONANP 2007).

Across the border the dual nature of the CPNWR territory as military use and as a National Wildlife Reserve has effectively eliminated interagency capacity obstructions through long term cultivation of mutual concession. The elimination of interagency capacity obstructions and cross purposes within the Reserve is a history of allowance and constraint between the military and the FWS. The MOU's between BMGR and the FWS detail long-term cooperation on territory limits, air space ownership, and sound level control to protect pronghorn sheep migration, feeding, and mating seasons (US FWS May 2011). Although the history of the BMGR MOU's are well documented, the Cabeza Prieta Management Plan is silent on the relationship, impacts, or MOU's between the conservation agency and the national security and border patrol agencies. The Real ID Act (2005) waives all existing laws as necessary along the U.S. borders, and the Bush Administration's Secure Fence Act (2006) leaves Cabeza Prieta

NWR in a policy gap between its status as a protected area as defined by the 1964 Wilderness Act and as a high level security site for the national security project and border policing.

Poverty and Tourism

The L&K indicators for emergent sustainable development identify a political link between poverty and tourism. The Poverty and Tourism indicators focus on the creation of an equitable economic opportunity and building of an adequate economic system to sustainably support park residents and surrounding communities. The default economic systems developed within the four protected areas in this research have been tourism and land use as an economic resource.

Tourism development in protected areas mixes economics, politics and environmental protections. Sustainable tourism development means building equitable opportunities that meet the needs of locals as well the essential beneficiaries of protected area opportunities. Conservation management often offers equitable economic opportunity through sustainable tourism as a replacement for unsustainable resource use. Argentina is profoundly aware of the political nature of poverty within Parque Nacional Lanín. The ANP identified the need to change the perverse incentives of traditional management thinking. For example, hunting is recognized as double edged activity in that the economic benefits it brings to the parks benefit only elite tourists and tourism services (APN 2011). Current strategies combine sustainable economic development that works with the ecosystem. The strategies create a hybrid form of economic development based on periodic reviews of both social needs and biodiversity (APN 2011).

Tourism is recognized as both a political and economic driver in APL (APN 2011). Changing the trajectory of economically driven tourism is guided by the new cultural starting

point for conservation management. The redesign of tourism goals (APN 2011) is based on a spiritual relationship between humans and nature. The Parque Nacional Lanín Management Plan alters the trend favoring elitist adrenaline adventure tourism. Adventure tourism is now secondary to the development of sustainable tourism that generates from Mapuche spiritual and ecosystem values. The new tourism policy is consistent with the vision of sustainability through local benefit found in L&K's approach to economic development.

Chilean efforts to reduce land conflicts that stem from the government's overarching interest in solving economic and social problems were identified in L&K Baskets One through Three. Poverty is addressed by synthesizing the land tenure data and the redefinition of park functions. The conservation and use of Reserva Nacional Villarrica is legally dedicated to better the quality of life of those that suffer(ed) degradation and for the welfare of the community (CONAF 2008). The redefinition of the function of the Reserva creates a new conservation management starting point and explains recent management efforts to iteratively collect data from the resident and surrounding communities—as mentioned in the earlier discussion of Basket Two indicators. International data also shapes tourism in PNV. Relevant impact reports by international conservation communities on the unintended consequences of tourism present alternatives to unsustainable, unmanaged adventure tourism[17] (CONANP 2007).

Mexico recognized early on that the poverty of small business surrounding the EP/GDA contrasted highly with profitable cattle production and mining activities (INE-SEMARNAT 1996). INE-SEMARNAT strategized economic development plans aimed to resolve the inequity between native communities and ejiditos that were impoverished by the protected status versus

[17] The shared face of Volcán Villarrica is an adventure tourist destination. Climbing the volcano has created problems with private adventure guides that are under funded, underinsured, and unaware of the danger of climbing to that elevation. Trekking the volcano is also unsustainable from an environmental perspective. The trekkers leave a heavy footprint on a fragile high desert-like ecosystem (Personal Interview, January 2007).

wealthy ranchers who could use the protected territory for economic opportunity (INE-SEMARNAT 1996).

Over time the original management mission to protect the EP/GDA for "the benefit of future generations" (INE-SEMARNAT 1996) has changed to focus on equity, or *"con, por y para la gente"* (CONANP 2007). Sustainable economic strategies that were aimed to equalize opportunities for communities that were impacted by the Reserve changed from promoting tourism to the control and mitigation of the negative impacts of tourism (CONANP 2007). The strategies were guided by international conservation reports on the unintended negative consequences on land, ecosystems, and social impacts of tourism. CONANP's Management Plan develops and mandates regulations, evaluation, monitoring, and ecosystem infrastructure diagnostic tools for the development of sustainable tourism (CONANP 2007).

In stark contrast to the socio-economic understanding of the relationship between poverty and protected area tourism, the definitions for tourism in CPNWR are constrained to legal park administration limits. Private development of tourism is limited to the number of allowable park guide permits. The Cabeza Prieta Management Plan does not address development of sustainable tourism development in relation to poverty in the surrounding communities.

Centralization versus Partnerships

The L&K indicators for governance of sustainable protected areas emphasize the value of decentralization and diffusion of protected area governance through cross level partnerships. L&K characterizes sustainable governance as many public and private partners engaging a wide range of management skills. Argentina builds on the dual governance of ceded land identified earlier in this chapter. The APN integrates local, non-park administration governance in its

formal recognition of the Asociación de Fomental Rural (AFR) as the representative organization of the Criollos Nativos (APL 2011). Chile builds sustainable governance for the Parque Nacional Villarrica and the Reserva by clarifying local relationships. The Management Plan publishes detailed definitions of specific zones of influence to enable community building and cooperation with clear definitions of limits, boundaries, and rights (CONAF 2008).

Mexico builds sustainable governance through inter-institutional consensus building that aims for greater inter-agency synergy for environmental protection. Efforts to more effectively coordinate CONANP's activities across five collaborating agencies with the environmental compliance agency Procuradiría Federal de Protección al Ambiente (PROFEPA) reduces inter-institutional obstructions as stated earlier. The cross institutional coordination enables CONANP to engage multiple skills and assets in the inspection and monitoring of both federal and state programs (CONANP 2007). The presence of the military in the park and surrounding tribal land, however, creates a disjunct between border security jurisdiction and Tohono O'odham land rights while the tribe struggles to maintain the Sonoran Desert ecosystems (Boswell 20 December, 2010, Pyclik & Leibig 2006). The EP/GDA management plan does not directly address this problem or advance any plan to deal with the jurisdictional conflicts.

The US FWS engages cross level policy support partnerships that support the protection of species unique to the Sonoran Desert ecosystem. At the state level, the US FWS is a member of the Arizona Interagency Desert Tortoise Team (AIDTT). The multi-organizational partnership develops the policy statement for the State Conservation Agreement for the Tortoise (USFWS 2007). The Sonoran Pronghorn Recovery Program (SPRT) is a cross institutional and binational network that consists of the USFWS, Arizona Game and Fish Department (AGFD), US Air Force (Luke Air Force Base), US Marine Corps, (Marine Corps Air Station Yuma), Bureau of

Land Management (BLM), National Park Service (NPS), and a representative from the Arizona State University (US FWS May 2011). The SPRT Program works binationally with Mexico's Commission of Ecology and Sustainable Development for the State of Sonora (CEDES) group, the Natural Commission for Protected Natural Areas (CONANP) and tri-nationally with the Trilateral Committee for Wildlife and Ecosystem Conservation and Management Shared Species agenda (Trilateral Committee, 2001). The Management Plan build the protected area into the community with the establishment of an FWS interagency office in Ajo that will relate to the non-profit International Sonoran Desert Alliance (ISDA) (CONANP 2007). Cooperative working relationships with government agencies, tribal governments, the International Sonoran Desert Alliance, the Cabeza Prieta Natural History Association, and local communities cooperate to support the NWRS mission in the area (US FWS 2007).

Basket Four Summary

Basket Four indicators identify the inherently political nature of nationalization of the protected area territory that entangles land use and conservation values, prejudice land use, subvert economic equality and creates interorganizational and governance gaps. The L&K Basket Four indicators are founded in the principle that a full range of governance types are foundational elements for integrated protected area sustainable development.

The Basket Four traditional vs. emergent governance dichotomy shows very clearly that cross institutional confusion, interorganizational capacity gaps and/or policy constraints create legal and support vacuums that allow political decisions to trump environmental protections. Argentina and Chile reflect the emergent approach by building transparent political systems for a decentralized style of protected area governance. Their comanagement approach formally

recognizes the political representation and land rights of park residents and Mapuche. Mexico also aims for a fully functioning political support system by consolidating and ending jurisdictional confusion at the interorganizational level. In contrast to the comanagement governance style, CPNWR conservation management must straddle military and border security projects, the original Wilderness Act mandate, and respect for tribal land use. The Cabeza Prieta park management policy framework offers little flexibility beyond the EID/CCP process to build significant political awareness to counter the unsustainable duality of CPNWR as military and border security territory subordinates sustainable environmental protections to the security sector.

The L&K Basket Four indicators connect poverty to shared protected areas as the consequences of removal of the protected territory from human livelihoods affects the welfare of protected area inhabitants, economic development, and sustainable resource use. Equitable economic development is itself dependent on the formal recognition of families and communities as governing bodies. Impoverishment is entangled with elitist forms of tourism and limitation of land use rights. Environmental protections for a healthy ecosystem must be integrated with respect for indigenous land values by not only the conservation agency, but the local, provincial, state, and national agencies and ministries. Argentina's recognition that tourism is a political and economic driver prods conservation management to formally acknowledge rural and indigenous communities. Chile's attempts to formalize land tenure in the parks realize L&K's prescription of the need to integrate economic opportunity with promotion of full and inclusive governance. Mexico's long term commitment to inclusive governance reworks unsustainable tourism development towards the mitigation of tourist impact on the biosphere. On the U.S. side of the border, however, the legal framework that defines CPNWR as a National Wildlife Refuge also

subordinates tourism and sustainable development to military and border security. This is a telling example of the inadequacies described by L&K's traditional, centralized governance.

C. Baskets Three & Four: Comparative Conclusions

The pattern of three integrative socio-economic approaches to emergent conservation and one legally circumscribed approach that emerged in the examination of these two shared protected areas through the lens of L&K's Baskets One and Two indicators recurs in the case of Baskets Three and Four. Argentinean, Chilean, and Mexican efforts to create an integrated comanagement of protected area territory and restore the fractured ecosystems use the tools of decentralized governance, land rights definition, and land purchases while the U.S. maintains a legally circumscribed management approach that is subject to security projects.

The L&K Basket Three and Four emergent sustainable development indicators point to political and institutional gaps generated by the removal of the protected territory from human livelihoods, inadequate governance and inequitable economic development. Untangling the consequences of the historically dysfunctional management/community consequences of both Argentina and Chile's protected area zoning requires that the government, the conservation agency and the local community understand the political nature of the problematic zoning and commit to the transparent use of knowledge.

The Basket Three and Four L&K indicators locate the transformative power of sustainable development principles at the nexus of environmental protections and equitable social and economic opportunity. Sustainable tourism development strategies directly address the local issues of protected area residents, the surrounding communities, and the health of the surrounding ecosystem. Argentinean, Chilean and Mexican redefinitions of tourism for

ecosystem health synthesize L&K's emergent and integrative approach to sustainable economic development. The limitations on tourism in CPNWR reflect the dual function of the park as a military and border security theater.

Basket Three and Four emergent sustainable development indicators cross social, economic and political relationships to redefine the protected areas as vital elements in the larger ecosystem and as community assets. Emergent sustainable financing reorients funding toward developing the park as a community asset. Argentinean and Mexican openness to international conservation guidelines and pursuit of international funding networks reflects the L&K's emergent integrated ecosystem principle. The U.S. and Chile face similar funding constraints but have not sought to develop sources of sustainable funding for their parks. This inadequate protected area funding is the consequence of the centralized nature of governance of the parks. The limitations of centralized funding that is solely dependent on federal funding are apparent in the inadequate provisions for park management agencies to fulfill their administrative and environmental protection mandates.

D. Chapters 3 and 4: Conclusion

Throughout Chapters 3 and 4 the L&K four baskets of sustainable development indicators have contrasted traditional versus emergent conservation management. Land rights conflict resolution and resource use for sustenance have been shown to be intense arenas of extensive conservation management problem solving efforts in each of the four analyses. The emergent indicators of ecosystem integrity, protected area as a community asset and the integration of indigenous land use values describe three countries commitment to the resolution of land use conflicts.

L&K's traditional versus emergent sustainable development dichotomy pinpoints the fundamental tensions that originate from the protected area designation and traditional conservation management approaches. Chapters 3 & 4 produce evidence of conservation management strategies for healthy Valdiviana and Sonoran Desert ecosystems; ecosystem integration with human policy and organizational systems, and human land use values. Each protected area management plan is a strategic conservation response reflecting a differing capacity for problem solving. As it applies to protected area planning and management, the concept of sustainable development provides sufficient flexibility to imagine and build capacity for comanagement of the shared protected areas within and across both human and institutional borders. Unsustainable conservation management thinking that removed protected territory from ecosystem values and applied over generalized land use policy in the name of national interest have created long term problems of weak ecosystems and human impoverishment through inequitable economic policies.

The L&K indicators are shown to be an agile tool to link abstract sustainable development principles to unique local and national issues. Basket One L&K emergent sustainable development indicators pinpointed conservation management agency efforts to rework the original protected area visions. New conservation goals aim to mitigate the effects of destructive environmental practices by embracing the ecosystem approach. Biodiversity protections are operationalized at the scale of the larger Valdiviana and Sonoran Desert ecosystems. Basket Two indicators pointed out management efforts to integrate human development with healthy ecosystems through the resolution of land rights and economic development. Basket Three indicators distinguished the traditional top down conservation thinking from the new capacity building strategies for local sustainable development. Basket

Four identifies the importance of a full range of governance elements that cross institutional levels and close interorganizational capacity gaps and fill policy vacuums that allow political decisions to trump environmental protections.

Sustainable development in shared protected areas intertwines human social, economic, and political systems with the maintenance of a healthy ecosystem. The ecosystem approach releases the shared protected areas from narrow visions of the areas wilderness, national treasures, buffers for military and border operations, or as representative pieces of fragmented ecosystems. Sustainable shared protected area management crosses political borders to create environmental protections at the scale of the surrounding regional ecosystem. Argentina's APL and Chile's CONAF individually work to restore a fragmented ecosystem through the untangling of land rights and tenure. The two agencies share conservation data for environmental protections at the scale of the Valdiviana ecosystem, and share knowledge to build capacity for sustainable tourism and community safety. US FWS and CONANP address the regional ecosystem scale by sharing knowledge of conservation statistics to protect the unique biodiversity and manage endangered species populations of the Sonoran Desert. The shared knowledge and collaboration on species population management rewrites the early function of the parks as hunting reserves.

From the perspective of the L&K paradigm conservation management for sustainable development of shared protected areas places the ecosystem at the nexus of national ideology and local problem solving. The four baskets of L&K emergent sustainable development indicators portray a vision of protected area sustainable development that transforms human institutional systems and integrates the areas with surrounding regional ecosystems. Viewed from the L&K emergent sustainable development perspective the emergent, management plans

rewrite—or at least tinker with—the state centric thinking of parks as national patrimonial heritage. Integration through environmental protections at the ecosystem scale, inclusive comanagement, resolution of land conflicts and governance types redirect park benefits away from national interests or *patrimonio* to park residents and surrounding communities.

The recurring pattern throughout the analysis loosely groups the countries as three similar (Argentina, Chile and Mexico) and one different (U.S.) is recurs across all four baskets. The two groups fall generally into an integrative socio-economic approach to emergent conservation versus one legally circumscribed approach. Admittedly, Mexico crosses between both management approaches in efforts to fulfill the integrative, socio-economic approach while responding to the traditional legal conservation approach of the U.S. In general Argentina, Chile, and Mexico move toward an integrated comanagement of protected area territory to restore fractured ecosystems through the tools of decentralized governance, land rights definition, and ecosystem integration. Unique to Mexican conservation management are the impacts of the U.S. bilateral agreements and border security project. Emergent sustainable development in EP/GDA is interrupted by the U.S. demands of the border as military theater and strategic communications corridor. Mexican conservation management at the U.S./Mexico border is placed "in-between" a socio-environmental integrative approach and the legally circumscribed and security dominant U.S. approach.

The L&K emergent sustainable development paradigm has shown that environmental protections are inconsistent across borders. The four baskets of indicators connect clues to the asymmetricality that is characteristic to cross border sister parks. APL and CONAF individually work to restore a fragmented ecosystem through the untangling of land rights and tenure. The two agencies share conservation data for environmental protections at the level of the Valdiviana

ecosystem, and for cross border knowledge capacity building for tourism and community safety. Despite cross border cooperation, environmental protections are inconsistent across borders of these shared protected areas. The L&K indicators illuminate the asymmetrical environmental protections. The APL Management Plan identifies specific loss to ecosystem integrity by the lack of equal protections across the Chilean border, despite cross border, interorganizational comanagement of Volcán Villarrica. The asymmetrical environmental protections have magnified exponentially across the shared the border of the North American sister parks. The asymmetricality of environmental protections have magnified exponentially across the shared the border of the North American sister parks.

Throughout this application of the L&K paradigm, it is Cabeza Prieta NWR that faces the greatest negative impact on conservation by federal security policies. The negative impacts of the border police and the wall is unmatched by the erosion and barriers to migration caused in El Pinacate by Highway 2, the growing agricultural development of surrounding communities, and increase in violence. Each Basket of indicators reaffirms that Cabeza Prieta as the most trammeled territory with the most conflicted of protected area visions. Decades of "no-permanent-trace" policy that fostered heated arguments over the environmental validity of placing water tanks for the prong-horn antelope (US FWS, May 2011) is now embedded in the larger effort by US FWS agents to map thousands of miles of new border security roads within the park, off-road vehicle use, and the impacts of the wall itself on species migration and biodiversity (Interview June, 2011). Despite the legal, territorial, and police structures that clearly define the park, all four baskets of indicators affirm Cabeza Prieta cannot fulfill the environmental protection mandates that conflict with the exogenous military and border security projects.

The overarching argument that national security impacts most the environmental pillar of sustainable development remains unanswered. The evidence from the survey of L&K emergent sustainable development paradigm points to external factors that undermine the policy framework for conservation and sustainable development at the CPNWR. Cabeza Prieta is a conflicted legal arena, protected by federal and state environmental mandates that are trumped by the DHS border security project. The political status of CPNWR is in permanent tension between security and border patrol mandates versus the FWS mandate under the 1964 Wilderness Act. The legal duality leaves the long-term scale for biodiversity and habitat conservation of the protected area at odds with the relatively short term border security project scale. Chapters 6 and 7 will explore national security in relation to the three pillars of sustainable development in four protected areas for the purpose of determining that it is environmental protections that national security most damages in the sustainability of shared protected areas.

CHAPTER FIVE

NATIONAL SECURITY AND SUSTAINABLE DEVELOPMENT: ARGENTINA AND CHILE

Introduction

The analysis of sustainable development in shared protected areas has in this study is proven to be a study of traditional versus emergent thinking about shared conservation management, environmental protections scaled appropriately for the surrounding regional ecosystem and the resolution of the long term consequences of the protected area territorial status. The Lockwood & Kothari (L&K) paradigm distinguished two protected area management approaches: an emergent socio-ecological management approach versus a comparatively traditional and legally circumscribed conservation management approach. Application of the principles of the L&K paradigm to the two sets of shared protected areas has shown that effective implementation of emergent sustainable development principles in these shared protected areas requires that protected area environmental principles must be scaled appropriately to the surrounding regional ecosystem and that the consequences of the nationalization of the protected territory need to be addressed.

Defining the relationship between emergent sustainability—that prioritizes ecosystem strength and manages for local benefit—and an economically driven national security agenda looks on the surface to be a conflicted attempt to synthesize two sectors that function at different scales and scope. The seemingly irreconcilable sectors have been shown in Chapter One to have a strong relational precedent. It is the international conceptualization of an environmentally

inclusive security paradigm that reconciles the gap between scale and scope of environmentally sustainable shared protected areas and the security sector. It is the Brundtland Commission principles of sustainable development and OAS definition of human security that formally declare that sustainable environmental protections for shared protected areas must be security priorities.

The dependence of security on environmental integrity identified in the Brundtland Commission argument further generated the principle that peace and security bear directly on the concept of sustainable development. That Brundtland Report principle frames the subsequent OAS DSA principle that strong security is security at the human level, or human security. The BR/OAS DSA findings describe a security that is interdependent with sustainable development. Security from this perspective not only stabilizes society for economic growth and development, but is itself strengthened by healthy ecosystems that are integrated into a global network and cooperative cross border sustainable development in shared protected areas. Chapters 6 and 7 build on the findings from Chapter 4 and 5 applications of the L&K traditional versus emergent sustainable development indicators to question if national security impacts most the environmental sustainability pillar of the BR's concept of integrated economic, social and environmental sustainable development.

Examination of National Security and Sustainable Development

Chapters 5 and 6 examine the impact of national security on the sustainable development goals and strategies that were identified in the four protected area conservation management plans. This chapter and the next clarify the impacts of national security on sustainable development by examining current national security doctrine and subsequent projects in the four

protected areas. Underlying these two chapters is the premise that understanding the impacts of national security on sustainable development in the protected areas is one step toward understanding the politics that are in play between national security and sustainable environmental protection in the shared protected areas. A further premise is that a comparative approach is the best tool for identifying the obscured impacts that exist between local sustainable development strategies and national security goals in the four parks. The hypothesis underlying this investigation posits that of the triple bottom line of sustainable development; social justice, environmental sustainability, and economic growth; national security presents the most serious challenge to the environmental pillar of sustainable development. Validation of that hypothesis requires assessing whether national security policies have a comparatively favorable and/or benign impact on economic and social sustainable development. This research argues that a disproportionately negative impact on the environmental pillar of sustainable development in the shared protected areas seems to occur.

These two chapters build on the evidence of emergent sustainable development identified by Lockwood & Kothari's four baskets of indicators in Chapters 3 and 4. The comparison of sustainable development in the four management plans identifies conservation management priorities that operationalize environmental protections at the ecosystem scale and affirm the need and imperative to resolve land tenure and use issues. The cost of imposing national protected area visions on local residents and applying non-ecosystem scale protections in protected areas is evident in the management efforts to resolve land rights in Parque Nacional Lanín (PNL) and Parque Nacional Villarrica (PNV), and the struggle to fulfill environmental protections that clash with border security land usage in El Pinacate and Gran Desierto Biosphere Reserve (EP/GDA) and Cabeza Prieta NWR (CPNWR).

In the comparison that follows, the conservation management practices that were judged as emergent sustainable development using the L&K paradigm sustainability principles are loosely regrouped into the three pillars of sustainable development: economic, social and environmental as defined by the Brundtland Report and the OAS 2003 Declaration of Security in the Americas. The grouping is intentionally loose in order to preserve the interconnected nature of sustainable development. The regrouping converts the emergent sustainable development practices out of L&K's four baskets and loosely into each pillar of sustainable development for comparative analysis appropriate to the hypothesis. The regrouping tracks the L&K emergent sustainable development identified in chapters 3 and 4 for comparison of national security impacts in each protected area.

Each nation's national security values are gleaned from their National Security White Papers and subsequent projects. Like the conservation management plans, national security is conceptualized in terms of each country's goals and national interests. Ideas of national security do not follow a common framework (Netto 20 May 2012). Each country in this study has a unique approach to protected area governance that relates to national security priorities as stated in their respective Defense White Papers. The Defense White Papers are public statements that enable this comparison of the varying definitions of the goals and policies for each protected area. The White Papers delineate benchmark modernization, reorganization, and public statements that shape and generate the current national security projects that impact the shared protected areas. The public nature of the White Papers provides methodological consistency to systematically assess national security and defense doctrine, policy and projects in relation to the shared protected areas.

The National Security/Sustainable Development Relationship

National security doctrine and projects shape the purpose of shared protected areas toward national interests. Yet, the intersection of National Security and protected area sustainable development is an obscured relationship. The sustainable development side of the relationship has been defined and assessed in Chapters 3 and 4. The Lockwood and Kothari (L&K) emergent sustainable development indicators affirmed Argentinean and Chilean conservation priorities and strategies for the Parque Nacional Lanín and Parque Nacional Villarrica (PNL/PNV) shared protected areas. The conclusions of Chapters 3 and 4 attest that emergent sustainable development integrates social and economic development with appropriately scaled protected area environmental protections. The conservation management visions for the Parque Nacional Lanín and Parque Nacional Villarrica sister parks blend sustainable human development needs with ecosystem health and regional integration. The national and border security projects in and around the Parques Nacional Lanín and Villarrica variously conflict with and support the three pillars of sustainable development in the shared protected areas.

Argentina: Parque Nacional Lanín

Economic Sustainable Development and Nacional Security

In Chapters 4 and 5 the L&K indicators classify as emergent sustainable development the Argentinean conservation management goals to develop sustainable tourism that is founded on the spiritual and environmental values of the Mapuche, the coordination and sharing of new data, comanagement of the park territory, networking the park into surrounding ecosystems, and the development of cross border shared conservation goals. Argentina's emergent protected area

environmental protection policy has sought to overcome the historic trumping of sustainable protected areas conservation by national political priorities, national security policies, and the maintenance of elite privileges to resource extraction. In Parque Nacional Lanín (PNL) unsustainable economic development based on adventure tourism, resource extraction, and land usage has been at cross purposes with environmental protections and conservation principles that frame the emergent sustainable development policies now applied in the park. Since the end of Argentina's military junta (1976-1983) new political agendas now shape new national priorities. National interest that aimed to resolve the Argentinean national security crisis of civilian trust[18] is now secondary to and shaped by the Kirshner Administrations priority on economic growth[19]. The modernized Argentine National Defense and Security sector is embedded in and parallels the trends of hemispheric and regional economic integration and cooperation[20].

[18] The years following the military junta left Argentina without a formal statement on national security and the Argentinean military in a mission crisis. Argentinean national security and the military both required a new mission. It is the history of the Videla junta's use of the national security doctrine as the basis for attacks on the left to "eliminate the social base of insurgency" that has impeded the construction of a new national security doctrine (Lewis, 2005).

[19] Economic integration and electoral favor are the foundation of both of the Nestor and Kristina Kirchner Administrations. Past Presidente Nestor Kirchner heavily devalued the Argentinean peso from its 1990s' levels to increase export competition and spur growth in manufacturing. Their policy approach also subsidizes food, fuel and social spending programs to win lower-income voters. Despite predictions that the Argentinean economic model would collapse the government claimed 9.2 % economic growth in 2010. The growth rate paid off politically as Mrs. Kirchner's approval ratings rose despite economist's disputation of official economic figures (Barrionuevo 24 October, 2011)." The Christina Kirchner administration soared to a second term on the healthy 9.2% economic growth.

[20]The changes that framed Argentinean defense policy since the post-1983 period are the end of the East-West confrontation; the consolidation of a process of integration, economic cooperation and political dialog at a regional (Latin American) level and subregional (South Cone) level, and the absence of armed political sectors or groups in the domestic sphere. National Defense combined into National Security and Defense with the dovetailing of external impacting factors (global and regional context, 9/11, democratic transition process) with internal impacting factors replacing the de facto legacy of previous government, reduced funding and lack of a clear guideline for a military model). The modernization addresses a wide range of security aspects in the National Defense Act 23,554 (1988), the Domestic Security Act 24,059 (1992), the Volunteer Service Act 24,439 (1994), the Armed Forces Reorganization Act (1998), and the National Intelligence Act 25,520 (2001) (Kirchner & Garré, 2007).

The Argentinean national security perspective on sustainable tourism development focuses on safety and catastrophe control. Regional growth in tourism is supported by national security cooperative actions and data sharing that spans the border for tourist safety. Modernized Argentinean national security data collection measures enhance local conservation management safety goals and the cross border conservation management of Volcán Lanín (APN 2011, Decree 727/606 Section E Kirchner & Garré 2007). Border security statistics for the thirteen access roads and three Chilean/Argentinean border crossings are shared to understand the movement of people within Parques Nacionales Lanín and Villarrica. The dual concern for safety measures provides a safety framework scaled to address the 50% growth of Parque Nacional Lanín and Parque Nacional Villarrica tourism (APN 2011). Support for sustainable tourism development in PNL by national security is a tacit support for all economic opportunities that are presented by regional and bilateral integration.

Regional security for tourism and citizen safety is integrated through the South American Defense Council (SADCO). SADCO operates a state level discussion and consultation forum to concentrate the subregional (Argentina, Bolivia and Chile) level emergency response to natural catastrophe (Decree 727/606 Section E Kirchner & Garré 2007). The SADCO data and policies dovetail with the APL zoning maps that record volcanic activity risk in relation to the surrounding communities, land use, and volcanic tourism activities. Further support for the management of citizen and tourist safety is framed in the Latin American Association of Peace-keeping Operations Training Centers (ALCOPAZ). ALCOPAZ is a regional security organization of peace-keeping training centers in Argentina, Brazil, Chile, Ecuador, Guatemala,

Peru and Uruguay. ALCOPAZ promotes cooperation in the training and standardizing of combined action procedures and action plans (Section E Kirchner & Garré 2007)[21].

Although the PNL border is not yet viewed as a key transfer point in the international narcotics trafficking network, the global nature of Transnational Organized Crime (TOC) places Argentinean National Security and Defense in a military and protective role in rural and protected areas. Argentina's recent ranking as a drug traffickers' stopover in route to other destinations (Schmall 7 July 2012) changes the conservation management efforts to restore indigenous land values to a support system for narcotics interdiction in the PNL protected area. Modernized Argentinean national security is motivated to respect land conflict resolution in rural and protected areas by evidence that one of the highest indicators of organized crime is unresolved land tenure (Buscaglia & van Dijk 2003). The security sector benefits from the resolution of land tenure conflicts because stable communities deter the penetration of organized crime in sparsely populated and thinly policed areas. The wilderness aspect of PNL leaves the area vulnerable to TOC while the northern urban bias of national security leave policing gaps that create a potential "safe haven" for drug production and trafficking (Anderson 2010).

A problematic lack of jurisdictional authority granted to park employees provides the park guards with little or no authoritative power in protected or "ungoverned" areas. The lack of park employee jurisdictional authority reduces effective government outreach to the park and surrounding areas (APN 2011). Local co-management of Parque Nacional Lanín benefits

[21] The modernized Argentinean National Defense and Security doctrine consolidates security policy framed by confidence-building measures and relaxed relations between the defense and private sectors. The relaxation of internal and cross sectoral relations depend on progressive confidence-building that is shaped and influenced by a strong tendency towards economic integration and cooperation and the promotion of bilateral and multilateral political dialogs (Kirchner & Garré 2007).

national security and border police efforts through citizen participation in national defense rather than passive witnesses of the Defense policies (Kirchner & Garre 2007).

Modernized Argentinean national security supports sustainable economic development in protected areas through tourism safety, territorial integrity, cross border institutional and local citizen cooperation. The security sector's support for sustainable economic development originates in a framework for safety, regional and international policing and interdiction capacity, and cross border cooperation for interstate and regional peace. The northern bias of the security sector and the commitment of security resources to support regional economic integration provide the motivation for the security sector to respect local land rights in order to reduce potential footholds for TOC. National security and border police respect for Mapuche and park resident land use values is not overtly acknowledged in National Security and Defense policy but is implicit in security dependence on rural communities to help control the negative economic consequences of TOC.

Social Sustainable Development and National Security

The Lockwood & Kothari emergent indicators that characterize social sustainable development, applied here to Argentina's Parque Nacional Lanín, integrate human values with ecosystem values. The Administración de Parques Nacionales (APN) integrative conservation management approach has been shown to include decision-making criteria from cultural, cultural diversification, and intercultural considerations in a blended comanagement process that changes the park from an area of strictly public dominion to an area that allows some community jurisdiction (APN 2011). The intercultural approach points out shortages in civic infrastructure and predicts future community development needs.

The current role for Argentina's border security in some ways parallels the multi-cultural approach embraced in the Parque Nacional Lanín conservation management plan. Although Argentina's modernization of national security has bypassed border police[22] the very idea of the physical border has changed. Security sector modernization repurposes the physical border away from its role as a site to control human and material flow across sovereign territory. From a security perspective, the function of the architectural structures for border and territorial control is repurposed toward providing corridors for economic, cultural, civil, religious, and military exchange (APN 2011).

Sustainable governance as delineated in the L&K emergent sustainable development paradigm is reflected in Argentina's modernized security in protected areas. Modernized Argentinean national security doctrine aims to support sustainable governance through the demilitarization of strictly civilian activity (Kirchner & Garré 2007), and to support the establishment of democratic regimes in the region (Kirchner & Garré 2007). The tradition of sparse security in southern Argentina generates a national security dependency on the citizen's starring role to implement policy in rural and protected areas (Kirchner & Garré 2007). The internal and external security sectors benefit from the increase of local governance capacity in and surrounding Parque Nacional Lanín as a part of TOC interdiction in the "ungoverned territory" of the sparsely populated protected area. Military efforts to coordinate cross regional

[22] Border security is not formally included in modernized Argentine National Security and Defense. Border security remains in the lacunae of policy and practice created by the Argentinean national security crisis and does not benefit from the modernization and rewriting of internal and external security. The sensitivity to and concern for human rights that are expressed in the modernized national security policy statements do not redefine Argentinean border security doctrine. Argentinean border security faces new threats without an updated mission.

civilian and management (Kirchner & Garré 2007) support the conservation management restoration of Mapuche and Criollo land rights through institutional consistency[23].

Argentinean national security and defense doctrine and corresponding national security projects support sustainable social development in an indirect embrace of international human rights principles. The human rights principles are operationalized to increase citizen security and build capacity for democracy in local governance. As was discussed earlier, the threat of TOC in rural and protected areas generates the motivation for Argentinean national security and defense to stabilize protected area communities. The security sector benefits from the local scale of emergent sustainable development through protected area land conflict resolution. The incentive to prevent the penetration of TOC in rural areas motivates border police and military to support shared governance and jurisdiction as part of the mutually beneficial comanagement of the sparsely populated protected area. The relationship between modernized Argentinean national security and defense and emergent social sustainable development is one of increasing national security support for local stability and governance capacity to help to prevent the advance of TOC in sparsely populated areas.

Environmental Sustainable Development and National Security

Chapters Four and Five identified L&K emergent environmental sustainability practices in the APL conservation management ecosystem and comanagement strategies for the park. As seen previously, the L&K paradigm's emergent sustainable environmental development principles integrate Parque Nacional Lanín and biodiversity protections at the regional ecosystem scale. Consistent with this approach, comanagement of the protected zone incorporates land use

[23] The modernization program consolidates operational capabilities to address jurisdictional confusion, lack of adequate policy and legal support, budget shortfalls, gaps between technology and defense needs (Kirchner & Garré 2007).

values generated from the spiritual history and restored land tenure rights of the Mapuche and Criollo inhabitants (APN 2011).

Environmental protections at the Argentinean border—unlike sustainable economic and social development—simultaneously lose and gain from the national security measures aimed at controlling the invasive and destructive economics of TOC. On the positive side, the global scale of TOC pushes South American countries to build security capacity through institutional and territorial consolidation. Argentina's Decree 727/606 Section E directs National Security and Defense to collaborate internationally for more integrated regional security at the scale of TOC.[24] Regional security cooperation enables tourism and safety collaboration across the border. In a parallel development the security sector restructuring of science, technology and production[25] has resulted in aerial surveillance with unmanned aerial vehicles that benefit tourism safety and environmental protections through catastrophe zone search, climate, environment, and fire monitoring (Ministerio de la Defensa 2012). On the negative side, the regional scale of the collaborative security sector does not acknowledge the local land use values and conflict resolution that are necessary to build sustainable local governance capacity and comanagement in the sparsely populated areas.

---

[24] (National Security and Defense will) reinforce integration in the sub-regional and regional areas as well as the bilateral integration with those States and international organizations that are considered important for the national interests. In the Latin American area, efforts were made for the consolidation of (security) relations with Bolivia, Brazil, Chile, Ecuador, México, Paraguay and Peru (Decree 727/606 Section Kirchner and Garré 2007).

[25] Argentina's National Security and Defense modernization program is designed around four dimensions:
(1) Operationalize the existing legal framework and adapt Defense's strategic planning process accordingly, prioritizing the demilitarization of strictly civilian roles;
(2) Restructuring the resource management subsystem, recovering the Services' operational capability, coordinating and streamlining the areas of science, technology and production;
(3) Adjust the subsystems of intelligence and military justice;
(4) Reorganize the subsystem of civil and military education and training, introducing the human rights and gender perspectives (Kirchner and Garré, 2007).

The modernized Argentinean national security and defense embrace of international human rights has become a political strategy to trump ecosystem health and integration in southern Argentina. Argentina's national security modernization plan does not specifically mention international environmental principles for ecosystem integrity or generate policy for the Special Value category of PNL biodiversity. National and international collaboration plans that blend the defense sector with the human right to environmental protections suffer from the same economic northern bias discussed earlier by favoring the northern areas and the arctic south (Garré 25 September 2007). The plans exclude direct environmental consideration of the Southern regional ecosystems. The APN mandate to protect regional species as vital elements of southern regional ecosystem biodiversity (APN 2011) is trumped by the northern and arctic bias and is not mentioned in the doctrines embraced by the modernized national security.

Integrative efforts by APL conservation management to cross institutional levels for environmental protection at the ecosystem scale also face barriers related to the security sector's prioritization of regional economic integration. APN conservation management efforts that systematically gather and analyze local demographic data to identify problems in relation to the regional ecosystems must cross territorial and information borders. APN's integrative conservation management strategies for healthy ecosystems reach beyond state borders in their embrace of the international categorization of the biosphere reserve as part of the UNESCO Andean North Patagonian Biosphere Reserve and as one of the WWF Global 200 sites. But the regional consolidation of Argentina's national and border security for the purpose of enabling integrated economic growth excludes local problem-solving and neglects the international scale of ecosystem integration that generates environmental protection that is appropriately scaled to the surrounding Valdiviana ecosystem.

Summary

Modernized Argentinean national security and defense policies that emphasize interorganizational collaboration, rewriting the physical border function, and respect for restored land rights in and around PNL support emergent economic and social sustainability in the park. The modernized national security mandate to enable regional economic integration selectively embraces international human rights principles. The threat of TOC penetration into rural areas motivates the security sector to support building new local governance capacity and community stability. But the politics of national security in the densely populated north politically trumps the rural southern region's environmental protections for ecosystem health and biodiversity protections. Environmental principles of ecosystem integration and biodiversity for the southern region merit little consideration in comparison to the northern bias of modernized Argentinean national security and defense. The APN conservation management efforts and strategies that work to blend human development needs with ecosystem health and integration remain functionally invisible to the economic and political focus of the modernized security sector and the northern and arctic orientation. The principal of the human right to environmental protections is manipulated into a political tool to garner voter approval in the urban north. The sparsely populated south can only rely on the security sector's motivation to reduce the opportunity for TOC infiltration of rural territories as their raison d'etre for national security respect for the local and regional scale of emergent environmental sustainability in Parque Nacional Lanín.

Chile: Parque Nacional Villarrica

Economic Sustainable Development and National Security

Economic development strategies for Parque Nacional Villarrica and Reserva (PNV) are founded on the acknowledgement that pre-protected area residents lost livelihoods and land tenure rights from the national designation of the territory as a protected area, an acknowledgment that is consistent with L&K emergent sustainability principles for protected areas (CONAF 2008). The 2007 Parque Nacional Villarrica Conservation Management Plan sets out strategies and goals that aim to overcome those negative economic consequences and improve the quality of human life in the park. The plan uses data analysis to identify the long term needs of citizens and surrounding community in order to resolve local land use and tenure conflicts and to restore land use for sustenance practices (CONAF 2008). Sustainable economic development in the park and reserve is shaped both by Chile's national security focus on regional economic integration and park management's adoption of an ecosystem approach and need to resolve local land conflicts.

The 2010 reorganization of Chilean National Security redirected the security sector into a new role in sustainable development (Ministerio de la Defensa Nacional de Chile 2010). The new security sector development role focuses on those areas of the territory which, by characteristics and location, need special support of the State (Ministerio de la Defensa Nacional de Chile 2010). Southern Chile is considered to be a particular region that is in need of support of the State. The Southern region:

> …is characterized by its geographical fragmentation (that is) tempered by the road connectivity projects developed by the government and the Army. (Southern Chile's) potential is linked to fresh water resources, its privileged location next to the inter-oceanic steps, and to it's projection to the Antarctic continent (p58, Ministerio de la Defensa Nacional de Chile 2010).

The southern location of the PNV lies in territory that is "in need of special support by the state." The geographic fragmentation of Southern Chile subjects the region to dependence on the military to unify and develop the region. Military programs in the South are coordinated by both the Ministry of Foreign Relations and the Ministry of National Defense (Ministerio de la Defensa Nacional de Chile 2010). The Foreign Relations and National Defense ministries formally locate Southern Chile under nationally centralized command (Ministerio de la Defensa Nacional de Chile 2010). But the reality of Chile's long coast and borders demand that the defense sector act in a decentralized manner (Ministerio de la Defensa Nacional de Chile 2010). The PNV "special needs" region situates the shared protected area under the "centralized yet decentralized" command of the Foreign Policy and National Defense ministries.

The reorganized 2010 Chilean national security doctrine prioritizes personal security and formally supports sustainable economic growth through local problem solving.[26] CONAF's strategy to improve the quality of life in PNV through local problem solving is supported by the Chilean security sector's National Security Corporate Social Responsibility (CSR) paradigm.[27] The CSR paradigm aims to blend local community with national action for development and environmental protections. Chilean security faces the challenge of overcoming the Latin

[26] The 2010 reorganization of Chilean National Security and Defense doctrine no longer understands the security mission of territorial and state security as an end in itself (p 68, Ministerio de la Defensa Nacional de Chile 2010). The history of the Pinochet era abuses persist in the collective national memory and personal security remains a questionable commodity in Chile. The State's new role as security provider requires national security to ensure the common good of the nation and to serve the human person. National security is no longer immune to the values of justice and human dignity. The mission of national security is now personal security (p129, 130, Ministerio de la Defensa Nacional de Chile 2010).

[27] The 2010 National Security and Defense version of sustainable development is labeled Corporate Social Responsibility (CSR). The CSR paradigm relates social, economic and environmental sustainable development to the strengthening of social cohesion and the promotion of high standards of organizational management. Successful sustainable development is argued to require the direct support of (local) community and national action, including development-oriented tasks and actions to protect the environment…and contribute to unity and national cohesion (p59, 338-340, Ministerio de la Defensa Nacional de Chile 2010).

American trend of weak government implementation of CRS (Haslam 2004). Solving the four PNV protected area problems that CONAF identified as central to PNV sustainable development are local issues that have the potential to integrate into the scale of CSR development-oriented tasks as local problem-solving endorsed by national action.[28]

CONAF and the security sector each prioritize economic integration, sustainable tourism development and growth through increased tourist safety. The security sector supports the development of safer tourism in the mandate to achieve higher levels of national defense (and safety) integration with all South American states (Ministerio de la Defensa Nacional de Chile 2010). CONAF's sustainable tourism strategies generate and analyze international, binational, and local data to shape sustainable tourism in PNV. Impact reports by international conservation communities on the unintended consequences of tourism present sustainable alternatives to the development of unsustainable adventure tourism (CONAF 2008), particularly on the face of Volcán Villarrica, as mentioned earlier. Security integration supports cross border tourism in the participation in SADCO collaborative zone mapping for tourism safety.

Chile's security sector places a high value on the relationship between border areas populated by communities that generate economic activities of mutual influence (Ministerio de la Defensa Nacional de Chile 2010)[29]. The Chilean National Security sector has its own version of sustainable economic development at its borders. The increase of tourism on both sides of the

[28] CONAF identified the four central problems of PNV as the illegal use of pastures; the importance of piñon harvesting to the indigenous culture and economy, the impacts of forestry and dead wood collection' and the development of sustainable tourism that will benefit those within zones of influence (p71, 75, CONAF 2008).

[29] Reorganized Chilean National Security and Defense identifies the origin of "new immigration" from primarily South Americans that are economically motivated for work opportunity. Reorganized National Security reaffirms the national goal for regional integration beyond economic growth in a threat response to "new immigration." The national security response to "new immigration" is to commit more troops and national defense resources beyond the protection of economic producers or areas that relate strictly to income (for) the country. The reorganized defense sector allocates national security resource accounts to prioritize foreign policy (pp74-75, Ministerio de la Defensa Nacional de Chile 2010).

PNL/PNV shapes the border relationship. The regional economic integration process in border areas was recently deepened to "reach economic, cultural and political aspects in the 21st century" (Ministerio de la Defensa Nacional de Chile 2010). Reaching the economic, cultural and political aspects means building governance capacity and reworking immigration policy. Governance of citizen movement between neighboring countries is to be regulated by a formal boundary committee and border tools in order to establish channels that give vitality to the border areas, facilitate the cross-border flow of people and goods, and enhance normal, active citizen impact (Ministerio de la Defensa Nacional de Chile 2010). Immigration policy is changed to emphasize a "new immigration" that reflects positive and negative foreign relations. Resort workers for PNV that live in Argentina or come from Peru can work in the Villarrica and Pucón resorts. Workers from countries with negative foreign relations will have difficulty crossing Chile's borders or attaining work permits.

The security consequence of Chile's long, difficult-to-monitor borders and administrative fragmentation is that Chile is now a transshipment point for Andean cocaine destined for Europe, and that it has recently become a source of precursor chemicals for methamphetamine processing in Mexico and cocaine processing in Peru and Bolivia (US DOS March 2011). Chile aggressively pursues integration of national security programs with regional and international security to address the global scope of Transnational Organized Crime (TOC). A study by the *Fundación Paz Ciudadana*[30] study linking drugs and crime informed the 2011 Chilean government's commitment to focus on drug control, prevention and rehabilitation, the Piñera

[30] CONACE, with support from the Paz Ciudadana Foundation, maintained drug court programs in Santiago, Valparaiso, Iquique and Antofagasta. There are now 18 drug courts in Chile which are similar to U.S. drug courts in offering rehabilitation to drug offenders under judicial supervision. Average processing times were approximately one year for oral judgments in Chile's adversarial justice system. The number of narcotics related cases also increased slightly (US DOS March 2011, 186).

administration's "direct and total war on drugs and "Plan Secure Chile"[31] (US DOS 3 March 2011).

The threat of TOC permeating rural areas motivates the Defense and Foreign Policy ministries to pursue regional and international security collaboration. Hemispheric security relationships integrate interagency security funding and investigative cooperation. The security sector coordinates with the OAS Inter-American Drug Abuse Control Commission (OAS/CICAD) to develop the satellite-based mapping tool GLEAM to permit governments to evaluate land use in areas of illicit cultivation and to design alternative development interventions (OAS 2004). At the regional level Chile joined the Union of South American Nations' (UNASUR) joint action plan to fight regional drug problems and is party to the UN Convention against Transnational Organized Crime protocols against trafficking in persons and migrant smuggling, and the UN Convention Against Corruption (US DOD 3 March 2011). At the international level the U.S./Chile partnership provides support funds for anti-trafficking, border security, citizen security, and financial investigative techniques (Ministerio de la Defensa Nacional de Chile 2010). Other U.S.-Chilean counter narcotics cooperation focuses on improving interagency collaboration and international drug trafficking investigations (Meyer 1 June, 2011).

Chile's reorganized 2010 national security doctrine and programs are mandated to enable the regional integration of states for economic purposes (Ministerio de la Defensa Nacional de Chile 2010). The overarching prioritization of regional security sector integration is operationalized in the strategies for sustainable tourism and tourism safety and the protection of economic stability from TOC and narcotics trafficking. The CSR framework gives the security

[31] Plan de Seguridad is one of the Piñera administration's Drug War Strategic Plans. The Plan aims to stabilize Chilean society through control of delinquency. Salient to this study is the strategy to control drug and alcohol abuse with an emphasis on the family and the Strategy to Control Drug Trafficking (Gobierno de Chile 4 August 2010).

sector the capacity to blend the locally scaled CSR paradigm with CONAF's resolution of local land conflicts in and around the park. Chilean national security fulfills the mandate to support long term economic growth and in many ways supports emergent economic sustainable development by embracing locally scaled problem solving, reconceptualization of the physical border, and enabling the "new immigration" at the level of international foreign relations.

Social Sustainable Development and National Security

The L&K indicators salient to sustainable social development gauge Chile's conservation management in CONAF's pursuit of the principles of the ecosystem approach, the resolution of local land issues and land rights claims, and building local governance capacity. The Parque Nacional Villarrica Management Plan reworks the definition of specific zones of influence in order to enable community building and cooperation with clear definitions of limits, boundaries, and rights (CONAF, 2008). CONAF systematically works with the data gathered on resident families and tribes in order to clarify rightful land tenure within national park territory. Chile's 2010 National Security doctrine also reworks the national security relationship to the Chilean people. The 2010 National Security and Defense concept of the citizen starts with the family. The redirected security/citizen relationship prioritizes socio-economic objectives for the country, such as social cohesion and social integration and overcoming poverty (Ministerio de la Defensa Nacional de Chile. 2010).

L&K's indicators of emergent sustainable social development in protected area management, applied to PNV, aim at transforming over-generalized zoning and legally resolving the historic conflicts between colonizer and Mapuche land rights and sustenance issues (CONAF, 2008). The redefined zoning is a hybrid mix of ecosystem protections and indigenous

land uses for sustenance and profit. CONAF's efforts to restore land use and tenure rights in PNV are supported by Chile's 2010 national security mandate to protect the population (Ministerio de la Defensa Nacional de Chile 2010). The reorganized National Security perspective argues that the (Chilean) population should acquire a unitary sense, a collective consciousness and conviction of belonging to a community that can, as a whole, be distinguished from other nations (Ministerio de la Defensa Nacional de Chile 2010). Clarification of land tenure, land use and rights increases national security through the stabilization of community and helps to prevent organized crime in sparsely populated areas.

The Chilean government's promotion of a unitary citizenry centralizes power and counters Mapuche land rights in PNV. National recognition of the Mapuche as an ethnic group within the unitary Chilean population rather than as a separate people neutralizes Mapuche demands for the restitution of lands and self-determination. The incumbent Sebastian Piñera administration has used the concept of a unitary citizenry against the Mapuche[32] through citizen security. Piñera's mix of progressive and regressive social policy destabilizes the already volatile Araucanía province in a seesaw of racist and terrorist accusations (UNPO 16 August 2012). Piñera's progressive 2012 antidiscrimination law that declares "the state has a debt to pay to the indigenous peoples of Chile" (UNPO 13 July, 2012) was immediately followed by the invocation in the same month of a draconian Pinochet-era anti-terrorism law that targets Mapuche activists.

[32] Abuse of Mapuche land rights in Southern Chile for national development purposes is longstanding (see Carruthers, 2001: 350). Some Mapuche land and civil rights abuses were resolved during the Bachelet administration and set a precedent for a unitary Chilean population. Then Presidenta Michelle Bachelet addressed the civil and land rights to apologize for the Chilean government's "neglect in the face of such abuses." Bachelet worked to resolve egregious territorial abuses *and* unify the population. Her apology to the Mapuche claimed that the mistreatment of the indigenous people was due to racist attitudes towards "our indigenous forefathers, whose human dignity was trampled upon."

President Piñera negates any state debt to the indigenous by explicitly labeling the Mapuche as terrorists responsible for starting the January 2012 national fires (Quilodran 6 January 2012). The terrorism law has been applied selectively to the detriment of members of the Mapuche people and negatively affects the social structure and cultural integrity of the Mapuche as a whole (IACHR 29 April 2011). The law also creates an opportunity for national toleration for civilian paramilitary throughout the Araucanía region. This increased militarized presence is a destabilizing factor to Mapuche communities. The Chilean government reactionary response counters citizen acceptance of the newly established Mapuche and Criollo land tenure rights in PNV (UNPO 25 July 2012) and opens the door for vigilantism.

The recent implementation of the national government Plan Araucaníak for the Araucanía Area is another political response to area wide tensions that are perceived as a threat to internal security. Chilean national security recognizes the potential volatility of long term inequalities between urban wealth and rural poverty. The Plan aims to create "an atmosphere of peace for the economic and social development of Araucanía" by building infrastructure in the volatile region. The Mapuche claim that the new plan is really a smokescreen to avoid more controversial issues. The timing would seem to make the Araucaníak plan a government effort to counter racism and vigilantism that is ignited by reports of Hezbollah operators in Chile who offer social services to curry favor with the local population. Plan Araucanía aims to undercut any inroads Hezbollah might make in the region by stabilizing society (Lignet 9 August 2012; Gobierno de Chile 2010). Although Plan Araucanía is not presented as a national security document the underlying mission of the project is to increase internal national security through sustainable socio-economic development strategies in the Araucanía Area.

Reorganized Chilean national security has a conflicted relationship to social sustainable development in rural and protected areas. The reorganized national security doctrine responds to the new local, community, national and regional goals for functional and sustainable governance systems in the prioritization of socio-economic objectives (Ministerio de la Defensa Nacional de Chile 2010). The integration of sustainable development goals with the national security and defense CSR paradigm suggests that, in principle, these goals can meet at the scale of local problem solving. But the Piñera administration's mix of progressive social tolerance policy with the selective application of regressive terrorist law in the name of "internal security" and the "protection of the citizenry" destabilizes the stabilization achieved by CONAF's land rights resolution initiative and foments fears of internal and imported terrorism. Local and regional political agendas encourage paramilitary activity that is enflamed by fears of Mapuche terrorism (UNPO 25 July 2012) and Hezbollah infiltration. The contradictory premises of the demand for a "unitary citizenship" and the political strategizing of the Araucanía Plan belie the strategic use of socio-economic ideals and projects to increase internal security. The conflicted unitary citizenry doctrine, terrorism policies, and infrastructure program adversely impact stability in Chile's volatile Araucanía Region. CONAF's efforts in support of emergent sustainable social development that stabilizes the rural Mapuche community in PNV are thus deflected by the destabilizing policies of the Chilean government.

Environmental Sustainable Development and National Security

The 2010 version of Chilean national security policy retains a *patrimonio* (national heritage) approach to the environment by blending environmental protection with national unity and social cohesion. The national security CSR paradigm for community integration requires a

series of citizen activities that promote the strengthening of trust, civic friendship, citizen responsibility, cultivation of the national spirit and conservation of the heritage of the nation (Ministerio de la Defensa Nacional de Chile 2010). The security sector's integration of environmental protections and citizenship is part of the national goal to unite all Chileans within a single nationality. The CSR focus on national unity reiterates the Chilean government's refusal to recognize the Mapuche as an ethnic group rather than as a separate people with the right to self-determination.

CONAF's efforts to resolve Mapuche land use and tenure conflicts articulate an interdependent relationship between Mapuche land values and sustaining the biodiversity of the Valdiviana ecosystem (CONAF 2008). In contrast to CONAF's local and regional integrative ecosystem approach the 2010 National Security Environmental Policy (NSPE) for environmental sustainability management objectives functions at the organizational and international levels. The three objectives for the NSPE Defense policy are:

> • Institutional development of environmental policy and management tools.
> • Strengthen the technical capacity of the staff for defense environmental management
> • Strengthen (the) involvement (of) international protections and national environmental management (p342, Ministerio de la Defensa Nacional de Chile, 2010).

NSPE is administered by the Environment Committee for National Defense. The Environmental Committee integrates environmental cooperation between the Commission Nacional del Medio Ambiente (CONAMA) and the Ministry of Defense (Ministerio de la Defensa Nacional de Chile 2010). The involvement of national defense in the National System of Environmental Management (SGAE) is partly a division of labor. Existing national environmental institutions are assigned responsibilities and are obligated to national defense

institutions to control, preserve and care for the environment in Chile or in areas where the State has international commitments (Ministerio de la Defensa Nacional de Chile 2010).

The national security foundation of the NSPE policy places protected areas under the responsibility of the Chilean army (Ministerio de la Defensa Nacional de Chile 2010). PNV is categorized as an "area in need of special attention," and subject to the Army Department of Risk Prevention and the Environment (PRYMAE). The PRYMAE mandate to "control, preserve and care for the environment" complements CONAF's sustainable social-environmental development strategies that solve local problems and strengthen the Valdiviana ecosystem by applying Mapuche land values to the four central land use problems identified earlier. The military interpretation of ecosystem protection through firefighter support and personal citizen safety in a disaster (Sanhueza 12 June, 2011) may coordinate with CONAF's zoning maps for tourism safety, but an emergent ecosystem approach is not evident in the PRYMAE mandate.

The security sector has a new role as a legislative actor in environmental security for rural and protected areas. The reorganized Chilean National Security and Defense doctrine explicitly builds institutional capacity and cross sectoral, legislative power to protect the Chilean environment. The inclusion of the Ministry of Defense and CONAMA on the Environmental Committee, and the Army's Environmental Defense responsibilities may override Chile's tradition of protected area subordination to unsustainable forestry management practice. National security threats such as TOC and the national goal of increasing citizen safety have the potential to erode previous tolerance for the Chilean oligarchy's unsustainable use of natural resources, practices that have traditionally excluded indigenous and local communities (LA Herald Tribune 3 August 2012). But no changes are evident yet.

It is the conflicting threats of Mapuche activism, terrorist infiltration, and TOC penetration into rural areas that determines security policy in Chile's PNV. The threat of TOC penetration in sparsely populated areas motivates the security sector to protect civilian rights to livelihood and sustenance in the park. As the security sector strategically embraces newly formalized land tenure in rural and protected areas, shared jurisdiction for protected area management and indigenous land use values are challenging the traditional security approach that privileged unsustainable resource use and *Patrimonio*. On the other hand, the conflicting messages from the Piñera administration calling for national unity while simultaneously targeting alleged terrorist Mapuche are anomalous to the emergent, integrated and culturally inclusive comanagement strategy CONAF has structured for the park and the surrounding community.

Just as sustainable social development coincides with Chilean national security strategies to stabilize community in order to prevent the penetration of organized crime, the security sector recognizes the correlation of rural community stabilization through land rights resolution and adequate local area governance capacity to discourage TOC in rural areas. CONAF strategies of comanagement of the PNV and Reserva, respects for Mapuche land rights and land use values that aim stabilize the area becomes an element of the national security agenda to enable regional economic integration, prevent TOC in rural areas, and support tourism growth through citizen and tourist safety and disaster assistance. Such values are at least partially consistent with L&K indictors for the emergent sustainable management of protected areas. Other government policies, however, conflict with these values.

CONAF's efforts toward emergent sustainable social development through stabilization of the Mapuche community in PNV through land rights resolution complements the emergent

environmental sustainability goal to restore the fractured Valdiviana ecosystem through coordinated and complementary land use discussed in Chapter 4. The conflicted policies of the Chile's central government have been shown to destabilize the Mapuche communities. In order for reorganized Chilean national security to fulfill the mandate of a personal security for a unified citizenry and follow the allegations of Mapuche terrorism the troops must play a conflicted role. National security support of sustainable inclusive governance through comanagement inn PNV is countered by the traditional tolerance of vigilante group aggression and resentment of the Mapuche land use. National security is at a crossroads between the scale of firefighting, the national scale of reactionary government policy, and local prevention of global TOC. Increased military presence in the park and the southern region's subordination to the military's mixing of policy making and police strategies offer little that favors the restoration of the fractured Valdiviana ecosystem.

Summary

The prioritization of economic growth in Chilean national security impacts any reliable future for the PNV and Reserva and the surrounding Valdiviana ecosystem. The security sector's focus on economic growth through tourism and the dependency on foreign relations to support economic integration is countered and in some ways negated by the threat of TOC, fears of Hezbollah infiltration and Mapuche activism. The threats and fear generate a political tinderbox in the sparsely populated region and are used by the government as a political tool to destabilize the Mapuche as a separate people in the Chilean population. The PNV community's vulnerability to reports of increased crime, terrorism and Piñera's allegations of the Mapuche as terrorists encourage reactive vigilante groups that distrust the Mapuche and effectively negate

CONAF's progress toward stabilization through land conflict resolution and the adoption of Mapuche land use values. The ecosystem conservation management approach and the comanagement policies of CONAF and the Chilean side of the Valdiviana ecosystem thus face a tenuous future for biodiversity protection, ecosystem integrity, and respect for indigenous land rights and comanagement in the park.

Conclusion: Does National Security impact environmental sustainability the most?

The L&K indicators frame the interactive network of emergent sustainable development practices that are necessary for a sustainable protected area that supports a strong regional ecosystem. Argentinean and Chilean conservation management plans have been shown to use emergent sustainable development strategies that advance an ecosystem approach and land conflict resolution in protected area management.

From the perspective of the L&K paradigm as applied to these two sister parks, the economic pillar of sustainable development is upheld in a mutually supportive relationship with both Argentina's and Chile's emergent and sustainable conservation strategies for the protected areas. Argentina's Parque Nacional Lanín and Chile's Parque Nacional Villarrica and Reserva have at least a benign if not supportive economic relationship with national and border security. In terms of sustainable economic development Argentina and Chile security sectors promote sustainable tourism safety and land rights and support conflict resolution. Both countries' conservation and national security policies focus on tourism safety in a way that is robustly collaborative.

The modernized Argentinean and reorganized Chilean national security infrastructure does approach integrated protected areas sustainable development as an answer to the threats of

TOC prevention in sparsely populated rural areas. Both countries face the increasing presence of TOC in the protected areas. The security sector's regional integration policy supports cross border relationships. Both countries also face increasing threats from the negative economic consequences of TOC. Both security sectors recognize the value of shared jurisdiction in stabilized protected area communities. The security sector's dependence on rural communities to reduce TOC infiltration motivates it to embrace Mapuche land use and rights. But unlike Argentina, Chile's contradictory national policies undermine CONAF's efforts to stabilize the Mapuche community through land rights resolution.

In the examination of the national security relationship to sustainable social development, national security is shown to use sustainable development as a political tool for Argentinean and Chilean security advances. On the positive side, CONAF's emergent social sustainable development easily blends the local scale of the four central problems[33] of PNV with the scale of Chile's National Security CSR approach. On the negative side, the contradiction between Chile's national goal of a "unitary citizenship" and the political strategizing of the Araucanía Plan are telling examples of the strategic use of sustainable socio-economic goals to increase internal security at the cost of Mapuche nationhood and self-determination. The Plan Araucanía does not address environmental sustainability in terms of environmental protections and the impacts of the proposed infrastructure. Chile's reorganized national security doctrine embraces local, community, national and regional goals for emergent sustainable social development through functional and transparent governance systems as part of the national prioritization of socio-economic objectives (Ministerio de la Defensa Nacional de Chile 2010).

[33] CONAF identified the four central problems of PNV as the illegal use of pastures; the importance of piñon harvesting to the indigenous culture and economy, the impacts of forestry and dead wood collection' and the development of sustainable tourism that will benefit those within zones of influence (p71, 75, CONAF 2008).

The relationship between social sustainable development and national security is strained in Chile. The comparative ease with which Argentina responds to the Mapuche "threat" versus Chile's militarism and accusations of terrorism may be related to the greater presence of Mapuche population in Chile. The number of Mapuche in Argentina is only 250,000 in comparison to nearly 1 million in Chile (Gobierno de Chile 24 June 2012). The growing demands by the Mapuche for land restitution are increasingly supported by international indigenous social movements and European concern for Mapuche human rights. The increased empowerment of the Mapuche puts Chile's government in the difficult position of "walking their talk" by restoring valuable land to the tribes. Argentina faces a much smaller percent of their population and thus sustains a smaller loss of land, natural resources and control over territory.

The contradictions between national and border security surface most in the area of environmental sustainability. Argentinean and Chilean national security doctrine and projects have been clearly shown to have a conflictive political relationship to emergent environmental sustainability in the protected areas. The conservation management ecosystem approach that seeks to strengthen and restore the fragmented Valdiviana ecosystem is secondary to Argentina's northern bias for security resources and Chile's centralized politics. In neither Argentina nor Chile are national security policies scaled to the level of the ecosystem. Unlike Argentina's APN land rights resolution, in Chile the contradictions between the Piñera administration's tolerance and terrorism policies destabilize the land use advances made by CONAF. Its accusations of Mapuche terrorism and a Hezbollah presence in the area foment fears and vigilantism. The central government's *patrimonio* approach to managing Chile's natural resources is a political strategy that places national unification and border security ahead of sustainable development and ecosystem protection.

This examination of the Argentinean and Chilean national security doctrines and projects presents comparative evidence that national security will utilize sustainable development strategies when they support the goals of the security sector. The BR and OAS DSA principles that redefine strong security in transborder ecosystems locate a nexus between environmental sustainable development and the security sector. The multifaceted security response these principles advance rework traditional security to function as a support system for sustainable development rather than as the traditional security protection system for national territory. But in Argentina and Chile the principles of multidimensional security are partially applied for political reasons. The national politics that shape the biases and resource allocation for Argentinean and Chilean national security divert the development of a multidimensional security away from emergent sustainable environmental protections in the shared protected areas. The national security missions robustly enable regional economic integration. National security in both countries also resists the encroachment of TOC by strategically embracing local efforts to build social stability, despite contradictory national tolerance policy in the case of Chile. National security strategies consistently exclude the emergent environmental protections that are scaled to the regional ecosystem and the rectifying of local land use conflicts and unsustainable land use that are vital to the sustainability of parks and restoration of the fractured Valdiviana ecosystem.

CHAPTER SIX

NATIONAL SECURITY AND SUSTAINABLE DEVELOPMENT: MEXICO AND THE UNITED STATES

Introduction

In Chapter 4 it was noted that, like Argentina and Chile, Mexico and U.S. conservation management does express some form of the ecosystem approach. But, unlike the APL and CONAF, CONANP and the US FWS emergent sustainable development in the El Pinacate/Gran Desierto Altar Biosphere Reserve (EP/GDA) and the Cabeza Prieta National Wildlife Refuge (CPNWR) is less about conflict resolution among park residents and more about balancing and mitigating the impacts of military and border security projects. Chapter 5 showed how both Argentina's and Chile's contemporary national security policy supports and enables bilateral and regional economic integration. The security sector's embrace of emergent sustainable development strategies by those two countries has been shown to function as part of regional economic integration and growth and capacity building for social cohesion. Chapter 6 continues to investigate the intersection between the Lockwood & Kothari (L&K) emergent sustainable development indicators and national security doctrine and programs by examining the situation in Mexico's El Pinacate/Gran Desierto Altar (EP/GDA) and the U.S. Cabeza Prieta National Wildlife Refuge (CPNWR) protected areas.

National security doctrine and border security projects in the EP/GDA and CPNWR harness sustainable development in the two shared protected areas to national interests. This pattern of national security shaping shared protected area sustainable development was identified

previously in the examination of Argentina's Parque Nacionales Lanín and Chile's Parque Nacional Villarrica in Chapter 5. Environmental protections in Argentina were shown to be trumped by lax regulation and the northern bias for government resources that garner votes. In Chile the environmental protections are valued by the government as a means of advancing political agendas regarding Mapuche land rights and national security goals in the rural areas.

In Chapter 4 the application of the Lockwood and Kothari (L&K) emergent sustainable development indicators to Mexico and the U.S. distinguished emergent and sustainable conservation goals for the El Pinacate/Gran Desierto Altar (EPGDA) and Cabeza Prieta National Wildlife Reserve (CPNWR) shared protected areas. Seen through the lens of the L&K paradigm, Mexico's protected area policy was shown to contain a mix of emergent socio-ecological conservation efforts that collaborate with and adapt to the comparatively narrow US FWS protected area definitions—definitions that are subject to national security interests, military needs and the U.S. border projects. The conservation management goals and projects in and around the EP/GDA and CPNWR were seen to directly compete with national security strategies at the U.S. Southern border.

Mexico: El Pinacate and Gran Desierto Altar Biosphere Reserve

Economic Sustainable Development and National Security

In Chapters 3 and 4 the L&K indicators were used to identify emergent sustainable economic development values in Mexico's conservation management goals. These values seek to mitigate the negative economic impacts of narcotics trafficking and the military presence in the Biosphere Reserve, support the development of sustainable tourism, and synchronize with

INE-SEMARNAT/CONANP's strategies for overcoming the poverty of small businesses surrounding the EP/GDA.

This investigation of national security impacts in the EP/GDA reserve begins by noting that the borderlands did not conform to any traditional U.S. or Mexican security sector understanding of drug trafficking.[34] President Vincent Fox Quesada's 2004 redesign of national security doctrine[35] was also the official beginning of Mexico's drug war[36] and the formal beginning of the dual role for the EP/GDA as both a biosphere reserve and a theater for national security, narcotics trafficking interdiction and border security.[37]

Mexico's 2004 National Security doctrine supports CONANP's emergent sustainable development goal to equalize economic opportunities for communities that were impacted by the nationalization of the EP/GDA Biosphere Reserve territory. The 2004 Mexican national security

[34] Drug trafficking includes the cartels, arms trafficking, human trafficking and the instability of marginalized zones (Secretaria de la Defensa Nacional 2004).

[35] During the Cold War the preponderant threats (to Mexican National Security) were traditional. National security was oriented chiefly to the Armed Forces. The conclusion of the bipolar world brought as consequence, a significant reduction of traditional threats. But at the same time they revived another type of antagonism: the "New Threats", "Not Traditional Threats" or "Asymmetrical Threats." The new Mexican National Security is a multidimensional and intersectoral approach to provide varied answers. The new security aims for each Mexican state to design its own strategies to address the new threats (Secretaria de la Defensa Nacional 2004).

[36] The Mexican government began national security efforts to eradicate marijuana in 1924 and throughout the 1960's.The Mexican War on Drugs was unofficially initiated when Presidente Vincent Fox Quesada (2001-2006) sent troops in to Nuevo Laredo, Tamaulipas to fight drug cartels. The subsequent Presidente Felipe Calderón Hinojosa's War on Drugs officially attacked on December 11, 2006 (Secretaria de la Defensa Nacional 2004).

.[37] Presidente Vicente Fox's 2004 White Paper on National Security updates the 1986 Organic Law of the Mexican Armed Forces. The White Paper sets the precedent for President Calderon's escalation of the War on Drugs. The document is the National Security acknowledgement of the global scale of the narcotics trade and is the basic doctrinal foundation for the current state of national security in Mexico and the EP/GDA Biosphere Reserve. Mexican National Security recognizes drug trafficking as a destabilizing force on Mexican society (Secretaria de la Defensa Nacional 2004). Narcotics trafficking is stated to have harmful effects on the health of the people and national development. Mexico is seen to be affected by the production and the trafficking of drugs, since the negative consequences put at risk the political structure, economic and social policy; and to weaken the credibility of the institutions, to cause the disintegration family and to enlarge the insecurity and in the external environment, and to affect the wellbeing of international relations (Secretaria de la Defensa Nacional 2004).

mandate that aims to harmonize armed forces activities with the environment originates in the concern for the country as a collective interest (Secretaria de la Defensa Nacional 2004).[38] The Procuradiría Federal de Protección al Ambiente (PROFEPA) is the ministry that requests backup from the military (Secretaria de la Defensa Nacional) to deal with crime groups or trespassers in protected areas, but is challenged by the conflicting agendas across agencies. Mexican protected areas such as EP/GDA have existing infrastructure for cross-secretariat organizing (Angeles & Quinn 2007). The security sector operationalizes its commitment to the economic assets of the park as a collective interest in supporting armed troop patrols, providing assistance to park employees in the enforcement of ranching laws, controlling out of season and illegal pronghorn antelope hunting, controlling the harvesting of native species, preventing rock and mineral collection, and regulating off-road driving in the reserve (USAID 7 October 2012). The reduction and control of unsustainable activities may open a window of opportunity for sustainable economic tourism that is appropriate to the fragile ecosystem and biodiversity of the biosphere reserve, although no economic data yet reflects that change.

The inherent contradictions between the contending roles of the EP/GDA Biosphere Reserve as an both an IUCN Category VI Biosphere Reserve, a shared national protected area, and also a security sector theater for narcotics interdiction generates tension between the security responses to narcotics trafficking that ravage the reserve's fragile ecosystem (Watson 19 June 2003) and the land values and ecosystem approach of the Tohono O'odham nation. The Tohono O'odham people struggle to maintain their cultural heritage and to eke out a sustainable livelihood on the land protecting the Sonoran Desert ecosystem (Dellios 19 August 2003, Pyclik

[38] The goals of Presidente Fox' 2004 National Security are: a dynamic, competitive economy based on policies that favor continuous economic growth, continuous, technologic innovation and harmony with the environment all with a concern for the country as a collective interest (Secretaria de la Defensa Nacional 2004).

& Leibig 2006, Boswell 20 December 2010). Their efforts to restore the fractured Sonoran Desert ecosystem are challenged by both narcotics traffickers and Mexican military troops. Mexican military narcotics interdiction tactics negatively impact the Tohono O'odham culture and the surrounding ecosystem (Watson 13 June 2002, Gaynor 2 December 2007). As in Chile, these operations tend to destabilize the local community, opening the door for the narcotics industry in the remote reservation lands.

On the other hand, the reduction of unsustainable activities by military patrols has the potential to encourage sustainable tourism development in and around EP/GDA. The military presence increases tourist safety in the remote areas of EP/GDA by closing policing gaps that the local police have no capacity to address (Brewer 27 February 2012). Even so, the military's presence is a disadvantage. It militarizes the Tohono O'odham reservation land and the Sonoran Desert ecosystem (Fox 19 July 2012, Villarreal 9 August 2012) and introduces a culture of corruption that is supported by a lack of military accountability. Juridical reforms funded by the Plan Mérida (Merida Initiative)[39] aim to stem the rise in civil abuse by the military (Havana 30 September 2012, Hawley, 29 October, 2009, Olson & Wilson May 2010, The White House 2011). These measures are very recent, however, with little discernible impact to date on military practices. No positive impacts for the Tohono O'odham people or the state of Sonora have yet been recorded (Hostetler Spring 2010, US Committee on Foreign Relations 9 July 2012).

[39] Introduced in 2007, the Mérida Initiative is a regional security cooperation and assistance initiative between the United States, Mexico, and Central America aimed at controlling narcotics trafficking and crime. An important component of the plan aims to strengthen rule of law practices in Mexico, including adopting legislation to make soldiers accountable to civilian courts for abuses involving civilians. The Plan's ensuring of the use of troops in actions like the offensive against drug cartels indicates a distrust of persistent corruption in the military as a legitimate law enforcement entity (Stevenson, 27 April 2010). The increase of military to civilian violence is an unintended consequence of the U.S. backed training. Military human rights abuses toward civilians, in particular women, have increased dramatically since the training (Amnesty International, 2009; Hostetler, Spring 2010).

The Mérida Plan's sustainable economic development strategy to strengthen communities presents a multilateral security approach with the potential to function at the local and community levels. As with sustainable economic development in Argentina and Chile, the Mérida Plan envisions addressing zoning problems that have undermined neighborhoods and attracted illegal activities. Plans to reduce the demand for drugs, create jobs, improve local infrastructure, and to build better public spaces are all being considered as government officials build relationships with civil society groups to design violence reduction programs (Olson & Wilson, May 2010). However, no ecosystem or environmental protections are mentioned.[40]

Mexico's EP/GDA is defined as part of a vital, cross border IT communication corridor for the state of Sonora. The Information Technology (IT) communication corridor designation enables Mexican/U.S. security cooperation to construct and monitor tactical infrastructure for cross border trade and security (Secretaria de la Defensa Nacional 2004) in the economically and technologically integrated Arizona/Sonora region (Pavlokovich-Kochi 2006). The economic value of the area as an IT corridor motivates the Mexican military to privilege traditional risk oriented and security informed values that are dedicated to economic growth. The securitization needs of the IT corridor redefine the role of the EP/GDA protected area as a buffer zone for the securitized communications zone (Harwell 2007). As such it is subordinated to military and security needs. The buffering role redefines EP/GDA as an element of the armed forces' strategy for economic growth, technology maintenance and law enforcement.

[40] In the March 2011 revision of the Mérida Initiative by Defense Secretary Gates and Secretary of State Clinton the Initiative evolved into an 8-10 year commitment to a four pillar approach to hemispheric security that combines the original disruption and dismantling of criminal organizations, institutionalization of the rule of law, building a strong 21st century border with the building of strong and resilient communities (Hostetler, Spring 2010; Olson & Wilson, May 2010).

The L&K indicators identified as emergent sustainable development the INE-SEMARNAT economic development strategies that aimed to resolve the inequity between native communities and ejidos versus the wealthy ranchers that use the EP/GDA protected territory for economic gain. CONANP's redefinition of the protected area mission from protection of the EP/GDA for "the benefit of future generations" to a focus on equity or *"con, por y para la gente"* frames the conservation management strategies for emergent sustainable economic development. But CONANP's regulations, evaluation, monitoring, and diagnostic tools for the development of sustainable tourism have failed to overcome the difficulty of establishing sustainable economic activities appropriate to the unique EP/GDA ecosystem (USAID 7 October 2012).

CONANP's emergent socio-economic development approach in the EP/GDA protected area and the surrounding Sonoran Desert Ecosystem has not yet overcome the lack of a sustainable economic system. The thin economic system makes eliminating unsustainable resource extraction, tourism, and narcotics trafficking in the EP/GDA very difficult. Despite the security sector's recognition that rural populations are in need of integration into the global economy (Secretaria de la Defensa Nacional 2004) efforts at economic integration are poorly structured. In particular, the national security approach to job creation is inappropriately scaled for sustainable job development in the subsistence level rural economy and unique EP/GDA ecosystem. CONANP's Programa de Desarrollo Rural Sustentable (PRODERS) plan develops resources in protected areas through horizontally linking federal development and environmental ministries and commissions and surrounding communities. National security efforts aimed to develop (social labor) teams that integrate with medical services for ontology, nurses, veterinarians, electronics repair technology, carpenters, painters, barbers, machinists and security

personnel (Secretaria de la Defensa Nacional 2004) do not interface at the economic and educational levels of the EP/GDA residents, indigenous, or local *ejidos'* families.

CONAF's redefinition of the overall protected area mission as *"con, por y para la gente"* (CONANP 2007) does not reflect the full complement of actors that impact the Biosphere Reserve. Although the park/people dichotomy still surfaces in discussions about sustainable economic development (Interview 10 July 2010) the increasing narcotics traffic infiltration into rural areas and the security response are exogenous to it. The environmentally and socially damaging military response tactics aimed at drug trafficking are further aggravated by the tradition of corruption by military and local police (Seepers 8 October 2012). Ironically the increasing infiltration of drug trafficking in the EP/GDA is partly the result of tightened border patrol enforcement and the U.S. border wall project that has pushed the narcotics traffickers into the remote and thinly policed EP/GDA and Tohono O'odham Reservation.

Establishing any economic development that is not unsustainably dependent on the natural resources of the EP/GDA and the surrounding Sonoran Desert ecosystem is a challenge. State, national and international organizations have failed to integrate the residents and surrounding communities into the larger economy. Mexican national security fails to reach to the economic scale of the EP/GDA residents even though official national security doctrine aims to support sustainable economic development in the biosphere reserve. But the commitment to a collective interest does not address the jurisdictional gaps between park guards and the military, the unsustainable land use by narcotic traffickers and military police tactics, and the redefinition of part of the Reserva as a buffer for national and binational economic trade through the IT communications corridor. Although the 2004 national security doctrine's collective interest approach seeks to assist local economic growth, the military response to drug traffickers'

occupation of the surrounding Tohono O'odham reservation and community area effectively militarizes the EP/GDA Biosphere Reserve; this, coupled with the unsustainable use the Sonoran Desert ecosystem, destabilizes the local economy and negates tribal ecosystem protections.

Social Sustainable Development and National Security

Application of the L&K indicators assessed emergent sustainable social sustainable development in both the INE-SEMARNAT and CONANP Management Plans for the EP/GDA as a hybrid blend of social human development and environmental protection values in order "to gain the most social benefit, conscious of the relevance of programs to the related natural areas with biological and ecologic values" (INE-SEMARNAT 1996, CONANP 2007). The L&K paradigm identified emergent sustainable development strategies linked to Mexico's commitment to social well-being in the substantive areas of inclusive governance, respect for a divergent citizenry, the elimination of inter-institutional obstructions, and disaster assistance. These can be related to national security doctrine and projects.

Mexico's effort to build sustainable governance in protected areas by eliminating interagency capacity obstructions is supported by the by the 2004 National Security doctrine that aims to build inter-institutional consensus with the Army. The 2003 Systema Integral de Administraci6n (SIA) software program links military accountability to environmental decision-making for the transparent management of natural resources. The fundamental objective of the SIA emphasizes modernization and innovation of administrative processes and budget in order to maintain the transparency, productivity and efficacy of the army (Secretaria de la Defensa Nacional 2004).

CONANP's efforts to achieve a fully functioning political support system by consolidating and ending jurisdictional confusion at the inter-organizational level was related earlier to sustainable economic development through respect for Tohono O'odham culture and tribal sovereignty. However, Tohono O'odham land rights and ecosystem protections in and around EP/GDA have historically been subjected to various abuses by security operations and personnel. As seen above, recent efforts to establish Mexican military accountability in the region through better training and judicial reforms funded through the Mérida Plan have yet to bear fruit (Johnson 10 March 2009; Clinton 29 March 2010; Seeper 8 October 2012).

Unlike Chile, which aims to establish a unified citizenry, Mexico recognizes and takes pride in its national diversity. The 2006 National Security document embraces the multiple identities of the Mexican population (Secretaria de la Defensa Nacional 2004). The increase in separate groups (agrupaciones sindicales) is recognized as the politically important growth of civil society (Secretaria de la Defensa Nacional 2004) rather than as a national threat or generator of terrorists and terrorism. However, SEMARNAT's and CONAF's posture that El Pinacate/Gran Desierto Altar Biosphere Reserve is vital to the development of the identity and culture of the Mexican state is not reflected in the behavior of the Mexican military, even though the security sector officially recognizes the biological value of Mexican protected areas and the importance of a healthy environment to sustainable development (Secretaria de la Defensa Nacional 2004).

Much like Argentina's and Chile's security sector support for sustainable social development through tourist and citizen safety, Mexican national security policy directly supports emergent social sustainable development through civilian security in the Plan DN III-E Población Civil en Caso de Desastre (Secretaria de la Defensa Nacional 2004). The military

inter-institutional consensus on disaster response supports the emergent sustainable social development of civilian equity. The disaster response is to be applied equally to the entire civilian population. Military personnel are employed in forest fires, chemical-technical events, tropical systems, winter systems, humane aid, and back-up force for cases of disaster (Secretaria de la Defensa Nacional 2004). The forest fire plan crosses institutions throughout the country in coordinating with the Comisión Nacional Forestal (CONAFOR), the Secretary of the Environment and Natural Resources (SEMARNAT) and three members of the National System for Civil Protection. The Air Force is engaged through air reconnaissance with airplanes and light helicopters for observation (Secretaria de la Defensa Nacional 2004).

The 2004 Mexican national security doctrine is founded on the principle of social well-being that respects a varied citizenry that equally enjoy constitutional rights. The 2004 Mexican national security plan prioritizes national environmental awareness, equal economic opportunity, and meeting the challenges of new global threats. The national security program does support emergent sustainable governance indicators of civilian security, consolidating and ending jurisdictional confusion, and eliminating interagency capacity obstructions. But the unsustainable narcotics interdiction tactics of the Mexican military on Tohono O'odham land undermine ecosystem management by the Tohono O'odham tribe and do not reflect the social development principles stated in President Fox's 2004 version of national security. The as yet unsuccessful attempts to establish military accountability through the Mérida Plan's reforms and training are a telling example of the problematic gap between the scale of national security strategies versus the local scale necessary for sustainable social development.

Environmental Sustainable Development and National Security

Mexico's conservation management approach was found to conform with L&K indicators with its emphasis on emergent environmental sustainability in the areas of integrating humans and the ecosystem as an interdependent set of natural communities, and its embrace of a strong ecosystem approach that eliminates unsustainable resource use, coordinates land use, and integrates management practices across networks for species management and regional ecosystem restoration. CONANP's adaptation of INE-SEMARNAT's early cultural hybrid management approach to co-manage the restoration, management, and protection of the EP/GDA reserve also conforms to L&K indicators.

The official relationship between national security and protected areas management is reflected in former President Vicente Fox's 2004 statement on national security that prioritizes the environment as a long term security concern based on the premise that the sustainability of national development requires protecting natural resources (Secretaria de la Defensa Nacional 2004). Mexico's 2004 National Security policy fully accepts the international perspective that a weak environment creates security weakness (Secretaria de la Defensa Nacional 2004). The security statement points to the doubling of the population from 1976-2006 as the factor that has most changed Mexico's relationship to resource use. The national security view of population expansion in cities and industry growth considers it to be a disorderly expansion that is eroding forests, creating pollution, and contributing to climate change. The industrial pollution and degradation of the environment is seen as a threat to economic development (Secretaria de la Defensa Nacional 2004). Officially, Mexico is seen as one of twelve countries with the most biodiversity, varied ecosystems, and metals (Secretaria de la Defensa Nacional 2004). The

Secretariat of National Defense supports the emergent sustainability values of human/ecosystem interdependence and long term commitment to regional restoration.

As yet, however, no security sector actions to assist in restoring the Sonoran Desert ecosystem have been recorded. As discussed earlier the unsustainable environmental degradation caused by the narcotics trafficking and subsequent military policing tactics on the Tohono O'odham reservation and in the EP/GDA protected area is contradictory to the Tohono O'odham's efforts to maintain the Sonoran Desert ecosystem. The increased fracturing and degradation of the Sonoran Desert ecosystem for the purpose of border policing is not addressed in the 2004 National Security policy or subsequent security policies between the Mexican national government, states or the security sector.

L&K's endorsement of restoring complete ecosystems through coordinated land use policies is partially supported by the national security plan's commitment to combat deforestation. However, similar to the situation of Chile's problematic grouping of protected areas in forestry management, Mexico has conflated the use of forests as natural resources with protected area management. Separation of the forestry industry and the protection of forests occurred in the National Defense ministry, not the natural resource agencies of INE-SEMARNAT or CONANP.

CONANP's emergent sustainability efforts to integrate across networks for species management and regional ecosystem restoration are directly supported in EP/GDA by the security sector program Viveros Forestales Militares (VFM). VFM works between SEDENA and the state level Comités Estatales de Reforestación to assist and monitor endangered species populations in EP/GDA and cross border collaboration of pronghorn antelope conservation management (CONANP 2008).

Summary

Mexican national security support for sustainable economic development is officially robust at the national level but this policy doesn't translate downward to the local economy. In comparison with Chile and Argentina, Mexican national security policy supports some elements of socially sustainable development and environmental sustainability at the level of national programs but there is little operational focus or investment in local sustainable development as a means of resisting TOC, as seen in the other two countries.

Like Argentina and Chile, emergent sustainable social development in Mexico's shared protected areas is both supported and hindered by national security doctrine and projects. Mexico supports emergent social sustainable development through the mission for civilian security, but cannot respond at the local level to share in comanagement or restoration of the ecosystem that surrounds EP/GDA. The inadequacy of the local police to counter narcotics trafficking in the remote areas creates a circularity of narcotics trafficking and counter-narcotics military tactics that function at a binational and international scale. The Mexican security sector consistently responds at the national, binational and regional scale but cannot respond constructively at local scale to support tribal land rights, or the emergent environmental sustainability of the Tohono O'odham ecosystem approach. Co-management and co-jurisdiction of remote areas in the style of the Argentina and Chilean protected areas has not yet evolved in Mexico.

Just as with economic and social development, environmental sustainable development in EP/GDA and Sonoran Desert ecosystem is supported by national security doctrine, but not at the local levels. Environmental sustainable development, ecosystem protections and restoration are supported by national security doctrine, but are in contradiction with the military tactical

response to drug cartels and as buffer territory for the IT communications corridor. The concept of deterring the penetration of drug traffickers in remote lands through sustainable development has not yet evolved in at the Mexican border. The ironic consequence of increased border security that drives narcotics traffickers deep into the biosphere reserve and the Tohono O'odham reservation lands is played out at the cost of the local economic and social infrastructure and the environmental health of the EP/GDA and the surrounding ecosystem. The contradictions between the sustainability ideals of national security doctrine and the impacts of military tactics destabilize all local sustainable development in favor of supporting economic goals at the national level.

U.S.: Cabeza Prieta National Wildlife Refuge

Economic Sustainable Development and National Security

In Chapters 3 and 4 the L&K indicators identified emergent sustainable economic development practices in the comparatively narrowly defined CPNWR as functioning to protect biodiversity and species management, benefitting the substantive area of tourism. Unlike the sustainable socioeconomic development programs in Argentinean, Chilean, and Mexican protected areas, however, the Cabeza Prieta National Wildlife Refuge's Comprehensive Conservation and Wilderness Stewardship Plan does not define sustainable economic development of the surrounding community as a valid role for the US FWS.

The definition for tourism in CPNWR is constrained to park administration limitations on park guides. Private tourism development is restricted to the number of allowable park guide permits. National security does not acknowledge sustainable tourism development in the Reserve. National security applied to the protected area does not directly consider sustainable

tourism development, although tourist safety could be a consequence of the border patrol presence in CPNWR.

The comparatively nonexistent US FWS goals for sustainable economic development in and around the Reserve are partly the consequence of conservation management's view that sustainable development is "something for third world…or developing countries" (Interview 7, July 2011). Unlike Mexico's conservation management strategies that aim to mitigate the negative economic impacts of narcotics trafficking and the military presence in the biosphere reserve the CPNWR conservation management plan does not specifically address the negative impacts of narcotics trafficking or TOC on the surrounding community. The US FWS has no mandate to develop the surrounding economy. The inflammatory political argument circulates that Ajo, the gateway town to CPNWR, should be shut down because the impoverished town, which qualifies as a *colonia* under the National Affordable Housing Act (Esparza and Donelson 2008)[41], is a welfare black hole for the state of Arizona (Interview 7 July 2011)[42]. Closing the town of Ajo would make CPNWR, Organ Pipe Cactus National Monument and the gateway Lucas/Sonoita border crossing to EP/GDA truly remote. Accessibility would be easily available only to border patrol and tribal residents.

The other side of the lack of interest in sustainable economic development is the CPNWR subordination to military and border security as discussed earlier. Historically the military has

[41] The *colonia* is defined by the U.S government as a community needing infrastructure. The community may or may not be incorporated (Esparza and Donelson 2008). The *colonia* status allow the border communities to lobby for U.S. federal infrastructure funds. Ajo, Arizona is a census designated place (CDP) with a history of population fluctuation due to a large copper mining and now the influx of border patrol troops.

[42] The financial burden of Ajo as a low income snowbird retirement community has changed since the border fence project and increased border patrol population to a middle income population competing for housing. The financial boon that the local community receives from the increased need for border patrol housing, food and services are not mentioned in the political assertions about the town.

viewed CPNWR as a buffer to the security sensitive Barry M Goldwater Range (BMGR), or as a ranch for big horn sheep (Interview 7 July 2011)[43]. The post September 11 changes to U.S. national security policy that shape any idea of emergent sustainable economic development in CPNWR are the Bush Administration's 2005 Real Id Act (H.R. 418) and the 2006 Secure Fence Act (H.R. 6061). The Secure Fence Act supports the Department of Homeland Security (DHS) mandate and the Customs and Border Protection (CBP) TOC interdiction at the border. The subordination of the Wilderness Act (WA) to military and border projects throughout the history of CPNWR has exponentially increased since the initiation of the Secure Fence Act.

Although the Obama administration has made changes to the Bush administration's pre-emptive security response,[44] the position of CPNWR in relation to the physical border wall and border security has not changed. The Obama Administration's 2010 U.S. National Security Strategy maintains an economic approach to security in its goals to protect the economic supply chain, to safeguard the treatment of security devices as they relate to the supply chain, to defeat terrorism, to strengthen biological and nuclear security, to improve intelligence capacity and information sharing, to promote the resiliency of physical and social infrastructure, to pursue transborder security, and to ensure effective incident management (The Whitehouse, 2010).

Although not mentioned in the CPNWR Stewardship Plan, the 2010 National Security Plan employs technology within CPNWR to address foreign policy and security challenges (National Defense, 2010). Economic development in CPNWR is actually military and security

[43] The preponderance of federally managed lands in the Sonoran Desert has shaped the idea of the area has limited the development of a cross sectoral conservation community (Chamber & Hall 2005).

[44] US national security policy is moving away from the Bush Administration post 9/11 preemptive self protection (The White House, 2006) to the Obama Administration's focus on building national resilience, shared responsibility and cooperation with Mexico (The White House 24 March 2009, Gates 23 November 2009). The move away from the Bush preemptive national defense strategy is most recently countered with Secretary Clinton's proposal for a community development response to the violence in Ciudad Juarez (Clinton 23 March 2010).

development within the wildlife reserve. Cabeza Prieta is sister to EP/GDA as a cross border Information Technology (IT) communication corridor. As in Mexico's EP/GDA, the IT communication corridor designation[45] subordinates CPNWR as a theater for binational and international economic and security cooperation. The IT corridor is conceptualized at the national level to allow the government to construct and monitor tactical infrastructure for cross border trade and security within the parks. The local economics of the CPNWR and the city of Ajo are part of the nationally scaled IT corridor project.[46]

The changes to U.S. national security policy, as stated in the Obama Administration's 2010 statement, seek to build common security at the borders by pursuing responsible security in at-risk states (The White House, 2010). The gap between the scale of the 2010 U.S. National Security Strategy for transborder security and the CPNWR/EPGDA sister parks is evident in the part of the plan that seeks to address transnational threats effectively through a comprehensive approach to securing borders, including working with international partners, state and local governments, and the private sector. TOC interdiction is also scaled at the national and international levels. The elements of the U.S. National Strategy to Combat Transnational Organized Crime flow from a single unifying principle: we will build, balance, and integrate the tools of American power to combat TOC and related threats to national security and urge our foreign partners to do the same (The White House, 19 July 2011).

[45] The President supports efforts to develop and deploy technology to maximize port security without causing economic disruption, and enhancing the security of key transportation networks—including surface, air, and maritime networks—that connect our nation and the world. (The White House, 13 September 2012).

[46] The IT corridor of Cabeza Prieta is part of the global system that carries people, goods, and data around the globe and also facilitates the movement of dangerous people, goods, and data. Within these systems of transportation and transaction, there are key nodes—for example, points of origin and transfer, or border crossings—that represent opportunities for exploitation and interdiction (The Whitehouse, 2010).

In the CPNWR, national security aims to support itself, possibly by shutting down the town of Ajo and thus increase the buffering effect of the CPNWR to the border project and the BMGR training site. The small scale of the tourist industry in the CPNWR offers little incentive for the reserve to remain open to the public. The history of the CPNWR first as a Big Horn sheep reserve and military buffer zone, then as a protected area pronghorn and wilderness reserve defined by the 1964 WA, and recently its incorporation in the current border security theater (to include the TOC and IT communications corridors), has left a nonexistent, independent local economy and the surrounding Sonoran Desert ecosystem legally and environmentally unprotected, fragmented and vulnerable.

Social Sustainable Development and National Security

Application of the L&K indicators to the CPNWR located transparency in governance in the management plan's commitment to cross level policy support and inclusive decision making policy.[47] The US FWS efforts at interagency transparency and partnerships aim to build the protected area into the community with the establishment of an FWS interagency office in Ajo that will relate to the non-profit International Sonoran Desert Alliance (ISDA) (CONANP 2007).

[47] The US FWS engages cross level policy support partnerships that support the protection of species unique to the Sonoran Desert ecosystem. At the state level, the US FWS is a member of the Arizona Interagency Desert Tortoise Team (AIDTT). The multi-organizational partnership develops the policy statement for the State Conservation Agreement for the Tortoise (USFWS 2007). The Sonoran Pronghorn Recovery Program (SPRT) is a cross institutional and binational network that consists of the USFWS, Arizona Game and Fish Department (AGFD), US Air Force (Luke Air Force Base), US Marine Corps, (Marine Corps Air Station Yuma), Bureau of Land Management (BLM), National Park Service (NPS), and a representative from the Arizona State University (US FWS May 2011). The SPRT Program works binationally with Mexico's Commission of Ecology and Sustainable Development for the State of Sonora (CEDES) group, the Natural Commission for Protected Natural Areas (CONANP) and tri-nationally with the Trilateral Committee for Wildlife and Ecosystem Conservation and Management Shared Species agenda (Trilateral Committee, 2001). The Management Plan build the protected area into the community with the establishment of an FWS interagency office in Ajo that will relate to the non-profit International Sonoran Desert Alliance (ISDA) (CONANP 2007). Cooperative working relationships with government agencies, tribal governments, the International Sonoran Desert Alliance, the Cabeza Prieta Natural History Association, and local communities cooperate to support the NWRS mission in the area (US FWS 2007).

Cooperative working relationships with government agencies, tribal governments, the International Sonoran Desert Alliance, the Cabeza Prieta Natural History Association, and local communities serve to support the NWRS mission in the area (US FWS 2007). The 2010 national security policy does aim to promote social infrastructure (The Whitehouse, 2010). The contradictory politics that would even consider closing the town of Ajo to create a border security buffer does not promote local social infrastructure. Instead, such an action would allow border security to take over the town strictly for security use, effectively eliminating the existing social structure and its potential for sustainable social development beyond the security sector. Ironically, the 2010 National Security strategy argues for empowering communities to counter radicalization[48], much like the Chilean government's assertion that Plan Araucanía infrastructure investment will subvert the infiltration of Hezbollah through social benefits that was discussed in Chapter 6. Eliminating the gateway town of Ajo for security purposes is contrary to the idea of empowering of communities through listening to local concerns called for by the Obama Administration's national security statement.

Unlike Argentina, Chile, and Mexico, the emergent sustainable social development goal to mitigate the impacts of TOC in rural communities and remote fragile ecosystems is not present in the U.S. national security plan. In spite of the goals of the Mérida Initiative that seeks to improve the accountability of the Mexican military and eliminate the culture of corruption, the lack of respect for Tohono O'odham reservation land rights is repeated in the U.S. security sector. The Customs and Border Protection (CBP) agency's unpublished plans for a border station on Tohono O'odham reservation land indicate an unsustainable lack of accountability

[48] The Federal Government will invest in intelligence to understand this threat and expand community engagement and development programs to empower local communities. And the Federal Government, drawing on the expertise and resources from all relevant agencies, will clearly communicate our policies and intentions, listening to local concerns, tailoring policies to address regional concerns, and making clear that our diversity is part of our strength—not a source of division or insecurity (The Whitehouse, 2010).

beyond the security community. The lack of CBP accountability to the Tohono O'odham (Amnesty International 2012) sustains the harassment of the Tohono on the U.S. side of the border and contributes to CBP's local image as an occupying army on the land (Norell, 11 October 2012).

National security, like conservation management in CPNWR, does not embrace the principle of sustainable social development for the surrounding communities as a valid role for U.S. protected areas. From the perspective of the security sector, the CPNWR shared protected area's principal function is to support the security response to the threats of narcotics traffickers and TOC. Underlying that securitized definition is prejudice toward the indigenous land that—like the regional ecosystems and biodiversity—are not drawn by political borders. The threat of TOC, the aggression of narcotics traffickers, and the fear of terrorism open the door for the security sector and the political forces that shape national security, security projects, cross border financial technology, and immigration. The unending need for more border security is never satisfied. In the case of sustainable social development in CPNWR the "mission creep" of the security sector at the border is not benign. National security projects have taken advantage of the existing weak conservation management perspective on sustainable social development. The security sector has destabilized the community by threatening to move the entire population of an incorporated city, bypassed transparent governance by secretly planning to construct a CBP border station on sovereign Tohono O'odham reservation territory, and rewriting the CPNWR's function as a protected area to one of military buffer and border security theater.

Environmental Sustainable Development and National Security

Application of the L&K indicators identified emergent environmental sustainability in the CPNWR conservation management plan's adoption of the ecosystem approach to the Sonoran Desert (as part of the Gila/Salt/Verde ecosystem), *in situ* species management and biodiversity protections, and interagency networking for cross border species management and biodiversity protections. At the national level, the Obama administration's 2010 national security commitment to accelerate sustainable development commits resources to a low carbon growth trajectory, resilience to climate change, and food security (The White House, May 2010).

The US FWS's approach to refuge system implementation builds ecosystem strength by intertwining the park with the heritage and future of the refuge system. The national FWS collaborates across interstate and binational conservation management levels with horizontal inter-organizational linkages.[49] The strategies integrate the Tohono O'odham tribes into land use decisions within the original mission to conserve and develop wildlife resources with the International Sonoran Desert Alliance (ISDA), and the Barry M. Goldwater Executive Council (BEC).[50] The United States-Mexico Bilateral Action Plan (ESC, 15 December 2011) and the Strategy to Combat Transnational Crime (The Whitehouse 13 September 2012) do strategize a multilateral border security based on partnerships and development of physical border projects at the local scale, but do not address environmental protections. A recent policy change in another

[49] The US FWS Management Plan EIS/CCP development process uses legally defined process and diagnostic tools to adapt conservation management to sustainably overcome the intrinsic uncertainties of protected areas. The sound science foundation of the EIS/CCP process (p25, 28, US FWS, 2007) allows for some shuffling of research and management priorities and activities within the EID/CCP guidelines (p25, 28, US FWS, 2007).

[50] The USFWS works across interagency levels to cooperate with the Tohono O'odham Nation, International Sonoran Desert Alliance (ISDA), and the Barry M. Goldwater Executive Council (BEC) to build companion natural resource programs, GIS programs, to coordinate archeological resource issues and discuss cultural interpretation development (p41, USFWS, 2007). The mission to intertwine indigenous and community concern focuses on the protection of sacred sites, the use of the sites for religious rites, and the restoration of artifacts to the tribal councils (Chapter 4).

area of the border may indicate a security sector nod to protected area conservation. Recent bilateral negotiations on the adjoining Big Bend-Sierra del Carmen protected areas indicate the potential for elevating protected area environmental and ecosystem concerns in relation to the security sector's operating priorities.[51] (NPS et al 2 September 2010).

In Chapters 4 and 5 the L&K indicators compiled evidence that the transformation of conservation management in CPNWR is a response to border security projects within the park that are exogenous to the environmental sustainability and conservation management principles of the 1964 Wilderness Act and the Cabeza Prieta Conservation Management Plan. After ten years of border fence and security projects negatively impacting the CPNWR, the protected area conservation management agency understands the true nature of the border fence (Interview, July 2011). The straightforward "leave no trace" policy and the creation of diplomatic MOU's with the military training range have been replaced by the objective of border security as the purpose and the future of the protected area. Border security patrol police, projects, vehicle roads and construction needs have changed park management to the role of mitigating and recording environmental impact on conservation management function in the park.

The threat to environmental protections in CPNWR by subordination first to the litter, noise and structures of the Barry M Goldwater training range and second to narcotics traffickers[52] is now substantially magnified by the border wall and security projects. The Secure Fence project constructs a 32 mile vehicle barrier in CPNWR. The barrier has been shown to restrict wildlife movements and negatively affect species genetic pools within the area and in

[51] The possibility of a binational peace park at the Big Bend protected area at the Texas/Mexico border (Burnett, 16 June 2010) could set a precedent for CPNWR and EP/GDA but the difference comparatively less safe, higher rate of illegal narcotics traffic and illegal border crossers at the Arizona sister parks does distinguishes the EP/GDA and CPNWR protected area as less favorable for a peace park than the Texas area. Illegal border crossings have not decreased in the EP/GDA and CPNWR as in other border areas (Roberts et al November 2010).

other regions (Moya, 2007; List, 2007; Varas, 2007; Peters, 2007; Flesch et al, 2009). The presence of the military would seem to relieve the destructive impacts of the narcotics traffickers. As one participant states: "There are areas of the Wildlife Reserve that are out of control" (Interview 8, July 2011). The CPNWR area is unique in that unlike the drop in illegal border crossing that has occurred in many areas of the Southwest U.S. border; the rates of illegal crossing at Sonoita have steadily increased (Roberts et al November 2010). But the impact of the 8000 miles of illegal "wildcat" border patrol roads (CBD 2 September 2011) is disproportionate to the increased illegal crossings and narcotics trafficking in the protected area. As noted earlier, the increased traffic in the remote CPNWR and EP/GDA regions is the well-recognized consequence of heightened border security.

Summary

The weak (or thin) US approach to sustainable development in protected areas has insufficiently prepared the CPNWR protected area conservation management for the impacts of the security sector. The lack of social networking at the community level and sustainable local economic development has created what might be called developmental isolation.

In comparison to Parques Nacionales Lanín, Villarrica and the EP/GDA, the CPNWR could be said to have always had a divided mission. Despite the 1964 Wilderness Act, the consideration of the park as a big horn sheep preserve and a buffer for the BMGR required CPNWR environmental protections to adapt to the military training requirements. The recent overstepping of pre-existing environmental protection mandates by the border wall and increased border security projects have rewritten the function of the park, requiring that it adapt to the border security project.

The changes at the North American border raise the question of whether shared protected areas are truly a wilderness or simply public lands within a border state (Interview 8 July 2011).In the last ten years the North American border has seen increased environmental damage caused by narcotics traffickers and the loss of field work time due to danger and unsustainable enforcement actions by the CBP (Interview 8 July 2011). Despite the unsustainable actions by the CBP, the FWS is placed in the position of putting a positive spin on the CBP impacts in CPNWR while at the same time making visible the unsustainable environmental impacts (Interview 8, July 2011).

The security sector has been shown to simultaneously bring positive and negative impacts to the community, civil rights, land rights, and human security. Unlike Argentina and Chile, the impact of national security in EP?GDA and CPNWR is less the politics that skew protected area management away from sustainability and more about the militarization of the border that overrides efforts to sustainably fulfill the protected area mandate. In the case of CPNWR it is not difficult to assess the environmental pillar as disproportionately impacted by national security doctrine and projects. Unlike the three other protected areas examined in this study, sustainable environmental protection was the only area of sustainable development considered as a viable role for the US FWS in the CPNWR. In the face of heightened national security measures at the border this limited mandate for sustainable development has proven highly vulnerable. National security as expressed in border wall and security projects damage environmental sustainability in the park overtly, directly, and with impunity.

Conclusion: Does National Security impact environmental sustainability the most?

The L&K sustainable protected area indicators identify emergent sustainable development in the support for a strong regional ecosystem. The Mexican and U.S. conservation management strategies for emergent sustainable development advance an ecosystem approach in an overwhelmingly securitized and militarizing border environment. From the perspective of the L&K paradigm as applied to these two sister parks, the economic pillar of sustainable development is supported in Mexico's conservation management and is not a part of the U.S. definition for protected areas. Mexico's EP/GDA and the U.S. CPNWR experience have a contradictory economic relationship with national and border security. In terms of sustainable economic development the Mexican and U.S. security sectors promote citizen safety, with the potential for ensuring tourist safety through narcotics trafficking interdiction and judicial reform to reduce corruption and increase the rule of law in remote areas.

The post-September 11 Mexican and U.S. national security infrastructure does approach judicial reform and increased rule of law as an answer to the threat of drug cartels in the sparsely populated rural areas. Both countries face aggressive and violent criminality in the remote areas. Both the Mexican and U.S. security sector's border security and trade IT priorities support cross border relationships. Both countries also perceive increasing threats from the negative economic consequences of drug cartels. Unlike Argentina and Chile, Mexico and the U.S. have comparatively nonexistent dependence on rural communities to reduce drug cartel infiltration. The indigenous Tohono O'odham have been especially vulnerable to national security measures, suffering in Mexico from the lack of shared jurisdiction between the Tohono O'odham and the Mexican military and in the U.S., where shared jurisdiction technically exists, from the CBP's lack of regard for Tohono O'odham sovereign land rights. As in Chile, the contradictory

Mexican and U.S. motivations undermine CONANP and US FWS efforts to include the Tohono O'odham in collaborative conservation management and restoration of the Sonoran Desert Ecosystem.

In the examination of the national security relationship to sustainable social development, national security is shown to have a contrary relationship to the three pillars of sustainable development. On the positive side CONANP's emergent social sustainable development strategies are supported by the military presence to counter criminality in the remote areas. On the negative side the contradiction between Mexican military abuse of the Tohono O'odham is a telling example of Mexico's contradictory embrace of a differentiated citizenry and the resistance to Tohono O'odham sovereignty. The 2004 national security policy fully embraces environmental sustainability in terms of environmental protections, ecosystem strength and the negative security impacts of environmental degradation. But the efforts by the Tohono O'odham to protect and restore the Sonoran Desert that surrounds EP/GDA is not valued as a national security strategy to eliminate drug cartels in remote regions.

As was shown in Chapter 5 the contradictions between national and border security projects surface most in the area of environmental sustainability. Mexican and U.S. national security doctrine and projects have been clearly shown to have a contrary relationship to emergent environmental sustainability in the protected areas. The conservation management ecosystem approach that seeks to strengthen and restore the fragmented Sonoran Desert ecosystem is secondary to Mexican and U.S. bias for security projects. Similar to the Chilean political contradictions, the Mexican military's intolerance for indigenous destabilizes the thin border economy and the social stability of reservation sovereignty and fragments the ecosystem. The threat of drug cartel presence in the area generates aggressive security strategies in the

protected areas. The remote protected areas have become theaters for narcotics trafficking and interdiction and places where it is possible to neglect statutory and professional obligations to indigenous sovereignty, military accountability and environmental protection.

This examination of the Mexican and U.S. national security doctrines and projects in the EP/GDA and CPNWR sister parks presents comparative evidence that national security as expressed at the U.S./Mexico border has not embraced sustainable development as a national security strategy. Claims of multidimensional security in the U.S. and Mexico[53] do not cross from the national level of national and border security to support the local level of sustainable development in protected areas. The bilateral security sector response to the threat of drug cartels retains the reactive policies of the Bush administration border wall project and incubates police corruption. These restrictive policies and the border wall project impede the development of a multidimensional security approach and commitment to emergent sustainable environmental protections in the two shared protected areas. The national security mission that robustly enables IT communications for binational and regional economic growth and persistently interdict drug trafficking undermines the local level of environmental protections that are scaled to the regional ecosystem. Restoration of the fractured Sonoran Desert ecosystem is interdependent with environmental sustainability in the EP/GDA and CPNWR protected areas. Although Mexican and U.S. national security support for sustainable economic and social development at the local level seems to occur only in the national security doctrine it is there in word. In sum, framing an emergent, sustainable ecosystem approach for the Mexican and U.S. security and border security that embraces the local level of environmental sustainability and ecosystem health faces the

[53] As was discussed earlier, the Brundtland Report and OAS 2003 Declaration of Security in the America's multidimensional security principles that redefine strong security in transborder ecosystems as a nexus between environmental sustainable development and the security sector and as a support system for the economic, social and environmental pillars of sustainable development

barriers of overcoming the national scale of border security strategies and the perspective of the protected territory as buffers to serve military and security interests.

CHAPTER SEVEN

CONCLUSION

Introduction

This project has examined the influence of changing national security policy on sustainable development policy in two internationally shared protected areas. This conclusion reviews the findings of this study and reflects on the implications for balancing security and sustainability in shared protected areas. Three questions are addressed: First, of the three pillars of sustainable development is national security shown to disproportionately impact environmental sustainability? Second, is the comparative application of the Lockwood and Kothari emergent sustainable development paradigm to the individual park management plans and national security doctrine and projects a useful analytical approach for understanding the relationship between national security and sustainable development and cooperation, and one that might be applied to other cases?

Does National Security impact most the environmental pillar of sustainable development?

This study investigates the relationship between the three pillars of sustainable development and national security policy in two pairs of shared protected areas to determine whether national security most impacts the environmental pillar of sustainable development. Based on the evidence of emergent sustainable development and national security doctrine—inclusive of national security projects, strategies, and tactics—in the two sets of protected areas examined in this study, national security is shown to adversely impact or trump sustainable

environmental protections more intensively than it impacts the other two pillars of sustainable development, sustainable economic development and social development. In the Southern Hemisphere, national security subordinates and redirects environmental protection objectives as a response to political agendas. In the Northern Hemisphere military tactics aimed at countering the national threat of narcotics trafficking directly contradict and trump environmental protections that are appropriately scaled to restore the surrounding Sonoran Desert ecosystem.

In comparison to this depreciation of environmental sustainable development, national security is strategically motivated to support emergent sustainable economic and social development in the protected areas. Both Argentina and Chile are strongly committed to regional economic integration as well as combatting Transnational Organized Crime, priorities that directly impact the management of their remote contiguous protected areas along their international boundary. Argentinean and Chilean national security policy overtly supports sustainable economic development at the local level and sees social development as instrumental for social cohesion. In contrast to Argentina and Chile, Mexican national security support for sustainable economic and social development is a conflicted and destructive relationship between the military and local economic efforts. In the U.S., the absence of any real commitment to sustainable development is made worse on the ground by the destructive relationship between security practices and the local Tohono O'odham economy. These conclusions are supported by the evidence gleaned from the application of the Lockwood and Kothari (L&K) emergent sustainable development paradigm that was used to identify sustainable development values and practices embedded in the four protected areas' conservation management plans. These sustainable development commitments were then examined through the lens of national security policy and practices affecting the four protected areas.

The application of the Lockwood & Kothari emergent sustainable development paradigm did establish that varying forms and levels of emergent sustainable development are present in each of the four protected areas. The L&K paradigm located evidence of an ecosystem in each of the four conservation management plans. The L&K paradigm also identified two styles of an emergent sustainable ecosystem approach. Argentina, Chile and Mexico use multiple strategies to sustainably integrate ecosystems, people and land use. In comparison the U.S. conservation management ecosystem approach maintains a singular focus on the protected area as a national heritage and a public good involving comparatively limited citizen support within the boundaries of the legal definition of a U.S. protected area. The U.S. protected area management approach neglects the nexus between social and environmental values in favor of more scientific and legally defined approach towards whole ecosystems.

Application of the L&K paradigm to the four conservation management plans did show that sustainable development is a transformative process when it is defined and operationalized at local levels in a manner that moves away from national heritage or *patrimonio* to stress the benefits of the protected areas to the residents and the local community, to include indigenous populations. The L&K paradigm highlighted the principle that sustainable development policy for protected areas arises out of local problem solving and engagement with local communities and where this linkage is absent conservation and ecosystem protection may be at risk. This is evident in the U.S. case where the lack of sustainable development policy shifts US FWS conservation management policy for the CPNRW away from solving problems other than matters related to biodiversity protection and species management.

Examining national security doctrines and the effects of security projects on the emergent sustainable development strategies in the shared protected areas did establish—in varying

degrees in each protected area—that national security disproportionately impacts the environmental pillar of sustainable development. This conclusion is supported by the pattern found in the Argentinean, Chilean, and Mexican parks where national security, to include military and border security support for sustainable economic or social development, is often tied to developing economic opportunities that are presented by regional and bilateral integration. In contrast, environmental sustainability values and ecosystem protections were trumped in all four countries by political concerns and tactical military operations in these remote protected areas.

Admittedly, the presence of the military, or border patrol, is shown to offer advantages and disadvantages to all three pillars of sustainable development. Ironically the beneficial effect of reducing the negative impacts of Transnational Organized Crime (TOC) in the four protected areas is offset in three of the areas—through political contradiction in Chile, military corruption in Mexico, and the inability for border security to function at the local level that is so necessary for ecosystem restoration in both Mexico and the U.S. The conclusion that national security policy may have some positive impacts or may benignly support sustainable development rests in the distinctions that, of the three pillars of sustainable development, environmental sustainability is the least supported, and the most politically charged and, in the particular case of the U.S./Mexico border, that any environmental benefits are trumped in sustainable development terms by the official U.S. policy perception of the protected area as strategic security territory.

This research shows that the new security environment changes the status of the parks. Admittedly, the purpose and function of the parks has been rewritten from both emergent sustainable development principles and from the perspective of national security. Argentina, Chile and Mexican socio-environmental conservation management approaches rewrite the function of the three parks to benefit to the community and park residents. But the national

security perspectives in Chile, Mexico and the U.S. have been shown to conflict with emergent sustainable development as applied in those parks. The conflicting security policies transform the protected areas into a politically charged national security theater, lands that are sacrificed to act out the conflicts over indigenous land rights or considered a space to prove military and border security technology and projects as seen at the Mexico-U.S. border.

Unlike the conservation management policies in the three countries that are informed from local data that generates knowledge that is endogenous to the park for comanagement for ecosystem health, the U.S. conservation management approach is transformed by the exogenous border security project. The contradiction between the US FWS 1964 Wilderness Act (WA) mandate to mimic natural processes in order to conserve, maintain and restore the wilderness character of CPNWR and the destructive effects of national security functions—bombing practice on the Barry M Goldwater Reserve, the border fence construction project, and the consequences of the exponentially increased border patrol presence over the past decade, to include 8000 miles of new roads—is evidence of the lesser value placed on ecosystem management in the park where national security imperatives intrude.

The examination of the impact of national security projects on the emergent sustainable development practices in the protected areas did identify a universal threat response to TOC and drug cartels presence in the remote protected and surrounding areas. The national, regional and international levels of the security and military response to the increasing threat of a global TOC is indicative of the competing scales between national security goals and the local problem solving that serves conservation management for sustainable development. The national, binational, and international scale of national security doctrine, strategy and tactics does not interface at the local scale of sustainable development. In particular it is environmental

protections at the ecosystem scale that are inaccessible to the national security scale of prevention strategies and interdictions tactics that are applied to remote areas and borders.

Border security at the Argentinean and Chilean border—although working to meet TOC at the regional level and in remote areas—embraces a comanagement form of security that is not found in the nationally scaled, technological and interdiction driven security at the U.S./Mexico border. The application of the national security doctrine and policies to border security policy and projects shows border security to be embedded in the modern context of risk, threat perception and national security doctrine, not the multidimensional security proposed in the Brundtland Report (BR) and OAS 2003 Declaration of Security in the Americas (OAS DSA). In particular, the U.S./Mexico border fence project is an old (traditional) project that does not reflect international thinking about multidimensional security strategy.

Transboundary cooperation for ecosystem health and biodiversity is impacted and shaped by the new security environment. Chapter 1 has shown that international thinking about national security demands a multidimensional approach that includes prioritizes environmental protections. In Chapters 3 & 4 the L&K emergent sustainability indicators pointed to the need for cross-border communications, data sharing, collaboration, and joint problem solving to meet the needs of park management at the ecosystem level. Chapters 5 & 6 have shown the security impacts on emergent sustainable development identified for each park in Chapters 3 & 4. Additional scholarship suggests that binational cooperation is adversely impacted by border security projects and tactics (Shirk 2003, GNEB 2007, GNEB 2011).

The national security infrastructure impedes informal and more direct agency to agency communications. At the binational level the Good Neighbor Environmental Board Federal Advisory Committee finds that transborder cooperation is increasingly difficult for all levels of

U.S. border governmental entities. U.S. border states' spending of state funds on transborder projects is inconsistent. U.S. cities and counties often lack the support of elected officials necessary for effective transborder cooperation, even on issues endangered species and habitat protection—issues that affect both sides of the border (GNEB 2011). Although cross border cooperation for the Sonoran Desert and the EP/GDA and CPNRW protected areas is an acknowledged conservation priority in EP/GDA and CPNWR[54], national security and border projects compete as a priority.[55] Travel by state officials to Mexican border communities has become increasingly complicated by requirements of long lead times for travel authorization and other restriction (GNEB 2011). The International Sonoran Desert Alliance (ISDA) participants must now show identification such as a passport to cross the border into Ajo, Arizona for cross cultural events. The events bring carloads of young native American students that often have no ID cards from either side of the border.

The universal issue of indigenous land rights that is presented in each of the four countries conservation management plans and in three of the national security plans attests to gaps between the sovereign rights of indigenous peoples versus the various goals of Chilean, Mexican and U.S. national security. Comparatively, only Argentina had adopted policies aimed at resolving the indigenous lands rights conflicts associated with protected area management. In contrast, Chile, Mexico, and U.S. border national security, to include the border wall and border patrol measures, have appropriated protected area territory area for the security sector in the same way that nationalization and designation of the protected areas appropriated the territory

[54] The average participant response for the importance of cross border cooperation and collaboration as a task defined for the park is 5.75 (On a scale of 1 out of 7, 7 being highest) (Post Interview Survey Part 1, Appendix Two).

[55] The average participant response for the importance of national and border security as a task defined for the park is 5.05 (On a scale of 1 out of 7, 7 being highest) (Post Interview Survey Part 1, Appendix Two).

for the state. The lack of respect for indigenous territorial sovereignty has the potential to generate troublesome long term consequences in and around the protected area, including the loss of economic and social cohesion, ecosystem fragmentation, and environmental degradation.

The current challenges to the parks pointed to in earlier chapters are the seeds of future long term challenges. The universal challenge all four parks must eventually address is the long term impacts of border security projects and security sector mission creep. Parques Nacionales Lanín and Villarrica now face the challenge of building economic and social infrastructure and comanagement of the protected areas from an ecosystem approach. Such practices must be executed in a manner that decreases the presence of Transnational Organized Crime in remote protected areas. The integrated conservation management approach that works to stabilize economic and social communities must overcome Chile's conflicted national policies toward indigenous land rights and Argentina's northern biased security resource allocation. In Mexico CONANP and the multitude of environmental ministries and secretariats must coordinate for rapid response (Interview 9 July 2011) to border security tactics that destroy ecosystem health and property rights in and around EP/GDA. The US FWS's current challenge to make visible the destructive impacts of CBP border patrol in the park must first inform park employees of the depth of environmental damage caused by the border patrol (Interview 8 July 2011). The long term challenges for the US FWS in CPNWR—and an eventual possibility for all of the parks—is to overcome the frustrating recognition that the protected area is no longer a functioning wilderness (Interview 8 July 2011) and further reconcile the fact that healing the park will require over 100 years (Interview 8 July 2011).

Reflections on the Comparative Methodology

The comparative approach used in this study to examine the effect of national security on sustainable development in shared protected areas is analytically useful. By examining national security impact on the elements of protected area management that represent best practices at the level of the four parks in these two internationally shared ecosystems, it is possible to reach a stronger set of conclusions on how national security is affecting the environmental pillar of sustainable development.

The ability to group these protected areas in a three similar and one different pattern of conservation management attests that the L&K paradigm is appropriate to analyze protected area conservation management in order to identify patterns and subtle distinctions. Application of the L&K paradigm to the conservation management plans enables the researcher to identify local problems that shape sustainable development in the protected areas. Clear identification of local problems is critical to valid analysis of national security impact on conservation management strategies to resolve those problems and move forward. Because it is difficult to define the impact of national security on the environmental pillar of sustainable development in protected area and long term local problems through the conservation management plans themselves, it is necessary to supplement this information with face to face interviews with protected area natural resource managers. These interviews did confirm many of the assumptions drawn from the policy documents and provided additional detail that was useful to the analysis.

Turning to the L&K emergent sustainable development paradigm, this study found the paradigm valuable as a universal frame for the study of the protected area documents. The conservation management plans and national security white papers are consistent data sources for systematic policy and project comparison. The conservation management plans represent the

cumulative history of sustainable development and conservation management that is strategized at the local levels. The national security white papers are chosen for study as consistent, public markers of benchmark changes to national security in individual countries. The resultant rich descriptions of the comparative methodology aptly portrays of conflicted, ironic and occasionally mutually beneficial underlying political agendas, motivations, traditional and unsustainable thinking that impact sustainable development in shared protected areas. The combination of the three documents and interviews can be replicated to many protected area in most countries, enabling the accumulation of a global body of comparative research and systematic follow-up as updated conservation management plans and national security white papers are published.

As an Initial Model of Study

This dissertation presents a model for students of comparative environmental politics, sustainable development and national policy. This model provides an initial step to study the impact of other areas of policy on sustainable development in protected areas. Application of this methodology to any protected area or shared protected areas offers the same benefit of identifying best practices, local issues and situated problems, conservation management priorities, and examining how other policies affect these conditions. A reverse research strategy can also be employed as students seek to study the impact of sustainable development on national policy, as in Argentina's use of the Mapuche cosmology to make land and conservation decisions, or the implications of the longstanding practice of crafting MOU's between the US DOD and the NWS at Cabeza Prieta.

As a comparative study, the methodology of this research fits within a post-structural framework of analysis. If the goal of a new post-structural, post postmodern social science is to

locate instabilities, this approach achieves that through the identification of gaps between the local level conservation management plans and strategies, the national security ideals and the operational levels of security programs in and around the protected areas. This research methodology successfully distinguishes the instabilities and contradictions between the national goals and local problem solving for sustainable development and ecosystem restoration.

Future Research

The conservation management plans examined in this study present many characteristics of emergent, sustainable governance. Understanding how these plans are implemented at the level of the parks can be usefully applied to studying the impacts of the militarization of the borders and the type of governance needed to develop environmental protections in highly securitized environment. The questions that crystallized in this research ask if sustainable development matters if national security projects trump previous efforts at sustainable environmental development. What type of governance is necessary to maintain the balance between the local problem solving for sustainable development versus the national level of politics, funding and unsustainable tactics of unsustainable national security? How then may the delicate balance between sustainable development and national security be maintained? Will a strong ecosystem and clear land rights change the national security militarization of the border and destruction of the biodiversity and ecosystems?

Concluding Remarks

The conclusions of this research attest to the need to reverse the trend for national security to shape sustainable development in shared protected areas. It is sustainable

development and environmental protections that must change the unsustainable strategies and tactics of national security. Martin Anderson argued in his 2010 address to Deputy Assistant Secretary of Defense for Western Hemisphere Affairs Frank Mora that "The changes that open security frameworks to sustainability logic is the move toward a rights based approach." The Brundtland Report and the OAS 2003 Declaration of Security in the Americas initiated the move to reconceptualize security based on human rights and includes the environment as a valid security concern. The potential to change the negative impacts of national security projects on environmental protections and sustainability in shared protected areas through local problem solving that is scaled for an ecosystem approach are strategies that have the potential to change unsustainable and environmentally destructive security actions and projects.

BIBLIOGRAPHY

Advanced Conservation Strategies, "A Coastal Marine Assessment in Chile", A Report Prepared for the *David and Lucile Packard Foundation,* January 2011. http://www.advancedconservation.org/storage/library/ACS%20marine%20assessment%20Chile.pdf

Amnesty International, "Mexico: New reports of human rights violations by military", *Amnesty International Publications,* 2009. http://www.amnesty.org/en/library/asset/AMR41/058/2009/en/e1a94ad6-3df1-4724-a545-f0b93f39af69/amr410582009en.pdf

Anderson, Martin E, "*Peoples of the Earth: Ethno-nationalism, Democracy, and the Indigenous Challenge in "Latin" America",* Lexington Books, Maryland, 2010.

Angeles, Mahmett, Quinn, Michael, "On the edge: factors influencing conservation and management in two border Mexican parks", *Peace Parks,* 2007. http://peaceparks2007.whsites.net/Papers/Mendoza&Quinn_On%20the%20edge_Mexico.pdf

APN, "Plan de Gestión"*, Administración de Parques Nacionales.* Argentina, 2007. http://www.parquesnacionales.gov.ar/

APN, "Plan de Gestión: Parque Nacional Lanín", *Administración de Parques Nacionales,* Argentina, 2011. https://docs.google.com/viewer?a=v&pid=explorer&chrome=true&srcid=0B4_p5qPjcl8HZTA3MzQyODAtZGMxYi00ZDgzLWI3YWEtYjg4Mjk2ZmQxYTdj&hl=es

Albert, Michael, and others, *Liberating Theory,* South End Press, Boston, MA, 1986.

Amnesty Internacional, "In Hostile Terrain: Human Rights Violations in Immigration Enforcement in the U.S.", *Amnesty International,* New York, 2012. http://www.amnestyusa.org/pdfs/AI_InHostileTerrain_032312_singles.pdf

Barrionuevo, Alexei, "Argentina - Kirchner Achieves an Easy Victory in Argentina Presidential Election", *New York Times,* 24 October 2011. http://www.nytimes.com/2011/10/24/world/americas/kirchner-appears-headed-to-second-term-as-argentinas-president.html?pagewanted=all

Benton, A. "What Makes a Strong Federalism look Weak?", *Publius: The Journal of Federalism.* Vol 29, Issue 4, 2009: 651-676. http://investigadores.cide.edu/AllysonLucindaBenton/Publications_archivos/Federal%20Institutions%20Argentina.pdf

Blatter, Joachim, "Cross-Border Regions: A Step toward Sustainable Development? Experience and Consideration from Examples in Europe and North America" in Ganster, Paul, ed, "*Cooperation, Environment, and Sustainability in Border Regions", Institute for Regional Studies of the Californias*, San Diego State University Press, San Diego, 2001.

Borrini-Feyerabend, Johnston, & Pansky. Governance of Protected Areas. In Lockwood, M. Worboys, G. Kothari, A. eds. *Managing Protected Areas: A Global Guide,* Earthscan Press. London, 2006: 116-145.

Boswell, Tom, "Caught in the Crossfire", *National Catholic Reporter,* 20 December 2010. http://ncronline.org/news/justice/caught-crossfire

Brewer, Jerry, "Mexico's Security Initiatives Pass the 'Synthesis Test", *MexidataInfo,* 27 February 2012. http://www.mexidata.info/id3280.html

Brownfield, William R, "Testimony: Statement before the Senate Caucus on International Narcotics Control" *U.S. Department of State,* Washington, DC, October 19 2011. http://www.state.gov/j/inl/rls/rm/175810.htm

Brusca, Richard, Bryner, G, "A Case Study Of Two Mexican Biosphere Reserves: The UpperGulf of California/Colorado River Delta and Pinacate/Gran Desierto de Altar Biosphere Reserves", in Harrison, N. E. and. Bryner, G. C. (eds.), *Science and Politics in the International Environment*, Rowman and Littlefield, New York, Winter 2004.

Bull, H. 1977. *The Anarchical Society: A Study of Order in World Politics,* Columbia University Press, New York.

Burnett, John, Security Worries Overshadow U.S.-Mexico Park Plan, *NPR,* 16 June 2010. http://www.npr.org/templates/story/story.php?storyId=127874281

Burgete Cal y Mayor, Araceli., Goméz Goméz, Miguel, "Multiculturalismo y gobierno permitido en San Juan Canuc, Chiapas: tensions intercomunitarias po el reconocimiento de "autoridades tradicionales,", in *Governar (en) la diversidad: experiencias indiegenas desde American Latina, Hacía la investigacion de co-labor,* ed, Xochitl Leyva, et al, Mexico City, Facultad Latinamerica de Ciencias Sociales, 2008: 343-392. http://www.jornadas-andesmesoamerica.org/pdf/Gobernar1corregido.pdf

Buscaglia, Edgardo, van Dijk, Jan, "Controlling Organized Crime and Corruption in the Public Sector", *Forum on Crime and Society*. Vol. 3, Nos. 1 and 2, December 2003: 3-32. http://www.unodc.org/pdf/crime/forum/forum3_Art1.pdf

Carlson, Laura, "A Primer on Plan Mexico: The Militarization of Mexico", *Counterpunch,* 8 May 2008. http://www.counterpunch.org/2008/05/08/a-primer-on-plan-mexico/

Carruthers, David, "Environmental Politics in Chile: Legacies of Dictatorship and Democracy," *Third World Quarterly*, Vol. 22, No. 3, 2001: 343-358.

CBD, "Convention on Biological Diversity", *UNEP*, 1993. http://www.cbd.int/convention/convention.shtml

CBD, "Strategic Plan: future evaluation of progress", COP Decision VII/30, *Convention on Biological Diversity,* 2007. http://www.cbd.int/decision/cop/?id=7767

CBD, "Current Threats to the Biological Integrity of our Borderlands: The Security Fence Act of 2006", *Borderlands and Boundary Waters,* 2007. http://www.biologicaldiversity.org/swcbd/programs/blbw/index.html

CBD, "Cabeza Prieta National Wildlife Refuge Puts Fragile Pronghorn Population at Risk From Motorized Mayhem", 19 May 2011. http://www.biologicaldiversity.org/news/press_releases/2011/cabeza-prieta-roads-05-19-2011.html

CBD, "Border Patrol Plan to Triple Base Size on Arizona-Mexico Border Puts Endangered Wildlife, Fragile Lands at Risk", 2 September 2011. http://www.biologicaldiversity.org/news/press_releases/2011/border-patrol-09-02-2011.html

CBP, "Fact Sheet: Alliance to Combat Transnational Threats – Arizona/Sonora Corridor" 8 February 2011. http://www.cbp.gov/xp/cgov/newsroom/fact_sheets/border/arizona_factsheet.xml

CBP, VF300 Environmental Stewardship Plans, *Border Security,* March, 2012. http://www.cbp.gov/xp/cgov/border_security/ti/ti_docs/sector/tucson/vf300_tucson/

Chamber, Nina, Hall, John, "Lessons Learned: Sonoran Desert Ecosystem Initiative:, *Sonoran Institute, The Nature Conservancy,* October 2005. http://www.denix.osd.mil/nr/upload/Sonoran_Initiative_Lessons_Learned.pdf

Chapman, J, De Lacy, Terry. Whitmore, M, "Sustainability Practice and Sustainable Use", in Lockwood, Michael, Worboys, Graeme, Kothari, Ashish, eds. *Managing Protected Areas: A Global Guide.* Earthscan Press, London, 2006c: 377-405.

Clement, Norris, "International Transboundary Collaboration: A Policy-Oriented Conceptual Framework", in Ganster, Paul, ed, *Cooperation, Environment, and Sustainability in Border Regions,* Institute for Regional Studies of the Californias, San Diego State University Press, 2001: 17-31.

Clinton, Hillary R. *Remarks with Mexican Foreign Secretary Patricia Espinosa after their meeting.* Mexico City, Mexico, 23 March 2010. http://www.state.gov/secretary/rm/2010/03/138963.htm

Clinton, Hilary, "Joint Statement of the Mérida Initiative High-Level ConsultativeGroup on Bilateral Cooperation Against Transnational Organized Crime", *DOS*, Washington D.C., 29 March 2009. http://www.state.gov/secretary/rm/2010/03/139196.htm

CONAF. "Plan de Manejo Parque Nacional Villarrica". Doc. de Trabajo No 454, Departamento Patrimonio Silvestre, *CONAF*, Región de la Araucanía, Temuco, Chile, 2006. http://www.conaf.cl/cms/editorweb/PARQUES/planes%20de%20manejo/Plan%20de%20Manejo%20PNVillarrica.pdf

CONAF. "Plan de Manejo Parque Nacional Villarrica-Hualalafquen"*, CONAF*, Gobierno de Chile, 2008. http://www.conaf.cl/cms/editorweb/Plan%20de%20Manejo%20RNVillarrica.pdf

CONANP, "Programa de Manejo El Pinacate y Gran Desierto", Secretaría de medio Ambiente y Recursos Naturales, *SEMARNAT/CONAN,* Mexico, D.F., 1995. http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/RBEl_Pinacate.pdf

CONANP, "Programa Nacional de Áreas Naturales Protegidas 2007-2012", Secretaría de Medio Ambiente y Recursos Naturales, *SEMARNAT/CONANP.* Mexico, D.F., 2007. http://www.conanp.gob.mx/quienes_somos/pdf/programa_07012.pdf

CONANP, "Programa del Turismo en Áreas Protegidas", SEMARNAT/CONANP, 2007. http://www.conanp.gob.mx/pdf_publicaciones/Turismopags-individuales.pdf

CONANP, "Sisteme de Ministero y Evaluación del Fond para Áreas Naturales Protegidas, Reporte Annual 2008, *CONANP/SEMARNAT,* 2008. http://toolkit.conservationfinance.org/sites/default/files/documents/monitoring-and-evaluation/sistema-de-monitoreo-y-evaluacion-fanp-2008-fmcn-mexico.pdf

CPNHA, *Cabeza Prieta Natural History Organization,* 2012. http://cabezaprieta.org/

Dellios, Hugo, "Cross-border traffic ravages desert park - Drug runners, migrants blamed", in *Desert Invasion – U.S.,* 19 August 2003. http://www.desertinvasion.us/articles/articles_opnm.html

De Lacy, Terry, Chapman, Juliet, Whitmore, Michelle, Worboys, Graham, "Obtaining, managing and communicating information", in Lockwood, Michael Worboys, Graeme, Kothari, Ashish, eds. *Managing Protected Areas: A Global Guide,* Earthscan Press, London, 2006: 262-291.

Erro, Davide, *Resolving the Argentine Paradox: Politics and Development 1966-1992,* Lynne Reiner Publishers, Boulder, CO 1993.

ESC, " United States-Mexico Executive Steering Committee (ESC) on Twenty-First CenturyBorder Management", United States-Mexico Bilateral Action Plan for Endorsement at the Third Meeting of the Bilateral Executive Steering Committee on Twenty-First Century Border Management, 15 December 2011. http://photos.state.gov/libraries/mexico/310329/15dec11/Action Plan_15_DIC.pdf

Espach, Ralph, "When is Sustainable Forestry Sustainable: The Forest Stewardship Councilin Argentina and Brazil," *Global Environmental Politics*, Vol. 6, No. 1, 2006: 55-84.

Esparza, Adrian X. and Angela J. Donelson, "*Colonias in Arizona and New Mexico*", Tucson: *University of Arizona Press*, 2008.

Fall, Juliet, *Drawing the Line: Nature, Hybridity, and Politics in Transboundary Spaces,* Ashgate Press, England, 2005.

Flesch, Aaron, Epps, Clinton, Cain, James, Cain, Matt, Krauseman, Paul, Morgart, John, " Potential Effects of the United States Border Fence on Wildlife" Contributed Paper, *Conservation Biology,* 2009. http://avianscience.dbs.umt.edu/aboutus/documents/Flesch_ConBio_borderfences_2009.pdf

Fox, Edward, "Police Resign En Masse in North Mexico Due to Gang Pressure", *Insight: Organized Crime in the Americas,* 19 July 2012. http://www.insightcrime.org/news-briefs/police-resign-en-masse-in-north-mexico-due-to-gang-pressure

Ganster, Paul, ed, *Cooperation, Environment, and Sustainability in Border Regions", Institute for Regional Studies of the Californias*, San Diego State University Press, 2001.

Garré, Dra. Nilda, "La Protección del medio ambiente es un derecho de todos los pueblos del muño, dijo Garré", *Ministerió de la Defensa,* 25 September 2007. http://www.mindef.gov.ar/prensa/comunicados.php?notId=516

Gates, Robert, "Keynote Speech on Western Hemisphere at Halifax International Security Forum" *Office of the Assistant Secretary of Defense, U.S. Department of Defense, (Public Affairs)* Speech, 23 November 2009. http://www.defenselink.mil/speeches/speech.aspx?speechid=1398

Gaynor, Tim, "Mexico drug gangs muscle border tribe out of homes", *Reuters,* 2 December 2007. http://www.reuters.com/article/2007/12/03/us-usa-mexico-indians-idUSN0223994420071203

GNEB, "Environmental Protection and Border Security on the U.S. Mexico Border: Tenth Report of the Good Neighbor Environmental Board to the President and Congress of the United States´*Good Neighbor 2007 Report to Congress,* March 2007. http://sandiegohealth.org/environment/gneb/english-gneb-10th-report.pdf

GNEB, "Innovative and Practical Solutions to Solving Border Environmental Problems: Twelfth Report of the Good Neighbor Environmental Board to the President and Congress of the United States", *Good Neighbor 2007 Report to Congress,* March 2009. http://www.epa.gov/ocempage/gneb/gneb12threport/English-GNEB-12th Report.pdf

Gobierno de Chile, "Plan Araucanía: Invirtiendo en personas y oportunidades", 2010. http://www.minsegpres.gob.cl/wp-content/uploads/files/Plan_Araucania.pdf

Gobierno de Chile, *Ministerio de Medio Ambiente,* 2012. http://www.gobiernodechile.cl/media/2010/05/MEDIOAMBIENTE.pdf

Gobierno de Chile, "Chile Seguro: Plan de Seguridad Pública 2010-2014", *Gobierno de Chile,* 4 August 2010. http://www.gob.cl/especiales/chile-seguro-plan-de-seguridad-publica-2010-2014/

Gobierno de Chile, "We-Tripantu – Año Nuevo Mapuche", *Gobierno de Chile*, 24 Junio 2012. http://www.gob.cl/especiales/we-tripantu-ano-nuevo-mapuche/

Gorte, Roberto, "Wilderness Laws: Statutory Provisions and Prohibited and Permitted Uses", *Congressional Research Service*, 7-5700/ R41649, 22 February 2011. http://www.wilderness.net/NWPS/documents/Wilderness%20Laws-Statutory%20Provisions%20and%20Prohibited%20and%20Permitted%20Uses.pdf

Gwynn, Wendy Laird-Benner, Ingram, Helen, "Figure 1. Protected federal and tribal lands in the Arizona/Sonora border region, Sonoran Desert Network Weavers: Surprising Environmental Successes on the U.S./Mexico Border", *Environment: Science and Policy for Sustainable Development,* January-February 2011. http://www.environmentmagazine.org/se/util/display_mod.cfm?MODULE=/se-server/mod/modules/semod_printpage/mod_default.cfm&PageURL=/Archives/Back%20Issues/2011/January-February%202011/sonoran-desert-full.html&VersionObject=BBD1DD2FA766B17680CC53DE2BBDFBEC&Template=590DB1352F1E17A42A2BD1D5F197578B&PageStyleSheet=30649E3FEA4E0343D76DA1B99596656A

Haslam, Paul, "The Corporate Social Responsibility System in Latin America", *FOCAL Policy Paper,* FPP-04-1 2004. http://www.focal.ca/pdf/csr_04.pdf

Havana (a.k.a) "Something is Broken: Mexican Justice", *Borderland Beat,* 30 September, 2012. http://www.borderlandbeat.com/2012/09/something-is-broken-mexican-justice.html

Harwell, Janeane, "Virtual Wall for Virtual Protection: The Consequences of Border Militarization on US-Mexico Binational Environmental Management Institutions", *American Environmental History Conference*, Boise, Idaho,12-15 March 2008.

Hopkins, Jack, *Policymaking for Conservation in Latin America: National parks, reserves, and the environment*, Praeger Publishers, Westport, CT, 1995.

Hostetler, Sharon,. "The Mérida Initiative: New Phase, Same Violence" *Solidaridad: Witness for Peace*, Vol 2. No 2, Spring 2010. http://www.witnessforpeace.org/downloads/Solidaridad_Spring%202010.pdf

H.R. 2735, *National Wildlife Refuge System Operations Enhancement Act of 2007*. 110th Congress, 1st Session, 14 June 2007. http://www.gpo.gov/fdsys/pkg/BILLS-110hr2735ih/pdf/BILLS-110hr2735ih.pdf

IACHR, "IACHR takes case involving Chile into international court", *IACHR OAS*, 29 April 2011. http://www.oas.org/en/iachr/media_center/PReleases/2011/094.asp

IDB, Realignment, *About the IDB,* July 2007. http://www.iadb.org/en/about-us/five-things-you-need-to-know-about-the-idb,6557.html

IIED-AL, "Sustainable development in Argentina", *Environment and Urbanization,* Vol 4, No. 37, 1992. http://eau.sagepub.com/content/4/1/37

INE-SEMARNAT, "Program de Manejo 2: Reserva de la Biósfera de El Pinacate y Gran Desierto de Altar", *CONANP*, 1996. http://www.conanp.gob.mx/que_hacemos/pdf/programas_manejo/RBEl_Pinacate.pdf

IUCN, "Protected Areas of the World: A Review of National Systems", Vol 1, *IUCN*. Gland, Switzerland, 1992. http://books.google.com/books?id=PpFj275P1msC&pg=PT216&lpg=PT216&dq=how+does+CONAF+pay+for+protected+areas&source=bl&ots=IInKtZU2a6&sig=6zvmgJjoXV50HColns_zhSFtcE0&hl=en&sa=X&ei=bORwT_PZMKjm2gWvu-jxAQ&ved=0CCMQ6AEwAA#v=onepage&q=how%20does%20CONAF%20pay%20for%20protected%20areas&f=false

IUCN, "The Durban Accord: Our Global Commitment for People and the Earth's Protected Areas", *Vth IUCN World Parks Congress*. Durban, South Africa, 2003. http://cmsdata.iucn.org/downloads/durbanaccorden.pdf

IUCN, "Message on the Vth World Parks to the Convention on Biological Diversity, *Vth World Congress,* Durban, South Africa, 8-17 September 2003a. http://www.iucn.org/about/work/programmes/pa/pa_event/wcpa_wpc/

IUCN, "The Durban Action Plan", revised version, *Durban Accord and Action Plan Working Group, Vth World Congress,* Durban, South Africa, 8-17 September 2004. http://cmsdata.iucn.org/downloads/durbanactionen.pdf

Johnson, David, "Testimony: The Merida Initiative", *Bureau of International Narcotics and Law Enforcement Affairs, Subcommittee on State, Foreign Operations, Related Programs of House Committee on Appropriations,* Washington, DC, 10 March 2009. http://www.state.gov/j/inl/rls/rm/120225.htm

Keohane, Robert, Nye, Joseph, *Power and Interdependence: World Politics in Transition*, Little-Brown Publishers, Boston, 1977.

Kirchner, Dr. Nestor, Garré, Dra. Nilda, "Modernization of the Defense Sector: Principles and characteristics of the Argentinean model", *Ministerio de la Defensa de Argentina*, *Presidency of the Nation,* 2007. http://merln.ndu.edu/whitepapers/Argentina_English2007.pdf

Kliot, Nurit, "Transborder Peace Parks: The Political Geography of Cooperation (and Conflict) in Borderlands", in Schofield D. Drysdale. A, Brown, J., eds., *The Edge: International Boundaries and Political Geography,* 2002: 407-436.

LA Herald Tribune. "History", *Chile: Profile*, 3 August, 2012. http://www.laht.com/article.asp?ArticleId=389197&CategoryId=34694

Lewis, Paul, *Authoritarian Regimes in Latin America: Dictators, despots and tyrants.* Rowland & Littlefield Publishers, London, 2005.

Lignet, "Chile announces Plan Araucanía. In-Briefs", 9 August 2012. http://www.lignet.com/InBriefs/Chile-Announces-Plan-Araucania--to-Improve-Intern#ixzz247kRTy5U

List, Rurik, "The Impacts of the Border Fence on Wild Mammals," in Ana Cordova and Carlos A. de la Parra, *A Barrier to Our Shared Environment*, Tijuana: Colegio de la Frontera Norte, 2007.

Lockwood, Michael, "Global Protected Area Framework", in Lockwood, Michael, Worboys, Graeme, Kothari, Ashish, eds. *Managing Protected Areas: A Global Guide,* Earthscan Press, London, 2006: 73-100.

Lockwood, Michael, "Management Planning", in Lockwood, Michael, Worboys, Graeme, Kothari, Ashish, eds. *Managing Protected Areas: A Global Guide,* Earthscan Press, London, 2006a: 292 -327.

Lockwood, Michael. Kothari, Ashish, "Social Context", in Lockwood, Michael, Worboys, Graeme, Kothari, Ashish, eds. *Managing Protected Areas: A Global Guide.* Earthscan Press, London, 2006b: 41-72.

Lockwood, Michael, Worboys, Graeme, Kothari, Ashish, eds. *Managing Protected Areas: A Global Guide,* Earthscan Press, London, 2006c.

López-Hoffman, Laura, McGovern, Emily, Varady, Robert, Flesse, Karl, eds*, Conservation of Shared Environments: Learning from the United States and Mexico,* University of Arizona Press, Tucson, 2009.

López-Hoffman, Laura, Varady, Robert, Balvanera, Patricia, "Finding Mutual Interest in Shared Ecosystem Services: New Approaches to Transboundary Conservation", in López Hoffman, Laura, McGovern, I, Varady, Robert, Flessa, Karl, eds*, Conservation of Shared Environments: Learning from the United States and Mexico,* University of Arizona Press, Tucson, 2009.

López-Hoffman, L. McGovern, I. Varady, R. Flessy, K. eds. *Conservation of Shared Environments: Learning from the United States and Mexico,* University of Arizona Press. Tucson, 2009: 137-153.

Mares, David, "Exploring the Impact of Economic Cooperation on Political and Security Relations between Argentina and Chile," Report commissioned by *The Henry L. Stimson Center on Economic Cooperation and Political and Security Relations,* 2000. http://www.stimson.org/images/uploads/research-pdfs/mares.pdf

McNeely, Jeffrey, "Forward: Indigenous people and parks in South America", in Amendl, Stephan, Amend, Thora, *National Parks Without People?: The South American Experience,* IUCN, WCU/Parques Nacionales y Conservación Ambiental, Quito, 1995: 19-28.

Melinawu, Daniel, "Great Mapuche March in the City of Temuco Wednesday", *Maricheweu International*, 23 October 2012. http://maricheweuinternational.blogspot.com/2012/10/great-mapuche-march-in city-of-temuco.html

MERLN, "National Security White Papers", Accessed 12 October 2012. http://merln.ndu.edu/whitepapers.html

Meyer, Peter, "Chile: Political and Economic Conditions and U.S. Relations", *Congressional Research Service*, 7-5700, R40126, 1 June 2011. http://www.fas.org/sgp/crs/row/R40126.pdf

Millennium Ecosystem Assessment., "*Ecosystems and Human Well-Being: A Framework for Assessment:,* Island Press, Washington D.C., in Hoffman, L. Varady, R. Balnavera, P., *Finding Interest in Shared Ecosystems: New Approaches to Transboundary Conservation,* in López-Hoffman, L. McGovern, I. Varady, R. Flessy, K. eds. 2009. *Conservation of Shared Environments: Learning from the United States and Mexico.* University of Arizona Press, Tucson, 2003: 137-153.

Ministerio de la Defensa, *Ciencia, tecnología producción*, Argentina, 2012. http://www.mindef.gov.ar/mindef_ciencia_tecno_prod/index.php

Ministerio de la Defensa Nacional de Chile, *Libro de la Defensa Nacional,* Book 3, 2002. http://www.defensa.cl/libro_2002/index.htm

Ministerio de la Defensa Nacional de Chile, "*Libro de la Defensa Nacional",* Book 3, 2010. http://www.defensa.cl/archivo_mindef/Libro_de_la_Defensa/2010/2010_libro_de_la_defensa_indice_general.pdf

Mora, Frank, Day One Part One: "Rethinking Hemispheric Security and Strategy: Ten Years after the Mexico City OAS Declaration", *15th Annual Western Hemisphere Security Colloquiu,* Institute for National Strategic Studies, National Defense University, 20 May 2012. http://www.youtube.com/watch?v=OwGqLdPeZyk&list=UUhpqsyLP6XlrNiv1wpDO_HQ&index=1&feature=plcp

Morales,Guadalupe, "Case Study on the Consolidation of El Pinacate y Gran Desierto del Altar Biosphere Reserve, Mexico", *Parks in Peril Program*, April 2003. http://www.parksinperil.org/files/el_pinacate_case_study_eng.pdf

Moya, Hector, "Possible Impacts of Border Fence Construction and Operation on Fauna," in Ana Cordova and Carlos A. de la Parra, *A Barrier to Our Shared Environment*. Tijuana: Colegio de la Frontera Norte, 2007.

Mroue, Haas, Schreck, Kristina, Luongo, Michael, "Chile's Lake District", *Frommer's Argentina and Chile*, Wiley Publishing Inc, Hoboken, New Jersey, 2005, 317. http://books.google.com/books?id=ORUzeR1oPTAC&pg=PA317&lpg=PA317&dq=map,+parques+nacionales+villarrica+and+lanin&source=bl&ots=0SZ4tH_yMh&sig=4zQLUJ-1JGdr06LITNKEdjbzWD0&hl=en&sa=X&ei=RqGNUNyNH8jcigLv2YGQBw&ved=0CCoQ6AEwAjgK#v=onepage&q=map%2C%20parques%20nacionales%20villarrica%20and%20lanin&f=false

Mumme, Steve, "Sustainable Development and Environmental Decentralization at the Border: Insight from Sonora", In Herzog, Lawrence, "*Shared Spaces: Rethinking the U.S. Mexico Border Environment", Center for U.S.-Mexico Studies, UCSD*, La Jolla, 2000.

Mumme, Steve Lybecker, Donna, Gaona, Osiris, Manterola, Carlos, "The Commission for EnvironmentalCooperation and Transboundary Conservation across the U.S.-Mexico Border", in López-Hoffman, Laura, McGovern, Emily, Varady, Robert, Flesse, Karl. eds*, Conservation of Shared Environments: Learning from the United States and Mexico,* University of Arizona Press, Tucson, 2009: 261-278.

Nagy, Imre, "Environmental Problems at the Seven Hungarian Border Regions", in Ganster, Paul, ed., *Cooperation, Environment, and Sustainability in Border Regions.* Institute for Regional Studies of the Californias, San Diego State University Press, 2001: 203-222.

Netto, Major General Walter Bragam, "Day One Part Four: Subregional Contributions to Regional Security", *15th Annual Western Hemisphere Security Colloquium, Institute for National Strategic Studies*. National Defense University, 20 May 2012. http://www.youtube.com/watch?v=OwGqLdPeZyk&list=UUhpqsyLP6XlrNiv1wpDO_HQ&index=1&feature=plcp

Norell, Brenda, "US Border Patrol scheme exposed for massive complex on sovereignTohono O'odham land", *The Narcosphere,* 18 September 2012. http://narcosphere.narconews.com/notebook/brenda-norrell/2012/09/us-border-patrol scheme-exposed-massive-complex-sovereign-tohono-ood

Norell, Brenda, "Border Patrol/Occupying Army", *Border Summit of the Americas, Tohono O'odham Nation, Part II, Tripod,* Accessed 11 October 2012. http://bsnorrell.tripod.com/id61.html

NPS, FWS, USGS, and TPWD, "Memorandum of Understanding Among Texas Parks and Wildlife Department And The United States Department of the Interior National Park Service, Big Bend National Park And U.S. Fish and Wildlife Service, Region 2 And U.S. Geological Survey, Central Region, Texas Water Science Center And U.S. Geological Survey, Biological Resources Division, Fort Collins Science Center", *TexasWildlife Department,* 2 September 2010. http://www.tpwd.state.tx.us/newsmedia/releases/news_roundup/bighorn_sheep_relea e_at_big_bend_ranch/media/big_bend_conservation_cooperative_agreement.pdf

OAS, *Declaration of Security in the Americas,* Special Conference on Security, Mexico City,Mexico OEA/Ser.K/XXXVIII, CES/DEC, 1/03, rev.1, 28 October 2003. http://www.oas.org/en/sms/docs/DECLARATION%20SECURITY%20AMERICAS%20REV%201%20%2028%20OCT%202003%20CE00339.pdfhttp://www.oas.org/documents/eng/DeclaracionSecurity_102803.asp

OAS, "A Brief Summary of CICAD achievements over the last decade," *InterAmerican Drug Abuse Control Commission,* Secretariat for MultiDimensional Security, 2004. http://www.cicad.oas.org/Main/Template.asp?File=/main/aboutcicad/basicdocuments/logroscicad_eng.asp

Olson, E. Wilson, C. *Beyond Merida: The Evolving Approach to Security Cooperation,* Working Paper Series on U.S.-Mexico Security Cooperation, Woodrow Wilson International Center for Scholars Mexico Institute, University of San Diego Transborder Institute, May 2010. http://wilsoncenter.tv/sites/default/files/Beyond%20Merida1.pdf

Piekielek, Jessica, "Cooperative conservation, Unilateral Security", in López-Hoffman, Laura, McGovern, Emily, Varady, Robert, Flesse, Karl, eds., *Conservation of Shared Environments: Learning from the United States and Mexico,* University of Arizona Press, Tucson, 2009: 213-225.

Personal Communication, in discussion with the author, Pucón, Chile, January, 2007.

Personal Communication, in discussion with the author, Santiago, Chile, June 29, 2008.

Peters, Eduardo, "Possible Impacts of Border Fence Construction and Operation on Flora," in Ana Cordova and Carlos A. de la Parra, *A Barrier to Our Shared Environment*, Tijuana: Colegio de la Frontera Norte, 2007.

Pykclik, Kristina. Leibig, Jennifer, "Living in No Man's Land", *Cultural Survival,* Issue 30.3, Fall 2006. http://www.culturalsurvival.org/publications/cultural-survival-quarterly/mexico/living-no-mans-land

Quilodran, Federico, "Chile blames deadly fires on Mapuche" *Associated Press,* 6 January 2012. http://news.yahoo.com/chile-blames-deadly-fires-mapuche-indian-terror-185127936.html

Ragin, Charles, *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies,* University of California Press, Berkeley, 1987.

Remmer, Karen, "The Chilean Military under Authoritarian Rule, 1973-1987: *Occasional Paper Series. No. 1, Albuquerque: Latin American Institute, University of New Mexico*, March 1988.

Reyes-Mendy, Francisca, "Chilean congressional politics under President Lagos: environment and politics in Chile 2000–2006", *Local Environment*, Vol. 15, No. 2 February 2010: 83–103.

Roberts B., Hanson G., Cornwell, D., Borger S, *An Analysis of Migrant Smuggling Costs Across the Border,* Working Paper, DHS, November 2010. http://www.dhs.gov/xlibrary/assets/statistics/publications/ois-smuggling-wp.pdf

Sanhueza, José, "Alcade de Villarrica agradecío al Ejército por su ayuda tras desastre climático", *Soytemuco.cl*, 12 June 2011. http://www.soychile.cl/Temuco/Sociedad/2011/06/12/20901/Alcalde-de-Villarrica-agradecio-al-Ejercito-por-su-ayuda-tras-desastre-climatico.aspx

Scherl, Lea, et al, "Can Protected Areas Contribute to Poverty Reduction? Opportunities and Limitations", *IUCN*, Gland, Switzerland, 2004. http://data.iucn.org/dbtw-wpd/edocs/2004-047.pdf

Schmall, Emily, "Once Just a Stopover for Drug Traffickers, Argentina Has Now Become a Destination", *New York Times,* 7 July 2012. http://www.nytimes.com/2012/07/08/world/americas/for-drug-traffickers-argentina-has-become-a-destination.html?_r=2&ref=americas

Secretaria de la Defensa Nacional, "El Ejército y Fuerza Aérea Mexicanos", 2004. http://merln.ndu.edu/whitepapers/Mexico.pdf

Seeper, Jerry, "Part 3 of 5: Mexican police join drug lords, Border Wars: The Complete Series, *The Federal Observer*, Accessed 8 October 2012. http://www.federalobserver.com/archive.php?aid=4161

Segee, B. Córdoba, A. A Fence Runs Through It: Conservation implications of recent U.S. Border Security Legislation. In López-Hoffman, L. McGovern, I. Varady, R. Flessy, K, eds. 2009. *Conservation of Shared Environments: Learning from the United States and Mexico.* University of Arizona Press, Tucson, 2009: 279-291.

Seelau, Ryan, "Argentina: 400 Hectares Returned to Mapuche Community", *IndigenousNews.org,* 2 December 2011. http://indigenousnews.org/2011/12/02/argentina-400-hectares-transferred-to mapuche-community/#more-1752

Seelau, Ryan, "Argentina: Mapuche Community and NBA All-Star Manu Ginobili inConflict over Land", *Indigenous News.org,* 17 February 2012. http://indigenousnews.org/2011/12/02/argentina-400-hectares-transferred-to mapuche-community/#more-1752

Seelau, Ryan, "UN Rapporteur on the Rights of Indigenous Peoples Asks Argentina to Stop\Evicting Indigenous Peoples", *Indigenous News.org,* 21 September 2012. http://indigenousnews.org/2011/12/02/argentina-400-hectares-transferred-to-mapuche-community/#more-1752

SEMARNAT, Sistem de Monitoero y Evaluacion del Fondo para Areas Naturales Protegidas: Reporte Annual 2008, Comisión Nacional de Areas Naturales Protegidas/SEMARNAT, Fond Mexicano para la Conservación de la Naturaleza. http://toolkit.conservationfinance.org/sites/default/files/documents/monitoring-and-evaluation/sistema-de-monitoreo-y-evaluacion-fanp-2008-fmcn-mexico.pdf

Shadie, P. 2006, "The IUCN and Protected Areas", Box 3.2, in Lockwood, Michael, Global Protected Area Framework, in Lockwood, Michael et al, eds., *Managing Protected Areas: A Global Guide*, Earthscan Press, London, 2006: 78.

Shirk, David, "Law enforcement and security challenges in the U.S.-Mexican border region", *Journal of Borderlands Studies*, 18:2, 2003: 1-24. http://dx.doi.org/10.1080/08865655.2003.9695604

Stevenson, Mark, Mexico Senate: Army abuse cases in civilian courts, *The Associated Press*, 27 April 2010.
http://seattletimes.com/html/nationworld/2011718023_apltdrugwarmexico.html

Strauss, Anselm, & Corbin, Juliet, *Basics of qualitative research: Grounded theory procedures and technique,*. Newbury Park, CA: Sage Publications, Inc., 1990.

Tecklin, David, Bauer, Carl & Prieto, Manuel, "Making environmental law for the market:the emergence, character, and implications of Chile's environmental regime, Environmental Politics, 20:6, 2011: 879-898
http://dx.doi.org/10.1080/09644016.2011.617172

Thakur, Dr. Ramesh, "Keynote Address Moderator: Coordinating Actors to Win Modern Wars" presented at the *Coordinating Chaos Conference*, Peace and Conflict Society. Trudeau Center for Peace and Conflict Studies, University of Toronto, Toronto, Canada, September 24-26 2007.

The Nature Conservancy, "El Pinacate/ Gran Desierto del Altar Biosphere Reserve", *Parks in Peril*, 7 March, 2012.
http://www.parksinperil.org/wherewework/mexico/protectedarea/elpinacate.html

The White House, "National Strategy for Homeland Security", *The Bush Administration,* 2007.
http://georgewbush-whitehouse.archives.gov/news/releases/2007/10/20071009-1.html

The White House, "National Security", *The Bush Administration*, 2008.
http://georgewbush-whitehouse.archives.gov/infocus/nationalsecurity/

The White House, "Administration Officials Announce U.S.-Mexico Border Security Policy: A Comprehensive Response and Commitment", 24 March 2009.
http://www.whitehouse.gov/the-press-office/administration-officials-announce-us-mexico-border-security-policy-a-comprehensive-

The White House, "National Security Strategy", *Washington D.C*., May 2010.
http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf

The White House, "Pursue Comprehensive Transborder Security", *Department of Homeland Security,* Accessed 13 September 2012.
http://www.whitehouse.gov/issues/homeland-security

The White House, "International Partnerships: Mexico: The Merida Initiative*", Office of National Drug Control Policy,* 2011.
http://www.whitehouse.gov/ondcp/mexico

The White House, "Strategy to Combat Transnational Organized Crime: Addressing Converging Threats to National Security" *The White House,* 19 July 2011. http://www.whitehouse.gov/sites/default/files/Strategy_to_Combat_Transnational_Organized_Crime_July_2011.pdf

Toensing, G, "Chile Invokes Chilling Anti-Terrorist Law Against Indigenous Mapuche*", Indian Country Today,* Media Network, 11 January 2012. http://indiancountrytodaymedianetwork.com/2012/01/11/chile-invokes-chilling-anti-terrorist-law-against-indigenous-mapuche-71708

Trilateral Committee, "Shared Species Working Table" *VI Meeting Report*, Ottowa, Canada, 26 April 2001. http://www.trilat.org/working-tables/shared-species-of-concern/reports/vi-meeting-report-english

UNCED, "Agenda 21", *U.N. Conference and Environment and Development*, Rio de Janeiro, 3-4 June 1992. http://www.un.org/esa/sustdev/documents/agenda21/english/Agenda21.pdf

UNEP, "Rio Declaration on Environment and Development", *U.N. Conference and Environment and Development*, Rio de Janeiro, 3 – 14 June 1992. http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163

UNESCO, "Convention Concerning the Protection of the World Cultural and Natural Heritage", *The General Conference*, Paris, 17 October-21 November 1972. http://whc.unesco.org/en/conventiontext

U.N. "Charter of the United Nation", *United Nations Conference on International Organization*, San Francisco, 26 June 1945. http://www.un.org/en/documents/charter/

U.N., *"Report of the World Commission on Environment and Development",* 42/187, General Assembly Resolution, 11 December 1987. http://www.un-documents.net/a42r187

U.N., "Report on the Millennium Development Goals", United Nations, New York, 2011. http://www.un.org/millenniumgoals/11_MDG%20Report_EN.pdf

UNPO, "The Mapuche in Chile: Indigenous Communities in Modern Latin American States," *UNPO*, 29 March 2011. http://unpo.org/article/12281?utm_source=UNPO+Newsletter&utm_campaign=a681913a07-UA-17798773-1&utm_medium=email

UNPO, 2 December 2011, "Mapuche: Community Receives Land Back", *UNPO.* http://www.unpo.org/article/13558

UNPO, “Mapuche: Anti-Discrimination Law Signed,” *MO,* 13 July 2012. http://www.unpo.org/article/14564

UNPO, “Mapuche: Indigenous leaders denounce militarization of Araucanía”, *UNPO.* 25 July 2012. http://www.unpo.org/article/14616

UNPO, “Mapuche: Calls for minister to step down”, *The Santiago Times,* 16 August 2012. http://www.unpo.org/article/14715

US AID, “El Pinacate Biosphere Reserve”, Doc 1262, Natural Resources Management and Development Portal, 7 October 2012. http://rmportal.net/library/content/nric/1262.doc/view?searchterm=1262 doc

US Committee on Foreign Relations, “Judicial and Police Reforms in Mexico: Essential Building Blocks for a Just Society”, *112th Congreso, Second Session,* 9 July 2012. http://www.foreign.senate.gov/publications/

US Customs and Border Security, “CBP Border Patrol National Strategy: a plan to keep our borders secure”, *CBP Today Newsletter,* January/February 2005. http://www.cbp.gov/xp/CustomsToday/2005/JanFeb/

US Customs and Border Security, “Fact Sheet: Alliance to Combat Transnational Threats – Arizona/Sonora Corridor”, *CBP,* 8 February 2011. http://www.cbp.gov/xp/cgov/newsroom/fact_sheets/border/arizona_factsheet.xml

US DOD, “Secretary of Defense Robert M. Gates' Keynote Speech on Western Hemisphere at Halifax International Security Forum”, *German Marshal Fund Security Conference,* 11 March 2009. http://www.defenselink.mil/speeches/speech.aspx?speechid=1398

US DOS, “The Merida Initiative Fact Sheet”, *Bureau of International Narcotics and Law Enforcement Affairs*, 23 June 2011. http://www.state.gov/p/inl/rls/fs/122397.htm

U.S. DOS, “International Narcotics Control Strategy Report”, Vol 1. *Bureau for International Narcotics and Drug Enforcement Affairs,* Drug and Chemical Control, March 2011. http://www.state.gov/documents/organization/156575.pdf

U.S. EPA, "U.S./Mexico Border Progress Report", *Border 2012*, May 2011. http://nepis.epa.gov/Exe/ZyNET.exe/P100B96B.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2011+Thru+2015&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C11thru15%5CTxt%5C00000001%5CP100B96B.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

U.S. FWS, Cabeza Prieta National Wildlife Refuge: Comprehensive Conservation Plan Wilderness Stewardship Plan National Wildlife Refuge System, *Southwest Region, Division of Planning*, Albuquerque, N.M., 2006. http://www.fws.gov/southwest/refuges/Plan/current%20Draft%20Eis.pdf

U.S. FWS, "Cabeza Prieta National Wildlife Refuge Sonoran Pronghorn Supplemental Water and Forage Project"*, Arizona Game and Fish Department, Cabeza Prieta National Wildlife Refuge*, May 2011. http://www.fws.gov/southwest/refuges/arizona/cabeza/docs/SPH_Waters_Draft%20EA%20110505.pdf

Varady, Robert, Ward, Evan, "Transboundary Conservation in the Borderlands," in *Conservation of Shared Environments: Learning from the United States and Mexico*, in López Hoffman, Laura, McGovern, Emily D, Varady, Robert, Flessa, Karl, eds, University of Arizona Press, Tucson, 2009: 9-22.

Varas, Cora, "Black Bears Blocked by the Border," in Ana Cordova and Carlos A. de la Parra, *A Barrier to Our Shared Environment*, Colegio de la Frontera Norte, Tijuana, 2007.

Villarreal, Ryan, "Mexican General's alleged ties to cartels spell trouble for military based drug war", *International Business Times,* 1 August 2012. http://www.ibtimes.com/articles/369334/20120801/mexico-drug-war-military-army-cartel-arrest.htm

Villers, David, *"Mexican contemporary security challenges and perspective",* Paper presented at the *IPSA-RC24 Conference*, Santiago de Chile, 26-28 June 2008.

Watson, Julie, Drug runners, migrants crushing national parks along U.S.-Mexico border". Forests.org, 13 June 2002. http://forests.org/shared/reader/welcome.aspx?linkid=12161&keybold=biosphere%20AND%20%20protected%20AND%20%20status%20AND%20%20threatened

WCED, *Our Common Future: Report of the World Commission on Environment and Development*, UN Documents, A/42/427, 1987. http://www.un-documents.net/ocf-ov.htm#III.3

WDPA, "Protected Areas Management Effectiveness Information Module*", UNEP, WCMC,* 2010.
http://www.wdpa.org/ME/Default.aspx

Zbicz, Dorothy, "Transfrontier Ecosystems and Internationally Adjoining Protected Areas", *Nicholas School of the Environment, Duke University, North Carolina,* 1999.
http://www.unep-wcmc.org/protected_areas/transboundary/adjoining.pdf

APPENDIX ONE

Appendix One: International Traditional vs. Emergent Protected Area (PA) Paradigm Matrix (Lockwood & Kothari, 2006; Shadie in Lockwood, 2006)

Four Baskets	Traditional PA Paradigm	Emergent PA Paradigm
Conservation and Sustainable Use	Unsustainable natural resource consumption due to high material aspirations PA taken out of productive use Considered an island Established for visual value rather than ecosystem integrity Focus on protection of wilderness	Sustainable use of biodiversity: eco/labels, employment of local labor for measurement, monitoring of short term into realistic, time-bound aims Complete ecosystem Strong ecological networks and ecosystem approach to enhance biodiversity Focus on restoration of values and rehabilitation as well as protection
Knowledge, science and management of protected areas	Knowledge and education deficiencies Planned and managed against the impact of people: national considerations prevail over local Technocratic: exclusion of local knowledge Short time scale	Prioritization of knowledge generation and networking Selection, planning and management is viewed as a political exercise Integration of conservation science in management decisions Increased participation and use of knowledge of indigenous and local communities Managed with a long term perspective as a learning process
Capacity-building and awareness raising	Dysfunctional social, cultural, or political relations Community attitudes and values at variance to conservation objectives Viewed as a national asset Single source financing: taxes No regard for international obligations	Awareness raising Promotion of effective conservation education Building of practitioner's skills Generation and dissemination of knowledge Viewed as a community asset Development strategies for sustainable financing Guided by international, national ,and local responsibilities and duties Builds from shared PA into a network and the international PA systems
Governance, equity and livelihoods.	Inadequate legal and political systems Inadequate economic systems Run by central government	Promotion of the full range of governance types Many partners (public and private) with a wide range of skills are engaged in management

	PA's prioritize visitors over local people Poverty Failure to account for environmental costs to the PA Subsidies for damaging activities	Managed to meet the needs of locals as essential beneficiaries Promotion of contribution of PA to human well-being

APPENDIX TWO

Protocol ID: 10-2022H

Interview Questionnaire

I. The Reason for the Shared Protected Area

What do you see as the task of the protected area (the reason for it to exist)?

Is your view of the protected area implemented in park management?

In your view, is sustainable development implemented in your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve?

II. The Character of Sustainable Development in the Park

Talking about sustainable development do you feel that:

A. Your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve:

A complete ecosystem	Is separate, like an island
Developed for community needs	Taken out of productive use

B. Your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve management plan includes conservation and environmental protections that:

Integrate conservation science	Exclude conservation science
Include traditional knowledge	Exclude traditional knowledge
Have a long term view of management	Short term view of "after fact"/triage restoration

C. In general, the management plan for my National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve:

Promotes conservation education Builds community awareness	The community conservation objectives are different than the parks
Collaborates with local, binational, regional and international conservation, NGO, science, and funding networks.	Does not collaborate with non-governmental organizations

D. In general the National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve is:

Governed by many partners (public and private) wide range of skills and are engaged in management	Run by central government
Collaborates with nongovernmental funders	Is funded solely by government

III. Multiple Visions for the Shared Protected Area

How does your national park administration define the role of sustainable development for the park?

What other roles beyond sustainable development are defined for your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve?

How do you negotiate between those multiple visions for the protected area?

IV. Integration of the Shared Protected Area

In your experience how is your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve united or integrated to:

Local nongovernmental organizations and programs

National administrations and programs

Binational organizations and programs

Regional organizations and programs

International or global organizations or programs

V. Universalizing Concepts:

A. Does a shared vision for the protected area meet in any of these development areas:

Sustainable development
Economic development
Meeting community needs
Community participation
Cross border cooperation and collaboration
Biodiversity protection
National/border security

B. Does your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve include any of these principles and terms?

Environmental impacts that cross both territorial and economic borders
Reduction of the threats to development posed by habitat alteration and species extinction
Environmental stress
Integrity of ecological systems
in situ biodiversity conservation
Global network of representative ecosystems
Unintended spilling of consequences across border
Population pressures
Political and economic boundaries are increasingly blurred
Parks for development
Cost of the arms economy

Protocol ID: 10-2022H

Entrevista Cuestionario

I. La Razón para el Area Protegida Compartida

¿Qué ve Ud. como la tarea del protegió área (la razón para que exista)?

¿Es su vista del área protegida aplicada en la gestión de la parque?

¿En su opinión, es aplicado el desarrollo sostenible en su Reserva de la Biosfera / Reserva Natural Estricta?

II. El Carácter de Desarrollo Sostenible en el Parque

Hablando de desarrollo sostenible le hace se siente que:

A. La Reserva de la Biosfera/Reserva Natural Estricta es:

Un ecosistema completo	Es separado, como una isla
Desarrollado para necesidades de comunidad	Quitó del uso productivo

B. El Plan de Manejo para la Reserva de la Biosfera/Reserva Natural Estricta incluye conservación y protecciones ambientales que:

Integre la ciencia de conservación	Excluya la ciencia de conservación
Incluya el conocimiento tradicional	Excluya el conocimiento tradicional
Una vista a largo plazo de gestión	La vista corta del término de "después de hecho" de restauración

C. En general, el Plan de Manejo para la Reserva de la Biosfera/Reserva Natural Estricta:

Promueve la educación de conservación Construye el conocimiento de la comunidad	Los objetivos de la communidad son diferentes del objectivos de conservation de area protegeda
Collaborar con organizaciones locales, Binacional, regional, internacional, ONG, ciencia, y los redes de fondos.	No collaborar con los ONG's

D. En general, la Reserva de la Biosfera/Reserva Natural Estricta es:

Gobernado por muchos socios (el público y privado) gran variedad de habilidades y son entrados en la gestión	Manejado sólo por con una gobierno central
Colabora con organizaciones de fondos no gubernamental	Es financiado únicamente por el gobierno

III. Múltiples Visiones para el Area Protegida Compartida

¿Cómo define el administración nacional de parque el Plan de Manejo desarrollo sostenible para el parque?

¿Qué otros papeles más allá de desarrollo sostenible son definidos para su Reserva Nacional de Vida Silvestre/Reserva de la Biosfera/Reserva Natural Estricta?

¿Cómo negocia Ud. entre esas múltiples visiones para el área protegida?

IV. La integración del Area Protegida Compartida

En su experiencia cómo es la Reserva de la Biosfera/Reserva Natural Estricta unida o integrada a:

Las organizaciones y programas no gubernamentales y locales

Las administraciones y programas nacionales

Las organizaciones y programas binacional

Las organizaciones y programas regional

Las organizaciones y programas internacional o global

V. Conceptos Universal:

A. ¿Hace una visión compartida para el área protegida en cualquiera de estos temas de desarrollo?

El desarrollo sostenible
El desarrollo económico
Participacion de la comunidad
Colaboracion y cooperacion cruza la frontera
Protección de la Biodiversidad
La seguridad Nacional/de la Frontera

B. ¿La Reserva de la Biosfera/Reserva Natural Estricta incluye algo cuál principios y términos?

Los impactos ambientales que cruzan ambas fronteras territoriales y económicas
La reducción de las amenazas al desarrollo colocado por modificación de hábitat y extinción de especie
Enfasis ambiental
La integridad de sistemas ecológicos
in situ conservación de biodiversidad
La red global de ecosistemas representativos
Rociar involuntario de consecuencias a través de la frontera
La población presiona
Las fronteras políticas y económicas son enturbiadas cada vez más
Los parques para el desarrollo
El costo de la economía de las armas

Protocol ID: 10-2022H

Post Interivew Survey

I. On a scale of 1 to 7, 7 being the highest, rate the importance of the tasks defined for your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve?

Sustainable development
1 2 3 4 5 6 7

National and border security
1 2 3 4 5 6 7

Economic development
1 2 3 4 5 6 7

Community participation
1 2 3 4 5 6 7

Cross border cooperation and collaboration
1 2 3 4 5 6 7

Biodiversity protection
1 2 3 4 5 6 7

Border protection
1 2 3 4 5 6 7

Other
1 2 3 4 5 6 7

II. Rate your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve:

A. My National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve is:

A complete ecosystem
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Is separate from other ecosystems, is an island
Agree Somewhat agree Neutral Somewhat Disagree Disagree

B. The National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve management plan:

Integrates conservation science
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Has a long term view of preventative ecosystem conservation
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Has a short term view or "after fact" triage ecosystem conservation
Agree Somewhat agree Neutral Somewhat Disagree Disagree

C. In my National Wildlife Reserve we:

Promote conservation education
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Have a community that disagrees with conservation objectives
Agree Somewhat agree Neutral Somewhat Disagree Disagree

D. The governance of the National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve is:

Governed by many partners (public and private) with a wide range of skills that are engaged in management:
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Run only by central government
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Developed for community needs
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Taken out of productive use
Agree Somewhat agree Neutral Somewhat Disagree Disagree

III. The cross border parks are united across the border by:

Nature
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Human history
Agree Somewhat agree Neutral Somewhat Disagree Disagree

National Park Management Policy
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Sustainable development principles and practices
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Binational conservation and development institutions
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Regional Conservation Institutions
Agree Somewhat agree Neutral Somewhat Disagree Disagree

International Conservation Organizations
Agree Somewhat agree Neutral Somewhat Disagree Disagree

International Conservation principles
Agree Somewhat agree Neutral Somewhat Disagree Disagree

IV. The affect of multiple visions on sustainable development in your National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve is to:

Coordinate sustainable development efforts
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Unify sustainable development goals
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Conflict with sustainable development
Agree Somewhat agree Neutral Somewhat Disagree Disagree

Compete with sustainable development
Agree Somewhat agree Neutral Somewhat Disagree Disagree

V. These principles unify sustainable development in my National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve:

United Nations principles of sustainable development
Agree Somewhat agree Neutral Somewhat Disagree Disagree

IUCN conservation standards for my park
Agree Somewhat agree Neutral Somewhat Disagree Disagree

National park resource plans
Agree Somewhat agree Neutral Somewhat Disagree Disagree

No, there is no unifying view that underlies the definition and purpose of the National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve
Agree Somewhat agree Neutral Somewhat Disagree Disagree

VI. My National Wildlife Reserve/Biosphere Reserve/Strict Nature Reserve management plan includes these principles and terms? (Check all that apply):

_____Environmental impacts that cross both territorial and economic borders

_____Reduction of the threats to development posed by habitat alteration and species extinction

_____Environmental stress

_____Integrity of ecological systems

_____Global network of representative ecosystems

_____Unintended cross border consequences

_____Population pressures

_____Political and economic boundaries are increasingly blurred

_____Parks for development

Protocol ID: 10-2022H

Encuesta despues de la Entrevista

I. En una escala de 1 a 7, 7 siento es el más alto, la tasa de la importancia de las tareas definidas de la Reserva de la Biosfera / Reserva Natural Estricta?

El desarrollo sostenible
1 2 3 4 5 6 7

Seguridad nacional y de la frontera
1 2 3 4 5 6 7

El desarrollo económico
1 2 3 4 5 6 7

Participación de la comunidad
1 2 3 4 5 6 7

La cooperación transfronteriza y la colaboración
1 2 3 4 5 6 7

Protección de la biodiversidad
1 2 3 4 5 6 7

De protección de fronteras
1 2 3 4 5 6 7

Otra
1 2 3 4 5 6 7

II. Califique la Reserva de la Biosfera / Reserva Natural Estricta:

A. La Reserva de la Biosfera / Reserva Natural Estricta:

Es un ecosistema completo
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Es separado de otros ecosistemas, es una isla
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

B. Hace el Plan de Gestión Nacional de la Reserva de la Biosfera / Reserva Natural Estricta:

Integre la ciencia de conservación
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Tiene una vista a largo plazo de conservación preventiva de ecosistema
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Tiene una vista corta de término de conservación de ecosistema
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

C. En mi Reserva Nacional de Vida Silvestre / Reserva de la Biosfera / Reserva Natural Estricta nosotros:
Promote conservation education
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

La comunidad tiene objetivos diferentes de la Conservación
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

D. El gobierno de la Reserva de la Biosfera / Reserva Natural Estricta es:

Gobernado por muchos socios (el público y privado) con una gran variedad de habilidades que son entradas en la gestión
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Manejado solo por el gobierno central
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Desarrollado para necesidades de comunidad
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Quitó del uso productivo
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

III. Los parques contiguos transversales son unidos a través de la frontera por:

La Natura
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Historia humana
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Política nacional de Gestión de Parque
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Los principios y practican del desarrollo sostenible
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Instituciones de conservación de Binacional
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Instituciones de desarrollo de Binacional
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Instituciones regionales de Conservación
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Instituciones regionales de Desarrollo
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

Principios internacionales de Conservación
Concuerdo Concuerdo algo Neutral No concuerdo algo No concuerdo

IV. El afecta de visiones múltiples en el desarrollo sostenible de la Reserva de la Biosfera / Reserva Natural Estricta es:

Coordine los esfuerzos de desarrollo sostenible
Concuerdo Concuerdo algo Neutral No concuerdo Algo No concuerdo

Unifique objetivos de desarrollo sostenible
Concuerdo Concuerdo algo Neutral No concuerdo Algo No concuerdo

Choque con desarrollo sostenible
Concuerdo Concuerdo algo Neutral No concuerdo Algo No concuerdo

Compita con desarrollo sostenible
Concuerdo Concuerdo algo Neutral No concuerdo Algo No concuerdo

V. Estos principios unifican desarrollo sostenible de la Reserva de la Biosfera / Reserva Natural Estricta:

Los principios de Naciones Unidas de desarrollo sostenible
Concuerdo Concuerdo algo Neutral No concuerdo Algo No concuerdo

Los estándares de la conservación de IUCN para mi parque
Concuerdo Concuerdo algo Neutral No concuerdo Algo No concuerdo

El recurso nacional del parque planea
Concuerdo Concuerdo algo Neutral No concuerdo Algo No concuerdo

No hay vista que unifica que subyace la definición y el propósito de la Reserva de la Biosfera / Reserva Natural Estricta:
Concuerdo Concuerdo algo Neutral No concuerdo Algo No concuerdo

VI. El Plan Nacional de Gestión de su Reserva Nacional de Vida Silvestre / Reserva de la Biosfera / Reserva Natural Estricta incluye estos principios y los términos (Escojar todo que aplica):

_____ Los impactos ambientales que cruzan ambas fronteras territoriales y económicas

_____ La reducción de las amenazas al desarrollo colocado por modificación de hábitat y extinción de especie

_____ Estreso ambiental

_____ La integridad de sistemas ecológicos

_____ La red global de ecosistemas representativos

_____ Consecuencias contiguas, transversales e involuntarias

_____ La población presiona

_____ Las fronteras políticas y económicas son enturbiadas cada vez más

_____ Los parques para el desarrollo

APPENDIX THREE

INTERVIEW AND SURVEY PARTICIPANT LIST

Number	Site	Date	Language	Form of Data
1	1	September 2010	Spanish	Taped interview with notes
2	1	September 2010	Spanish	Interview with notes
3	1	September 2010	Spanish	Interview with notes
4	1	September 2010	Spanish	Taped interview with notes
5	1	September 2010	Spanish	Taped interview with notes
6	1	September 2010	Spanish	Taped interview with notes
7	2	July 2011	English	Interview with notes
8	2	July 2011	English	Taped interview with notes
9	2	July 2011	Spanish	Taped interview with notes
10	2	July 2011	Spanish	Taped interview with notes