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The “Natures” Of Protected Areas: Environmental management and its impacts on local residents in China and Taiwan

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Executive Summary

This thesis compares the establishment and management of protected areas (PAs) in China and Taiwan. It encourages scholars to analyze PAs in a global, interdisciplinary context, where many “natures,” defined under various historical, political, economic, and cultural contexts, create a multitude of conservation strategies and PA models over time. The thesis also explores the social implications of PA management. Historically, PA creation and management has often resulted in the displacement of local peoples, especially indigenous groups, as well as in the economic and cultural deterioration of these groups.

A transnational analysis of PA management strategies is especially pertinent today, due to the exponential growth of PAs worldwide. By 2014, the number of designated PAs covered nearly 15.4% of the world’s land area. Whereas much of the PA literature from the United States assumes that the global PA system developed around an exported unitary U.S. PA model (based on Yellowstone National Park), the thesis argues that global PA management is characterized by its diversity. I compare PA models in the United States, Mexico, Switzerland, South Africa, China, and Taiwan in order to demonstrate how each PA developed its own unique environmental management strategies that reflect particular historical, social, political, and economic contexts. The thesis narrows its focus to two case studies in China and Taiwan. Considering China and Taiwan is interesting, because despite their shared political and cultural history, they also have divergent political, economic, and cultural circumstances that provide interesting comparisons between their different PA conservation models.

The thesis critically engages with three main frames of analysis. The first framework considers the ways that PA management strategies that reflect the environmental ideals of earlier historical periods are not erased by new environmental regulations; instead, they layer on top of each other. The existence of multiple and conflicting environmental management strategies that reflect multiple legitimate environmental interests is known as intercurrence. The thesis considers how intercurrence plays a role in present PA management. The second framework analyzes the active role of the state in the creation and management of protected areas. It considers how PAs are involved in the construction of “national identity,” and how states rationalize, classify, and control natural landscapes, including the people who live in them. The third framework evaluates the connection between PAs and the displacement, invisibility, and exclusion of local indigenous PA residents. The thesis analyzes how PA creation and management has impacted indigenous residents who are often physically displaced from their homes or forced to abandon their traditional subsistence activities. While national governments and international organizations often have legitimate reasons to protect fragile ecosystems by excluding local residents, decision-makers must consider that displacement can devastate the social, cultural, and economic basis of indigenous groups. The thesis uses the aforementioned three frameworks to analyze PA creation and management in two case studies: China’s Wolong Nature Reserve and Taiwan’s Taroko National Park.

I drew upon a variety of interdisciplinary primary and secondary sources as part of my methodology. I analyzed PA scholarly literature, scientific PA evaluations, and the conservation biology literature in order to understand the existing PA discourse, as well as the scientific
rationales for conservation. A large portion of my research involved engaging with interdisciplinary social science literature in order to analyze the social justice concerns inherent in PA management. I analyzed literature on environmental history, political ecology, environmental justice, international development, political science, and anthropology in order to understand the historical, cultural, and political contexts of the PAs. I also engaged with literatures unique to my area of study: primary documents written in Chinese. I read documents by Chinese central government officials and non-profit organizations, Confucian philosophical texts, newspaper articles written by Taiwanese indigenous peoples, and Chinese PA legislation.

In order to understand how my case studies in China and Taiwan generated different PA models, the thesis examines the broader environmental, political, social, economic, cultural, and historical contexts in each country. China’s PA system developed in the 1980-90s, and draws upon Confucian ideologies that value a fluid relationship between humans and the physical landscape (Gardner 2015). It also incorporates modernist, preservationist, and international PA ideologies into its PA management. Unfortunately, China’s current political, cultural, and social context also impedes the effectiveness of its PA enforcement. Indeed, many of China’s PAs can be considered “paper parks,” because they do not come close to achieving sustainability in practice (Quan 2011). The thesis considers how the monopolizing power and fragmented nature of China’s provincial and central government apparatus can result in ineffective PA management, including inadequate PA financial distribution, contradictory environmental regulations between the provincial and central governments, and state prioritization of economic development over environmental goals. China’s PAs also struggle with social justice concerns, such as local resident displacement and unpredictable resident land tenure.

Taiwan’s PA system draws upon similar ideologies as those in China, especially in relation to its Confucian and modern ideals. However, Taiwan’s PA system is also shaped by its unique history of colonial takeover by the Japanese and Chinese Nationalist governments, who forcibly relocated and assimilated local indigenous people in order to create PAs. By the 1980s, Taiwan was developing its own environmental and indigenous rights protest culture that pushed environmental and social justice issues to the forefront of Taiwan politics. As a result, Taiwan’s current PA system represents a combination of environmental ideals, from Confucian interconnections between natural/cultural landscapes to indigenous rights discourses attempting to reverse the historical erasure of local residents who were displaced from PAs. Taiwan’s PAs face enforcement challenges that are representative of its unique history. At most Taiwanese PAs, indigenous people have already been displaced from their homelands, and PA managers continue to ignore the needs of present indigenous needs. Taiwan’s PAs also share similar challenges with China, including inadequate funding and land tenure conflicts.

The historical, cultural, economic, political, and environmental contexts that created China and Taiwan’s PA systems highlight the unique environmental ideals and challenges facing each country. The thesis draws on these contexts to compare PA management strategies at China’s Wolong Nature Reserve and Taiwan’s Taroko National Park. Wolong Nature Reserve is a 200,000 hectare PA in southwest China and is best known as the largest giant panda reserve. It also is home to over 4000 indigenous Tibetan residents. The thesis compares two periods of
environmental management at Wolong. In the 1970-90s, Wolong’s primary management goal was the preservation of wild giant panda populations. One reason that the PA prioritized panda protection is because the species is a “national treasure” that symbolizes the Chinese nation in international politics. Furthermore, China’s pandas are likely to become extinct unless drastic actions are taken to protect their habitat. In response to these concerns, government officials and international organizations advocated for strict PA management strategies that involved coerced relocation of local residents and bans on local subsistence activities such as firewood gathering and grazing in Wolong’s forests. Unfortunately, Wolong Nature Reserve’s forests and panda populations declined even after PA designation (Liu 2001), partially due to socioeconomic factors and commercial logging in areas surrounding the reserve. Even though Wolong’s degradation was caused by a multitude of factors, the PA’s preservationist laws targeted local Tibetan indigenous residents. The laws rendered local residents economically vulnerable, because they no longer had access to Wolong’s forest resources that once provided them with basic goods such as food and timber. Wolong residents’ economic situation mirrors the history of indigenous Tibetan treatment and erasure throughout China. Indigenous populations make up 40% of the country’s poorest individuals, even though they only make up 9% of the population.

In the 2000s, the Chinese central government adopted three new PA environmental policies that incentivized local residents to preserve the environment. Legislation such as the Grain to Green Program paid local Wolong residents for every hectare of land that they converted from cropland to forest. By 2006, Wolong households had converted 56% of their land into forest, and payments accounted for 8% of their household income (Liu et al. 2016B). Despite the success of the new legislation, the preservationist laws of the 1970-90s remain in place at Wolong, even though their environmental ideologies supported local resident exclusion. The persistence of the strict preservationist laws demonstrates how numerous legitimate and contradictory understandings of the environment can co-exist at the same PA.

Taiwan’s Taroko National Park is a 92,000 hectare park that was established in 1937 by the Japanese colonial government. The park mountainous terrain harbors nearly half of the island’s mammal species, and 90% of its bird species (Wu et al. 1996). Over 12,000 Taroko indigenous people live adjacent to or within the park (Simon 2011). The thesis examines three distinctive eras of environmental management at Taroko National Park. The first era (1895-2008) is characterized by mining and indigenous displacement. Japanese (1895-1945) colonial and Chinese martial governments (1945-1986) managed and controlled Taroko’s human inhabitants, the indigenous Taroko people, by imposing forced assimilation schemes on them and by removing local people from their ancestral lands. While the Japanese established Taroko National Park for multiple purposes, such as fostering national pride and preserving natural resources, in practice Japanese and Chinese lumber and mining companies exploited Taroko’s natural resources until 2008, even after the establishment of the park and the end of martial rule.

In the second era (1972-2005), Taiwan’s martial Chinese government established strict preservationist legislations to protect the newly established Taroko National Park. Like Wolong Nature Reserve, Taroko economically burdened local populations by making local subsistence practices illegal, and by barring human entry into 70% of the park. The preservationist laws
ignored the fact that the Taroko indigenous people had established cultural, religious, and subsistence hunting practices that preserved the integrity of environmental systems. The Gaya belief system holds much of nature sacred, and enforces stewardship practices such as hunting seasons and no-hunting zones. Unfortunately, the park’s preservationist laws outlawed hunting. By doing so, they disproportionately impact indigenous people and declared their local cultural practice illegitimate. In contrast, Taroko National Park allowed mining companies to continue their operations in the park for twenty-two years after its establishment. These mines were destructive to the environment, and destroyed entire watersheds in the park.

The third era of Taroko park management (2000-present) recognizes the rise of Taiwan’s indigenous rights movement. During this period, Taroko indigenous people protested for their right to hunt on PA premises and to reclaim their ancestral lands that were taken by mining companies. While Taiwan national regulations recognized indigenous peoples’ rights to hunt for cultural reasons as early as 2005, Taroko people remain unable to hunt, because park managers do not respect the new law. Taroko National Park highlights the importance of historical context in understanding present PA conflicts. It also demonstrates the possibilities for alternative PA management that incorporate indigenous cultural beliefs into PA regulations.

The thesis concludes by examining which PA management frameworks are most effective for achieving conservation and social justice goals, given the complexity and diversity of PA management worldwide. It supports a tradeoffs model in which multiple stakeholders identify and acknowledge the tradeoffs between their various PA goals, and attempts to reconcile the ones that conflict with one another. The approach responds to concerns with win-win PA management strategies that attempted to satisfy all environmental and social justice goals, and yet failed to produce meaningful results. In contrast, the tradeoffs model requires stakeholders to prioritize between their different environmental and social justice interests and values.

The thesis concludes with four recommendations for PA management. First, PAs should devise environmental strategies that are suited to the particular political, economic, cultural, historical, environmental, and religious contexts of the PA. For example, Taroko National Park should consider creating a co-management committee that allows local indigenous groups to participate in PA decision-making. A similar PA strategy at Wolong is impossible, because of Chinese political realities. Second, PAs should respond to socio-economic activities and landscape changes outside the physical boundaries of the PA, such as commercial logging outside Wolong Nature Reserve that may be damaging panda habitat. Third, PA should include local indigenous people in all phases of PA environmental decision-making. Four, PAs should establish concrete, participatory regulatory enforcement mechanisms.

While recognizing the many “natures” present at PAs across the globe is essential for reinterpreting PA literature within an interdisciplinary context, it is also important for creating practical PA management strategies that produce tangible environmental and social justice results. By acknowledging PA diversity and by actively incorporating local indigenous people into PA decision-making processes, stakeholders have the opportunity to construct PAs that address the issues most precious to involved stakeholders, from creating economic alternatives for local residents and preserving fragile ecosystems to fostering national identities.
Chapter 1 – Introduction to Protected Areas Literature, and Thesis Theoretical Frameworks

Introduction

This thesis compares the establishment and management of protected areas (PAs) in China and Taiwan and the ways these nations continuously redefine “nature.” In doing so, it addresses two questions that are central to the literature on protected areas, political ecology, and environmental conservation. First, how do different interest groups (national governments, provincial governments, internationally-based non-governmental organizations, local residents) define “nature,” and how do these definitions result in a diversity of PA models, with different management structures and environmental goals? How does the PA itself reshape various groups’ understandings of “nature?” Second, what are the social consequences associated with protected area management, particularly with regard to the inclusion/exclusion of local park residents? Historically, protected area creation and management has often resulted in displacement of local peoples (especially indigenous groups) and ecological degradation of surrounding areas. Until the 1970s, however, protected area literature did not acknowledge the consequences of parks for local and indigenous rights. More recent protected area models attempt to engage local communities in participatory environmental management schemes that seek to achieve both environmental sustainability and social equity.

The goal of this thesis is twofold. First, it encourages scholars to analyze protected areas in a global, interdisciplinary context, where many “natures,” defined under various historical, political, economic, and cultural contexts, create a multitude of conservation strategies and PA models. Another goal of this thesis is to inform policies for protected areas, especially those that include indigenous populations in conservation schemes. I will examine the efficacy of existing
management schemes in China and Taiwan, and present recommendations that are intended to address human rights as well as environmental concerns.

Although scholars have examined these questions in other national contexts, such as the United States, Africa, Latin America, and Europe (Cronon 1995; Jacoby 2001; Sundnes 2013), no one has undertaken a comparative study of China and Taiwan. Considering China and Taiwan is especially interesting, because of their complex historical relationship, and the influence of a single political party (the Nationalist Party, led by Chiang Kai-Shek) on both countries. Despite these similarities, the countries also present important differences. The development of PAs under China’s communist government and Japan’s colonial government in Taiwan raises questions about the meaning of “nature” and “nation” under such regimes, especially in contrast to other countries like Mexico, where protected areas were associated with democracy (Wakild 2009). Additionally, China and Taiwan’s divergent political, economic, and cultural circumstances (since the mid-1940s) provide interesting comparisons between their different PA conservation models.

A transnational analysis of protected area management strategies is especially pertinent today, due to the exponential growth of protected areas worldwide. Between 1990 and 2014 alone, the number of designated PAs grew by nearly 240% to cover nearly 15.4% of the world’s land area (UNEP 2015). While this large increase is an essential victory for nature preservation, it is also important to consider the efficacy of these protected areas. What are the goals of these newly created parks? Are they preserving biodiversity? Are they addressing the needs of the millions of people worldwide who rely upon these areas for sustenance (Xu et al. 2006)? In this context, understanding global diversity of protected area models is essential for creating practical environmental management strategies that address the social and environmental goals of specific
parks. This is especially important in understudied areas such as China and Taiwan, which have unique protected area models and a growing number of PAs.

**Protected Area Literature – U.S. Export Model, Pristine Nature, and Wilderness**

Protected areas are spaces that are set-aside specifically for the purposes of environmental and/or cultural preservation, usually by a government entity (IUCN 2008). Major types of protected areas include national parks, wilderness areas, nature reserves, community conservation areas, and privately owned areas.

Originally, environmental scholars in the United States described the growing global PA movement as the result of an exported, unitary U.S. protected area model, based on the experience of Yellowstone National Park, the world’s first national park (1872). In the 1970s and 80s, scholars such as Roderick Nash, Runte, and Worster celebrated this U.S. export model as an international success, because of its incorporation of “unique” American values, especially democratic ideals (Nash 1970; Runte 1997; Worster 2007). Specifically, they identified America’s “love of wilderness” as essential to both American identity and the development of the U.S. protected areas system. During the late 19\textsuperscript{th} and early 20\textsuperscript{th} century, various preservationists defined wilderness as undeveloped lands that preserved the health and integrity of America’s urban populations by cleansing Americans from the negative impacts of over-industrialization (Muir 1901). Romantic writers described wilderness as the polar opposite of busy, polluting cities; natural landscapes were considered tranquil, clean spaces that could rejuvenate American city dwellers who were negatively impacted by the city (Ibid). In this context, Nash argued that the seeming “vanishing” of these romanticized natural places was an essential catalyst for calls for environmental preservation (Nash 1970).
The U.S. export model assumes that the American protected areas system is a “coherent...definitive model [exported] for nature protection globally” (Turner 2014). However, as argued by environmental historian Turner, the concept of a singular, coherent U.S. model is misleading in itself; U.S. nature preservation is also associated with other environmental management strategies (Ibid). For example, according to the document establishing Yellowstone National Park in 1872, the park was intended to be a “public park or pleasuring-ground for the benefit and enjoyment of the people” (United States Congress 1872). While the park forbade destructive environmental activities such as natural resource extraction (e.g. mining and logging), it also supported management schemes that had the potential to harm the environment. For example, tourism is a significant economic activity for all U.S. national parks: in 2014 alone, over 292.8 million people visited them (Hetter 2015). Unfortunately, tourist activities have significant implications for environmental degradation. Even the construction of roads essential for tourism can have detrimental impacts on wildlife by dividing once continuous habitats with unwooded areas. Hotels, campgrounds, and railways also disrupt natural habitats (Turner 2014).

In response to increased concerns regarding the high environmental costs of national park development (e.g. roads, tourist lodges, and transportation), national park resource extraction, and the preservation of ecological biodiversity, Congress passed the 1964 Wilderness Act. The program designates “wilderness areas” on existing public lands. Wilderness areas have more restrictive development policies than national parks; roads, motorized vehicles, natural resources exploitation, and many forms of tourist development, including visitor centers and campgrounds, are forbidden (Turner 2015). In just 50 years, the wilderness system has protected nearly 107.5 million acres, or a land mass greater than the state of Montana (Ibid). The U.S. wilderness system demonstrates that even within the same nation, multiple park models exist, overlap, and
contradict one another. They also represent the goals of a diverse set of stakeholders, across various local, regional, and global contexts. This degree of complexity is present in the protected area systems of all nations.

Protected Area Models – Global Diversity

This thesis does not adopt the U.S. protected areas model as its frame of analysis. Nor will it presume that PAs are equated with untouched pristine wilderness. Instead, I will adopt an interdisciplinary approach that recognizes the diversity of protected area management strategies worldwide. These models are situated within particular historical, social, political, and economic contexts.

Instead of adopting a monolithic U.S. park model, this thesis highlights the international spectrum of protected areas across the globe. This diversity of PA systems support goals that range from resource sustainability and community development to scientific research and community management. I argue that different understandings of “nature” arises due to diverse environmental, historical, political, cultural, and economic contexts. The diversity in PA management models is the result of each nation’s specific understandings and valuations of “nature.” To demonstrate the diversity of global park models, the following are examples of various PA models. These examples are simplifications of protected area management strategies in each respective country; as the U.S. protected area models demonstrate, no country adopts a singular model, but rather multiple. I have chosen these examples to exhibit the range in diversity among protected area models, including diversity in context, stakeholder engagement, and historical change.
Historical, social, and political context can be essential in the formation of diverse protected area models. In a recent paper about Mexico’s national parks in the 1930s and 40s, Emily Wakild (2009) argues that differences between Mexico and United States’ valuations of nature resulted in the failure of the two states to adopt a joint national park that would cross the borders of both countries. Originally, the United States proposed the park as a means by which to promote peace and friendship with Mexico, via the shared goal of nature conservation. This was an especially important diplomatic mission, given their contentious militarized border.

However, while both countries supported “nature conservation,” they had very different understandings and goals regarding preservation. While the U.S. proposed a joint park proposal that preserved remote areas with grandiose and beautiful landscapes, Mexican park managers were more interested in providing environmental resources to historically dispossessed people (Wakild 2009). This is most likely because Mexico’s national park system was originally developed in a period of social reform and upheaval: the Mexican Revolution (1910-1940). This period was subject to unique economic, social, and political reform. In particular, President Lazaro Cardenas (1934-1940) articulated a vision of national parks as inclusive spaces where the needs of rural farmers, scientists, and urban workers were all considered (Ibid). In this light, natural spaces were painted as “national heroes” that represented national pride, recovery from civil unrest, and respect for the experience of rural people. In practice, Cardenas’ administration purposefully located parks in areas with significant local populations, and frequently attempted to revitalize natural spaces that had already been degraded by human activity. In consequence, park managers did not understand U.S. attempts to establish remote “national” parks; a truly “national” park, in their eyes, was one that provided resources to needy groups. Mexico’s park system challenged elite environmental institutions, and provided natural resources to and support
for traditionally dispossessed groups, including peasants and urban workers (Wakild 2009; Turner 2014). Nature conservation strategies were tailored to the interests of the political reformist government and local actors; Mexican national park models cannot be understood outside of this context.

Under completely different social, political, economic, and environmental circumstances, however, different ideologies about nature and conservation management strategies developed. For example, Patrick Kupper describes Switzerland’s PAs in the early 1900s as places that excluded all human visitors from natural spaces, including tourists and industries (Kupper 2009; Turner 2014). The goal of this Swiss PA model was to achieve complete preservation (Totalschutz) of the natural area “undisturbed by human interference”; only a select group of scientists could enter these parks for research purposes. Kupper argues that the goal of these parks was very much tied to understandings of Swiss national identity. Switzerland is a place with a diversity of languages and religious beliefs; as such, the creation of a common national identity is difficult, and primarily achieved through a discourse that celebrates Switzerland’s nature and topography. By the early 1900s, the very nature essential to Swiss identity was threatened by the encroachment of human activities, including the growing tourist industry. In response, the Swiss Academy of Sciences established the Committee for the Conservation of Nature Monuments and Prehistorical Sites (Ibid). The committee was primarily led by Swiss scientists, who pointedly rejected American protected area models that incorporated tourism, because they viewed such models as scientifically inadequate for nature preservation. Instead, the scientists argued that complete isolation and exclusivity of large swaths of land was essential for biodiversity and ecosystem maintenance. Switzerland’s Totalschutz demonstrates the influence of stakeholder groups such as expert scientists and government officials in shaping
protected area models for establishing ecological preservation and for fostering Swiss national identity.

Protected area models are certainly specific to a particular context; however, they are also specific to particular historical periods. For example, in the space of ten years, the Chinese communist government in the 1950s adopted two very different protected area models.

For the Chinese communist government in the early 1950s, PAs were a means of evaluating and utilizing natural resources on state-owned land in industrial production processes (Songster 2004; Weller 2006). Each of the aforementioned park models is based on the particular political, cultural, social, historical, environmental, and economic contexts of the country in question at a specific moment in time. For example, China’s PA system was initially based on the country’s desire to industrialize rapidly; a decade later, however, its protected area system shifted focus to the preservation of wildlife populations for human consumption (Ibid). This change was in response to the major historical and environmental events impacting China at that time: in this case, a major famine that killed millions of people (see chapter 2 for further discussion). The PAs provided a food “safety” net in case similar famines occurred in the future (Ibid). Therefore, different historical, political, and cultural, and economic forces change through time, resulting in changing protected area models in different time periods.

Protected area creation and management depends on understandings of nature that are constructed under many contexts: environmental, social, political, cultural, and economic. At the same time, PA models are influenced by the needs and desires of various stakeholders, from government bodies and expert scientists to local residents. Finally, the forces responsible for constructed ideologies of “nature” shift through time, and result in a variety of protected area models. In many cases, these various historical park models overlay upon each other, and create
a diverse mix of protected area models informed by multiple historical events. These conditions result in multiple PA management models within the same nation, and an even greater diversity globally.

**Major Thesis Frameworks**

The multi-model framework of this thesis allows me to critically engage with three major themes in the literature on protected areas. First, I will consider the ways in which PA policies do not always erase or supplant the past environmental regulations adopted for a PA. Instead, the policies “layer” on top of one another to create multiple co-existing PA management strategies that possess conflicting environmental values and interests. Despite the fact that the layers often conflict, they usually represent legitimate environmental priorities of the time period in which they were created. The “crashing and grinding” of PA policies is known as intercurrence (Klyza & Sousa 2008). This thesis considers how intercurrence affects the success of present PA management, which has conflicting environmental goals compared to enduring historical PA policies. Second, I wish to fill the gap in environmental studies research regarding the role of the state in managing protected areas. While other disciplines such as political anthropology and political ecology consider the role of nature conservation in preserving ideologies of national identity and “statehood,” the dominant U.S. protected area literature does not explore this relationship in enough detail. Specifically, the thesis will consider the ways in which government rationality, categorization, and control shape both human and natural landscapes. Third, I will considering the social justice implications of nature conservation. A major part of this discussion will consider the forced displacement of local people and indigenous groups as a result of nature preservation schemes. It will also consider the ways in which PA management systems exclude
local people in decision-making processes, and can make invisible their needs and environmental values.

*Layers of Conflicting Environmental Decision-making - Intercurrence*

The types of environmental management strategies adopted by a PA vary not only by local context but also by historical period. As previously shown, China initially developed its PA system in the 1950s as a means to increase its industrial output, but a decade later, their PA system focused on wildlife preservation. This framing of PA management makes it seem as if different historical periods produce distinctive PA environmental management strategies that do not overlap with those of other time periods. In their book *American Environmental Policy, 1990-2006*, Christopher McGrory Klyza and David Sousa (2008) argue that present U.S. environmental regulation includes environmental policies from earlier historical periods that persist into the present. Instead of replacing older laws, new environmental legislation is often layered on top of existing ones. As such, PA environmental management represents multiple and often contradictory understandings of “nature” that co-exist at the same time. Klyza and Sousa describe the conflict between orders of environmental management as “intercurrence.” Intercurrence is a useful framework for understanding PA management because it highlights that PAs consist of multiple legitimate and conflicting environmental priorities and regulations that play a role in present PA management.

For example, the intercurrence of PA management strategies in Taiwan caused conflict between stakeholders with disparate interests. Taiwan’s central government established a series of environmental regulations in the 1970-80s in order to combat the country’s severe pollution issues and to preserve natural landscapes that were overexploited by extractive logging and
mining companies. One of these laws, the 1972 National Park Law, banned hunting in Taiwan’s PAs (CPA 2003; Simon 2007). However, by the 2000s, Taiwan’s indigenous rights movement had been growing into a strong political force. Legislators responded to indigenous protests by passing the 2005 Basic Law on Indigenous People. The regulation gave indigenous people the right to hunt for cultural and religious purposes. Taiwan enacted the 2005 Basic Law over fifteen years ago; however, the 1972 National Park Law remains unchanged, despite the fact that they directly conflict with one another. The 2005 Basic Law remains unenforced on national park lands, and park managers continue to fine and imprison indigenous people who “poach” wildlife on national park land (Simon 2010; Simon 2013). Park managers argue that the 1972 National Park Law remains in effect, and that no one is allowed to hunt on park premises (Simon 2013). Indigenous people argue that they have the right to hunt wherever they please, as long as they are hunting for religious purposes (Simon 2007; Meng-ching et al. 2015).

Taiwan’s conflicting and PA legislations represent the different priorities of the 1970s and the 2000s, and the ways in which environmental legislative layers persist and accumulate through time. Such intercurrence also causes conflict in Taiwan’s present PA management strategies. Both park managers and indigenous people have valid legal claims that justify their conflicting environmental ideologies – one that supports indigenous hunting on PA lands, and one that does not. Indeed, Klyza and Sousa (2008) argue that a key aspect of intercurrence is its ability to give “the weight of law… [to] conflicting claims of contending interests” (Ibid). That is, intercurrence provides stakeholders with the opportunity to legitimize their disparate environmental values and needs. This thesis considers how intercurrence shapes PA management strategies as stakeholders enforce and mobilize different PA regulatory layers in order to serve
their own environmental needs and values, whether for the advancement of indigenous rights or for the protection of wildlife populations from poachers.

**Categorizing and Governing Nature and People – State**

The second framework I will use in this thesis analyzes the active role of the state in the creation and management of protected areas. PAs are often essential for the construction and maintenance of “national identity”; as such, state management strategies represent the ways in which governments attempt to create particular images of their nation. In this context, I will examine the ways in which the state rationalizes, classifies, and controls natural landscapes, including the people who live within them. During this process, “nature” itself is reshaped into a form that is more easily administrated by state officials.

In many cases, PAs are imperative for the construction of collective national identity. For example, political ecologist Roderick P. Neumann argues that the “enclosure” of Yosemite and Yellowstone national parks in the late 19th century occurred precisely at a moment where the concept of U.S. national identity was under threat. With an influx of new immigrants from Eastern Europe and the recent conclusion of the Civil War, the creation of protected areas by the federal government “helped answer the questions, what was ‘America’ and who was ‘American’” (Neumann 2005). Similarly, the creation of protected areas in South Africa in the early 1900s helped delineate a collective white space that racialized and excluded Africans from natural landscapes (McDonald 2002; Neumann 2005). The diversity apparent in protected area models worldwide also applies to the various “national identities” that each model supports. From upholding peasant rights in reformist Mexico (Wakild 2009), to supporting industrial development by the Chinese communist government (Songster 2004; Weller 2006), protected
areas promote a diversity of “nationhoods” that vary across political, social, and economic regimes.

The means by which states manage PAs often require a process of simplifying and rationalizing natural processes. For example, in his well-known book *Seeing Like a State*, James Scott (1998) describes the ways in which states simplify and categorize complex, chaotic social and environmental systems in order to more easily control and manipulate them. Scott describes these trends in relation to the emergence of scientific forestry in 18th century Europe. Without precise measurement of available wood in these forests, governments could not maximize wood exploitation. With the adoption of scientific techniques, however, European government bureaucracies were able to classify, control, and to a certain extent “control” “nature” (Adam and Hutton 2007). German forestry adopted various mathematic measures by which to estimate the volume of exploitable wood available in a “standard tree.” Other foresters developed detailed tables that estimated tree growth patterns, given certain tree sizes and ages. Scott argues that these forms of measurement allowed the state to reimagine the forest as merely a collection of economically exploitable “abstract” trees (Scott 1998). These trees were only imagined as volumes of lumber; the complexity associated with real forest ecosystems was lost.

State management approaches not only re-imagined natural spaces, but also reshaped the forest itself by utilizing new forms of state scientific management. In an effort to make the forests more easily manipulated for maximum resource exploitation, foresters transformed chaotic old-growth forests into homogenized monocultures with same-age, same-species tree stands (Scott 1998). For example, foresters regrew logged trees into uniform straight lines, so that they could be easily “read” using simplistic maps. They also cleared away underbrush and fallen trees and branches, so that the valued “crop,” the tree, could be harvested more easily.
From this perspective, a well-managed forest was “regular” and “neat” (Ibid). In consequence, centralized state management strategies served to reshape the natural landscape itself by creating a uniform, “legible” natural terrain that was easily supervised and controlled by state bodies.\(^1\)

State classification and reorganization of the natural landscape was also essential for state control of PAs. In his book *Making Political Ecology*, Roderick P. Neumann (2005) argues that the very creation of protected areas is a political act, because it requires a transfer of local common space to state ownership. This redefining of common space is an example of a wider phenomenon of state control. For example, the legitimacy of state power is often predicated upon its ability to claim and govern certain lands (i.e. the nation’s political boundaries) as its own (Neumann 2005). In this sense, national government creation of PAs results in the classification and reorganization of the physical landscape so that it can be more easily understood, managed, and controlled. This was especially the case in the early 20\(^{th}\) century in the U.S., when the federal government claimed large swaths of public land in the western United States for conservation and preservation purposes (Klyza and Sousa 2008).

State management and control of territorial space not only redefines and reorganizes natural spaces, but also the communities of people who live there. For example, the removal of Native Americans from U.S. protected areas helped facilitate the creation of the reservation system, which served to regulate and control indigenous groups. Much like the 18th century German state, which counted, categorized, and “controlled” the simplified forests that it helped

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\(^1\) While forestry management did attempt to completely reshape forests, it is important to note that these attempts were never entirely successful, and that physical landscapes are not solely the result of human processes. See political ecologists Neumann 2005 and Robbins 2011 for more details.
create, similar processes of classification and governance were often applied to both the natural landscape and the human populations in colonial settings (Adam and Hutton 2007).

In Taiwan, for example, this process was extreme – during Japanese occupation (1895-1945), indigenous groups such as the Taroko were violently suppressed and removed from their original lands, which became the property of the state (Simon 2007). Some of this newly designated state land was transformed into protected areas. The government relocated remote indigenous groups from the mountains to the more readily accessible plains. There, Japanese officials introduced a tribal governing structure to the previously egalitarian Taroko (Simon 2006; Simon 2011). Much like European forestry in the 1800s (Scott 1998), which facilitated easy management of complex forest ecosystems, the tribal system (including hierarchical relationships with a ruling tribal council) allowed the Japanese to more easily manage Taroko populations. To this day, the tribal organizational structure remains entrenched, and contributes to class inequalities and misrepresentation in Taroko society (Simon 2006; Chi and Chin 2012).

At the same time, the mountain landscapes from which the Taroko were displaced became sources of raw materials for the Japanese state during wartime. The state went as far as to widen the areas’ rocky mountain passes, so as to more easily access the natural riches of the region, as well as more easily “pacify” the Taroko resistance (Ibid). To this day, the Taroko’s original lands remain in the control of the state, which manages it for environmental purposes. As such, the creation of protected areas has be used by state governments as a means of “managing” and controlling both land use, land access, and indigenous populations.

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2 The simplification, classification, and control of local peoples, especially by state governments, is known as “governmentality.” The term was coined and developed by Michel Foucault (Foucault 2010). For more information regarding governmentality in China, see Jeffreys (2009).
While “state” actions to construct and manage the environment are essential to understanding the creation and management of protected areas, it is important to recognize that the “state” itself is not a unitary category that acts as a cohesive whole. In fact, the “state” often consists of several different levels of local, regional, and national governance, each of whom pursues different agendas that often contradict one another. This is especially true in countries like China, whose sheer geographical size and scope of political operations provide local and regional lawmakers with considerable power to manage local protected areas in ways that diverge from national environmental requirements. Consideration of both “state” rationalization and regulation at the national level and local/regional variation in environmental governance is essential for understanding the complexity involved in the management of natural spaces.

Displacement, Invisibility, and Exclusion – Social Implications of Protected Areas

The third lens with which I will analyze protected area management and establishment highlights the social implications of nature preservation. This thesis explores the voices of local indigenous groups who depend upon natural resources either within or adjacent to the boundaries of protected areas. In particular, I will explore how PA creation and management can displace local residents from both their land and the natural resources that they depend on for survival. I will also consider the ways in which popular PA discourses can render the needs of indigenous PA residents invisible. I conclude by discussing scholarly and indigenous discourses that view PA creation as a form of colonialism. I complicate these perspectives by considering the ecological reasons for creating PAs from the perspective of government officials, international agencies, and scientists.
The following social critiques were first developed in the context of the environmental justice movement that began in the 1980s. Environmental justice recognizes that environmental and health impacts are disproportionally borne by communities of color, and seeks the equal treatment of all peoples, regardless of race, ethnicity, socioeconomic status, and national origin (Bullard 1994). The emergence of the environmental justice and indigenous rights movement during this period also marked the first time that scholars began to consider the social implications of PA creation and management.

By the late 1980s and 1990s, several prominent authors were already challenging pre-existing protected area models for their exclusion of social issues. The creation of PAs is frequently associated with the displacement of local indigenous populations (Cronon 1995; Jacoby 2001). The scale at which displacement occurs is significant: in Africa alone, an estimated 14 million local residents have been displaced for the purposes of nature conservation (Dowie 2005). Unfortunately, many disenfranchised groups represent indigenous or economically disadvantaged communities. For example, South Africa’s conservation movement was first advanced by a white, upper class elite whose focus was wildlife and flora protection and preservation (McDonald 2002). The first conservation programs in South Africa (colonial-1947) were reserved only for whites; in fact, game protection associations before the 1910s excluded Africans from subsistence hunting in an attempt to protect sport hunting by wealthier, white groups (Ibid). Within the United States, the federal government forcibly relocated Native American populations from the premises of seemingly “wild” places, including Yosemite and Yellowstone National Parks. Native American displacement is part of a larger trend across the United States that occurred in both “wild” and “artificial” landscapes, where Native Americans were forced to live on reservations, where they were more easily managed and controlled.
Meanwhile, their ancestral lands were re-shaped into protected areas, frontier settlement, and even urban centers such as New York and Chicago. As such, protected areas are a part of a wider trend, in which state governments forcibly displaced indigenous peoples from their historic lands both for the purposes of managing these groups and for land acquisition of all kinds, of which nature preservation was just one type.

Physical displacement is often associated with invisibility of the displaced communities. In *Slow Violence and The Environmentalism of the Poor*, Rob Nixon (2011) describes this phenomenon as “spatial amnesia,” where certain communities are not only physically unsettled but also “imaginatively removed… from the idea of both a national future and a national memory” (Nixon 2011). Even today, popular depictions of protected areas often employ a discourse of untouched wilderness that ignores the forced removal of Native Americans from their lands, and the cultural erasure necessary to construct this perception of the park as a space beyond the realm of humans. These “unimagined communities” are usually neither recognized nor adequately compensated for the damages they faced.

Forced displacement is not limited to the physical removal of local and indigenous people. While physical relocation for the sake of “nature conservation” is certainly a widespread and significant issue, local communities who remain in the same location can be subject to what Nixon describes as “displacement without movement” (Nixon 2011). Displacement without movement occurs when the land and resources of a physical landscape are exploited to such an

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3 This is primarily true of media representations of protected areas. In the past few decades, the U.S. Park Service and environmental scholars have increasingly recognized the displacement of Native Americans in the creation of national parks such as Yellowstone.
4 Spatial amnesia regarding the displacement of Native Americans is not limited to a discourse of “untouched wilderness”; urban areas such as Chicago and New York adopt discourses of “progress” and “cosmopolitanism” that ignore the forced displacement and resource exploitation necessary to create these urban centers.
extent that it is “stripped of the very characteristics that made it inhabitable” (Ibid: 19). Other forms of involuntary displacement include involuntary restriction of local access to land and natural resources, especially in relation to traditional sustenance activities (Adams and Hutton 2007). Given that in China alone, nearly 30 million people depend upon natural resources found within protected areas (Xu and Melick 2007), the number of people who are involuntarily displaced without movement is highly significant. This thesis uses displacement and invisibility as frameworks for understanding the social justice concerns tied to PA creation and management.

One of the harshest critiques of PA models that displace local residents are advanced by scholars who identify the creation of nature reserves within postcolonial thought. In his famous 1989 critique, Ramachandra Guha argued that the needs of humans and biodiversity are not necessarily opposed (Guha 1989). In fact, in many countries in the Global South, humans have a “finely balanced relationship with nature” that has existed for thousands of years. By valuing ecological needs over human needs, Guha argues that at the extreme, environmental preservation results in the physical displacement of poor communities who depend upon natural resources for subsistence. Guha notes that for nations in the Global South such as India, conservation projects advanced by the Indian feudal elite and international environmental organizations created exclusionary nature reserves that banned local subsistence practices, and merely served to transfer resources from poor local inhabitants of the new nature reserves to the rich (Ibid). Guha condemns this focus on preserving biological systems (while ignoring social concerns) as “imperialist.” Other authors have also labeled the creation of protected areas as a form of state

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5 Nixon describes the negative impacts of forced displacement as “slow violence” (Nixon 2011). Slow violence describes gradual, incremental, and “delayed” violence that often remains invisible in national discourse, partly because it does not have the sensational visibility of dramatic acts of violence that occur over shorter time scales (e.g. hurricanes, floods, and tornadoes). However, even though slow violence occurs across extended time-scales, the negative environmental impacts are just as severe. A goal of this thesis is to highlight “unimagined groups” who may be subject to displacement without movement and other forms of slow violence.
control that is often associated with European colonialism. Political ecologist Roderick Neumann argues that many nature reserves were already in use by local inhabitants, who historically lost the power to manage their own lands. In this sense, states define “nature” in particular ways, and regulates its use, including the people who have access to it (Adams and Hutton 2007). Neumann argued that the exclusion of local peoples from subsistence activities, and the shift from local to state land management, mirrors land seizures carried about during European colonization. For example, in the early 20th century, British colonial governments in Africa declared all uncultivated lands, forests, and wildlife as state property, and passed laws that established restrictive state reserves that were inaccessible to local people who depended upon these lands for sustenance (McDonald 2002).

While scholars like Guha, McDonald, and Neumann critique the exclusion of local people from PA management schemes as fulfilling elite colonial and post-colonial interests, it is important to recognize the reasons why certain central and regional government officials, international non-profit organizations, and scientists might support top-down PA management schemes that exclude local residents. For example, in 1975, India’s central and regional government, along with international organizations including the World Wildlife Fund (WWF) established a network of nine PAs under the name of Project Tiger. The project was an attempt to save India’s dwindling Bengal tiger (*Panthera tigris tigris*) populations, which had dropped from 40,000 tigers in 1900 to 1827 animals in the 1970s (Panwar 1982). WWF and government officials realized that left unchecked, continuing commercial logging, illegal tiger poaching, and local agricultural, grazing and subsistence activities would destroy all available tiger habitat and drive tigers to extinction. The Indian Board for Wildlife, which helped protect the tiger under Indian national law, argued that the species was part of the country’s national heritage, and that
its protection would benefit all people (Panwar 1982). Furthermore, the WWF and government officials considered the tiger to be an “index for the health of entire ecosystems” (Ibid). By protecting tiger habitat, these groups hoped to preserve the environment at large. Indeed, the government determined which regions to set up Project Tiger PAs by choosing locations with as many “biogeographic habitat types as possible” (Ibid).

While Project Tiger negatively affected the economic possibilities of local communities, it did achieve some of its key conservation goals. It prevented commercial logging in 5142 km$^2$ of tiger habitat and crushed tiger “poacher gangs” who were hunting the precious animal. In response, tiger populations rose significantly, from 1,827 individuals in 1972 to 3890 tigers in 2016 (Damodaran 2007; Chappell 2016). In the process, Project Tiger displaced over 6000 local people from their homes, and limited the local subsistence activities of thousands more. However, government officials and international agencies were aware of the local economic sacrifices, and attempted to provide some alternatives. While one third of the total reserve land was designated as ‘core areas” where all human activity was forbidden, the other 10,000 km$^2$ allowed for “rational,” sustainable human activity (Panwar 1982). Critics of Project Tiger such as Guha and Gadgil argued that Project Tiger was unsuccessful in its attempts to provide viable economic alternatives for local residents, many of whom were coercively displaced from their homes (Guha 1989; Gadgil 2012). Other critics argued that while the PAs increased tiger populations, they tended to ignore the habitats that nurtured the tiger, and was not as successful for protecting fragile ecosystems as a whole (Damodaran 2007). The example of Project Tiger demonstrates that while such programs can have negative effects on local populations

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6 Another ecological critique of Project Tiger is its inattentiveness to metapopulation isolation. See Perfecto and Vandermeer (2008) for further discussion.
reminiscent of colonialism, the government bodies, scientists, and international agencies involved accepted these trade-offs and successfully preserved fragile ecosystems and wildlife populations on the verge of collapse.

While government bodies and other stakeholders often create PAs in order to preserve fragile ecosystems and endangered species, the unintended consequences of local displacement can cause major economic and cultural damage to indigenous communities. At the extreme, certain indigenous groups have protested the very creation of protected areas. Since the 1980s, the international community was already beginning to propose new models for protected areas that recognized the needs of both natural systems and local people (Dowie 2005; Adams and Hutton 2007; Turner 2014; see chapter 5). As part of these conversations, which revolved around the emerging indigenous rights movement, the United Nations released a draft declaration defending the rights of indigenous peoples that banned forced relocation from their traditional lands and territories. At the 2004 World Conservation Congress, indigenous groups directly voiced their concerns. Saning’o, the leader of the nomadic indigenous group known as the Maasai in Thailand, stated that the Maasai considered themselves “enemies of conservation” (Dowie 2005). This is because international environmental organizations and state bodies were forcibly seizing traditional Maasai grazing lands in the name of land conservation; consequently, the Maasai were living in poverty, and their culture was “dissolving” (Ibid). Saning’o located his concerns within larger indigenous discourse that critiqued protected area conservation that was carried out by national and international bodies, without the consultation or consent from local communities. Saning’o’s speech at the World Conservation Congress demonstrates that even for projects such as Project Tiger in which top-down decision-makers attempt to provide resource for local communities, the consequences of displacement can devastate the social, cultural, and
economic basis of indigenous groups. As such, PA managers should consider inclusionary decision-making processes that engage local residents in PA efforts that also attempt to address local economic and cultural concerns.

Conclusion

The themes of intercurrence, national identity, displacement, and human exclusion allow for the analysis of protected areas within their entire historical, political, social and environmental scope. They reject singular understandings of PA creation and management as simply an “objective” environmental process, and instead contextualizes them within local history and culture, power dynamics across multiple scales, and stakeholder involvement and exclusion. Most importantly, these themes can help explain the variety of PA models that exist worldwide by directly engaging with the interdisciplinary nature of protected area creation and management. In doing so, they support alternate conceptions of environmental preservation that engage with both the ecological and social justice dimensions of protected areas management. This thesis examines how different contexts in China and Taiwan constructed PAs with different environmental goals and challenges.
Chapter 2 – The Many “Natures” of China and Taiwan’s PA Systems

In this chapter, I will focus on the broader environmental, political, social, economic, cultural, and historical contexts that generated different protected area models in China and Taiwan. At first glance, the protected area systems of both countries may appear to be the result of a globalized “protected areas model” from the West, inspired by Yellowstone National Park. Upon closer analysis, however, protected areas in China and Taiwan are not based on a unitary “Western” conception of nature. Instead, protected areas have been constantly redefined by multiple understandings of nature. I argue that definitions of nature are characterized by “intercurrence”; as new “natures” are created through time, older conceptions of the environment are not erased. China and Taiwan’s present protected area systems incorporate elements of past “natures” that frequently compliment and contradict one another.

China – Historical Context and Intercurrence

China’s current protected areas “system” is an excellent example of the variety that can exist among environmental management strategies. In 2009, China had as many as 2,538 nature reserves, which covered 1.4 million square kilometers, or over 14% of its total land mass (Xu and Melick 2007; Quan et al. 2011). These reserves represent 85% of the country’s terrestrial ecosystem types and animal species, and protect over 300 endangered animals and 130 valuable tree species (Quan et al. 2011).

China’s protected areas system draws upon Confucian, modernist, industrial, preservationist and global ideologies. Before the 20th century and the introduction of Western thought, the Chinese word that describes the natural “environment” did not exist. Instead,
Confucianism, the dominant Chinese ideology for millennia, advanced the concept of qi and li (Gardner 2003; Weller 2006; Chen 2015; Thompson 2015). Qi is the cosmic energy that flows through all living and nonliving things. Nature is not separate from humans, because the same underlying qi flows through them both (Weller 2006). Li refers to order, principle, and harmony. According to famous neo-Confucian scholar Zhu Xi (1126-1271), li and qi are complementary (Gardner 2003; Thompson 2015). That is, the natural world maintains a certain balanced order, and aspects of the physical landscape contain their own unique qi (Gardner 2003). Zhu Xi and other neo-Confucian scholars suggested that the qi and li present in the environment represented positive traits that should be embodied by humankind. For example, like the mountains, humans should act with unrelenting honesty and integrity (Chen 2015). By embodying the qi of the environment, humans can begin to cultivate their spirits and strive for true goodness (Gardner 2015). From this perspective, the environment represented an ideal model for human behavior. As such, for most of China’s history, Confucian ideologies conceptualized a fluid relationship between humans and the physical landscape that both encapsulated similar kinds of qi and li.

Even today, the word “environment” (自然) in Chinese does not unambiguously connote a nature free from human activity. Nor does Chinese literature describe protected areas as empty wilderness. If anything, Confucianism advocates for the human manipulation of natural landscapes for the purpose of enhancing them (Weller 2006; Ma et al. 2009). Given China’s long history as an agricultural society that depended upon altering nature (e.g. terracing, rice paddies.), this is not surprising.

The implications of these traditions for China’s protected area system are still significant. Ma et al. 2008 argues that tourist development on protected area lands, and of “enhancing nature by man-made artefacts,” is much more common than in similar European parks. In addition,
Weller (2008) notes that many Chinese protected areas are connected to local temples, or are the homes of ethnic nationalities, both of which are deeply incorporated as a part of Chinese park tourism. Protected areas, these authors argue, are treasured equally for their environmental and cultural values.7

By the early 1900s, however, China was experiencing significant political, social, and cultural changes that greatly changed human relationships with nature. By the late 1800s, China had been exposed to Britain’s superiority in technology and military strength, via the Opium War, and was witnessing the rise of Japan’s increasingly powerful empire. In response, China began to adopt new policies intended to “modernize” science and promote technological progress, in order to “catch up” to the rest of the world (Shapiro 2001). By the mid-20th century, China had experienced three different political regimes: the collapse of the dynastic system in 1911, the rise and fall of the Chinese Nationalists (1912-1949), and the rise of the Chinese Communist Party, which took control in 1949. Despite the vastly different political orientations of these groups, all were “developmental” states (Woo-Cummings 1999), and were deeply committed to rapid industrialization (Shapiro 2001; Weller 2006). This commitment to industry is clearly demonstrated by the creation of China’s first nature reserve, Dinghu Mountain, in 1956, during the communist regime (Songster 2004). The reserve was created, ironically, not for environmental protection, but for the purpose of assessing the mountain’s natural resources for industrial development (Ibid). The mountain’s natural resources were one of many tools that the Chinese Communist Party drew upon in an attempt to modernize the nation. For example, a few years later, China began a nation-wide experiment in rapid industrial development known as the

7 While a significant number of Chinese and Taiwanese nature reserves are also important cultural or religious sites, the case studies focus on two nature reserves that do not have prominent cultural activities directly on their premises. This is partially due to cultural erasure and indigenous displacement at Taroko National Park (Taiwan) and a focus on ecological preservation of giant pandas at Wolong Nature Reserve (China).
Great Leap Forward. The experiment’s attempt to double agricultural and steel production using any and all resources available. Specifically, Chinese people across the nation melted down all of their steel kitchenware and household items in useless backyard furnaces in an effort to make steel. The furnaces produced nothing but worthless metal (Songster 2004). While the Great Leap Forward was a catastrophe, its initial optimism and its mass mobilization of all of the nation’s resources explain why China’s first PA was created for industrial development purposes.

At the same time, the creation of the first Chinese nature reserves in the mid-20th century does not represent a total abandonment from past Chinese ideology. In addition to fulfilling the industrial needs of the nation, PAs like Dinghu Mountain were originally designed as scientific bases where biologists could learn about natural ecological systems. However, scientific research was not intended for solely environmental preservation purposes; instead, the Chinese Communist party hoped that an understanding of natural ecosystems within the reserve could help inform the party’s design of socialist construction projects (Songster 2004). The party’s aspirations mirror neo-Confucian ideologies that encourage humans to cultivate their character based on the qi present in natural landscapes. The Chinese government’s attempts to order social and human systems based on the natural principles that they observed at Dinghu Mountain is reminiscent of neo-Confucian ideals of li and qi that aspired for order and harmony in both physical and human landscapes (Gardner 2003).

 Unfortunately, China’s desire to rapidly modernize, and catch up with Japan and the West, took precedence over all other priorities, which proved destructive to the environment. The most extreme example of this destruction took place during the period known as the Great Leap
Forward (1958-1961). Utilizing the slogan “Man Must Conquer Nature,” Chairman Mao, attempting to promote rapid industrialization, ordered the mass mobilization of the Chinese people in several movements that caused widespread deforestation, loss of croplands, and the eradication of keystone wildlife species (Shapiro 2001). By 1961, the environmental damage caused by the Great Leap Forward, in conjunction with a famine, led to the starvation of 20-30 million people (Ibid; Weller 2006). In response, the next generation of China’s protected areas system (1960s) explicitly prohibited hunting on park premises, for the purposes of preserving wild animal populations, which were to act as a reserve food supply during future famines (Songster 2004). While the parks of the 1960s certainly preserved animal populations, they did so for the sake of human development.

A decade later, however, in 1978, China underwent another political change that redefined “nature” once again. After having been isolated from nearly all outside influences since the communist revolution of 1949, China adopted the “Reform and Opening Up” policy. This major shift not only restructured China’s economic system, but also introduced the country to new cultural and social concepts. One of the goals of the economic restructuring policies was to transform China from a developing country into an economic and technological superpower. It was during this period that China began developing a comprehensive protected areas system based upon the global park models to which it had so recently been exposed. In particular, China drew upon the guidance provided by the United Nations and World Conservation Union (IUCN) to shape its protected areas (Weller 2006).

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8 Ironically, Chairman Mao misinterpreted the original Chinese phrase from which he based his “Man Must Conquer Nature” slogan. 人定胜天 can also mean human society must harmonize with their surroundings and their internal beings, including the natural world.
During this period, the IUCN and other international bodies were considering the role of local indigenous peoples in park management structures (Ibid). This period also witnessed the growth of the environmental justice and indigenous rights movements in the international arena. As a result, the IUCN promoted PA systems that recognized the importance of sustainable development in conjunction with biodiversity protection. While China adopted a preservationist, scientific approach to protected areas management that emphasized biodiversity, it included a consideration of indigenous people. As a result, the creation of China’s park system has very rarely displaced local peoples from park premises (Ibid). At the same time, however, China was also influenced by exclusionary ideologies of nature: in 1994, in a move away from earlier, communist models, the national government banned extractive activities on park premises, including logging, mining and quarrying (Ma et al. 2008).

The historical changes associated with the development of China’s PA system demonstrate the multiple ideologies – Confucian, modernist, preservationist, and international – that continue to influence environmental management schemes in Chinese nature reserves. These multiple and often conflicting ideologies represent the diversity of environmental thought produced by China’s unique historical, political, cultural, and economic context. The resulting PA system does not fit within a singular global PA model; instead, China’s protected areas adopt unique environmental management schemes that reflect multiple ideologies and historical contexts.

**China’s Present Protected Areas System – Intercurrence and Challenges**

China’s current PA system faces major challenges in its *implementation* and *enforcement* of its environmental goals and management strategies. For example, a survey of 83 nature reserves showed that 68 permitted natural resource extraction practices that are explicitly
prohibited by the 1994 national law (Weller 2006). Indeed, so superficial is the resemblance of China’s parks to the Western model that many authors express concern that the majority of China’s parks are merely “paper parks”, and do not come close to achieving sustainability in practice (Quan 2011). To understand the challenges facing China protected areas (PA) system, I will explore seven factors that impede PA environmental management. The factors include: disregarding science in environmental management strategies, prioritization of the country’s “modern” image over environmental goals, displacement of local communities, monopolized state power, contradictory government regulations, lack of financial resources, and unpredictable land tenure. These factors reflect the historical, social, political, and economic conditions of the country.

**Factor #1: Gap between Science and Environmental Management Strategies**

First, there is significant disconnect between conservation sciences and environmental management in China’s protected areas. Reserves are not necessarily chosen for their ecological or scientific importance. In practice, this means that many newly created nature reserves are too small to sustain the natural ecosystems they seek to protect or are established in places with little ecological value (Xu and Melick 2007). In addition, PA management does not always reflect ecological and local needs. For example, certain sensitive environmental habitats may require the exclusion of humans in order to preserve their integrity. These habitats include wetlands, severely degraded environments, and giant panda habitat. Other PAs, however, are secondary forests with little biodiversity value (Ibid), and could be managed for multiple uses with little disturbance to the ecosystem. While China does possess a core-periphery PA system that would allow for various levels of human exclusion and development, it is not implemented in practice.
This is especially troubling, because both local communities and ecological systems suffer from this arrangement. Sensitive ecosystems can become degraded by even light human activity. On the other hand, an estimated 30 million people illegally live within or depend on natural resources in China’s PAs, including resources from their “core” zones (areas where no development is allowed – Xu and Melick 2007). These people are especially vulnerable, because the lands and natural resources that they depend upon can easily be taken away from them by the central government.

Factor #2: Prioritization of Economic “Modern” Goals over Environmental Preservation

If protected areas are not chosen for their ecological value, why are particular areas set aside for preservation? Why is implementation of environmental regulations so poor in these PAs? One explanation may be personal gain – local and regional government leaders who designate PAs often receive political praise for increasing green space in their communities (Quan et al. 2011). However, this alone cannot describe the exponential increase in protected areas designation in China in the past two decades. In fact, over 50% of China’s PAs were created since 1995 (Zhou and Grumbine 2011). This is very surprising, given that protected areas nationwide suffer from considerable lack of resources and policy implementation.

The second factor is that China is not focusing on the quality of nature preservation at the reserves. Instead, it seems as if the Chinese central government may be more interested in increasing the total area of protected lands (Grumbine and Xu 2011). As the fastest growing economic power in the world, China wants to establish a positive image of itself as a nation. By creating a large number of protected areas, regardless of their effectiveness, China presents itself as a “modern” nation concerned with environmentalism, just like other industrialized countries.
that hopes to emulate. This attitude is reminiscent of China’s attempts to “modernize” in the 20th century. Instead of using industrialization as the benchmark of progress, however, the central government is using other markers, including environmentalism, to portray itself as “modern.”

China’s desire to present itself as a “modern” nation may also explain the disconnect between its federal environmental regulations and their enforcement. In 1994, the national government put into place several stringent, hierarchical environmental laws, including a ban on major development and local subsistence activities in protected areas. These laws do not consider local realities – that is, the needs of the estimated 30 million people (as of 1997) who live in and around protected areas (Xu and Melick 2007). Most Chinese PAs are found in rural, undeveloped regions, especially in western China, where 70% of the population is made up of peasants (Xu et al. 2006). Most of these people are relatively poor, and rely on ecosystem services provided by the parks in order to survive. As a result, natural resource use on PA premises is not uncommon. Hierarchical environmental laws do not consider the long-term viability, historical land use, or the needs of local residents. One possible explanation for the prevalence of “paper park” PAs is that their goal is not always necessarily for ecological preservation or local development. Instead, PAs are green “models” that local government officials and central government offices employ as an example of China as a “modern” and green nation.

Factor #3: Displacement of Local Communities

Under certain circumstances, China’s central government has created PAs in order to justify the displacement of local communities. The recent creation of a large number of “paper parks” has already had severe implications for the thirty million people who live within or next to the PAs. While forceful displacement for PAs is relatively rare in the present, “displacement
without movement,” such as local restrictions to the PA’s natural resources without consent, is a significant issue in China’s parks. In addition, official narratives often describe rural villagers as “backward” and “short-sighted… [who] only put emphasis on economic profit, ignoring social profit” (Ministry of Forestry 1989). These sources tend to blame local communities for supporting “improper business like charcoal burning, soil burning, logging,” and other subsistence activities as the reason for environmental degradation (Ibid). These discourses ignore the complex history of government land seizures and large-scale resource exploitation to justify state intervention and control over PAs. Displacement issues are even more severe for local indigenous groups, who have historically faced cultural erasure, social regulation, and repression by the national government (see chapter three).

The Chinese government has already used modernist and pro-environmental discourses to justify forced displacement of local people from their homes. For example, in the late 2000s, China unveiled plans to build several modern, green cities. These advertised model “eco-cities” were internationally publicized as gleaming examples of China’s technological, economic, and environmental success. Cities like Dongtan were supposed to house over 500,000 people, recycle waste as fuel, and run on power from micro-wind mills. Even though Dongtan was supposed to finish its first phase of construction in 2010, the project fell apart due to corruption issues (Larson 2009). The “eco-cities” demonstrate China’s desire to present its global image as an environmental model.

Eco-cities may also reflect the desire of the government to displace local communities and grab valuable land for state purposes (Yeh 2015). Known as the “new enclosure movement,” the Chinese central government has utilized its totalitarian land ownership powers to forcefully evict local communities of their land. For example, to create the new eco-city of Yixing, the
Chinese government evicted 100,000 villagers. These evictions are especially contentious because even though most eco-cities remain unbuilt, the government still retains control of the land, which was not returned to its long-time local owners. Yeh argues that by rationalizing displacement as “environmentally rational,” eco-city enclosures “help shape environmental governance as a mode of capital accumulation” (Ibid). The creation of numerous “paper parks” across China could easily become included in the enclosure schemes.

Factor #4: Monopolized State Power Override Environmental Goals

Environmentalism is not the only means by which the Chinese central government portrays itself as a “modern” power. Since China’s “Reform and Opening Up” policy in 1978, the central government has foremost dedicated itself to the growth of its economy. Unfortunately, with the competitive natural resource demands necessary to support that growth, the protection of the environment often comes last (Xu and Melick 2007).

In practice, the fourth major barrier facing PA implementation is that the state’s monopolizing political power allows them to act with little scrutiny, and usually in the support of development, at the cost of the environment. Citizens, on the other hand, do not have adequate legal standing that would allow them to protest environmental and land use affairs in court (Grumbine and Xu 2011). For example, in Chinese law, the state has the power to “downgrade” a nature reserve (Xu and Melick 2007). As such, powerful national agencies can easily ignore the environmental protection goals of a PA, and even blatantly exploit its natural resources. Furthermore, the state can extinguish local land use rights without any due process, because China’s lands belong to the state, not individuals (Grumbine and Xu 2011).
One may argue that the focus on economic development at protected areas is a new, less extreme version of an old pattern, in which China seeks to catch up with and even surpass the West. Instead of emphasizing industrial development, however, the Chinese government now focuses on a new kind of “development.” Not coincidentally, this new approach places the advancement of the country over the needs of the “natural” environment.

**Factor #5: Conflicting Environmental Regulations**

It would be too simple to characterize the “state” as a singular force that acts in the interests of development. In fact, another major factor that complicates PA implementation and enforcement is the different priorities and often contradictory regulations established at different levels of governance. This issue is not limited to China; Taiwan PAs also struggle with contradictory government policies and enforcement mechanisms between local and national government agencies. However, China experiences this phenomenon at a scale much greater than most countries, partly because its geographical size and large human population require a larger and more complex government apparatus. For example, PA management is delegated through ten different Chinese ministries who act at national, provincial, and local levels (Xue 2000; Xu and Melick 2007). These agencies do not coordinate their internal actions, nor do they have transparent management strategies. In consequence, environmental management policies from Beijing, province and prefectures, counties, and municipalities often represent conflicting lines of authority (Grumbine and Xu 2011; Zhou and Grumbine 2011).
Factor #6: Shortage of Financial Resources

The sixth factor is that local and provincial governments have difficulty prioritizing the environment compared to economic development schemes, because they are under pressure to contribute to economic growth models established by the central government. Because of the conflicting messages from the center, China’s protected areas system ends up being heavily profit driven, in part because tourism is a very significant market: in 2006, protected areas constituted 80% of domestic tourism (or 1 billion visitors – Ma et al. 2008). In such a context, it is possible that China’s parks are not necessarily “paper” parks, but instead cater to the interests of local actors and interests (i.e. economic development, integrated local understandings of nature and people), which have more control over park operations than do national preservationist interests.

In many cases, local management of PAs presents significant challenges, such as resource allocation. Today, approximately 70% of nature reserves are managed at the provincial/local level (Zhong et al. 2015; Zhou and Grumbine 2011). Before the 1990s, only the national government had the power to establish nature reserves. However, it only created several dozen reserves for the purposes of reducing logging and hunting in biodiverse areas (Xu and Melick 2007). In 1991, however, the national government adopted a statutory procedure that allowed counties and provincial governments to establish self-managed protected areas. Due to fiscal allocation policy and political management, local and regional level PAs do not receive financial support from the national government. In most cases, local/provincial governments are responsible for funding protected areas; as such, many areas do not have the resources to effectively manage parks. One study, which analyzed 25% of China’s protected areas, concluded that only 2% of surveyed areas had enough finances to maintain the PA’s daily activities, while
less than 10% identified their PA’s infrastructure as adequate for environmental protection (Quan et al. 2011). Less than 10% possessed a consistent monitoring and evaluation system. In addition to a lack of resources, only 22.8% of the PAs had management regulations approved by the local provincial government.

In practice, provincial government control over PA financial allocations means that monetary distribution is highly uneven across China. In addition, there is a strong correlation between local economic development and environmental management effectiveness and financial resources (Xu and Melick 2007; Quan et al. 2011). In many courses, PAs provide a significant source of income for local communities and governments. They are not only profit driven for personal gain; the very success of nature preservation programs depends on the resources acquired through these tourism revenue and natural resource exploitation. According to one study, 66% of China’s PAs receive significant monetary support from the sale of food and accommodation and 41% from souvenir sales (Zhong et al. 2015). The central government estimated as early as 2003 that PAs pay 40% of expenses through their own fundraising efforts (Forestry Bureau 2003).

**Factor #7: Historical Volatility of Land Tenure**

A final challenge of the PA system particular to China’s political history is its unpredictable land tenure. In the past sixty years, China has experienced civil war, revolution, Maoism, and transition to market capitalism (Grumbine and Xu 2011). These tumultuous events were often accompanied by dramatic and unpredictable changes in land ownership. For example, land ownership changed from locally-organized common property, to national large-scale state collectivization, to a household responsibility system and finally a globalized state-regulated
economy (Grumbine and Xu 2011). In consequence, many rural Chinese citizens are suspicious of government intervention into land use affairs (Ibid). This is especially true for indigenous people, whose displacement and resettlement has often occurred multiple times across China’s long history (Xu and Melick 2007). Even today, while most land is still technically government-owned, the extent to which local residents have rights to it is still under question. Some scholars even argue that uncertain land tenure has exacerbated environmental degradation in protected areas. Certain Chinese PAs were established on lands already promised to local residents; as such, the ambiguity and anxiety surrounding land ‘ownership’ can encourage short-term environmental destruction.

Within the space of a century, understandings of “nature” in China have undergone a series of major transformations. Confucian ideas of an integrated natural/cultural landscape were dominant at the beginning of the period under study. These then changed to a communist/developmentalist view, in which nature came to be seen as an “enemy” of modernity, and needed to be exploited for industrial advancement. As the century came to a close nature was regarded by some as a source of local income and by others as a treasure to preserve and protect. Each of these “natures” reflects different needs, priorities, interests and assumptions, some international, some national and others local. Complicating our efforts to understand the construction of nature in China’s protected areas is the fact that past “natures” still influence PA management schemes today—protected areas, for example, while adopting new preservationist conceptions of biodiversity preservation, attract large tourist crowds not only for their natural beauty and their cultural importance, even as they serve the subsistence needs of local populations and the financial needs of local government.
Taiwan – Historical Context and Intercurrence

Taiwan’s current PA system draws upon many Chinese cultural and environmental traditions. Between 1683 and 1895, Taiwan was a colony of China’s Qing dynasty. In fact, 90% of Taiwan’s current population are Han Chinese who migrated to Taiwan during this period (Executive Yuan 2014). Consequently, much of Taiwan’s history, and the cultural ties of its population, are connected to China, and have been influenced by similar Confucian principles. Like their Chinese counterparts, Taiwanese parks do not distinguish clearly between the human and the natural worlds. For example, Weller 2006 describes Taiwan’s cultural tourism and ecotourism as nearly one and the same. As is true in Mainland China, temples are often situated in places of natural beauty, and tourists frequently visit temples within or near to protected areas (Ibid).

Despite these commonalities, however, Taiwan underwent a half a century of colonial control by the Japanese (1895-1945), which left an indelible mark on the island. The Japanese created three parks before they were driven from Taiwan at the end of World War II. The creation of “imperial” parks by the Japanese raises interesting questions, such as the meaning of nationalism in an imperial context, the place of indigenous people within the Japanese empire, and the unique set of international relations within which parks formed in Japanese controlled Taiwan. The Chinese Nationalist Government of Taiwan, which replaced Japan as the ruling power after World War II, recreated these parks, but constructed and managed them based on different understandings of nature, and on considerations of nationalism rather than empire. The post World War II parks were also embedded in a transformed international milieu, one characterized by relationships with international bodies headquartered in the West. I will
compare these various understandings of parks and people during both the Japanese imperial and the Chinese national periods.

Protected areas under Japanese rule were created for the benefit of the empire. For example, at the National Parks Investigative Board in 1936, which nominated natural areas in Taiwan to become parks, government bureaucrats explained that the selection process would prioritize natural areas that symbolized the superiority of Japan’s Empire, and thus would generate awe in tourists from around the world (Kanda 2003). These official discourses drew upon religious and cultural values that had been important in Japan for centuries. Indeed, ideas celebrating nature in Japan date from as early as 1000 BC, as a part of folk/popular Shintoism (Kodera 2014). The Japanese government adopted a new religion, state Shintoism, and transformed these values for political ends. The government was especially concerned to propagate the notion of Japanese superiority and exceptionalism. State Shintoism provided a moral justification for Japan’s militarization and belligerent war tactics (Ibid). One way in which state Shintoism supported the notion of Japanese superiority was by defining Japan’s natural landscape as unique, even divine. In this context, Taiwan’s natural landscapes came to be regarded as an extension of Japan’s need to prove the superiority of its empire (Kanda 2003), and thus justify its war against the Allied nations. Not coincidentally, the three areas chosen as protected areas in Taiwan were dominated by the country’s most majestic mountains, a symbol commonly used to represent the state of Japan.

Japanese imperial parks in Taiwan were not only used to symbolize the superiority of empire, but were also utilized to exclude Taiwan’s indigenous populations, who were considered non-subjects. When the Japanese arrived, most of Taiwan’s indigenous people lived in remote,
inaccessible sections of the island’s mountainous, eastern region. Prior to the arrival of the Japanese, under Chinese colonial rule, these indigenous groups were granted de facto sovereignty over their own affairs (Simon 2006; Simon 2011). The Japanese, however, brutally “pacified” these indigenous groups, through a combination of armed repression and forced displacement (Simon 2007). For example, in order to control the Taroko people, who currently reside in present-day Taroko National Park, the Japanese army widened traditional Taroko hunting paths through the area’s steep gorges so that they could bring in tanks and other military hardware and force the Taroko into submission. Such confrontations were often deadly: in the Wushe Incident of 1930, for example, Japanese forces killed over 200 indigenous people in a violent uprising that lasted over two months (Simon 2006).

After the indigenous populations were defeated, the Japanese forcibly removed them from the mountains and relocated them in the plains, where they could be more easily controlled (via police surveillance and military outposts; Simon 2007). Nomadic and settled peoples alike were forced to adopt new and alien forms of economic, social and political organization. Traditionally egalitarian indigenous groups were reorganized into tribal councils, which tended to concentrate power and authority in the hands of a small group. Traditional forms of livelihood have for the most part vanished, as indigenous groups were forced to live on reservations or in modern villages (Simon 2011). These imposed forms of economic, social and political life persist into the present.

Having cleared the landscape of people, the Japanese made no effort to preserve “nature” in the mountainous regions of Taiwan. Instead, the Japanese extracted raw materials from the

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9 Population figures for indigenous groups from the early Japanese period are not available, but indigenous people currently make up 2.3% of the population.
newly depopulated mountain regions. While it is unclear whether resource extraction occurred directly on park lands, it is clear that the park system was a means to disenfranchising and subduing local populations, and relocating them for the purposes of social control. This trend of land dispossession and displacement continued under martial law, which was maintained by the Chinese Nationalists from 1949 until 1989 (Simon 2007; Simon 2011). The Nationalists, who were forced to flee from the communist regime that seized power in Mainland China in 1949, maintained many of the forms of social control established by the Japanese. While the Nationalists abolished Japan’s imperial park system entirely, they also nationalized Taiwan’s mountainous regions, and outlawed any subsistence activities within them (Simon and Mona 2012). These areas were no longer called protected areas, but they continued to be utilized for the same purpose: the exclusion and social control of indigenous peoples. Indeed, the Chinese Nationalists increased police surveillance of native populations, and initiated new forced relocations from the mountains to the plains. They went so far as to establish a policy of mandatory assimilation of native populations, compelling them to adopt Mandarin names and to learn the language of the conquerors (Simon 2007).

Most of these policies went unchallenged by Taiwan’s indigenous populations, because under martial law, the Chinese Nationalists remained in complete control of the government, and punished any real or perceived opposition to the party via arrest, imprisonment, and even execution. After the lifting of martial law in 1987, and the election of Taiwan’s first democratically elected president in 1996, indigenous rights were finally recognized by the Taiwanese government (Simon and Mona 2012). Despite their new recognition, indigenous peoples still lack many rights that they have demanded since the 1980s, including the return of their native lands (many of which are public PA lands) and tribal autonomy.
The Development of Taiwan’s Environmental and Indigenous Rights Movements

The development of Taiwan’s environmental movement began as early as the 1970s, amidst a climate of widespread political and social protest. Before 1987 and the lifting of martial law, unauthorized gatherings such as protests were outlawed entirely. Even so, throughout the early 1980s, environmental protests became increasingly common in Taiwan, partially because activists found it safer to critique the pollution caused by government-supported business, as opposed to directly protesting the political system itself (Ho 2011). The protests were primarily geared towards halting large economic development projects that produced significant amounts of pollution that threatened local health. Since the 1960s, the Chinese nationalist Kuomintang (KMT) government legitimized its martial rule of the island and its support of large-business development by arguing that such control was necessary for the growth and prosperity of Taiwan’s economy (Ho 2011). However, by the 1980s, Taiwan’s pollution issues were severe. For example, less than 1% of human excrement received even primary sewage treatment (Weller 2006).

From its very origins, Taiwan’s environment has been a “politicized” issue that was crucial for its democratic transition in the 1980s and 90s (Ho 2011). Under martial rule, Chinese Nationalist Party (KMT) was the only political party in the country. By 1986, however, Taiwan’s Democratic Progressive Party (DPP) was formed, has since been a major political contender, even winning the presidential election in 2000. Since then, Taiwan’s two major parties, the DPP and KMT, have competed for votes and influence. One major avenue of debate between them is environmental protection. Since its origins, the DPP presented itself as antinuclear and pro-environmental. Indeed, Taiwan’s environmental movement explicitly forged a political alliance
with the DPP in the 1980s, because the new party was allying with multiple social movements in order to undermine the monopolizing power of the KMT (Ho 2011).

At the same time, DPP recognized and supported the island’s burgeoning indigenous rights movement. In fact, as part of presidential promises in the 2000 election, the DPP presidential candidate signed the *New Partnership between Indigenous People and the Taiwan Government*, which recognized the natural rights of indigenous people as the original inhabitants of Taiwan and having the right to a high level of autonomy and sovereignty (Simon 2007). As such, the DPP advocated for both environmental and indigenous issues during a crucial political turning point where national policies and control were shifting rapidly, and multiple social movements were working together.

The DDP also relied upon a social justice discourse to not only secure their political power, but also to legitimize the very existence of the nation itself. The image of Taiwan’s indigenous peoples has been important to Taiwanese nationalists who are attempting to distinguish their nation from China (Simon 2007). Taiwan’s native population do not have Chinese roots; instead, they are descended from Malay-Polynesians. Taiwan identifies these roots as a reason for their independence and right to be internationally recognized as a separate country. For example, the 1993 Draft Republic of Taiwan Constitution began its preamble by identifying the indigenous Taiwanese as the ancestors of all Taiwanese residents, despite the fact that over 80% of the population descend from Han Chinese migrants in the Qing dynasty (Ibid).

Taiwan’s environmental and indigenous rights movements became established amidst an era of social justice protest and political debate and competition. The public and active political dialogues regarding both social movements was quite different from China, where the national government purposefully censored and crafted specific discourses about its ethnic nationalities.
and environment. The unique context in which Taiwan’s social movements originated influenced the creation and management of protected areas that were established in the same time period.

U.S. Influence on the Taiwan PA System

By the 1970s, Taiwan had begun to re-establish a protected areas system. Instead of relying upon internationally accepted PA models from the United Nations or IUCN, which did not gain prominence until the 1980s-1990s, Taiwan’s PA system was influenced by models developed in the United States. The influence of U.S. environmental thought makes sense within Taiwan’s political and historical context. After the Chinese Nationalist Party fled China after the rise of the communist party, the U.S. sent its army to protect the small island, preventing the newly communist China to take it over. The U.S. also provided Taiwan with significant political and economic support. In fact, most of Taiwan’s top park managers studied park management in the U.S.

Even though Taiwanese park managers and government officials recognize the U.S. park system and its emphasis on pristine nature as a model for the island’s PA system, Taiwan’s PA system prioritizes different environmental goals in both theory and practice. This is clear in the very structure of the PA system itself. While scenic areas are managed solely for the benefits of tourists, and nature reserves also preserve cultural heritage sites within their boundaries, protected areas are managed as pristine places free from human “disturbance.” Restricted activities include hunting, fishing, vegetation removal, littering, and driving outside designated areas (CPA 1972). These restrictions are stricter than those in U.S. parks, where certain recreational activities like fishing are allowed on park premises.
For example, while U.S. national parks were originally established for the “benefit and enjoyment of the people,” Taiwan’s national parks strictly forbid direct tourist interactions with nature. Barbecuing, selling food and drink from private vendors, or playing in streams and rivers is forbidden (Weller 2006). In this way, Taiwan’s national parks more closely follow Switzerland’s ideals of *Totalschutz* (Kupper 2009). One reason that Taiwan may have developed stricter PA regulations may be because of the severe pollution problems faced by the nation. By limiting the majority of human activities in Taiwanese national parks, the central government may have attempted to shield the parks from the rampant environmental destruction occurring throughout the island. Indeed, environmental conditions were so bad by the 1980s that the island held an average of ten nation-wide protests per month (Weller 2006). Despite the strict nature of these regulations, in practice restrictions upon human activity within natural areas are not implemented, especially at the regional level. Certain PAs even incorporate alternative concepts of human engagement with nature into the PA experience, such as meditation and health. A nature reserve near Taroko National Park, for example, encourages visitors to walk across a series of steps in the midst of a small river. The water flowing over the rocks is supposed to have healing properties, and is connected to concepts of Chinese wellbeing (Ibid). While park-created sites like the healing stones were relatively rare, tourist interaction with the nature at provincial parks is ubiquitous, despite the fact that it is forbidden, as it is at national parks. Indeed, at the former visitors purposefully and regularly break unenforced park rules: for example, they frequently play in park waters, and cook meals in the natural scenery. Despite the national government’s keen interest in preserving protected areas as a more “pristine” natural area with minimal human interaction, Taiwanese tourists continue to engage directly with nature in practice.
Taiwan’s PA system is informed by several intersecting currents of environmental thought that reflect its historical, economic, environmental, social, cultural, and political circumstances. The Qing Dynasty’s colonization of the island resulted in the migration of Taiwan’s predominantly Han Chinese population, whose religious beliefs regarding an interconnected natural/cultural landscape still encourage Taiwanese tourists to visit temples within protected areas, and to directly engage with nature in provincial parks. On the other hand, the creation of Taiwan’s first protected areas by the Japanese empire had little if anything to do with “nature”; instead, parks were a means of disenfranchising and controlling local indigenous populations, as well as displaying Japan’s superiority and prowess to the global community in the midst of a world war. Unfortunately, the exclusion of indigenous populations from their original lands remains a significant issue in Taiwan. At the national level, parks continue to follow a predominantly ecological agenda, whereas the needs of displaced indigenous populations are often written out of park discourses. Taiwan’s “natures” continue to reflect (or in the case of aboriginal peoples, exclude) the views and needs of various interest groups, from different political bureaus to Taiwan’s Han and indigenous communities.

**Taiwan’s Present Protected Areas System - Challenges**

Today, 20% of Taiwan’s land mass is designated for nature preservation. While Taiwan’s PA system is more effective than China’s “paper parks,” it faces six challenges that reflect important divergences from China’s system. First, despite the fact that Taiwan is currently run by a democratic government, PA lands continue to be controlled entirely by the national government, even though this nationalized land was forcibly seized from indigenous people by colonial Japanese rulers without compensation. After the Chinese takeover of Taiwan in 1945
and the establishment of martial law, Chinese politicians continued to displace and
disenfranchise indigenous people of their land. The mountains still remain as nationalized public
land, and the central government has not returned it to its indigenous owners. In contrast to
China, where millions of local residents live on PA lands and are at risk of eviction and
displacement, local residents in many of Taiwan’s protected areas have already been displaced.
This is because the primarily indigenous populations in these areas were forcibly relocated to
Taiwan’s plains after the Japanese colonized the island. As a consequence, debates surrounding
national parks and indigenous treatment in Taiwan are often focused on returning lost lands to
indigenous peoples, and to include them in exclusionary government-led land management
schemes. However, conflicting land claims between indigenous peoples, especially between
groups who lived on the same land during different time periods, complicates this process.
Furthermore, the national government has yet to return any of the PA lands, or to include
indigenous populations in its land management decision-making processes.

The second major challenge of Taiwan’s PA system is its lack of acknowledgement of
past and present indigenous needs. For example, in the Taiwan National Park Act (1972), parks
were explicitly established “to protect the natural scenery, historic relics and wildlife, to
conserve natural resources, and to facilitate scientific research and promote environmental
education” (CPA 1972). Notably, none of these goals consider the needs of present day
indigenous groups who lived on park lands. In fact, the official website of Taroko National Park
(as of August 2015) claims that it was established in 1986, when in fact the origins of the park
date to 1937, during the Japanese imperial period (CPA 2015). Additionally, while the website
has a short section describing the original Taroko residents, the entire passage is written in the
past tense, as if the needs of the current native population no longer apply. A brief caption
mentions in passing that the tribe “moved out” of the region by the beginning of the 20th century, and that few Taroko live within the park today (Ibid). This effectively erases Taroko’s history as an imperial park under the Japanese, and the forced relocations, military suppression, and social control necessary to create the PA.

While the majority of Taiwan’s PAs lack residents within their borders, the third challenge facing their success includes human pollution and development. For China, illegal mining, poaching, fishing, and logging on PA lands is a significant issue, due to the large number of rural local residents who rely on PAs for subsistence. In Taiwan, however, economic development and urbanization are more serious concerns. Taiwan’s small size and high population density means that urban areas and economic development schemes often occur next to PAs. According to an evaluation of Taiwanese PAs in 2012, the most severe pressure facing four of the five assessed PAs was pollution from household sewage, industrial waste, and garbage (Lu et al. 2012). Urban sprawl, industrial and commercial development, and transportation corridors were all significant threats to the health of the PA systems.

The fourth challenge facing Taiwan’s PA system is that the national government prioritizes economic development (and its accompanying pollution) over environmental preservation. While China and Taiwan face this same issue, the varying ability of each government to pursue its economic goals distinguishes the two nations. While the Chinese government is able to act without any oversight, and can subdue local unrest, Taiwan’s political system stays more responsive to the demands of its citizens, via environmental and social justice protests. Indeed, these very protest movements provided the basis for much of the current administration’s power (the DPP). While Taiwan’s government does have complete control over public lands such as protected areas, its actions are often impeded by citizen opposition. For
example, in the early 2000s, the DPP proposed ten major public works projects that were intended to promote economic growth. Dubbed the “Ten Nightmares,” (Williams and Chang 2008), many of the projects were halted by massive protests, due to the active leadership of Taiwan’s environmental NGOs. While most of these projects were not related to PAs, they represent the political and social context in which local people can critique and even halt government projects.

Like any state entity, Taiwan’s government is far from uniform. Instead, it is composed of many different bureaus with various needs and priorities. The fifth PA challenge reflects the complexity of the state - ten national bureaus supervise PA lands, and with often conflicting priorities. In China, PAs were managed at different regional, provincial, and national scales. In contrast, Taiwan’s national government directly manages all of the PAs itself. However, the various bureaus have differing powers on PA lands that limit the abilities of park managers to perform their duties. For example, in Kending National Park, park managers could not even set up their headquarters on reserve premises because the Forestry Bureau owned all of the land.

Other non-government stakeholders also impede successful environmental management in Taiwan’s PAs. In many cases, the national government established PAs without considering the existing local populations who lived there or the lands already owned by private interests. At Kending, environmental managers were only able to control 10% of the PA; 30% of the PA’s land was private, and the other portions of the park were controlled by different government bodies whose management goals did not align with one another (Weller 2006). Meanwhile, the 20,000 people lived within the PA’s borders had no legal claims to their land, even though many of their families had lived on the same land for generations ownership. This overlapping and
conflicting PA land ownership makes it difficult for environmental managers to effectively implement their environmental preservation goals across the entire PA.

The last major challenge facing Taiwan’s PAs is the lack of adequate funding. While PAs managed by national bureaus receive monetary allocations from the national government, those managed by local governments lack adequate finances and infrastructure. More specifically, while the Taiwan government paid for basic infrastructure at many of the PAs (e.g. facilities, equipment and route construction), finances for long-term maintenance, such as staff, were low (Lu et al. 2012). The lack of resources in regionally-managed PAs was particularly prohibitive. For example, in a regional Taiwan PA, tourists openly play in the reserve’s waterways and barbecue meals. While the park managers are more than aware of the situation, there are only four people on staff, and they are unable to stop waves of tourists from interacting with the environment as they please (Weller 2006).

**China and Taiwan – Intercurrence**

China and Taiwan’s protected areas systems are a product of society as much as a product of nature. While both countries shared similar cultural Confucian ideologies, and faced similar PA management issues such as funding and land ownership, the ways in which these concerns operated in practice were dependent upon historical, political, cultural, and economic contexts specific to each nation. What is most clear is that neither China nor Taiwan’s PA systems follow a singular “Yellowstone” Park model. Instead, they reflect the needs and desires of multiple different actors from its past and present, from Japanese colonizers in Taiwan and Confucian thinkers in China in to present day Taiwanese indigenous rights activists and regional/national government officials Chinese PAs. The environmental ideologies of earlier
time periods were not entirely supplanted by present-day management systems; instead, China and Taiwan’s PAs represent an intercurrence of environmental thought.

In the following two chapters, I will examine the complexities inherent within a PA system by analyzing two specific parks – Wolong Nature Reserve in Southwest China, and Taroko National Park in Taiwan. These two protected areas are interesting case studies for several reasons. First, both PAs were among the first established in each country, and have experienced multiple cultural, political, economic, and environmental shifts. As such, they provide a unique lens through which to analyze the changes in environmental protection over time. Second, the PAs are popular tourist locations and have high international visibility. They play an important role in the cultivation of each nation’s national image. The high profile of these PAs also means that they receive a large amount of financial resources from the central government and third parties. The amount of resources allocated to these reserves is not representative of PA financial allocations in China and Taiwan. Rather, as “flagship” nature reserves, they represent the height of attainable environmental protection, given exceptional financial and technical resources (Liu et al. 2003). They are also seen as models for other nature reserves in the countries. Finally, both nature reserves had large indigenous populations living on park premises at one point during their history. The government’s actions in shaping ethnic policy and these local populations is interesting to consider.

The two case studies also highlight key aspects of protected area creation and management. First, they demonstrate the diversity of the diversity of PA models worldwide. This variation is due to the historical contextual construction of these parks. Second, PAs are often used as national image key to national state building. This is partially reflected through environmental management schemes at PAs themselves. Finally, the case studies demonstrate
that the management and creation of PAs is inseparable from the treatment and ordering of human populations, especially indigenous people. This is true of PAs with significant human populations living within reserve premises (Wolong Nature Reserve), but also for reserves where people were displaced from PA land during the PA’s formation (Taroko National Park).
Chapter 3 – Pandas, Tibetan Indigenous People, and Grain to Green– PA Management Schemes at China’s Wolong Nature Reserve Through Time

Background – Ecology, Management, and Local Residents

Wolong Nature Reserve (Figure 1 & 2) was established in 1962. It is a 200,000 hectare protected area located in Southwest China’s Sichuan Province between the Tibetan highlands and Sichuan Basin’s lowlands. Wolong’s topography is characterized by deep valleys and high mountains, with altitudes ranging from 1200 m to 6250 m (Ghimire 1994; He et al 2008). The diversity in climactic zones at Wolong supports a large variety of habitats, including subtropical forests (below 1600 m), temperate coniferous forest (2000-3500m), alpine meadows (3500-5000m), and snowy mountaintops (over 5000m; Schaller et al. 1985; Ghimire 1994). Each climactic zone also has its own unique soil type, rain-fall frequency, and temperature. These factors allow Wolong Nature Reserve to support one of the most bio-diverse ecosystems in the world. The reserve contains over 4000 plant species and 2200 animal and insect species, including 57 endangered animals (Liu 2003; Xu et al. 2006). Some of the best-known threatened species include the golden monkey, snow leopard, red panda, and the giant panda (Schaller et al 1985). Many of these species are relics from the Tertiary period, and are found nowhere else in the world. The value of Wolong’s natural biodiversity was recognized by the international community as early as 1980, when the site was designated as a biosphere reserve under UNESCO’s Man and Biosphere program.

Wolong is perhaps best known as the oldest and largest among 25 nature reserves in China that are designated to protect the giant panda (Liu et al 1999). The reserve is the site of China’s most successful captive panda breeding program. The China Conservation and Research Center for the Giant Panda, established on reserve premises in 1980, is the result of a
collaboration between the World Wildlife Fund and the Chinese central government. As of 2008, the base bred 188 captive pandas, the largest number worldwide. Wolong Nature Reserve itself provides a habitat for 1,590 wild pandas (over 10% of the total population - Xu et al. 2006). Giant pandas are officially designated as “national treasures” by the Chinese central government. In addition to their symbolic, diplomatic, and cultural value, pandas are also regarded as invaluable for the scientific study of mammal classification, adaption, and evolution (IUCN 2006). In 2006, Wolong and sixteen nearby protected areas were designated as a World Heritage site specifically for the protection of the Giant Panda (Ibid). The area is the largest remaining continuous panda habitat in the world.

Wolong Nature Reserve has over 4000 local residents who live on the reserve’s premises. Over 70% belong to the Tibetan ethnic nationality, and 25% to the Han ethnic group (who make up over 90% of China’s population; Ghimire 1994). A small population of Chang and Hui ethnic nationalities also live within the reserve’s premises. Residents live in two concentrated townships, Wolong Township and Gengda Township, which occupy a mere 2% of Wolong’s total land mass in the reserve’s lower temperate altitudes (Ibid). The Tibetan population migrated to Wolong during the late 17th century, and moved to Wolong’s higher altitudes because lowland Han people were initially unwilling to live there. Due to long-time interaction and inter-marriage between Tibetan and Han cultures, as well as isolation from the Tibetan Plateau, Wolong has its own unique “sub-culture” that draws upon both Tibetan and Han traditions (Ghimire 1994).

Today, over 85% of local Wolong residents depend upon agriculture for subsistence (Lü 2003; Vina 2007), with maize, potato, and cabbage as the main crops. Most of the crops are sold to surrounding towns and exchanged for rice (Ghimire 1994). Families also raise livestock, including yaks, pigs, cows, goats and sheep. Local residents are heavily dependent on the natural
resources provided by Wolong’s forests. Until the 1990s, residents derived as much as one-third of their household income from medicinal plant gathering from Wolong’s forests (Ghimire 1994). Edible forest plants provided additional food security in case of crop failure. The community also gathered firewood and timber from the surrounding forest for cooking, heating, and house building (Liu et al. 2003). A small percentage of residents are also employed in small-scale ecotourism activities (such as restaurants and hotels) and temporary jobs provided by Wolong Nature Reserve.

In addition to Wolong’s rural residents, other groups interact with the reserve on a daily basis. Nearly 500 nature reserve staff also live within the reserve, most of whom originally came from areas outside of Wolong (Ghimire 1994; He 2008). Between 2002 and 2008, over 200,000 tourists also visit the reserve annually (He et al. 2008). In contrast, only 20,000 visitors came to the reserve in 1995 (Vina 2007).

Unlike most nature reserves, which are managed by provincial authorities, Wolong is directly administered by the central government via the Ministry of Forestry (MoF) (Ghimire 1994). The two townships are under the management of the Wolong Administration Bureau, which reports to both regional and central governments (Liu et al. 2003).

Wolong Environmental Management Schemes – 1962 to the Present

In this case study, I will analyze the different environmental management strategies adopted at Wolong Nature Reserve across two time periods. From the 1960s-1990s, international organizations and the central Chinese government adopted strict preservationist environmental regulations that prohibited most human activities within the reserve. In the second period (early 2000s), the reserve adopted new management strategies that provided financial incentives for
local residents to preserve the environment. The reserve also developed a tourism plan, and began to draw hundreds of thousands of visitors each year.

For each time period, I will consider the types of “natures” that different stakeholders sought to preserve, and the ways in which these ideologies changed over time. Instead of associating a singular “nature ideology” for each time period, I will also consider the overlapping and even contradictory policy and ideological frameworks (intercurrence) that characterized Wolong’s environmental management schemes across all time periods. I will also evaluate the ways in which the reserve’s management strategies altered the physical landscape and the socio-economic living standards of Wolong’s local residents. I will analyze socio-economic concerns at Wolong within a broader analysis of environmental justice and of ethnic minority policies and treatment throughout Chinese history.

**Period 1 – Panda Preservation – 1962-2000**

*Giant Panda Conservation – National Symbol and Endangered Species*

From its creation, the primary management goal of Wolong Nature Reserve was the preservation of wild giant panda populations. The establishment and subsequent expansion of the reserve itself was organized around panda habitat protection. Originally, the reserve was a mere 20,000 hectares. In 1975, the central government expanded the reserve to 200,000 hectares, a ten-fold increase, in order to protect a larger percentage of wild pandas who had recently been discovered via a nationwide ground survey (Ministry of Forestry & WWF 1989; Lu et al 2003). Indeed, before the 2000s, the provincial and national government dedicated most of Wolong’s financial resources to giant panda conservation.
Why were conservation strategies at Wolong so focused on one species? The giant panda is an internationally recognized symbol of the Chinese nation. Known as China’s “national treasure,” the charismatic animal is only found in select mountain ranges in western China. Despite its rarity, the panda has large international appeal, partially due to its innocent, cuddly appearance. Drawing upon the panda’s popularity, China has frequently gifted pandas to other nations as a form of *guanxi*. *Guanxi* is a form of Chinese gift-giving intended to produce long-term, friendly relations based on loyalty and reciprocity (Harrington 2005; Hartig 2013). Only selected countries with whom China wishes to cultivate long-term diplomatic relations receive giant pandas. For example, after China’s entrance into the global economy in the late 1970s, “panda diplomacy” became a “seal of approval” on major trade agreements and signaled China’s long-term commitment for peaceful economic relations with its trade allies (Buckingham et al. 2013).

Panda diplomacy may also represent China’s attempts to extend its “soft power.” Instead of winning international favor via military or economic aggression, China may be using the image of the giant panda to improve its national image with select foreign audiences. The “soft, cuddly” symbol of the Chinese nation instills positive feelings towards not only the panda, but also towards the country that it symbolizes (Buckingham 2013; Hartig 2013). Indeed, both the World Wildlife Fund (WWF) and Chinese central government consider the panda its “most successful foreign ambassador” (Ministry of Forestry & WWF 1989). By preserving wild giant panda populations at reserves like Wolong, the Chinese central government is also preserving the integrity of its national symbol – one of Chinese peace, friendship, and diplomacy.

The giant panda is also a symbol of international wildlife conservation (Ministry of Forestry & WWF 1989). Giant pandas are relic species who belong to their own unique
taxonomic category (Liu et al. 2016B). As such, China’s Sichuan provincial government has deemed the giant panda as an invaluable scientific resource for the study of mammal evolution and environmental adaption (People’s Government 2002). Unfortunately, panda conservation is notoriously difficult because the species has very specific living requirements, such as a limited diet (99% bamboo), and a 1-3 day annual breeding period. Pandas also need 3-10 square kilometers of undisturbed land in order to successfully perform their mating ritual (Ministry of Forestry & WWF 1989; Buckingham et al. 2013). As such, pandas are susceptible to natural disasters and human disturbance, and only an estimated 1,600 pandas remain in the wild (Buckingham et al. 2013). The World Wildlife Fund (WWF) adopted the giant panda as a symbol of conservation, not only for the animal’s charisma, but also because the panda is a “classic case of a rare species unable to adapt to a rapidly changing world” (Ministry of Forestry & WWF 1989). In addition to preserving giant panda populations, the WWF, the Chinese national Ministry of Forestry, and Chinese scientists also saw panda conservation as a means by which to protect thousands of other rare animal species who also require undisturbed forested panda habitat for survival, such as the red panda and the golden monkey.

Concerned conservationists, international non-profit organizations, and the Chinese central government are concerned that the giant panda will become extinct unless drastic actions are taken to preserve its habitat. These interest groups often identify subsistence practices of local communities as the cause of the panda’s decline. Between 1974 and 1988, 50% of suitable panda habitat in Sichuan Province vanished (Ministry of Forestry & WWF 1989). Similarly, total wild panda population numbers declined from 2459 in the 1970s to 1596 in the early 2000s (Liu et al. 2016B). Surprisingly, the decline in suitable panda habitat occurred even within the boundaries of panda nature reserves. After the creation of Wolong Nature Reserve in 1962,
environmental degradation increased within the reserve at levels equal to or higher than unprotected lands around it (Liu 2001). Forest cover significantly decreased after 1974, when the reserve was expanded from 2,000 to 20,000 km² to include Wolong’s two townships. By 1997, high-quality forest habitats in Wolong had decreased by 15% (Liu 2001; Vina 2007). The general quality of forest habitats also decreased, with habitats unsuitable for supporting pandas increasing over 10-fold (Ibid). In addition, habitat connectivity between the reserve and the surrounding forest land dropped from 65% to 46% between 1965 and 2001 (Vina 2001). Habitat connectivity is essential for preserving species, because small isolated populations interbreed and decrease the vitality of the species’ gene pool10 (Perfecto and Vandermeer 2008). Decreases in habitat quantity and quality corresponded with a large decreases in the number of wild pandas in the reserve; from 1974 to 1986, Wolong’s wild panda population dropped from 145 to 72 pandas (Liu et al. 2001).

Groups such as the WWF, Chinese scientists, and China’s Ministry of Forestry (MoF) argued that Wolong’s local residents were the “direct driving force behind the destruction” of both the forest and panda habitat (Liu 1999; Liu 2001; Liu 2003; Lü 2003; Xu 2006). Specifically, scientists studying forest habitat degradation and biodiversity loss in Wolong identified local activities such as fuelwood harvesting, grazing, and land cultivation as the primary causes of forest habitat loss and fragmentation (Ibid). The Ministry of Forestry and the WWF also argued that human population growth was the “biggest constraint on reserve management” (Ghimire 1994). Indeed, between 1975 and 1999, the number of households in the Wolong area grew by 115% (Liu 1999). In Wolong Nature Reserve’s official 1989

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10 See Thorrold (2001), Carroll (2004), and Botsford (2009) for additional discussion of challenges facing metapopulations in PAs
environmental management plan, the MoF and WWF suggested that human population growth at Wolong facilitated an increase in local consumption of forest resources, especially fuelwood, and was primarily responsible for panda habitat destruction (Ministry of Forestry & WWF 1989; Liu 1999). The plan estimated that local residents collected 1,817 cubic metres of firewood from the reserve each year (Ghimire 1994). Pandas depend upon bamboo stands that grow in the understory of undisturbed forest; deforested areas remain unfavorable habitat for the pandas for nearly forty years after disturbance. From the perspective of the aforementioned conservationists and decision-makers, China’s giant panda population were rapidly disappearing, and the only means by which to halt that destruction was to limit the “cause” of panda decline – local community subsistence.

Another way in which the Chinese central government and international NGOs justified the preservation of Wolong’s panda was to invoke historical narratives that framed panda population loss as a centuries-long process initiated by local farmers. In Wolong’s 1989 management plan, the Chinese Ministry of Forestry argued that pandas used to live in lowland areas across China, Myanmar, Laos, Vietnam, and Thailand (Liu et al. 2016B), until human settlement patterns and agricultural activities forced the few remaining panda populations to settle in remote mountainous regions. By blaming local farmers as the primary cause of panda population decline, the Chinese central government justified its emphasis on panda conservation at Wolong Nature Reserve, over the needs of human populations. “There is nowhere else for them [the pandas] to go,” the Ministry of Forestry said. “If we are serious about saving the panda, there is no alternative to removing people from its last habitat, however… complex that operation may prove” (Ministry of Forestry & WWF 1989). The MoF also suggested that giant
pandas “enrich the lives of millions of interested human beings” as if the sacrifice of local community subsistence needs in Wolong was offset by the “greater good.”

Strict preservationist discourses justifying human exclusion from nature reserves is not unique to China’s protected areas; indeed, before the 1970s, PAs across Europe, Africa, and the United States often adopted conservation ideals that undermined local consumption needs (ranging from totalschutz to displacement without movement; see chapter 1). What is interesting to consider about China’s preservationist approach is the reasons for which it chose to adopt panda conservation as the centerpiece of environmental management, and the justification for this approach. Evaluating the particular contexts in which Chinese decision-makers adopted certain preservationist approaches over others is essential for understanding the diversity of PA models worldwide. In the case of Wolong Nature Reserve, strict preservation strategies were adopted not only because of the perceived threats of local human consumption and the steady decline of panda populations, but also to preserve China’s symbol of peace and diplomacy. In contrast, while similar “displacement without movement” strategies in South Africa and Switzerland also limited local community activities in PAs, other factors such as the social control of African peoples and national identity formation around Switzerland’s natural landscapes played a role in the creation of environmental management strategies that had different consequences for each PA.

Panda Conservation Strategies at Wolong Nature Reserve

China’s first legislative attempts to manage giant panda populations reflected the aforementioned relationship between local consumption and panda preservation. By 1984, China’s National Forestry Law banned human settlement, hunting, tree-cutting, grazing,
medicinal plant collection in specially designated forests, including protected areas (Ministry of Forestry & WWF 1989). Even outside of nature reserves, the central government took extraordinary steps to preserve panda habitat by barring all forestry operations in these areas by 1999 (People’s Gov 2002), and by promoting bamboo restocking, reforestation, and forest monitoring (Ministry of Forestry & WWF 1989). While these regulations were not always enforced at a local scale, they did halt commercial logging on the premises of Wolong Nature Reserve.

Environmental management strategies at Wolong Nature Reserve during the late-1900s are perhaps best characterized by the National Conservation Management Plan for the Giant Panda and Its Habitat. Based on Wolong’s specific management plan in 1992, the legislation was the result of a collaboration between the central government’s Ministry of Forestry and WWF. The main objectives of the plan was strict panda and wildlife preservation. The plan provided for habitat restoration and biological and ecological research of the panda in order to identify and address threats to its survival. The plan explicitly requested “the reduction of human activity in panda habitat… in such a way that pandas can continue to live there [disturbed habitats]” (Ministry of Forestry and WWF 1989). The plan’s desire to reduce local consumption activities assume that human activity is inherently incompatible with panda and wildlife preservation as a whole.

The desire of the Chinese central government to preserve the environment by limiting local human consumption continued into the 1990s. Building upon the 1984 PA logging ban, the 1994 China Nature Reserve Regulation prohibited most local consumption activities within nature reserve premises. Banned activities included tree-cutting, grazing, hunting, fishing, gathering medicinal herbs, farmland reclamation, and mining (Xue 2000). Unlike most of
China’s nature reserves, Wolong enforced many of these local consumption restrictions, partially because it had the budget to do so – between 1991 and 1995, Wolong’s budget was 5 to 210 times greater than other PAs (Ministry of Forestry & WWF 1989). Wolong is under the jurisdiction of the central government, and receives resources directly from it, whereas most Chinese PAs receive their funds from the provincial government only.

The 1994 China Nature Reserve Regulation also established a zoning system within nature reserves based on the international standard set by the UNESCO World Network of Biosphere Reserves. In theory, the zoning system was intended to balance the needs of local communities and nature preservation by establishing various “zones” of human activity. For example, no humans were theoretically allowed into established “core zones” in the nature reserves unless they had special permission for scientific purposes. In buffer or transitional zones, however, certain types of human development and consumption were permitted. The law intended policy-makers to follow ecological principals during their delineation of the zones; that is, sensitive habitats such as panda habitat would be designated as core zones, whereas less sensitive environments such as lowland deforested regions would be designated as buffer or transitional. Unfortunately, zoning of Chinese PAs was not always based on conservation principles. In fact, Ghimire notes that the park originally designated the human settlements at Wolong as “core areas,” despite the fact that these areas were not suitable for panda habitat (Ghimire 1994).¹¹ PA decision-makers may have used core zoning as a justification for

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¹¹ Notably, Wolong Nature Reserve altered its core zone designations in 1998 and 2009. The new designations more accurately represented panda habitat. They also designated areas of human settlement as buffer and experimental zones (Hull 2011). The recognition of local subsistence in the re-zoning is representative of the shift in Wolong environmental policy from its focus on strict preservation (Era 1 – 1970-90s) to a recognition of local subsistence and economic needs (Era 2 – 2000s).
displacing local Wolong residents in order to *protect* local ecosystems from the perceived threats of excessive local consumption of Wolong’s forest goods.

For example, the Ministry of Forestry and international NGOs went as far as to attempt the coerced relocation of Wolong residents. The goal of such relocation schemes was to reduce local consumption of forest resources by reducing human population size (Ministry of Forestry and WWF 1989). Indeed, the central government has tried to relocate Wolong’s residents on multiple occasions without success. In the 1980s, national regulations divided Wolong Nature Reserve into three zones: a core area with minimal human activity permitted, a scientific research zone, and a zone for human settlement (Ghimire 1994). The World Food Programme attempted to relocate Wolong’s residents from the core area by building Western-style apartments for 100 families at the edge of the reserve. Unfortunately, the WFP did not provide the families with land for agriculture, the main means of local employment, or any other employment alternatives. Local residents refused to move out, and none have been relocated. A 1989 WWF-Ministry of Forestry management plan also proposed to move people from Genda Township, without success. The importance placed upon human resettlement is evident by Wolong Nature Reserve’s environmental budget allotment – between 1991 and 1995, 65% of the reserve’s total budget was allocated towards human displacement efforts. This percentage does not consider the money spent by the WWF and the World Food Programme for human relocation schemes (Ministry of Forestry & WWF 1989).

While China’s nature reserve regulations appear severe on paper, several PA scholars note that such regulations are often aspirational in nature, because they are impossible to enforce (Harris 2007). For example, Harris notes that while the Chinese government banned most forms of local consumption on PA premises in its environmental regulations, they did not put into place
mechanisms by which to remove the 1-3 million people nationwide who resided within the core zones of nature reserves across China, and who were already exploiting the natural resources of the land. As such, the legislation reflected “an ideal of biodiversity protection that no local administrator was expected to fulfill” (Harris 2007). As discussed in Chapter 2, PA park managers across China did not implement PA local resident land use prohibitions in practice due to a lack of financial and environmental enforcement. Even though the central government did not achieve their visions for PA management in practice, their national PA regulations attempt to construct a type of “nature” at PAs that is free from local human activity. The regulations consider this human-free PA to be the most desirable, “aspirational” environmental management strategy during the late-1900s.

**Implications of Panda Conservation for Local Human Populations**

The act of designating a protected area in and of itself has consequences for both the physical landscape and the socioeconomic status of the people who live there. This is most evident in the initial environmental management schemes adopted at Wolong Nature Reserve under the authority of the central government.

As previously noted, forest ecosystems at Wolong began to degrade more rapidly after the reserve’s creation in the 1960s (Liu et al. 2001). The national Chinese government, international NGOs, and conservationists attributed the reserve’s ecological degradation to increased local activity, and adopted “fences and fines” policies to exclude all human consumption from the reserve. While local populations certainly do utilize certain ecosystem resources within the reserve, by only blaming rural residents for environmental damages, interest groups in favor of strict preservation do not acknowledge the impact of state policies and
environmental management strategies that produce the conditions for which local communities extract increasing amounts of forest resources. They are also not taking into account the environmental damages associated with other groups that interact with the reserve.

For example, blaming local residents for environmental damages on Wolong’s premises does not explain why degradation increased dramatically after the reserve’s formation, compared to surrounding areas with similar population sizes. Wolong residents had been living in the area since the mid-17th century. The predominantly Tibetan residents were initially pastoral, and grazed their livestock at high altitudes. In the eighteenth century, the introduction of maize, potatoes, and cabbages led residents to live in compact settlements in lowland regions where temperatures are more conducive for permanent agricultural crops, though livestock remained an important source of cash and food for the community. Before the establishment of Wolong Nature Reserve, residents grazed yaks, cows, pigs, and other livestock by traveling to Wolong’s highland grasslands. Considering that environmental degradation only increased greatly in the reserve after its designation, and that Wolong’s 4000 local residents had lived in the area for hundreds of years, other internal and external forces related to reserve designation must also be responsible for ecological destruction in the late 20th century.

While park managers, scientists, and government bodies often assume that human activities take place in panda habitat, this is not always the case. Giant pandas only live between 2500 to 3500 meters above sea level (Ghimire 1994). On the other hand, local residents live in lowland regions where pandas do not reside. Agricultural activities are thus limited to low altitudes (up to 2000 meters) to avoid conflict with pandas. Furthermore, local residents collect firewood and graze cows and goats up to a height of 2500 meters in Wolong’s mixed deciduous and evergreen forests. Villager subsistence activities rarely occur in areas suitable for panda
habitat; indeed, according to surveys in the 1990s, most residents had never even seen a wild panda (Ghimire 1994). Other local activities such as yak grazing and medicinal plant gathering occur in grassland habitats unsuitable for pandas, and at elevations higher than panda habitat (Ibid). In addition, local residents do not graze yaks at these higher altitudes for longer than a few weeks each year, minimizing damages to the habitat. As such, local consumption activities do not always take place in fragile panda habitats, the primary concern of Wolong conservation activities.

Several outside factors may have contributed to environmental degradation in Wolong after the establishment of the reserve. First, commercial logging was not halted in the area until thirteen years after the reserve’s management. Commercial logging is a significant threat to panda habitat in China; between 1974 and 1989, it was the leading cause of giant panda habitat destruction in Sichuan Province (Liu et al. 2010). Even though logging was banned in all parts of the reserve, these measures were not enforced until the mid-2000s. Furthermore, logging continued unimpeded in the areas surrounding Wolong Nature Reserve until 1999, when the central government protected major tracts of forestland around Wolong in an attempt to safeguard panda habitat (People’s Gov 2002). Interestingly, panda populations only began to increase in the 2000s after the central government halted commercial logging both inside and outside the park.

Another cause of the reserve’s environmental degradation was that national policies and economic markets rewarded local residents for destructive environmental behavior in new ways. For example, Wolong Nature Reserve was previously isolated in the mountains, without any major access roads to reach it. After the reserve’s designation, government officials built a road from Wolong to surrounding towns, which provided local residents with access to local markets.
for the first time. In order to gain monetary wealth, many local residents began extracting natural resources such as fuelwood as marketable goods (Liu et al. 2001). By the 1990s, Wolong was also beginning to attract thousands of visitors each year. To support the consumption of the tourist population and to make additional revenue, local residents increased their extractive activities. As late as 1999, local residents of counties with panda habitat had an average per capita annual income that fell below the international poverty line; therefore, their need for extra income and increasing demand for forest products spurred extractive local practices (Liu et al. 2016B). A mixture of tourist consumption, regional economic development, and lack of local economic alternatives resulted in Wolong’s environmental degradation in the 1900s.

Local Indigenous Populations – Effects of Environmental Management

Environmental regulations at Wolong Nature Reserve in the 1960-90s not only had a profound effect on nature preservation, but also upon the livelihoods of its local Tibetan indigenous residents. By placing blame for the reserve’s environmental degradation on local communities, park managers, government bodies, and international organizations created top-down environmental management schemes without considering the needs of local stakeholders, who depended on the reserve’s wood, wildlife, and food resources for subsistence and economic prosperity. Instead, the policies were established without local consultation. The newly adopted “fences and fines” policies banned all forms of local use of environmental resources.

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12 Wolong Nature Reserve has improved local development in two ways. First, local investment into the reserve also provided local residents with electricity via five new hydroelectric plants. Second, the reserve built a road to the reserve, and connected the relatively isolated region to outside communities and markets. Despite these benefits, the economic consequences of the reserve on the local community are severe, and the health, sanitation, nutrition, and economic prosperity of local communities is in jeopardy.
One of the major challenges faced by Wolong’s local indigenous populations during the 1900s was their lack of access to stable sources of food. For example, as late as 1994, Wolong’s per capita grain subsistence production was less than half of the national average, and local access to meat, eggs, and fish was limited (Ghimire 1994). Before the establishment of the reserve, local people collected supplemental food resources from the environment, such as mushrooms, fruits, and nuts. This source of nutrition acted as an important safety net for families during low-yield agricultural harvest. With the ban on hunting and local plant gathering in 1984 (source), the local community could no longer rely on this secondary food source.

The establishment of environmental regulations at Wolong Nature Reserve also had a negative impact on local people’s ability to make a living from the land, even when such activities were not officially banned. From 1962 to 1994, Wolong Nature Reserve lost 23% of its agricultural land due to reforestation and conservation schemes (Ghimire 1994). Considering that between 80 and 95 percent of Wolong’s residents are farmers who heavily depend on agriculture for subsistence, the decrease in cropland has significant implications for local nutrition and employment (Ghimire 1994; Ghimire 1997). The second major source of income among local residents, livestock raising, also became much less profitable after the establishment of Wolong Nature Reserve. After the implementation of anti-grazing regulations, only 50% of the local community could make any income from livestock sale, despite the fact that the community had been a pastoral one since the 1700s (Ghimire 1997). Furthermore, park managers did not provide alternative economic activities for local residents that substituted their lost access to Wolong’s food and timber resources. The park’s 375 staff members primarily consisted of individuals from outside of the community; at best, park managers only hired villagers for seasonal construction work.
The increasing volatility of traditional sources of income placed Wolong’s local indigenous community in a precarious economic situation. By 1992, the average local net household income was 538 yuan, compared to a national rural household income of 708 yuan (Ghimire 1994). Wolong’s forest resources originally acted as an alternative source of income that lessened the impacts of seasonal, volatile unemployment and unprofitable harvest. For example, medicinal plant gathering alone constituted over one-fifth of local income in 1992, even though the reserve limited legal plant gathering to one month per year (Ghimire 1997). Without the ability to rely on food and plants in the reserve’s forests, local Wolong residents were more vulnerable to economic poverty and malnutrition.

The criminalization of local consumption activities is a type of “displacement without movement.” While local communities were not physically displaced from the reserve, they were effectively excluded from the very type of environment that they depended upon for survival – one with forest and wildlife resources (Nixon 2011). Indeed, the fact that multiple parties have attempted to displace Wolong’s local community outside of the reserve during the 1980-90s is a good example of the priorities of environmental decision-makers to uphold nature conservation, especially without local interference. Displacement projects created new apartment spaces for local people without providing alternative economic opportunities or farming land. The failure of these displacement schemes not only demonstrates local opposition to removal schemes, but also the ways that Chinese central government and international non-profit members did not consider local economic context when developing PA environmental management strategies. Like the “fences and fines” policies targeted at local consumption, displacement projects at Wolong Nature Reserve did not consider local needs and instead focused on strict preservation.
The lack of recognition and inclusion of local people in environmental discourses and decision-making processes highlights the invisibility of communities who live within reserve boundaries. In his book *Crimes Against Nature*, Karl Jacoby (2001) argues that discourses celebrating environmental conservation and pristine nature render the discourses of local communities and indigenous groups invisible. Highlighting different local understandings and engagements with nature is crucial for understanding the complexity of human-nature relationships. In the case of Wolong, scientific, governmental, and public discourses that emphasize panda conservation as the primary point of interest for the reserve are obscuring the perspectives of Wolong’s local indigenous Tibetan population. Local Tibetans are especially invisible in public discourse and for decision-making priorities because they do not speak Mandarin, are physically isolated from other communities (e.g. the nearest city is eight hours away through dangerous mountain road systems that frequently close), and do not have the resources to communicate with wider audiences. Bringing attention to indigenous perspectives is essential, because the environmental legislations moderating use of forest resources alters local subsistence practices that have been in place since the 17th century. As Jacoby argues, it is important to consider who is able to construct environmental narratives and management schemes, and who is not (Jacoby 2001).

*Regulating Indigenous Bodies at Wolong – Implications within Chinese Ethnic Policy*

Wolong’s indigenous Tibetan population is not directly comparable to indigenous people living in Tibet and the rest of the nation. Wolong residents migrated to the reserve over three hundred years ago, and have remained relatively isolated from political, cultural, and religious events in the Tibetan plateau. Furthermore, Tibetan people at Wolong have intermixed with Han
Chinese; as such, their culture is a fusion of Han and Tibetan traditions and values (Ghimire 1994).\textsuperscript{13}

That being said, the economic and social implications facing Wolong’s local Tibetan population cannot be understood without a broader analysis of indigenous treatment in recent Chinese history and the importance of ethnic policy in national politics. The erasure of indigenous cultural values and economic needs on a national level is reminiscent of Wolong Nature Reserve’s exclusionary environmental management schemes. Furthermore, the economic disparities facing Wolong residents mirror those of Tibetans and indigenous people across China. An evaluation of Chinese indigenous policy provides an example of the challenges facing indigenous PA residents at Wolong and at PAs throughout the nation.

National ethnic policy has been a cornerstone of the Chinese central government’s Communist Party (CCP) agenda since its rise to power in 1949. The central government considers ethnic affairs to be a “national security” concern. Indeed, by “managing” ethnic and national culture, today’s CCP hopes to reduce the risks of ethnic conflict that potentially fuel CCP opposition groups such as break-away nations. From this perspective, opposition groups pose a threat to the CCP’s very ability to control the nation itself, and the regulation and control of indigenous bodies and discourse is one of the party’s top priorities (Brady 2012a). In fact, the CCP has several branches of provincial and central government dedicated to the regulation of indigenous issues, including the State Ethnic Affairs Commission, the United Front Department, and the Central Propaganda Department.

\textsuperscript{13} More research is needed to determine the cultural and religious traditions of Wolong’s Tibetan population. These insights are crucial for understanding local values and understandings of the environment, and for creating environmental management strategies that incorporate local needs and beliefs.
CCP national ethnic policy is as good example of the types of historical erasure, economic disadvantage, and ethnic control that still shape the lives of indigenous people at Chinese PAs today. Two of the CCP’s primary approaches to indigenous policy nationwide since 1949 were the national integration of indigenous populations (occasionally through force) and the economic development of indigenous areas as part of the nation’s national economic strategy (Harrell :47). While CCP indigenous policy has served to improve the livelihoods of rural indigenous people under certain circumstances, it has also undermined indigenous rights and rendered local indigenous cultures invisible through forced assimilation and the denial of indigenous cultural and religious legitimacy.

For example, during the late 1950s, Chinese communist leader Mao Zedong promoted several major student campaigns that called upon Han Chinese, who make up 92% of China’s total population, to “rescue the backward” rural ethnic minorities (Harrell 2001; Bradyb 2012). These campaigns depicted indigenous people as semi-feudal, and as if they were from an “earlier [and inferior] stage” of development (Ibid). In contrast, CCP discourses painted the modern socialist state as the savior of these impoverished people who would lead them into the modern world through economic development. The campaigns served to erase the legitimacy of indigenous lifestyles and cultures through a discourse of backwardness, and suggested that indigenous adoption of Han Chinese modernity and culture was the only way to “progress.”

Forced and coercive assimilation are particularly problematic for the Tibetan indigenous people, including the 2.41 million that live in Tibet (China Internet Information Center 2001). Tibet is located in western China (Figure 3), and was taken over by the Chinese government via a military campaign in the early 1950s. Since the takeover, Tibet has experienced various types of national integration policies, from military repression to infrastructure improvement (Barnett
Historically, the Chinese government imprisoned and even executed thousands of Tibetans during uprisings in 1959. Tibetan indigenous people were also one of the most impacted by forced assimilation tactics. One of the most severe assimilation tactics occurred during the Cultural Revolution (1966-1976). The Cultural Revolution was a nation-wide movement that attempted to erase and destroy “backward” thoughts and traditions from Chinese society (Ibid). The nation declared religious beliefs and distinctions between nationalities to be the result of backward class systems. As a result, indigenous people were forced to assimilate by adopting Han Chinese customs, destroying religious temples, and declaring their atheism (Ibid). They were also expected to humiliate and prosecute their cultural leaders, such as elders, intellectuals, and religious figures.  

The central government’s suppression of Tibetan populations is a major political impediment to local Wolong resident participation in environmental decision-making at Wolong Nature Reserve. Given historical erasure and government control of Tibetan people and the central government’s understanding of ethnic policy as a “security issue,” Wolong Tibetan residents who ask for participatory management techniques may be seen as a threat to the central government’s political control.

While Tibetan people’s experiences during the Cultural Revolution are an extreme version of forced indigenous assimilation techniques, they highlighted underlying Chinese central government sentiments regarding the inferior status of indigenous people and the

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14 It is important to note that the Chinese national government also used a combination of alluring political and economic promises, gifts, and rewards in addition to violence and assimilation in order to secure political and economic control over Tibet. In some cases, Chinese policies did result in significant cultural and economic gains for rural Tibetan populations. Indeed, in the 1980s, CCP policies promoted Tibetan political self-autonomy, religious freedom, and infrastructure development. As a result, Tibetans rebuilt over 1500 monasteries, and began to experience economic mobility (Barnett 1998).
illegitimacy of their religious practices. For example, during the 1990s, China attempted to “redefine” Tibetan culture. China’s CCP party secretary Chen Kuiyuan argued that Buddhism was “foreign” to Tibetan culture (Barnett 1998). In line with this ideal, the Chinese government began to require monasteries to formally recognize Tibet as a part of China, and to denounce the Dalai Lama. Scholars have analyzed the CCP’s attack on Tibetan religion and culture as an act to eliminate cultural ideals that could lead to future dissent (Barnett 1998; Brady 2013B). By attempting to “redefine” Tibetan culture and strengthen its political and social control over Tibetan populations, the CCP framed Tibetan cultural and religious traditions as “illegitimate” and attempted to erase their centrality to Tibetan people.

A “backward” depiction of indigenous people’s way of life discounts their unique cultural, social, and environmental practices that have often been in place for hundreds of years. For example, for the Tibetan ethnic nationality in Yunnan Province adjacent to Wolong Nature Reserve, 80% of local mountains and forests were considered religiously sacred, and excessive human consumptive activities in these areas was explicitly forbidden by their cultural practices (Jing 2007). Indeed, Yunnan Tibetans considered the relationship between the land, ancestral spirits, and their bodies as interlinked, and self-regulated many of their own activities to compliment natural systems. While more research is needed to determine Wolong Tibetan cultural and religious practices and their relationship to the natural environment, it is significant that central government ethnic policies erase the legitimacy of local cultural, religious, and environmental practices and declare them to be illegitimate.

To achieve its goal of national unity, the CCP also purposely obscured public discourse about indigenous conflict while promoting ethnic propaganda to national and international audiences regarding China’s stability and unity (Brady 2012b). One of the major concepts
advanced by the Chinese central government was the idea of a “unified multi-ethnic country” (Information Office of the State Council 2009). Officially, the party describes the country’s history as “developed by all ethnic groups in the big family of the Chinese nation” (Ibid). The CCP’s ethnic policy stresses the importance of stability and unification among ethnic groups. Scholars such as Brady 2012b argue that these policies serve to maintain China’s long-term political stability and its international affairs. In practice, many of China’s policies in the 1900s promoted “unification” through the coerced assimilation of indigenous groups. For example, the CCP instructed indigenous children in Mandarin and discouraged local language learning.

By portraying indigenous communities within a “unified multi-ethnic” national framework, Chinese national propaganda obscures the individual voices of indigenous communities, as well as the unique economic challenges that they face. For example, according to China’s most recent national regulation on ethnic policy, before CCP takeover, minority areas had poor infrastructure and “backward” social and economic development. The Chinese government, however, “completely got rid of stark poverty and backwardness” through economic and technological development (Information… 2009). While the CCP has brought basic infrastructure to rural indigenous communities like Wolong Nature Reserve such as electricity, these discourses erase the fact that the economic gap between urban populations and rural indigenous communities was often exacerbated by development strategies. As late as 2006, China’s indigenous population made up 40% of the country’s poorest individuals, despite the fact that they only made up 9% of the population (New Internationalist). Indeed, in Tibet, the urban-rural household income inequality reached a 5.5 ratio in 2001, the highest in the country (Fischer 2013). At Wolong Nature Reserve average per capital household income was a mere 1624 yuan (250 USD), compared to a national rural average of 4760 yuan (734 USD; Liu et al.)
Despite local Tibetan economic disadvantages, Wolong created policies that barred local access to food, firewood, and medicinal items for the reserve’s forest, effectively removing a major source of Tibetan income. The lack of consideration for Wolong Tibetan needs is reminiscent of the historical erasure of Tibetan and indigenous population economic needs, especially in the midst of rapid Chinese economic growth.

85% of local populations who live within China’s state-level nature reserves are ethnic nationalities (Xu et al. 2006). In Wolong, Tibetan indigenous people make up 70% of the local population (Ibid). As such, the local economic conditions of indigenous people and their unique cultural, religious, and environmental stewardship practices are important considerations for preserving China’s ecological systems (Chinese Government 2009). Wolong’s Tibetan population face similar levels of urban-rural income disparity, even though the central government has improved infrastructure in both the reserve and the Tibetan plateau. Despite these disadvantages, environmental management at Wolong has historically erased indigenous economic needs. Environmental management strategies that recognize this history and engage with local indigenous populations are necessary for effective, socially responsible nature reserve management in China.

**Environmental Management and Local Economic Development – 2000s**

By the early 2000s, several scientific studies of panda habitat across all of China’s nature reserves convinced the central government that the preservationist management schemes of the 1900s were not effectively preserving panda populations. Furthermore, several nation-wide natural disasters in the late 1990s raised the CCP’s awareness that erosion and deforestation was causing major flooding and droughts destructive to the safety and agricultural viability of China.
In response to these concerns, the central government established two new conservation programs that safeguarded forest habitats. At Wolong in particular, three new conservation programs were put into place; the Grain to Green Program (GTGP), the National Forest Conservation Program (NFCP), and the Eco-hydropower Plant Program (EPP). Wolong also became subject to new regulations because it became one of fifteen PAs included in China’s 2006 World Heritage Panda Sanctuary. The conservation programs of the 2000s signaled a major shift in nature reserve management in China, because they were some of the first pieces of national environmental legislation to provide financial incentives to local communities for adopting preservationist behavior. The regulations reframed the role of local communities as environmental stewards who provided manpower for habitat restoration and for environmental monitoring.

The EPP was a local initiative established only within the boundaries of Wolong Nature Reserve itself. EPP provides electricity to local Wolong residents in order to reduce their dependence on fuelwood and facilitate reduced deforestation and habitat destruction. Since the program’s start in 2002, local fuelwood consumption has decreased by 40-50% (Liu et al. 2016B).

The National Forest Conservation Program (NFCP) is the most popular national initiative adopted at Wolong Nature Reserve; virtually all households participate in the program. Each household receives a parcel of natural forest to monitor in order to prevent illegal harvesting. If the household successfully protects their allotted forest area, they receive 850 yuan, or 5% of their annual household income (Liu et al. 2016B). Like the EPP, NFCP encouraged a local switch to electricity consumption, reducing the need for firewood collection.
The 2002 Grain to Green Program (GTGP) was one of the most significant land-use policies adopted by the national Chinese government in recent years. The legislation was a response to the rapid economic development of China’s economy, which often resulted in the deterioration of fragile natural ecosystems the exacerbation of rural poverty, especially among farming communities. China’s natural ecosystems are particularly vulnerable to deforestation and erosion due to the country’s mountainous geography. Over 6 million ha of Chinese farmland exist at slopes of over 25 degrees. These steep areas are vulnerable to soil erosion that accounts for 5 billion tons of eroded soil across nearly 40% of China’s national territory (UN 2003; Liu and Wu 2010). In 1998, massive flooding exacerbated by deforestation in mountain regions caused over 38 billion dollars in damages, and impacted the livelihoods of 230 million Chinese farmers (Liu and Wu 2010). The central government implemented the GTGP program in order to prevent natural disasters of a similar magnitude in the future. The Chinese government subsidizes farmers to convert agricultural land prone to erosion and pollution on sloped hills into forestland. Rural farmers receive an annual grain subsidy based on the number of hectares they converted into farmland. The central government also pays for the tree seedlings needed for reforestation (UN 2003). Nationwide, over 10 million farmers and one-third of farmer households in program areas are involved in farmland-forest conversions. It is also one of the largest national projects targeting poverty alleviation. At Wolong Nature Reserve, the GTGP program paid local residents an annual 3450 yuan per hectare for eight years for cropland conversion. By 2006, local Wolong households had converted 56% of their land into forest, and the payments accounted for 8% of their household income (Liu et al. 2016B).
By 2007, the conservation programs appeared to be producing tangible results.\textsuperscript{15} Electricity consumption doubled in the Wolong’s two townships, and forest cover increased by 11.4\%, (compared to a 14.2\% loss between 1987 and 2001- Liu et al. 2016B)

While Wolong’s new conservation strategies did succeed in preserving and restoring forest-land, the economic benefits for local residents are somewhat questionable. In addition, the policies alone cannot account for the success of environmental initiatives. By 2005, even though 95\% of Wolong’s residents were considered farmers, over 38\% of annual household income came from off-farm employment (Liu et al. 2016B). Much of this employment was temporary, such as construction work, and placed local people at risk of an unsteady income. Meanwhile, employment opportunities outside of Wolong remain difficult for local residents to access, because most working-age adults have little education and limited Mandarin Chinese language skills (Xu et al. 2006). Therefore, the switch to off-farm employment, while more friendly for environmental reforestation efforts, frequently places Wolong households into riskier, volatile financial circumstances. It also suggests that the success of reforestation must also be attributed to changes in local economic opportunities, as opposed to policy subsidies.

Part of the reason that local communities have shifted to off-farm employment is that the strict preservationist regulations governing Wolong Nature Reserve during the 1900s are still in effect. These regulations provide no economic incentives or alternatives for local consumption activities, and continue to exclude local people from activities essential for their livelihoods. For

\textsuperscript{15} It is worth noting that in some cases, environmental management strategies can have unintended consequences that degrade Wolong’s forest habitats. For example, after Wolong Nature Reserve began to restrict local livestock grazing, residents began to pen their livestock. In several instances, the animals escaped and trampled through fragile panda habitat, eating bamboo and causing much more damage than typical cattle grazing (Liu et al. 2016B). The rampaging cattle demonstrate the importance of considering the economic consequences of environmental management strategies for local people, and the ways in which local responses to environmental strategies can cause further damage to the ecosystem.
example, as late as the 1990s, medicinal plant gathering constituted 20% of local income. Today, local residents cannot gather plants even in disturbed forest areas, except at certain times of the year. The conflict between the subsidized 2000 conservation regulations and the 1900 preservationist legislation at Wolong Nature Reserve demonstrates the contradictory nature of policy regimes – that is, one that subsidizes local environmental behavior, and one that seeks to displace and exclude local people. The intercurrence of these regimes reproduces the limited economic and environmental opportunities of the earlier period, even as new policies attempt to provide local communities with greater regulatory flexibility.

The income earned by local indigenous groups from the conservation regulations provides some economic stability – in 2008, the GTGP and NFCP accounted for 13% of annual household income (Liu et al. 2016B). That being said, 92% of the GTGP’s funds come from the central government, and the subsidies are on a limited eight-year cycle (Liu and Wu 2010). In 2016, the GTGP is up for renewal. If the central government chooses not to renew the program, financial resources of the program run out, and Wolong households will no longer be able to rely on the GTGP income (Tallis et al. 2008). This is a significant concern, because despite the pro-development regulations in place during the 2000s, the per capita net income of Wolong households in 2008 was only 1624 yuan, compared to an average of 4760 across rural China (Liu et al. 2016B).

In some instances, the conservation programs placed new burdens on Wolong’s local community. For example, with the switch from fuelwood to electricity, local residents have been consuming smaller quantities of firewood. While the electricity costs are subsidized by the local government, the subsidies have decreased significantly in the past two years, so much so that the price of electricity has more than doubled (Xu et al. 2005). In addition to financial insecurity,
unequal local distribution of ecotourism economic benefits is a significant issue for Wolong Nature Reserve. Employment of local people in ecotourism efforts was low even for temporary infrastructural jobs; 80% of these positions were given to outsiders (He et al. 2008).

Conclusion

Wolong Nature Reserve demonstrates contrasting understandings and engagements with nature across multiple stakeholder groups. For the Chinese provincial and central government and international non-profit organizations, Wolong was a PA created for the protection of a national symbol of international conservation and Chinese diplomacy. For conservation scientists, Wolong was a fragile habitat that needed to be protected in order to ensure the continued survival of the giant panda. For local indigenous residents, Wolong’s forests were a source of income, food, and medicine that was becoming increasingly difficult to utilize due to tougher environmental enforcement. The PA’s management strategies also demonstrate the different power differentials between these stakeholders. Wolong Nature Reserve established “legitimate” uses of the environment, such as forest preservation, while “outlawing” other relationships with nature, such as local consumption, that had been in place for centuries.

Despite the contradictory nature of Wolong’s environmental preservationist laws (1960-1990s) and its local financial incentive programs (2000s), both types of PA management represent legitimate environmental priorities that persist into the present. The giant panda remains central to Chinese international relations and a living hallmark of endangered species conservation worldwide. Furthermore, exclusionary environmental management strategies may be necessary to preserve its fragile habitat and prevent the panda’s extinction. That being said, the needs of the giant panda do not negate the realities of local Tibetan Wolong residents, who
remain economically volatile in part due to the reserve’s restrictions on local use of Wolong’s forest resources. While Wolong Nature Reserve may not be able to adopt participatory environmental management strategies for political reasons, government and park decision-makers should consider environmental strategies that recognize both the specific needs of panda populations as well as the historical invisibility and economic deprivation of Wolong Tibetan residents.
Chapter 4 - Mining, Wildlife Conservation, and Indigenous Rights – Environmental Management at Taiwan’s Taroko National Park

Taiwan is split between a western plain region and an eastern mountainous area; mountains make up 70% of the island’s land mass (Wu et al. 1996). Taroko National Park is a 92,000 hectare park located in these eastern mountains (Figure 4), and it extends to the island’s eastern shore. This chapter examines three distinctive eras in the management of human and natural systems within the Taroko area.\textsuperscript{16} The first era (1895-2008) is characterized by mining and indigenous displacement. Japanese (1895-1945) colonial and Chinese martial governments (1945-1986) managed and controlled Taroko’s human inhabitants, the indigenous Taroko people, by imposing forced assimilation schemes on them and by removing local people from their ancestral lands, which were deeply tied to indigenous Taroko religious, cultural, and subsistence practices. While Taroko National Park was established for multiple purposes, such as fostering national pride and preserving natural resources and wildlife populations, in practice Japanese (pre-1945) and Chinese lumber and mining companies exploited Taroko’s natural resources, even after the establishment of the park. In the second era (1972-2005), Taiwan’s national KMT government established strict preservationist environmental legislation to protect the newly established Taroko National Park. Like Wolong Nature Reserve in China’s Sichuan Province, Taroko economically burdened local populations by making local subsistence practices illegal. Taroko took preservationist ideologies a step further by preventing human entry to certain areas of the park altogether. While the park severely limited local access to the park’s natural resources, mining companies and tourists numbering in the millions continued to enjoy the

\textsuperscript{16} I refer to the land area encompassing Taroko National Park as the “Taroko area” or “region,” because between 1945 and 1986, the national park was not politically recognized by the Chinese colonial government. In addition, I will discuss events that occurred in the area before it was first designated as a park in 1937.
park’s natural wonders. The third era (2000-present) explores the legislative successes of the burgeoning Taiwanese indigenous rights movement. One of the most active indigenous groups within the movement were the Taroko, whose protests for local hunting rights and the return of their native lands. Their activism helped create a nation-wide indigenous movement.

Environmental management at Wolong Nature Reserve and Taroko National Park share certain similarities. Local indigenous residents at both protected areas (PAs) experienced displacement without movement because of bans on hunting, herb gathering, and other subsistence activities. The PAs also went through several overlapping environmental regimes with conflicting ideologies. The intercurrence of Wolong and Taroko’s management strategies is significant especially when present environmental policies are undermined by policies of previous eras. For example, at Taroko National Park, strict environmental laws coexisted with extractive mineral industries that destroyed vegetative and aquatic ecosystems until the 2000s.

As a case study, Taroko National Park also brings new insights into PA management that is not as evident at Wolong Nature Reserve. With the democratization of Taiwan, the indigenous rights movement has blossomed under the protection of free speech. Indigenous rights continue to shape the environmental policies at Taroko today, from protests regarding ritual hunting rights on park lands to lawsuits for reclaiming ancestral lands. Taroko National Park is also a more extreme example of colonial state management and control of human and natural ecosystems. By displacing and shaping the social, economic, and cultural lives of Taroko people, the Japanese and Chinese colonial government gained control of the Taroko area, and rendered invisible indigenous life. In the process, they reshaped Taroko social and political organization itself into more “legible” forms.
Background – Ecology, Management, and Local Residents

Initially established in 1937 by the Japanese colonial government, Taroko National Park was dissolved in 1945 after the takeover of the Chinese Kuomintang (KMT) government. It was re-established in 1986. Like Wolong Nature Reserve, the park encapsulates a large range of elevations, from sea level to 3,742 meters. The park is also situated within The Tropic of Cancer, and receives a substantial amount of rainfall. As such, the park supports a variety of habitats, including broadleaf and coniferous forest and subalpine environments (Crook 2015; TNP 2016). Nearly half of all mammal species, 90% of bird species, and one third of all vascular plants found in Taiwan are represented at Taroko National Park (Wu et al. 1996). The park also harbors 132 rare and endangered species, and some large animals such as the black bear, Formosan wild boar, and sambar deer.

Taroko National Park is perhaps best known as a geological wonder and is dominated by inaccessible cliffs and deep gorges. One of the most well-known attractions at the park is Taroko Gorge, a 12-mile canyon carved nearly completely of solid marble (Figure 5; Wu et al. 1996). Overall, the park protects nineteen mountains. Despite the rocky surroundings, forest covers four-fifths of the park (Crook 2015). At high elevations, endemic plant communities even grow directly on the limestone (TNP 2015). Taroko’s natural wonders draw large crowds of tourists. As early as 1993, 950,000 visitors came to the park each year (Wu et al. 1996). By 2014, this number had grown to 6.28 million (Crook 2015). Like Wolong Nature Reserve, Taroko National Park is the most frequently visited national park by foreign tourists in Taiwan.

Taroko has a long history of human settlement. According to oral histories of the Taroko indigenous peoples, they migrated to the Taroko region three hundred years ago from the western side of the island after the takeover of the colonial takeover of the Chinese Qing dynasty.
(Chi and Chin 2012). The Taroko were semi-nomadic, and prized hunting for subsistence and cultural, and spiritual purposes. In 2005, 20,711 Taroko indigenous people live in Taiwan, with over 12,000 living permanently within or next to Taroko National Park (Shung Ye Museum 2006; Simon 2011).

The majority of the indigenous people residing within the Taroko area in the 1930s were displaced by the Japanese colonial government shortly before the park was created. Two Taroko communities, the Skadang and Xorxos, remained until the park’s reestablishment by the Chinese central government in 1986, and retained land rights to their territory. While these communities still own the land, they cannot hunt, cultivate crops, or construct buildings on their property (Simon 2010). Today, two Taroko townships still reside within park lands. While the majority of the Taroko community no longer live inside the park, indigenous people still play an important role in transforming indigenous rights and land use rights both within and outside the park. The Taroko established the “return our land” movement in Taiwan, which received widespread national and international attention and helped jumpstart Taiwan’s indigenous rights movement in the 1980s. The Taroko have also demanded for their right to hunt on national park land. Despite the fact that indigenous people have the right to hunt on their ancestral lands as of 2005, this rule is not enforced on national park lands, and the Taroko continue to be fined and prosecuted for subsistence hunting. Hunting is one of the most significant cultural, religious, and subsistence activities of the Taroko, and local residents actively protest their right to hunt to this day (Meng-ching et al. 2015).

The economic conditions of the Taroko mirror conditions across Taiwan. Indigenous people suffer from poverty and unemployment at rates much higher than the national average. In 2002, household income for Taiwan’s indigenous people was less than 40% of the national
average (Munsterhjelm 2002). With a lack of viable economic alternatives, many Taroko
communities both within and adjacent to the national park depend on migrant labor for their
incomes. In fact, only 60% of Taroko indigenous residents remain within their hometowns year-
round; the other 40% engage in temporary labor in other parts of Taiwan (Simon 2011). 42% of
indigenous employment is in unskilled, dangerous industrial labor (Chi 2001).

The following section considers the historical context of indigenous displacement and
exclusion in the Taroko area, beginning with Japanese takeover of Taiwan in 1895. The period
continues until 2008, when the last remnant mining industries in the park from the Japanese
colonial and Chinese martial rule periods closed down and became the property of the park.

**Era 1: Mining and the Displacement of the Taroko Indigenous Populations (1895-2008)**

*Japanese Subjugation and Taroko Indigenous Displacement*

In order to understand the context of Taroko National Park’s establishment, it is
important to consider the park within the context of indigenous displacement and control by the
Japanese and Chinese colonial governments. Before the 1600s, Taiwan was populated by
indigenous people with Austronesian heritage. By the 17th century, the island was colonized by
China’s Qing government. Unable to traverse the mountainous eastern part of the island, Chinese
settlers settled on the western edge of Taiwan and set up military fortifications along their
eastern border, leaving eastern indigenous Taiwanese people to govern themselves. Indigenous
peoples, including the Taroko of Taroko National Park, remained predominantly unaffected by
colonial rule until 1895, when China ceded Taiwan to the Japanese after their defeat in the First
Sino-Japanese War.
At first, Japanese colonial government officials adopted a similar isolationist policy towards eastern indigenous Taiwanese. They built electric fences that separated Han Chinese and indigenous Formosans. By 1903, Japanese officials began to realize that the eastern part of the island was covered in valuable trees, and the mountains possessed gold, iron, limestone, and marble. Japanese politicians like Yosaburo Takekoshi viewed Taiwan’s indigenous lands as the “golden key to the exhaustless wealth of the island.” The Japanese began to open up extractive industries such as logging in the eastern mountains (Simon 2006). Their progress was impeded by indigenous people who aggressively protected their land against intrusion. In response, the Japanese governor of Taiwan declared a “Five Year Plan to Pacify the Savages” in 1914 (Simon 2010; Chi and Chin 2012). The resulting warfare led to the forced subjugation of eastern Taiwanese indigenous groups to Japanese rule.

The Taroko indigenous people, who resided in the present-day boundaries of Taroko National Park, are famous for their fierce resistance to Japanese occupation. In 1914, 6000 Japanese troops invaded Taroko lands. In order to do so, they used explosives to enlarge the steep mountain pathways into Taroko territory. The enlarged paths allowed the Japanese to utilize modern military equipment in their battle against the Taroko, who were armed only with bows and arrows and hunting rifles. The Taroko resisted for nearly three months before surrendering. While the Japanese originally allowed the Taroko to remain in the mountains, hostilities continued. During the 1930 Wushu Rebellion, Taroko warriors killed 134 Japanese. After the incident, the Japanese forcibly relocated the majority of the Taroko population to grassland regions, where they were more easily managed by the state. Under Japanese assimilation initiatives in the plains region, Taroko indigenous people were forced to adopt
Japanese names and pray to Shinto shrines. They were also recruited into the Japanese army (Simon 2007).

The displacement of Taroko indigenous people from their original homelands served three main purposes. First, it allowed the Japanese administration to erase the Taroko’s precolonial social and political structures. For example, before colonial intervention, Taroko society was egalitarian. Instead of maintaining a hierarchical power structure, the Taroko had a loose political structure in which small indigenous groups had political authority over specific territorial ranges (Simon & Mona 2012). By forcibly relocating the Taroko, Japanese administrators separated indigenous people from their social, political, and economic center, their communal hunting land, and reorganized political and social relationships based on private land ownership and political hierarchy. In the process, the Taroko’s egalitarian, communal lifestyles were disrupted, including their relationship to their ancestral land.

The second reason that the colonial government displaced the Taroko was to establish social control of indigenous populations. The new home of the Taroko, the eastern grasslands, were much more accessible to government officials compared to the Taroko’s original home – the mountains. The Japanese reorganized indigenous communities into sedentary villages with a hierarchical tribal council system (Simon 2011). The new system allowed Japanese administrators to make Taroko communities more accessible, manageable, and legible by creating indigenous “state mediators” such as councils and chiefs. The Japanese also encouraged the Taroko to become dependent upon sedentary agriculture and registered families into the national household registration system. Before colonial contact, the Taroko utilized communal land resources, were semi-nomadic, and heavily relied upon hunting for subsistence. By legally recognizing private ownership of individual indigenous plots of permanent land, the Japanese
colonial system categorized and made legible Taroko subsistence practices and land ownership rights. At the same time, these types of categorization shaped the lived reality of the Taroko community, who began to adopt a hierarchical political structure and a sedentary lifestyle dependent on both agriculture and hunting. The tribal council system remains the predominant social and political structure of Taroko communities today, and has led to the establishment of a new indigenous elite (Ibid). Taroko land ownership issues have also been central points of contention in Taiwan’s indigenous rights movement since the 1990s.

Japanese administrators also took steps to prevent another violent Taroko uprising by pitting ethnic subgroups against each other. The Taroko indigenous community consists of three sub-groups: Truku, Teuda, and Tkedaya. The three groups have a violent history of contact. For example, the Teuda often invaded Truku’s hunting territory, and helped the Japanese military overtake the Tkedaya during the Wushe incident (Simon 2006). Japanese government officials purposefully sent groups of people from the same community to different villages, and combined different sub-groups together within these villages (Simon 2006; Chen 2012). In doing so, the colonial administration reduced the chances of another Taroko uprising by grouping individuals who were in conflict with one another, and were unlikely to band together to fight against the Japanese. As such, indigenous displacement acted as a means of social and political control over the Taroko, who had put up armed resistance against the Japanese on numerous occasions before relocation. Japanese displacement and assimilation schemes attempted to erase previous forms of Taroko social, economic, and political organization, and replaced it with schematic forms of governance that were legible to the Japanese colonial nation-state. These schemes mirror James Scott’s discussion of state management and control of human populations via homogenizing, panoptic legislative tactics.
James Scott suggested that nation-states developed techniques for controlling and managing both human and natural landscapes. The final reason for indigenous displacement by the Japanese administration embodies Scott’s theories. The colonial government used indigenous displacement as a means to gain ownership and control over the Taroko’s ancestral lands. As early as 1903, the national government required indigenous people to register the land that they “owned.” Very few Taroko individuals were able to register their land due to a lack of resources by which to do so. The Japanese government legally nationalized the majority of the Taroko’s unregistered lands as state land. In the process, the Taroko lost the right to their traditional lands. By the 1930s, the Taroko were displaced from the mountain regions, and Japanese companies were able to exploit the forest and mineral resources of the area. Resource exploitation increased exponentially after the beginning of World War II, because of new demands for materials and energy production that supported the war effort (IUCN 1969). The removal of indigenous populations was crucial for the success of natural resource exploitation at Taroko National Park, because the Taroko indigenous people guarded their territories ferociously, and killed Japanese lumber workers within their territories (Simon 2006).

Park Formation – Ecosystem Preservation, Nature Exploitation, and National Pride

Japan did not only manage natural landscapes for the purposes of resource gain; they also did so for the purposes of nature conservation. In 1937, Japan designated Taiwan’s first three national parks. The largest of these parks was Taroko National Park, which was 110,313 hectares (IUCN 1969). Japanese decision-makers argued that the key objectives of the parks should be the preservation of natural beauty from physical development, and the establishment of recreational park services. Administrators were particularly concerned with restoring the parks’ original
fauna and flora, especially in deforested areas where Japanese mining companies overharvested valuable trees such as camphor and hinoki (Simon 2006). Natural resource exploitation and the creation of farming plantations in other parts of Taiwan had destroyed forests in mountainous landscapes such as Mount Tatun (IUCN 1969). By establishing Taroko as a national park, the Japanese hoped to preserve and restore Taroko’s environment in order to preserve the integrity of Taiwan’s natural resources and the survival of its unique ecosystems.

Despite the original environmental intentions associated with national park creation, Japanese decision-makers provided zoning loopholes in park preservation regulations that allowed Japanese companies to exploit natural resources with little oversight. The Japanese government had the jurisdiction to establish Special Areas where logging, mining, and farming, could be established. Companies were also allowed to establish dams and factories within national parks. Taroko National Park’s formation represents a paradox – the park was created to preserve natural ecosystems on one hand, while also acting as a means to control and exploit natural resources.

Taroko National Park’s formation was also significant for religious and symbolic reasons. All three of the national parks were established in Taiwan’s mountainous eastern regions. As discussed in Chapter 2, the Japanese government selected the location of the parks partially based on cultural and religious values placed on majestic mountain landscapes by State Shintoism. In State Shintoism, Japan’s unique natural landscape, especially its mountains, symbolized the superiority of Japan’s Empire. Japan used State Shintoism religious beliefs to morally justify their military campaigns during World War II. Japanese decision-makers drew upon state Shinto concepts while designating parks in Taiwan. They hoped that the parks’ breathtaking natural scenery would affirm Japan’s greatness in the eyes of international tourists.
Taiwan’s national park designation by the Japanese demonstrates the ways in which protected areas are symbolically significant places that represent the nation (or empire) as a whole.

The displacement of the Taroko indigenous people from their ancestral homelands allowed the Japanese colonial state to better control both human and natural landscapes. Part of this process led to the creation of Taroko National Park, which served the multiple, conflicting goals of the nation-state, from environmental preservation and natural resource exploitation to disenfranchising local stakeholders and constructing a national image of the colonial state.

Colonial government management and control of social and environmental landscapes was not limited to Japanese rule. In 1945, the Kuomintang (KMT) government of China became the new de-facto martial rulers of Taiwan. KMT social and environmental policies under martial rule remained similar to those advanced by the Japanese. For example, the Chinese Nationalists continued forced assimilation policies toward indigenous people that resembled those used by Japanese. As late as the 1980s, each indigenous person was required to learn Mandarin and to abandon their indigenous name for an official Chinese name (Chi 2001). They also encouraged semi-nomadic indigenous people to adopt sedentary agriculture, and expanded the Japanese household registration system (Chi 2001; Simon 2007). In some ways, the KMT expanded upon Japanese attempts to control local populations. They relocated even more indigenous communities to the plains areas, and established an extensive police surveillance system.

KMT policies for controlling natural spaces also remained remarkably similar to Japanese colonial policies. The largest change that the new Chinese government made to Japanese colonial policy was to disband the Taiwan national park system. The KMT disbanded the national parks, partly because they were created by the Japanese, and reflected Japanese
ideals of nationhood and superiority (Kanda). Few PA scholars have discussed the implications of PAs that have been disbanded. Indeed, Taroko National Park may be one of the few PAs that was created twice; that is, the KMT re-established the park in 1986, forty-one years after it was disbanded in 1945. The dissolution of Taroko National Park had severe consequences for the environment; it allowed KMT officials to justify destructive mining practices in the Taroko area that were no longer protected by environmental regulations (see the following section). Additional research is needed to evaluate the extent to which PAs in other countries have also been disbanded, and for what reasons.

The KMT considered the disbanded Japanese national parks to be “nationalized” territory owned by the state, and forbade local subsistence activities such as hunting, fishing, and agriculture. Chinese policies were more stringent than Japanese ones, who allowed indigenous people to continue hunting on their lands (Simon 2007). In the Taroko region, the Chinese military further widened the roads through the mountains in order to accelerate development of indigenous territories. The same roads were constructed by the Japanese military, and were used to transport large modern weapons into the inaccessible mountain regions to suppress Taroko indigenous resistance to colonial rule. In the late 1960s, the KMT also adopted indigenous land policies that disenfranchised Taroko individuals from their land. The KMT registered certain lands in the plains as indigenous “reserve lands.” However, aboriginal people had to cultivate the land in order to claim ownership; otherwise, the land became the property of local township governments. The result of the reserve land policy was that the Taroko also lost substantial portions of their land in their relocated home, the plains. KMT-run township governments leased Taroko land to companies who exploited natural resources in the area (Shiban 1997).
Environmental Damages of Colonialism – Mining Before and After Park Designation

One Japanese and Chinese KMT action that had the most impact on the Taroko area’s environment was the exploitation of mining resources in the area, including marble and sulfur production. With the dismantling of the Japanese national park system and its accompanying environmental protections, the KMT established over 33 mining sites across the Taroko area by 1950 (Li 2014). While no one has conducted a scientific assessment of the environmental degradation caused by mining at Taroko, anecdotal evidence suggests that it had significant impacts to local vegetation, water quality, and human safety. For example, marble factory operations in the Taroko region’s Qingshui Cliff used explosives to mine ores, which destroyed cliff-sides and clogged waterways with hundreds of tons of rock waste. At Qingshui, mining wastes completely blocked off and dried up several aquifers in the Sanzhan River Valley. Mr. Lung-Sheng Chang, a KMT official from the Ministry of Interior, noted that the once “limpid water” of the Sanzhan River “had been turned into dark mud” (Li 2014).

One may assume that with the re-establishment of Taroko National Park by the KMT government in 1986, mining operations would cease, along with the associated environmental impacts. Unfortunately, mining has long-lasting impacts, and at past Taroko mining sites, natural ecosystems have still not recovered from the damage. The Taroko region contains special vegetation that can grow directly onto rock faces. Twenty-five years after mining ceased at Chongde Marble Mine, the area remains barren with almost no vegetation (Li 2014).

With the re-establishment of Taroko National Park in 1986, the Taroko area once again became subject to environmental legislation. Despite the strict environmental laws of the park (see page 103), nineteen mining companies retained mining rights within the park’s premises. The miners retained property and mining rights as late as 2007 (Li 2014). Other mining and
manufacturing companies set up operations just outside of park premises, including cement plants and limestone extraction companies. While many of Taroko’s mining companies no longer actively mined on the site, they continuously extended their legal mining rights to the area. Furthermore, some companies continued to mine in the parks’ protected areas, and threatened both human and natural environments. For example, in 1990, 30 homes in Hsiulin Township were buried in an avalanche caused by limestone mining activities. A dozen Taroko indigenous people lost their lives in the tragedy (Arrigo 2002). A year earlier, iron mining operations from Lidong Mining caused erosion and rock-destabilization that filled Santsan Village’s local stream with 10 meters of rocky debris (Arrigo 1998). Rocks from the mining operations continued to dislodge from the top of Taroko’s mountains for two years after the mine closed, because Taroko experiences frequent typhoons in the summer that send unstable rocks tumbling down into gorges where indigenous people live. In both instances, local Taroko residents protested the continuation of mining operations in the park. At Lidong Township, Taroko residents trespassed on limestone mining land to investigate land erosion in the area. They discovered that the miners had dug a mining pit 200 meters wide and 50 feet deep that threatened to collapse and send thousands of tons of rock into the seabed (Arrigo 2002). Taroko protesters confronted KMT government officials, Taroko national park managers, the mining bureau, and forestry mining department regarding the issue, but none of them responded to the situation, because the mining operations were legally approved by the KMT. Local Taroko residents told the media that their local representatives were “frequent drinking companions of mining company officials and were almost certainly paid off to approve the previous two years of mining” (Arrigo 2002). Unfortunately, Lidong mining operations did not cease until the early 2000s.
In 1998, Taroko National Park managers began to explore the possibility of buying the mining lands of the remaining 19 companies within the reserve. Official compensation and removal of mining operations was not complete until 2008, when the TNP recovered 2,570 hectares from sixteen of the mining sites (Li 2014).

**Era 2: Preservationist Environmental Regulations (1972-2005)**

The second major era of environmental management at Taroko National Park is characterized by top-down strict environmental preservationist schemes established by the central KMT government. In 1972, the KMT passed the country’s first National Park Law. The purpose of the regulation was to “preserve the nation’s unique natural scenery, wild fauna and flora,” protect historic sites, provide public recreation, and create areas for scientific research (CPA 1972). The criteria for national park selection expressed the importance of outdoor recreation, education, and natural ecosystem preservation, as well as the role of the parks in representing the nation. National parks had to “represent the natural heritage of the nation” by possessing unique natural scenery or naturally evolving ecosystems. They also had to have educational significance as biological or historical sites worthy of “long-term preservation by the nation.” Notably, the law did not discuss the existence of local people within national park lands, and did not consult local stakeholders about its creation or management (e.g. Taroko hunters and disenfranchised indigenous land owners; CPA 1972).

At Taroko, the National Park Law went into force in 1986, when the KMT government officially re-established the park. While the KMT’s Taroko National Park was geographically located in the same area as the original Japanese park, it was 18,000 hectares smaller. Like other Taiwanese parks administered by the National Park Law, Taroko was divided into different
management “zones,” according to the decisions of national decision-makers. 69.3% of Taroko National Park land is designated as ecological preservation areas (CPA 2003). The areas include nine of Taroko’s nineteen mountains, and are often hazardous to climb. The main purpose of the preservation areas is to “protect natural biology and environment.” Only administrators and authorized ecological researchers are allowed to enter them without applying for a temporary permit. Logging and building within the areas is also forbidden, though “changes [to] the original terrain” are permitted for “the purpose of resource preservation” (CPA 2003). The ecological areas share similarities with Switzerland’s Totalschutz park model of complete preservation, in which the goal of national parks was to maintain natural areas “undisturbed” by human activities. The strict rules governing Taiwan’s preservation areas seems to suggest that “natural biology” and the “environment” flourish best without any interaction with human populations. Taroko National Park managers enforced the boundaries of the ecological protection areas carefully. They not only required multiple permits for tourists who wished to enter the areas, but also required individuals to enter with a Taroko high-mountain guide as late as 2003. The guide could monitor and enforce environmental regulations while ensuring the safety of Taroko’s visitors.

Taroko is also divided into special sightseeing areas, historical sites conservation areas, recreational areas, and ordinary control areas. Each zone represents as different level of environmental stringency. In special sightseeing areas, visitors are not allowed to leave hiking trails without permission, and logging and building is prohibited. At historical sites, park managers may repair trails and locations “in keeping with their original appearance.” Recreation and existing use areas are the least regulated. The National Park Law allows mining, farming, building, and animal husbandry in these areas if companies obtain permission from the national
park headquarters. Existing factories may also continue or expand their operations within park lands (cite legislation).

Certain activities are illegal throughout the entire park, regardless of its zoning. Prohibited park activities include hunting, fishing, plant gathering, burning vegetation, littering, and polluting water or air. In 2014, the park expanded the bans to include camping, cooking, or swimming outside of designated areas. The new laws were intended to reduce the environmental impacts associated with Taroko’s six million annual tourists, who engaged in these activities illegally with little park enforcement. The 2014 regulation also prohibited the establishment of sacrificial areas, monuments, and tombs within park boundaries. It specifically targeted Taroko indigenous people, whose ancestral homes were within the park, and who had spiritual connections to their family tombs and monuments in the areas. The Taroko also have religious rites that require the sacrifice of game animals.

Taroko’s environmental policies diverge significantly from management strategies adopted at Wolong Nature Reserve. Taroko park managers policed and enforced environmental regulations more successfully than at Wolong Nature Reserve. In contrast to Wolong’s “paper” enforcement strategies, Taroko received more financial support for policy enforcement, and had its own park police force. In addition, Taroko’s indigenous population lived outside of the park, and was easier to police than Wolong residents, where Tibetan people lived within the reserve’s premises. As a consequence, while local people at both parks engaged in illegal subsistence activities, Taroko indigenous people were at much greater risk of severe punishment from Taroko police, and were barred from entire mountainsides altogether. Taroko’s ecological preservation areas demonstrate the park’s commitment to preservation practices that excludes all human interaction. In contrast, local residents at Wolong were never successfully displaced or
prevented from entering the reserve’s forested areas. At the same time, Taroko’s environmental regulations were less stringent than those at Wolong, because they allowed for legal mining and factory operations within certain locations. Taroko National Park is also unique because one of its explicit purposes is to facilitate and monitor recreational activities.

On the other hand, the parks shared certain similarities. They both banned local subsistence activities, even though in practice local residents of both regions frequently defied these laws. Both parks received monetary and enforcement support from the central government, who considered them as essential for building concepts of “nation-hood” (e.g. panda symbolism and mountainous scenery). Wolong and Taroko park managers and government officials both attempted to create natures that excluded the presence of human populations, though to different degrees.

*Is Nature “Protected” and for Whom? Considering Intercurrence and Indigenous Rights*

While Taroko’s environmental regulations attempt to preserve the natural environment, the success of the initiatives was undercut by the continuation of mining activities within park premises for twenty-two years after its establishment (see page 13; Chi 2002). In contrast, the enforcement of environmental regulations has disproportionately impacted local Taroko residents, including those who live outside the park but venture into its borders for religious and subsistence reasons. For example, first-offense hunters in Taroko Park may be imprisoned and fined 3,000-30,000 Taiwan dollars, the equivalent of two months of income for poor Taroko residents (Simon 2010; TNP 2016). In a hunting incident in 2007, a Taroko hunter caught on park lands was so afraid of paying the steep fine that he tried to escape the park managers, and fell off of a cliff to his death. The event sparked Taroko indigenous protests and resulted in a
formal apology by park police (Simon 2013). Taroko park managers also fined Taroko people
for picking up semi-precious rocks on park premises that provided the Taroko with a small
amount of income (Chi 2001). Picking up rocks was illegal because the park prohibits the
transport of “ores” off of park premises (TNP 2016).

While Taroko farmers were fined 1,200 Taiwan dollars for trying to remove rock from
their fields without prior approval, boulders frequently tumbled down from mining operations to
destroy watersheds in surrounding valleys (Chi 2001). Government officials and national park
managers argued that they could not stop mining operations, because the companies existed
before the Taroko’s creation. The Taroko responded to these justifications as insults. One Taroko
member replied to state officials with the following statement: “We have been living here and
doing all kinds of (now prohibited) activities for hundreds of years, well before the mining
companies and the national parks came here” (Chi 2001; Jacoby 2014). Even if government
officials found legally removing mining companies from Taroko as a challenge, they did not
respond to frequent Taroko protests regarding the environmental and safety hazards posed by the
mine.

**Alternative Environmental Protection Schemes – Rituals of Taroko Hunting**

Before the Japanese and Chinese colonial governments resettled the Taroko in the plains
area, the Taroko had established cultural, religious, and subsistence hunting practices that
complemented their natural environment. The Taroko present alternative understandings of the
environment and its management that allow for more inclusive, participatory interaction and
stewardship of natural ecosystems. It also counters preservationist environmental discourse that
values the exclusion of human bodies from natural spaces.
The Taroko’s religious system is based upon the sacred law and justice system of *Gaya*. *Gaya* polices social and ancestral relationships and Taroko behavior, including indigenous relationships with their surrounding environment. Hunting, collective ownership, and collective social actions are especially significant for upholding *Gaya’s* moral practices. In the case of property rights, *Gaya* valued collective hunting territories and family-held cultivated land as sacred, because they were the “product of the labor of the ancestors” (Simon 2010; Simon 2013). If the Taroko disrespected and alienated themselves from their ancestral lands, the *Gaya* punishes them with spiritual retribution (Ibid). Present-day Taroko note that before Japanese colonialism, they protected their collective territory from other hunters via head-hunting practices. They also prevented Japanese companies from exploiting natural resources within their established territories. These practices prevented over-hunting and natural resource exploitation, because it limited the number of people who retrieved forest resources from each territory. After the Skadang and Xorxos communities were forcibly relocated from Taroko National Park, several young Taroko men died from alcohol poisoning and motorcycle accidents (Simon 2010). The communities attributed the deaths of their children to their abandonment of their native land due to coerced displacement.

*Gaya* spiritual practices regarding hunting not only represent the cornerstone of Taroko religious and cultural beliefs, but was also essential for establishing environmental stewardship practices among Taroko hunters. Under the *Gaya* belief system, when a Taroko man dies, he is judged by his ancestors based on his ability to hunt. Those who pass the hunting test are permitted to enter the afterlife, where ancestors are worshipped by their living relatives. Hunters in the afterlife are also responsible for enforcing the moral and environmental code of *Gaya*. Taroko men who failed to hunt during their lifetimes are eaten alive by crabs. As such, hunting is
an essential part of Taroko culture, and one of the few ways to prove a person’s true masculinity (Simon 2013). Hunters prove their strength, agility, and prestige by carrying heavy animal kills across treacherous mountain cliffs back to their village (Simon 2010). Hunting is also essential for inspiring group solidarity. Hunters cook and eat in front of their homes, and share their meat strategically with other community members as a way of fostering communal relations. Taroko view caught game as one of the most valuable gifts they provide to the community, one that binds individuals in unbreakable relationships. Hunting skills are also an essential prerequisite for Taroko marriage agreements (Simon 2013).

The Gaya enforces certain rules regarding Taroko hunting that preserve the integrity of environmental systems. For example, hunters were only allowed to hunt during certain times of the year that did not interfere with family events, such as pregnancy and mourning. Hunting during the spring was taboo, because hunters could accidentally kill pregnant game animals or “innocent” young. In addition to hunting only within their designated collective territories, Taroko hunters considered many of the park’s mountains to be sacred, and banned hunting in these “spiritual” conservation areas. Hunters also performed certain rituals before entering and leaving the forest that were intended to foster respect to both the animals and their ancestors. Hunters watched the behavior of certain spiritual birds in the forest to gauge their luck on the hunt. If the bird passed an ill omen to the hunters, they left the forest immediately. Violation of any Gaya hunting rules by hunters results in injury, death, or the failure to capture prey. On the other hand, the Taroko interpret successful hunts as “an outward manifestation of moral righteousness” (Simon 2013). Hunters self-regulated their own behavior according to moral and environment preservationist logics for religious reasons. Scholars such as Scott Simon note that Taroko men practicing Gaya did not deplete wildlife populations for hundreds of years, and that
it was only after habitat destruction from mining, forestry, hydroelectric plants, and tea plantations that natural ecosystems became threatened with extinction (Simon 2010).

Today, many Taroko residents of Taroko National Park practice Gaya and follow its moral laws regarding hunting. Taroko hunting is one of the few remaining activities conducted entirely in local Taroko languages, and many of the group’s folklore and cultural practices are maintained via hunting practices. As such, hunting is essential for the Taroko’s linguistic and cultural survival.

Despite the fact that Taroko indigenous peoples continue to practice Gaya and hunting rituals, environmental preservation regulations established by Taroko National Park often conflicted with Taroko belief systems. Government officials banned hunting in the Taroko area as early as 1972, and the Wildlife Conservation Act of 1989 banned animal trapping across the entire island (Simon 2013). The park’s ban on hunting ironically discouraged environmental stewardship practices by Taroko hunters. Before the regulation, the Taroko maintained their own unique hunting territories so that animal populations in each region were not exhausted. After the ban, the territories became moot, as hunters developed strategies to hunt secretly in similar locations that were less accessible to Taroko park managers. The overlap of Taroko hunting territories burdened local animal populations to a greater degree than before the hunting ban (Simon 2013). Taroko hunters admitted to park managers that they would accept certain limitations on their hunting, and that under certain circumstances, they strained animal populations at Taroko by over-hunting and selling bush-meat (Ibid). That being said, the Taroko resisted Taroko’s ban on all hunting activities, because they considered their hunting sustainable and as an essential part of their culture.
The Taroko’s *Gaya* reveals the social, cultural, and religious dimensions of environmental stewardship. It also provides an alternative narrative to park environmental management schemes. Instead of relying on top-down enforcement schemes, the Taroko self-regulate their behavior based on a moral justice system. While Taroko National Park managers and government officials did not consider *Gaya* principles or indigenous needs while establishing Taroko’s environmental regulations, the *Gaya* may present a future opportunity for inclusive participatory environmental stewardship between Taroko National Park and Taroko indigenous peoples.


From 1945 to 1986, the Chinese colonial government established a political system in Taiwan based on military martial law. Martial law gave the KMT complete political control over the island while barring the public from public protest. By the early 1980s, Taiwanese and indigenous people began to indirectly contest the political regime by critiquing the island’s environmental degradation caused by Taiwan’s rapid economic growth and industrial expansion (see Chapter 2 - Chi 2001). Taiwan’s indigenous rights movement developed at the same time. It pushed for formal recognition of indigenous people by the Taiwanese constitution (achieved in 1997), and for legislative protections of indigenous subsistence rights and autonomy. By 1986, the KMT remained in control of the government, but lifted martial rule and introduced democratic political ideals and free speech to Taiwan. In the 1990s, Taiwan had developed an environmental and indigenous rights protest culture, so much so that the island held 10 nation-wide protests every month (Ibid).
The Taroko indigenous people were an integral part of Taiwan’s transition to a political climate that recognized and protected indigenous rights in national law. That being said, the implementation of indigenous rights laws at Taroko National Park is questionable, and the Taroko continue to demand the establishment and implementation of their legal rights today.

*Return our Land – Taiwan’s Indigenous Rights Movement and the Taroko Indigenous People*

In 1997, Igung Shiban, a female indigenous leader of the Taroko tribe, stood before the United Nations Working Group on Indigenous Populations and asked for their help in the Taroko “Return Our Land!” movement. In 1973, the Taiwanese company Asia Cement rented land from Taroko families for a 25-year lease period with the promise of local employment (Simon 2007). The land in question was located outside of the entrance of Taroko National Park, and had belonged to Taroko families for generations (Lu 2013). After the leases expired, Asia Cement refused to return the Taroko tribe’s land, and claimed that it had papers proving that the company was the new owner. Since cement factory operations had commenced on Taroko lands, the tribe had received little rent money or compensation for their displaced crops, let alone employment opportunities (Shiban 1997). Shiban told the UN, “We [the Taroko tribe] want our land, not money. The land is the heritage from our ancestors that provides our survival; it cannot be exchanged for money” (Ibid). Indeed, Igung’s UN speech described the Asia Cement land claims as an extension of military and economic incursion from the Chinese Han invaders hundreds of years ago, when indigenous peoples across Taiwan lost their lands. “Now the enemy is the cement companies that have stripped the skin from Hwalien’s pristine mountains and showered cement dust on its tropical forests,” she exclaimed (Shiban 1997).
Shiban helped file a lawsuit on behalf of the Taroko’s land rights against Asia Cement in order to settle the dispute. Shiban received support from National Legislator Bayan Dalur, an indigenous representative from the Democratic Progressive Party (DPP), the main political group opposing the Chinese KMT rule. Despite the support, the Taroko people were denied access to examine their land ownership documents, which were held by township officials. After local officials apparently accidentally left the papers behind after a conference, Shiban realized that the papers were forgeries. Many of the documents lacked official seals, and the signatures of the one-hundred Taroko property owners who supposedly had relinquished their property rights were all in the same handwriting (Shiban 1997; Scott 2002).

The lawsuit received national and international attention. Journalists supported the movement, and Taiwan’s “SuperTV” made a documentary film about the event (Scott 2002). The Asia Cement company owners, with the occasional involvement of the KMT ruling party, began to retaliate. Shiban’s family was physically attacked twice by unknown assailants, and were warned that they could be expelled from Taiwan for “political activities” (Shiban 1997). Shiban also ran for township council representative in 1997 for the DPP party that supported her during the lawsuit. In response, the KMT nominated her brother’s wife and split her tribe’s votes. Asia Cement bribed poor and unemployed Taroko tribe members as much as $300 to vote for the KMT representative instead, and Shiban lost the election by 50 votes (Shiban 1997; Scott 2002).

In August 2000, the Taroko people won the court case. While they were not given the property rights to Asia Cement land, they were allowed to cultivate crops on it (Scott 2002). The victory was one of the first landmark court cases in Taiwan that upheld indigenous rights. It was also credited by scholars as one of the first movements to bring indigenous land rights into the public eye and onto the DPP’s political agenda (Scott 2007). However, the ruling did not return
full ownership of the land to the Taroko people; instead, they were merely allowed to cultivate the remaining open space on their lands that were not being used by the Asia Cement factory.

Unfortunately, the new ruling was not implemented in practice. In 2001, Taroko farmers began to replant their crops on their land. Asia Cement, whose factory still maintained operations on the land, sent foreign workers to remove Taroko plants from the ground (Ibid). In 2004, the Wild at Heart Legal Defense Association, a non-profit organization that supports environmental and indigenous rights grassroots movements, began assisting Taroko land owners to pursue an eight-year legal case to gain full ownership rights for their land. The County and District courts rejected the claims, because while Asia Cement did not legally own the land, they still occupied it (Lu 2013). The courts argued that in order for the Taroko to claim ownership of the land, they had to cultivate it, but this was impossible because there was a factory sitting on top of their land.

On October 2012, the Council of Indigenous People, the highest legal body governing indigenous affairs under Taiwanese law, overturned the judgement in support of the Taroko land owners. The Council cited Taiwan’s revised Constitution, international human rights law, and foreign court opinions to substantiate their judgement. The victory demonstrated the recognition of indigenous land and cultivation rights by national-level Taiwanese authorities (Lu 2013). Asia Cement still retains mining authorization in the Taroko area, even if they no longer have a right to the land itself. However, the 2012 ruling provides a precedent for indigenous people across Taiwan to contest opposing land claims.

The Taroko “Return Our Land!” movement was one of the first nationally recognized indigenous rights movements that fought to attain Taroko cultivation and ownership rights to their ancestral lands. While the movement sought to restore land owned by a private company to the Taroko indigenous people as opposed to government-owned PA land, the success of the
movement provides an interesting example of the possibilities for returning ownership of Taroko National Park land back to the Taroko indigenous people. This is especially pertinent for Taroko members of the Skadang and Xorxos communities who still own land in the park, but are unable to cultivate or develop it due to environmental regulations sanctioned by the park (Simon 2010).

The lawsuit also signaled a shift in Taiwan central government attitudes towards indigenous groups. As Shihan pointed out in her speech to the United Nations, the cement company caused massive environmental damage to Taroko National Park’s tropical forests, and yet it never came under the scrutiny of the park’s environmental regulations. On the other hand, indigenous people were frequently prosecuted for hunting and rock collection in the park that comparatively caused much less environmental damage. By affirming Taroko cultivation rights to the land, the courts recognized the legitimacy of Taroko subsistence practices near the park’s premises for one of the first times.

Taiwan’s Indigenous Rights and Environmental Laws—Intercurrence

In 2005, Taiwan’s government adopted one of the nation’s first indigenous rights legislation. The Basic Law on Indigenous People allowed indigenous people to hunt for non-economic purposes, such as cultural heritage and religion (Simon 2007). It also required the government to obtain consent from local indigenous people before establishing protected areas or other resource management institutions of any kind. Environmental managers were required to create common environmental management schemes that involved local indigenous stakeholders (Simon 2013). However, the co-management requirement did not apply to existing parks. The regulations were established by the Democratic People’s Party (DPP— in power between 2000 and 2008), the first Taiwanese political party to hold power since the KMT’s takeover of Taiwan in 1945. The DPP, which began as an environmental protest group in the 1980s, promised the
expansion of indigenous rights as one of the hallmarks of its campaign election. The resulting Basic Law did not specify the “inherent rights” of indigenous people, but it did provide room for certain indigenous subsistence activities and political participation.

Unfortunately, while the Basic Law allowed indigenous groups such as the Taroko to practice hunting for ritual purposes including Gaya, hunting remains illegal in practice in Taroko National Park. Officials continued to arrest and prosecute indigenous people for exercising their right to hunt on park premises. Taroko community members publicly protested their treatment in front of the park headquarters in 2007. The protest was in direct response to a tragedy that took place on park premises. On a dark winter night, two Taroko men were hunting in the park when they were stopped by the park’s police force. The police fined the “illegal” hunters the equivalent of two months’ worth of their income. One of the Taroko men was too afraid to pay such a steep fine, and attempted to escape. In the dark, he slipped, and tumbled off of one of Taroko’s numerous cliffs to his death. Taroko community members furiously debated whether to storm the Taroko police station in retribution against those responsible for the hunter’s death, an act that they considered to be a just enforcement of their religious Gaya judicial system (Simon 2013). Instead, the Taroko held a peaceful demonstration in front of the police headquarters.

At the protest, the Taroko employed cultural, historical, and environmental discourses to support their hunting rights claims. They also drew upon indigenous rights discourses that blamed preservationist environmental decision-making for ignoring indigenous needs. One Taroko demonstrator reminded national park managers that the Taroko had a history of rebellion and resistance towards colonial powers such as the Japanese. He declared, “you will never stop us… hunting is part of our culture, our life, the spirit of the Taroko. We are prepared to use our own lives to protect our land [against the police]” (Ibid). Taroko speakers at the protest told their
own stories regarding park police harassment. Taroko people said that they were “arbitrarily” searched and warned by the police to not enter park premises, despite the fact that many of the Taroko owned land titles within Taroko’s borders (Simon 2013). Other Taroko were fined and harassed for collecting wild plants, cooking, and carrying hunting weapons in the park. The Taroko blamed the DPP and nonprofit environmental organizations for supporting indigenous hunting bans on national park land. The DPP claimed to support indigenous people during their election campaign, and Taroko community members felt that their needs were abandoned by the party in favor of “environmental” priorities.

As a solution to the conflict, indigenous community leaders suggested that Taroko National Park police should stop enforcing hunting regulations in Taroko until the national government corrected the National Park Law in accordance with the Basic Law that affirmed indigenous hunting rights. Taroko indigenous representatives argued that they were the true environmental stewards who had personal experience with preservation. “Only with hunters do we have land… [and] wild animals,” protesters said. The Taroko submitted a demand to the park officials that called for an autonomous Taroko government and a co-management board of park administrators and Taroko community members who would jointly manage environmental schemes at Taroko National Park. Park manager and Taroko conflicts continue until the present; in December 2015, Taroko community members protested the imprisonment of indigenous hunters, who killed two endangered animals for religious reasons. Taroko Tribal Council Chairman Masaw argued that the national park needed to respect traditional hunting rights, and called the hunting ban and its enforcement “toxic residue form the Martial Law era” (Meng-ching et al. 2015).
Indigenous protests at Taroko National Park demonstrate the challenges associated with legislative intercurrence and the different valuation of environmental goals. Under the Basic Law, the Taroko have the right to hunt for religious reasons; at the same time, the National Park Law bans hunting activities within the Taroko National Park. These conflicting regulations also reflect the different environmental priorities of the second and third eras. Taroko park regulations enforce environmental regulations that preserve an environment free from local human activity. On the other hand, the Taroko argue that sustainable local hunting and environmental practices allow wild populations to survive, and even flourish. They protested that their concerns were being rendered invisible by government bodies like the DPP, and argued for social justice and environmental reform.

**Conclusion**

In contrast to Wolong Nature Reserve, which did not force local indigenous residents to relocate, Taroko National Park’s PA environmental management strategies mirror global fortress conservation techniques in the 19th and early 20th centuries (e.g. Native Americans in U.S. national parks and black people in British colonial Africa) that forcibly removed local residents and failed to consider local economic and cultural needs (Cronon 1995; McDonald 2002). In *Crimes Against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation*, Karl Jacoby (2001) argues that discourses about PAs have historically rendered the traditional practices of local PA residents invisible. Jacoby also highlighted that PA management strategies often acted to purposefully eradicate local subsistence activities such as hunting. Given the rise of Taiwan’s indigenous rights movement and its importance to central government politics, Taroko National Park should consider the ways that it has historically
erased the discourses and needs of indigenous groups. The park should also recognize its complicity in outlawing local subsistence activities that are key to the cultural heritage of the Taroko.

Taroko National Park also highlights the possibilities of alternative management strategies that incorporate indigenous cultural and religious beliefs into PA regulations. Indigenous Taroko Gaya hunting practices inherently include environmental stewardship practices and enforcement systems based on a spiritual judiciary system. By softening and adjusting existing park management strategies to incorporate Gaya principles, Taroko National Park can recognize indigenous needs while also preserving indigenous, scientific, and park manager conservation ideals. Co-management strategies may also help garner local indigenous support for the park; currently, Taroko people view the park as a colonial vestige that excludes local needs and forbids local activities such as hunting, small-scale agriculture, and rock collection (CPA 1972). While the intercurrence of strict preservationist and indigenous rights regulations remains a contentious issue at the park today, and park manager still outlaw Taroko hunting, indigenous people’s successes in attaining cultivation and ownership rights to their traditional land in court and in passing the Basic Law signal a shift in environmental management possibilities for Taroko.
Chapter 5 – Strategies for Environmental Conservation and Human Development for Protected Areas

Introduction

Wolong Nature Reserve and Taroko National Park adopt a variety of environmental management strategies that are representative of protected area (PA) diversity across the globe. At each PA, a broad array of stakeholders construct their own understandings of “nature” based on particular historical, political, economic, cultural, religious, and environmental contexts. For example, Chinese government officials in the 1980s defined Wolong’s nature as the best place to protect the endangered giant panda (Ministry of Forestry & WWF 1989). But for Taroko park managers and government officials in the 1930s, nature was not only undisturbed land to be protected, but also a source of national pride, tourist income, and mining resources (Kanda 2003; Simon 2006). Local indigenous residents at Wolong and Taroko also engage with nature in different ways. While Wolong residents understand nature as a source of needed income and food, Taroko indigenous people also view their relationship with the environment as a religious and cultural connection governed by spiritual Gaya laws (Simon 2010; Simon 2013). The differences between similar stakeholder groups in China and Taiwan illustrates the importance of local context in constructing “natures” unique to each country.

Yet government officials, nonprofit organizations, local communities, park managers, and extractive industries at the same PA also value nature in disparate ways. As such, PA environmental management strategies draw upon multiple different “natures” simultaneously; as a result, they reflect a range of different interests that change through time. Present PA management also reflects the intercurrence of several different legislative “eras.” For example, isolationist environmental policies forbidding local use of Wolong Nature Reserve’s forest
resources reflect Chinese preservationist ideologies of the 1960s. These policies persist at the reserve, despite new environmental strategies in the 2000s that recognize and subsidize the economic needs of Wolong’s residents. Because PA management schemes from earlier periods are not revoked, they layer on top of each other to create seemingly contradictory, co-existing policies (i.e. intercurrence) that complicate environmental management at the PAs today.

Amidst the complexity and diversity of PA management strategies worldwide, how can decision-makers develop useful frameworks for PA management? What are the best techniques by which to address social and human rights concerns of indigenous displacement, invisibility, and equity while also promoting conservation goals? How should PAs balance the needs of endangered species, ecosystems, local communities, state bodies, extractive industries, and other stakeholders?

This chapter provides general recommendations for socially conscious PA environmental management, and applies these principles to the Wolong Nature Reserve and Taroko National Park case studies. My suggestions are based on the successes and failures of past environmental management strategies, as described in the current international PA literature. I will consider three competing literatures regarding best PA management practice. The win-win approach to PA management attempts to fulfill both international conservation and human development goals. The majority of the adopted win-win strategies in the 1980-90s failed to produce adequate conservation and development results (Adams et al. 2004; Barret et al. 2004; Christensen 2004; Tallis et al. 2008; McShane et al. 2011). Despite this fact, win-win strategies remain a popular PA management approach (McShane et al. 2011), because they promise to satisfy the desires and needs of all stakeholders. Some scholars began to respond to the “failure” of the win-win approach by advocating for a return to a strict preservationist approach to PA management that
emphasized scientific management. The preservationist discourse argues that including social concerns in conservation strategies “dilutes” the achievement of high priority environmental goals such as preventing biodiversity loss (Wilshusen et al. 2002; Soule 2013). The strict preservationist approach shares many similarities with PA management strategies in the early 20th century that advocated for the preservation of fragile natural ecosystems through scientific management techniques and local resident exclusion. Preservationist discourse retains a central place (McShane et al. 2011) in discussions regarding best PA environmental management practices, especially in PAs that protect endangered species that require large tracts of undisturbed habitat for survival. I will consider the successes of both PA management approaches, as well as their shortcomings. The thesis ultimately supports a tradeoffs model of PA management. The tradeoffs model attempts to find a middle path between win-win approaches and strict conservation by supporting active discussion and tradeoffs between specific conservation and development agendas. It recognizes both ecological conservation and social justice as valuable goals, but requires stakeholders to make concessions regarding some of their PA environmental strategies in order to best achieve their primary management priorities (Ibid).

The thesis concludes by recommending four general PA environmental management strategies that may guide local and national decision-makers. These strategies adopt an interdisciplinary, participatory decision-making framework that attempts to counter existing critiques in the literature regarding the failure of PAs to simultaneously achieve environmental and social justice goals. I describe how each strategy may apply to Wolong Nature Reserve and Taroko National Park in order to demonstrate the strengths of each approach under varying circumstances. The strategies include: 1) Devise environmental strategies that are suited to the particular political, economic, cultural, historical, environmental, and religious contexts of the
PA 2) Respond to socio-economic activities and landscape changes outside the physical boundaries of the PA 3) Include local communities and indigenous people in all phases of environmental management 4) Establish concrete, participatory regulatory enforcement.

**PA Environmental Management Literature**

*Win-Win Discourses - Successes*

In order to understand the PA environmental management recommendations in this thesis, one must first understand the successes and failures of current PA environmental management strategies. Win-win strategies emerged in the 1980s alongside new international PA and human rights literatures that recognized and embraced environmental justice and human rights goals. This literature responded to PA management policies in the early 20th century that excluded local access to PA resources, and in the process harmed local economic livelihoods and cultural survival (Cronon 1995; McDonald 2002). From South Africa and Taiwan to the United States, PAs across the globe historically mistreated and displaced local residents, especially those under colonial rule (see Chapter 1). Win-win PA strategies were one of the first attempts to address past social injustices and to incorporate local economic development goals into PA conservation schemes.

As early as 1982, the World Parks Congress released a statement that local people needed to be integrated into PA planning (Turner 2014). After the conference, win-win strategies became one of the fastest growing environmental management strategies worldwide. Between 1988 and 2008, the number of World Bank projects that supported both biodiversity and poverty reduction goals quadrupled (Tallis et al. 2008). Win-win conservation approaches included debt-for-nature swaps, community-based natural resource development, integrated conservation and development projects, and pro-poor conservation (Tallis et al. 2008; McShane et al. 2010). All of
these strategies shared a common assumption: PA management strategies could simultaneously improve local economic well-being while also promoting ecological preservation.

The successes of win-win discourses are instructive for identifying approaches to environmental management that can serve social and environmental goals. Namibia’s 1996 Nature Conservation Act is a classic example of community-oriented environmental management that produced economic as well as ecological benefits through a direct financial incentives system. Namibia is home to a variety of charismatic and critically endangered animals, including rhinos, elephants, lions, leopards, and cheetahs. Unfortunately, the country has had significant trouble with poaching and illegal trophy hunting (Conniff 2011). Namibia’s law, created in conjunction with the World Wildlife Fund, gave the ownership rights of wildlife populations to local communities, instead of the national government. In doing so, revenue from charismatic wildlife ecotourism and selective trophy hunting went directly to local communities, and gave people a material interest in preventing poaching and supporting environmental law enforcement. The law also took into account local economic survival strategies. It allowed local people to herd on community-managed lands, but reserved 30% of the PA as an exclusive wildlife protection zone (Ibid).

By 2008, 17% of Namibia’s total land area was dedicated to community-managed conservancy land under the protection of the Conservation Act (Tallis et al. 2008). Anti-poaching enforcement on community-managed land was so successful that in some areas, elephant and zebra populations increased by as much as 600%, and the government began relocating endangered animals from Namibia’s “overcrowded” national parks to “unfenced” community land (Conniff 2011). Local enforcement of environmental priorities was successful not only because of the financial incentives, but also because it was socially unacceptable for
local poachers to “steal” game from their neighbors, who now legally owned local wildlife populations (Ibid).

The program also provided concrete economic benefits for the local community; by 2004, total local income increased by 2.5 million, and conservation programs were providing over 3,000 part-time and 500 full-time jobs to local residents, many of whom were women (Conniff 2011). The establishment of the National Conservation Act itself was a significant step toward redressing historical mistreatment of Namibia’s black people. Namibia experienced a period of racial apartheid, in which wealthy white private landowners exploited wildlife populations while excluding black people from the same benefits. By passing ownership of wildlife populations to the “subversive black community” (Ibid), the Namibian government attempted to redress the environmental injustice of past imperial colonial regimes. Namibia’s government recognized the inequitable treatment of the country’s black majority, and provided them with the opportunity to benefit economically from a conservation system that was no longer in the hands of an apartheid regime. In the process, Namibia’s community conservation initiatives allowed wildlife populations to recover and prosper while also providing economic benefits and livelihoods to historically disadvantaged communities. Namibia is representative of two of the primary goals of win-win PA strategies – to directly address social justice concerns related to PA management, and to reject isolationist PA models that negatively impact the livelihoods and cultures of local residents (Cronon 1995).

Strict Preservation and the Win-Win Critique

Win-win strategies remain a popular PA management strategy among decision-makers today, because they promise to address all social, environmental, and economic issues facing the
PA and the local community. However, since the 1990s, a new PA discourse began to critique the win-win approach as an overambitious and underachieving conservation strategy with more failures than successes (Adams et al. 2004; Barret et al. 2004; Christensen 2004; Tallis et al. 2008; McShane et al. 2011). While win-win did produce notable success stories in places like Namibia, an analysis of thirty-two World Bank projects¹⁷ between 1986 and 2006 revealed that only 16% made significant progress in achieving both conservation and poverty reduction goals (Tallis et al. 2008). In fact, at the 2003 World Park Congress, human rights activists and indigenous groups publicly critiqued the failure of win-win strategies to adequately improve local social conditions (Adams et al. 2004; Christensen 2004). On the other hand, conservationists such as Terborgh and Soulé argued that win-win strategies diverted resources to local economic development, and failed to adequately protect fragile ecosystems (Terborgh 1999; Soulé 2013).

Why do the majority of win-win PA management approaches fail to produce adequate results for both conservation and development? The shortcomings of the win-win approach are outlined in the strict preservation PA literature. Strict preservation proponents make two major arguments that critique the win-win method, and propose an isolationist, scientific approach to PA management instead. First, conservation biologists argue that PAs are the “last safe havens” for the preservation of extensive, undisturbed habitat (Wilshusen et al. 2002). Without this protection, many key species of wildlife and fauna are at risk of extinction (Wilshusen et al. 2002; Soulé 2013). In addition, biologists argue that the kinds of species that would persist under win-win conservation strategies are “nonthreatening, convenient plants and animals [in]…

¹⁷ Namibia was a project supported by the Namibian central government and the World Wildlife Fund, and was unassociated with the World Bank.
domesticated landscapes,” as opposed to keystone species that help maintain ecosystem diversity, quality, and resiliency (Soulé 2013). The biologists identify human economic growth and population increase as the major causes of habitat destruction worldwide. As such, they argue that the strict protection of fragile ecosystems is necessary in order to prevent mass extinction, which is impossible with win-win strategies that promote continued human use of natural habitats.

The second major critique of win-win strategies is shared by many PA scholars beyond the strict preservationist community. They argue that win-win strategies assume biodiversity and sustainable economic development are inherently compatible, despite the lack of concrete evidence supporting this ideal (Barrett et al. 2004; Christensen 2004; Blom et al. 2010; Soulé 2013). For example, win-win approaches often assume that local people will stop exploiting natural resources in PAs if they receive higher incomes or economic substitutes. This assumption ignores the cultural, political and economic context of the PA that may encourage local communities to maintain their reliance on PA ecosystem services (Wilshusen et al. 2002). Similarly, many win-win discourses valorize the role of the “ecologically noble savage” in preserving conservation goals. This outlook assumes that local indigenous people always protect the environment, without critically assessing real-world situations where “local” communities exploit natural resources (Wilshusen et al. 2002; Christensen 2004; Soulé 2013). A wide range of PA scholars argue that win-win discourses need a more nuanced understanding of “local communities” and their role in environmental stewardship.

While many scholars raise these concerns, what distinguishes the arguments of strict preservationist proponents is that they argue that it is impossible to attain sustainable development without sacrificing environmental ideals, as proved by the failure of win-win
strategies worldwide to produce tangible benefits for conservation and development goals. Conservation biologists argue that win-win strategies expect conservationists to address all social and environmental issues in the PA, from poverty reduction and social justice concerns to environmental conservation and restoration (Wilshusen et al. 2002; Soulé 2013). By trying to “do it all,” win-win strategies inadvertently sacrifice the goals of conservation for those of development, or vice versa (Ibid). Strict preservationist schemes argue that conservationists should focus on one achievable goal, ecological preservation, and exclude other social imperatives that could not be successfully solved by environmental management strategies in the first place.

Strict preservation emphasize the importance of preventing large-scale wildlife extinction, preserving large tracts of land for ecological purposes, and the dangers of dividing PA conservation strategies into too many conflicting management goals. Indeed, win-win strategies need to move beyond discourses that assume that poverty reduction automatically produces conservation benefits (Blom et al. 2010; Soulé 2013), and to recognize the complexities of PA management from a socioeconomic and biophysical perspective (Barret et al. 2004; McShane et al. 2011). That being said, strict preservation approaches to PA conservation have their own limitations. For example, successful PA conservation programs must consider the ecological imperative to protect fragile ecosystems across the globe. However, strict preservation also needs to consider how to enforce these ecological goals (Wilshusen et al. 2002). In many cases, exclusionary PA systems may not be effective or politically possible. For example, in certain cases, community conservation efforts are the only alternative to large-scale extractive logging that is much more destructive to the environment than local consumption. While preserving
fragile ecosystems from human activity is certain important, one must consider which policy
decisions are feasible under particular political and social circumstances.

Strict preservation also assumes that the failure of win-win strategies is due to the
inherent incompatibility of conservation and economic development. However, in many cases,
win-win strategies failed on the ground due to the social, political, and economic circumstances
of the particular PA (Wilshusen et al. 2002; Blom et al. 2010; McShane et al. 2011). For
example, the World Bank adopted the West African Wildlife Project in 1995. The project was
similar to Namibia’s conservation program, and attempted to involve local communities in the
sustainable exploitation and ecotourism of wildlife populations (Tallis et al. 2008). Despite its
similarities to the Namibia case study, the West African Wildlife Project failed to prevent
poaching or to improve local livelihoods. An analysis of the program concluded that it was
primarily unsuccessful because of infrastructure and political issues, including the start of civil
war, the lack of judicial systems to punish poachers, limited monitoring and enforcement
capabilities, and ineffective local training programs (Ibid). Even when local people attempted to
enforce wildlife preservation, they did not have the means to do so.

By assuming that win-win strategies fail due to the incompatibility of social and
environmental goals, strict preservation discourses presume that a dichotomy exists between
“pro-human” and “pro-nature” PA management strategies (Wilshusen et al. 2002; Roe and Elliot
2006). In this zero-sum game, conservationists cannot negotiate a balance between social and
environment goals; instead, they must prioritize the intrinsic rights of nature over human rights
through exclusionary practices (Wilshusen et al. 2002). The dichotomy undermines dialogue and
negotiation in the PA environmental decision-making process. It also obscures the social and
political complexities inherent in PA management that may be causing the failure of both win-
win and strict preservationist approaches. Strict preservation approaches that attempt to engage scientific, environmental management strategies are already embedded into political, social, religious, cultural, and environmental contexts. As such, the success of preservationist goals depends on their political and social viability. At the same time, PA management strategies necessarily shape social and political realities. While conservationists cannot be expected to solve all social and environmental ills within the PA, PA management strategies that do not recognize their involvement in causing local economic hardship or displacement risk replicating colonial PA systems from the early 20th century. Despite the flaws of both approaches, win-win and strict preservationist discourses remain significant in international debates about PA management.

*Tradeoff Discourse – Negotiating Conservation and Development Goals*

Instead of adopting a win-win approach that assumes an inherent link between conservation and development approaches or a strict preservationist approach that excludes human rights needs in exchange for nature conservation, the tradeoffs approach to PA management of the 2000s adopts elements of both approaches. It advocates for a PA management system in which multiple stakeholders identify and explicitly acknowledge the tradeoffs between their various management goals, and attempts to reconcile the ones that conflict with one another. The approach presumes that PA management requires stakeholders to prioritize between different interests and values, and at different spatial and temporal scales (McShane et al. 2011). For example, local communities may value a forest ecosystem as a source of livelihood, and seek to protect species that provide them with medicines, food, and fuel. On the other hand, international non-profit organizations may seek to protect endangered species
with less direct value to the local population (Roe and Elliot 2006; Blom et al. 2010). The tradeoffs discourse suggests that stakeholders must discuss these different valuations of nature, and choose to protect elements of each. In contrast, in win-win strategies, choices regarding which natures are most important to preserve were often made implicitly, because environmental management schemes could not respond to all social and environmental goals at the PAs (McShane et al. 2011). The tradeoffs discourse encourages individuals to explicitly identify tradeoffs in order to develop better designed and resilient PA initiatives.

A recent example of an effective tradeoffs environmental management strategy is the establishment of the Great Bear Rainforest in British Columbia that culminated in February 2016 (Hunter 2016). The PA will conserve 85% of the old growth trees in the world’s largest intact temperate rainforest, a land mass twenty times larger than Rhode Island (Hunter 2016; Schloredt 2016). As late as the 1990s, less than 10% of the rainforest was protected from large-scale logging practices in the forest. The rainforest is home to endangered cedar, spruce, and Douglas fir trees, and to salmon, wolves, grizzly bears, and cougars. Twenty-seven indigenous First Nations reside within the rainforest, and consider the forest to be a sacred place, as well as a source of livelihood (Schloredt 2016).

The Great Bear Rainforest Plan is the result of a 16-year negotiation between lumber companies, the 27 First Nations, non-profit environmental organization, and British Columbia’s provincial government. Negotiations first began after intense protesting and media attention against logging in the forest in the 1990s (Schloredt 2016). Originally, environmental groups developed a draft rainforest agreement in 2007, but it did not take into account the local culture of First Nations. After indigenous people became one of the main decision-makers in the process, the revised agreement incorporated indigenous rights to a share in timber profits, and a
15 million dollar investment into First Nation economic development by the provincial government (Hunter 2016). The plan still allows logging companies to extract 2.5 million cubic meters of wood annually for the next ten years. However, logging practices will be subject to scientifically defined stable harvest levels, and are now one of the most strictly regulated commercial logging standards in North America (Ibid).

The tradeoffs model adopted by the Great Bear Rainforest Plan diverges from win-win strategies in two important ways. First, the Great Bear Forest Plan recognized that in order to achieve its main priority, the protection of old growth forest, it would have to make concessions agreeable to logging companies who were previously allowed to log over 90% of the forest (Ibid). Environmental groups realized that given historical logging practices in the forest, extractive industries would not agree to a ban of all logging activities in the Great Bear Forest. Environmental groups made the choice to allow 15% of the forest to be subject to sustainable logging; in exchange, they protected 85% of Great Bear’s fragile old growth forests. While the plan was not a full “win” for the environment due to the continuation of Great Bear logging, it is notable for halting the majority of destructive extractive practices, and replacing them with community-based conservation and scientific sustainable forestry measures. Second, the Great Bear Rainforest Plan decision-making process included multiple stakeholders from all scales, especially indigenous populations. While win-win discourses advocated for indigenous involvement in PA decision-making, in practice PA management remained top-down, and local participation was token at best (Blom et al. 2010). In contrast, indigenous people were one of the primary stakeholders involved in the Great Bear Rainforest Plan, and significantly altered the original PA plan written by environmental groups (Schloredt 2016). Tradeoff models actively
include multiple stakeholders in decision-making practices, and asks each group to reconcile their competing social, economic, and environmental claims.

**PA Environmental Management Strategies**

The successes and failures of the win-win, strict preservation, and tradeoff discourses provide a basis for creating practical PA environmental management recommendations. The following recommendations attempt to create a participatory decision-making processes that is open to many PA stakeholders. It also acknowledges social and environmental concerns explicitly. I will use Wolong Nature Reserve and Taroko National Park as case studies in order to demonstrate the ways in which the recommendations can be applied to PAs with different local contexts.

1) *Devise environmental strategies that are suited to the particular political, economic, cultural, historical, environmental, and religious contexts of the PA*

One of the weaknesses of the win-win and strict preservationist approaches is their simplification of the social, political, historical, and economic climate in which the PA exists. The win-win literature often assumes that promoting local economic growth will facilitate increased biological preservation, without considering that local conditions such as difficult political climates, human mobility, ambiguous land tenure, corruption, and illegal natural resource extraction may negatively impact the success of the PA (Roe and Elliot 2006). On the other hand, strict preservationist discourses attempt to address conservation issues only, and ignore the fact that PAs are necessarily a part of pre-existing social and political dynamics (Barett et al. 2004; Christensen 2004). As such, both PA management models often fail to
produce adequate results in practice because they do not consider the feasibility of PAs within their local contexts (Blom et al. 2010; McShane et al. 2011). PA environmental management must take into account a host of factors that shape the implementation and feasibility of environmental projects.

For example, the unique historical, political, and cultural circumstances of Taroko National Park and Wolong Nature Reserve determines the types of management strategies that are possible in each location, and that would be most effective. Taiwan’s indigenous people have had a long history of colonial domination and erasure. With the rise of democracy and the indigenous rights movement in Taiwan (Simon 2007), the Taroko indigenous people have the political freedom to pursue equitable environmental management strategies at Taroko National Park. Park managers and central government officials also have a moral obligation to incorporate local decision-making, because the park and its government managers were partially responsible for indigenous displacement, cultural erasure, and colonial domination. To this day, park managers bar the Taroko indigenous from exercising their cultural hunting rights within park premises (Simon 2013), even though the Taiwan central government legalized indigenous cultural hunting throughout the nation. Under these circumstances, Taroko National Park’s environmental management strategies must be developed in tandem with local indigenous communities, or else risk exacerbating local stakeholders who consider top-down exclusionary environmental management to be an extension of colonialism (Ming-ching et al. 2015). Taroko indigenous people have already asked park managers to establish a PA co-management committee that includes both park managers and local residents (Simon 2013). By giving local people shared decision-making power, Taroko national park managers signal to local people that the park values and responds to local needs, and is willing to consider alternative environmental
management strategies that do not exclude them. The approach has the potential to decrease illegal Taroko hunting in park lands through co-managed environmental schemes that recognize both Taroko religious and cultural beliefs as well as scientific sustainable hunting techniques.

Another way that Taroko park managers can address the historical erasure of Taroko indigenous people and their cultural/religious legacy is to develop educational materials regarding Taroko history and culture into the park’s ecotourism and employee training sessions. Taroko already has three educational centers (Wu 1996), and only one discusses the existence of local indigenous people. Taroko park managers could allow Taroko indigenous people to have the chance to represent themselves in these exhibits, and to educate the six million annual visitors of the park (Crook 2015). The educational programs could begin to soften Taroko perceptions of the colonial Taroko park management, and provide indigenous people with visibility, employment opportunities, and the right to represent themselves in national park discourses.

In contrast, Wolong Nature Reserve is not in a political position to establish co-management committees. The Chinese central government forbids public organizing that questions their political authority. Furthermore, indigenous resistance to national policies has historically resulted in forced suppression (Barnett 1998). Under these circumstances, the central government could consider Wolong environmental management strategies that provide local Tibetan indigenous people with decision-making power as a political threat. The central government also has considerable economic and political investment in giant panda preservation. As such, it is unlikely that they would consider community environmental management strategies that allow local residents to collect firewood and other goods from Wolong’s forests.
Instead, environmental management strategies at Wolong may necessarily exclude local people from decision-making processes.

That being said, Wolong Nature Reserve can still develop environmental strategies that are politically feasible and that consider local needs. For example, the majority of Wolong’s local population is involved in temporary wage labor (Liu et al. 2016B). These jobs increase the economic vulnerability of local people and the likelihood that they will disturb fragile Wolong forest habitat for subsistence purposes. As such, Wolong Nature Reserve should develop policies that provide local communities with sustainable economic options that reduce local dependence on agriculture and logging. The central and regional government, in conjunction with park managers, have the responsibility to provide economic alternatives for Wolong residents, because they are responsible for barring local residents from using the forest’s resources as a source of income, thereby creating local economic insecurity.

With support from government officials, Wolong Nature Reserve could establish full-time job quotas for local employment and provide training programs for local people who cannot access job markets because they do not speak Mandarin Chinese. The reserve could also redistribute a percentage of the park’s ecotourism funds and subsidize local necessities such as electricity. Families without electricity gather firewood for cooking and heating, and disturb Wolong’s forest habitats (Liu et al. 2003). However, because the price of electricity at Wolong has tripled in recent years, many families simply cannot afford electricity (Liu and Wu 1999; Liu et al. 2001; Liu et al. 2003).

It is important to note that providing economic opportunities for local Wolong residents alone may not eliminate local consumption of Wolong’s forest resources, and decision-makers should not assume that economic prosperity necessarily results in better environmental
management by local stakeholders. Economic policies should be adopted in conjunction with other environmental management strategies such as existing anti-logging incentive policies in order to enhance environmental management at Wolong Nature Reserve.

Wolong Nature Reserve has already adopted several economic programs such as the Grain to Green program (see chapter 3) that are intended to both preserve the environment and increase local income. These programs are subsidized by the central government; the nationwide implementation of the GGP alone cost 7.6 billion dollars (Liu et al. 2016B). The high cost of these regulations makes it unlikely that they will be renewed in the long-term. In fact, the GGP program expires this year. Once financial incentive programs like the GGP retire, local communities will lose another stable source of income that incentivized stewardship behavior. China’s central government should consider sustainable funding sources so that they can continue to pay for incentive programs in the long-term. At Wolong Nature Reserve, which receive over 200,000 tourists a year (He et al. 2008), programs like GGP could possibly be funded through redistributed ecotourism revenues alone. At PAs with fewer tourists, the central government may need to consider alternative strategies, such as taxing existing extractive industries for their environmental damages, and using this money to subsidize environmental programs.

Even with the aforementioned economic safeguards, Wolong’s residents may occasionally face difficult economic circumstances for which they have no economic safeguard. For example, Wolong’s population consists of over 80% farmers (Ghimire 1994), and a famine could threaten local survival. Under these circumstances, local residents are likely to harvest food and medicinal resources from Wolong’s forests illegally. Park managers should consider implementing environmental strategies to deal with famine and crises situations and allow
residents to utilize local resources in a sustainable manner. For example, Wolong scientists could help the reserve locate particular regions of the PA where medicinal plants could be harvested more heavily and with limited impact on the local ecosystem. For the year of famine only, local residents could be allowed to gather additional herbs in these designated regions, as opposed to illegally gathering plants elsewhere and disturbing Wolong’s fragile ecosystem. The famine strategy recognizes that environmental contexts and realities change. Wolong park managers need project designs and implementation strategies that reflect the changing needs of Wolong’s ecosystem and of local residents (Barret et al. 2004; Blom et al. 2010; McShane et al. 2011).

The political, cultural, economic, and environmental conditions at Wolong Nature Reserve and Taroko National Park require each PA to adopt different environmental management strategies. Indeed, co-management strategies that are essential at Taroko for redressing historical Taroko mistreatment and embracing indigenous rights could be politically dangerous to the well-being of Wolong residents. In addition, park managers must consider that political and economic circumstances limit the effectiveness of environmental management strategies. Park managers may need to choose between rampant illegal local consumption of forest resources and a low level of local consumption during periods of famine. While neither

18 While the central government still supports Wolong environmental management strategies that make all forms of local gathering of forest resources illegal, park managers in China have a great deal of authority to implement laxer regulations. In fact, Wolong residents continued to depend on forest resources long after legislation banned these actions in the 1980s (Ministry of Forestry & WWF 1989).

19 Another example of an environmental management scheme that worked well in one context and not another is Namibia’s community management schemes based on trophy hunting and ecotourism. Even though Wolong also possesses charismatic animals that could promote ecotourism, Wolong’s giant panda tourism mostly depends on the PA’s captive panda population. Wild pandas who depend on Wolong’s forest habitats for survival are elusive and hardly even seen by local residents, let alone tourists (Ghimire 1994). Unlike Namibia (Conniff 2011), Wolong residents are not in a political situation to retain ownership of wild pandas. As such, local residents would not have an incentive to protect wild panda populations, and their protection would not enhance tourism operations.

20 The benefit of legalizing local consumption under certain circumstances is that park managers can regulate local behavior. For example, they can apply scientific forestry concepts such as maximum sustainable yield to local
management strategy is ideal in a fragile ecosystem, regulated local consumption during crises situations may be necessary to prevent more destructive local practices.

2) Respond to socio-economic activities and landscape changes outside the physical boundaries of the PA

PA win-win and strict preservationist strategies traditionally adopt environmental management schemes focused within the physical boundaries of the PA. However, PAs are embedded into wider physical, social, political, and economic landscapes, and conditions outside the PA frequently impact the success of environmental management within the PAs. For example, Wolong residents are increasingly turning to volatile wage labor jobs outside of the reserve for the majority of their income (Liu et al. 2016B). As such, the conditions of wage labor in cities surrounding Wolong greatly impact local economic security, and by extension, the need of local residents to consume forest resources that degrade the quality of Wolong’s forest habitats. Local recession and layoff of temporary workers in neighboring cities could have detrimental impacts on Wolong’s residents and on the environment. Wolong park managers should consider working with provincial and central government officials to adopt economic opportunities for Wolong residents that increase their resiliency in outside job markets. Training programs for local residents in Mandarin Chinese and in basic job skills may help local residents attain permanent jobs that are less volatile to changing economic circumstances in China.21

consumption patterns, and require local communities to harvest certain trees or species during particular seasons. In contrast, illegal forest resource harvesting is likely to be much more destructive to the environment. 21 Typically, PA management only adopts job creation schemes and training programs directly associated with the PA, such as creating park manager and construction jobs (Thompson and Peepre 2000; Australian Government 2015). This thesis proposes that PA managers should consider expanding local job opportunities beyond the boundaries of the PA, with the help of provincial and central government officials. This economic strategy more accurately reflects current employment trends for Wolong residents, and provides a wider range of opportunities for local people.
PAs should also consider the physical landscapes that surround it, and the land management strategies adopted by these adjacent environments. For example, external threats such as plantation expansion, population migration, and extractive industries often have much greater environmental impacts on PAs than local consumption (Christensen 2004; Blom et al. 2010; McShane 2011). This was especially the case at Taroko National Park, where mining operations both within and outside the park ceased water flow in one of the park’s waterways (Li 2014). At Wolong Nature Reserve, logging companies continued to destroy forest ecosystems around the reserve until 1999, when the Chinese government banned logging in the forests surrounding Wolong (People’s Gov 2002). Interestingly, Wolong’s forests and panda populations did not begin to recover until after logging operations outside of the park ceased (Liu et al. 2003; Liu et al. 2016B). The physical boundaries of a PA do not impact the movement of human and animal populations between PA and outside territories. Environmental damages that occur outside PA boundaries may also have a profound effect on the PA, especially on wildlife such as the giant panda that require large tracts of land for their survival. For example, small wildlife populations (i.e. metapopulations) that are surrounded by inhospitable habitats are isolated from other members of their species and can become locally extinct, or in the case of the giant panda, globally extinct (Perfecto and Vandermeer 2008).

In 2006, the Chinese central government halted all mining and logging operations in the close proximity to Wolong Nature Reserve by establishing a World Heritage Panda Sanctuary (People’s Gov 2002). The sanctuary is over three times larger than Wolong, and protects the

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22 Another important consideration is the ways in which PAs have multi-scalar impacts on other environments. For example, China’s Natural Forest Conservation Act increased forest cover by 1.6% of its land area. As a result, China tripled its imports of endangered Myanmar rosewood in 2013 alone (Minter 2016). Even though logging bans in Wolong are essential for protecting panda habitat, one must consider the tradeoffs between protecting ecosystems services in Wolong, as opposed to fragile forest ecosystems in Myanmar and other countries.
physical landscapes surrounding Wolong from extractive industries. It also connects Wolong’s forest habitats to fifteen other national parks, scenic areas, and nature reserves (Ibid). While the sanctuary is a great first step towards acknowledging the importance of protecting habitats outside of the PA, the policy should be expanded to include environmental management strategies for the protection of not only the giant panda but also the entire forest ecosystem. For example, while giant pandas require large tracts of undisturbed habitat for survival, Wolong’s other keystone species may have different habitat requirements. Additional scientific studies are needed to identify the needs of Wolong’s ecosystems, as opposed to the giant panda alone. Furthermore, Wolong park managers may wish to consider environmental management strategies that promote the growth of wild medicinal plants and trees that could supplement the income of local residents.

3) Include local communities and indigenous people in all phases of environmental management

Historically, win-win discourses argued that community engagement was a key to the success of PA management strategies. However, in practice, win-win strategies often adopted top-down decision-making structures with token community participation (Blom et al. 2010). As a result, win-win strategies have often resulted in implicit tradeoffs between environmental priorities, and unequitable distribution of PA benefits to different stakeholders. For example, PAs such as Taroko National Park preserve natural ecosystems for the benefit of an international public good, but at the expense of local indigenous Taroko people’s livelihoods (Roe and Elliot 2006; Blom et al. 2010; McShane et al. 2011).

Ideally, PA environmental management should include allow a range of stakeholders to identify and reconcile their different understandings and valuations of nature, as well as address
their other economic and cultural needs. As discussed in the third and fourth chapter of this thesis, government officials, scientists, park managers, and local communities adopt multiple, nested, and overlapping definitions of the environment (Barett et al. 2004). The tradeoffs model allows all stakeholders to negotiate their various interests, and reconcile those that do not align (Christensen 2004). That being said, park management needs to consider that PA stakeholders are not equally impacted by PA environmental management schemes. For example, Taroko National Park management doesn’t endanger the livelihoods and cultural survival of international non-profit organizations. In addition, local residents and indigenous people often have few financial and political resources, and have historically been excluded from PA decision-making processes. As such, while this thesis supports a multi-stakeholder decision-making approach to PA environmental management, it explicitly highlights the necessity to include local residents and indigenous people in all aspects of PA decision-making processes.

At a minimum, park managers should inform local residents of adopted environmental management strategies because of the policy impacts associated with them. For example, at Wolong Nature Reserve, surveys of local residents in 2003 showed that over 85% did not know what constituted the PA’s core zones, despite the fact that all local activities are banned in these areas (Xu et al. 2006). Instead, residents gathered firewood and food items from all parts of Wolong’s forests without regard for zoning. However, in most cases, communication with local residents is simply not enough to address social equity or environmental priorities efficiently. Consider the adoption of state-sponsored tourism at Wolong Nature Reserve (He 2008). State officials adopted a top-down approach to ecotourism development, and did not consult local residents. Even though residents were aware that they could financially benefit from tourists by running bed-and-breakfasts and selling local handicrafts, the majority of them did not have the
capital investment necessary to start small businesses (Ibid). Residents who successfully started small businesses did not make significant amounts of profit, because tourists preferred to stay at large state-owned housing facilities. Without local resident involvement in the planning and implementation of ecotourism schemes, Wolong residents only received 4.7% of ecotourism revenues in 2008 (Liu et al. 2016A).

In contrast, environmental management strategies that actively include local residents in all aspects of the decision-making process tend to address environmental and social priorities more effectively (e.g. Great Bear Forest and Namibia). Such strategies allow local residents to discuss and implement strategies that address their needs and concerns (Roe and Elliot 2006; Blom et al. 2010). PAs with inclusive decision-making consider more than government or international organization priorities of protecting rare and endangered species and habitats, and also value locally significant species that have cultural significance or provide food and shelter (Roe and Elliot 2006).

Local resident inclusion in decision-making processes is necessary at Taroko National Park, where present top-down management strategies persist and illegal local harvesting of food and forest resources is prevalent. For example, hunting remains illegal within park boundaries, despite the fact that Taroko indigenous people are allowed to hunt for cultural reasons in any region of Taiwan (Simon 2010; Simon 2013). Taroko National Park could establish a co-management committee in which park managers, Taroko indigenous people, government officials, scientists, and other stakeholders have equal decision-making power regarding environmental management at the park. Together, the committee could determine sustainable Taroko hunting privileges and seasons within the national park that was sustainable according to scientific studies as well as culturally sensitive to Taroko Gaya practices. Under some
circumstances, scientists may discover that current wildlife populations may be unable to support Taroko hunting. If so, Taroko indigenous people in the co-management committee may opt to tradeoff their right to hunt certain endangered animals, in *exchange* for other rights, such as asking for non-religious subsistence hunting of animal populations that are more plentiful. Alternatively, Taroko indigenous people could request that the park allocate more jobs for local people within the park, in exchange for reduced hunting privileges. The goal of inclusionary local and indigenous decision-making is to recognize and address local understandings of nature and subsistence needs that are frequently excluded from PA management schemes. Even when environmental strategies tradeoff local subsistence rights for other environmental priorities, local communities have the opportunity to decide for themselves which management strategies they prefer (McShane et al. 2011), without having environmental strategies imposed upon them.

While inclusionary decision-making is a valuable PA management strategy, it is important to recognize that local communities and indigenous groups are not “static, homogenous or generalizable” entities (Wilshusen et al. 2002; Christensen 2004; Blom et al. 2010). Historically, win-win strategies failed to produce adequate economic benefits to ‘communities’ because they assumed they were uniform entities that could be regulated homogenously. As a consequence, win-win strategies tended to benefit elite members of indigenous groups, while the majority of the population continued to be excluded from economic benefits and continued to degrade forest resources (Blom et al. 2010). As such, PA environmental management strategies must carefully consider how to engage with many different parts of local “communities,” including members of different genders, ages, classes, and ethnic groups.
Heterogeneity of local communities is especially important to consider at Taroko National Park, where historical rivalries between three Taroko sub-ethnic groups remain central to indigenous politics today. The Truku sub-group composes 85% of the Taroko indigenous population, while the Tkdaya and Tuda make up the other 15% (Chi and Chin 2012). The Tuda assisted Japanese forces in violently subduing Truku resistance in the early 1900s (Simon 2006; Simon 2007). Truku people remain hostile towards the Tuda. With Truku elites possessing most of the political roles in Taroko communities, Tkdaya and Tuda opinions are often excluded in policy decisions. For example, with the support of elite Truku politicians, The Taroko indigenous people became officially recognized as an indigenous group by the central Taiwanese government in 2004 (Simon 2011). However, the Taroko became recognized under the name of “Truku,” effectively erasing the other two sub-ethnic groups from indigenous discourses (Chi and Chin 2012).

Inner community politics also affects the success of government programs that attempt to engage with “local communities.” The central Taiwanese government, along with academic experts, helped the Taroko indigenous people undertake a project to map their traditional territory in the 2000s (Ibid). Official maps of tribal territory are an important political tool for indigenous groups when asserting their subsistence rights in certain locations, such as Taroko National Park. Mapping is a highly subjective process, especially because the Truku, Tkdaya, and Tuda often occupied the same land at different periods of time. Unfortunately, only Truku elites were involved in the mapping process, and often labeled land where present Tuda live as Truku “traditional territory” (Chi and Chin 2012). The Taroko indigenous tribe mapping process provides a cautionary example of the difficulties in engaging with heterogeneous societies, even when government and NGO decision-makers involve local “community” members. If Taroko
National Park decides to create a co-management board with indigenous involvement, the board must ensure that Taroko representatives include a variety of local people from each of the three sub-groups, as well as members from different classes, ages, and genders.

4) Establish concrete, participatory regulatory enforcement.

PA scholars suggest that the establishment of PA environmental legislation is valuable, but that PA enforcement mechanisms often determine the efficacy of these programs (Barett et al. 2004). Enforcement strategies are a particular concern in China, because the country has a large number of “paper parks” whose environmental regulations are not implemented in practice (Quan 2011; see Chapter 2). At Wolong Nature Reserve, one of the most effective environmental strategies, the National Forest Conservation Program, financially incentivized local residents to protect tracts of forestland from illegal harvesting (Liu et al. 2016B). In contrast, regulations barring local collection of food, firewood, and medicinal items from Wolong’s forests remain poorly enforced. Similarly, at Taroko National Park, Taroko indigenous people continue to practice their traditional cultural and religious hunting practices on park premises, despite the fact that the park has effective police forces who hunters harshly (Simon 2010; Simon 2013). At both Wolong Nature Reserve and Taroko National Park, top-down enforcement mechanisms seem ineffective in preventing local people from hunting and gathering forest resources for subsistence purposes. Instead of adding additional security to the reserves, PAs should consider enforcement strategies that are cognizant of the root causes of local subsistence activity.

Taroko National Park should consider adopting participatory enforcement mechanisms in which both PA managers and indigenous hunters help create and enforce culturally-sensitive environmental regulations such as hunting seasons and zones. For example, before Japanese
colonization, Taroko hunters fiercely defended their hunting territories from outsiders (Simon 2006); in the process, they ensured that they did not overharvest animal populations, because only a small number of Taroko people hunted in each territory (Simon 2013). Taroko National Park can learn from the example of Namibia’s Nature Conservation Act, where local people enforced anti-poaching regulations and reported illegal poaching activity directly to their local leaders, as opposed to government officials or park managers who were strangers to local enforcers (Conniff 2011). Like Namibia, Taroko National Park faces illegal poaching concerns from within the community itself. A participatory enforcement system led by local residents may be especially effective in the case of Taroko National Park, because many indigenous Taroko view the park as a “colonial” force imposed upon them (Simon 2013), and reject current enforcement mechanisms instated by park police.

That being said, the complexities of Taroko political and ethnic issues may pose challenges for establishing equitable, participatory enforcement schemes at the national park. For example, the majority of the indigenous people who will be chosen to enforce the park’s environmental regulations will most likely come from the Truku ethnic sub-group, who make up 85% of the Taroko population. Truku enforcers may attempt to police the boundaries of their traditional hunting territories at the expense of the remaining two sub-ethnic groups, who have less political power and visibility. Indeed, Truku elites have already claimed substantial amounts of Tuda and Tkdaya “traditional lands” as belonging to the Truku (Chi and Chin 2012). Given the internal divisions among the Taroko community, environmental management schemes such as Namibia’s return of wildlife ownership to indigenous populations are impossible in Taroko National Park without exacerbating existing community inequalities. As such, mechanisms must be in place to ensure a diversity of actors in environmental enforcement and decision-making.
At Wolong Nature Reserve, local resident participation in decision-making processes and enforcement mechanisms may be impossible, due to the unfavorable political climate. The provincial and national government should consider strengthening existing top-down management schemes such as the National Forestry Conservation Act that subsidize local enforcement of anti-logging mechanisms within Wolong (Liu et al. 2016B). However, park managers and government officials should also consider alternative strategies that reduce the need for enforcement. For example, by providing economic opportunities and training for local residents both within the park and in the surrounding community, park managers and government officials give local residents viable alternatives to consuming Wolong’s forest resources.

Conclusion

The diversity of PA management strategies at Wolong Nature Reserve and Taroko National Park demonstrates the importance of considering the local historical, cultural, religious, economic, political, and environmental contexts of PAs. While recognizing the many “natures” present at PAs across the globe is essential for reinterpreting PA literature within an interdisciplinary context, it is also essential for creating practical PA management strategies that produce tangible environmental and social justice results. For example, at Wolong Nature Reserve, PA decision-making is necessarily top-down due to political constraints on Tibetan indigenous people. However, similar exclusionary policies are inappropriate in democratic Taiwan, and likely to exacerbate existing conflicts between Taroko park managers and Taroko indigenous people. The goal of a tradeoffs PA management model is to allow stakeholders to identify and reconcile their numerous valuations of “nature” by sacrificing some of their management priorities for the sake of achieving more important environmental and social justice
goals. In contrast, win-win approaches in the 1980s attempted to satisfy the management goals of all stakeholders, but were unable to accomplish them (Blom et al. 2010). Instead, tradeoff models adopt interdisciplinary approaches to PA management that explicitly addresses not only the environmental contexts but also the social, cultural, political, historical, and economic circumstances of the PA. This thesis argues that adopting this interdisciplinary approach to PA management is crucial if PAs wish to successfully engage with PA environmental and social justice concerns.

Even though environmental management at Wolong Nature Reserve and Taroko National Park has begun to incorporate the needs of local people into PA strategies, it is important to recognize that the strict preservationist schemes of past management eras that banned local subsistence persist into the present. The intercurrence of exclusionary and inclusionary environmental management schemes may pose enforcement challenges to PA tradeoff strategies. In order to engage with the complexity of “natures” at each PA, decision-makers and stakeholders must be willing to consider alternative PA management strategies that incorporate social as well as environmental goals, and that change existing PA practices to incorporate more flexibility for PA actors. By acknowledging PA diversity and by actively incorporating local indigenous people into PA decision-making processes, stakeholders have the opportunity to construct PAs that address the issues most precious to involved stakeholders, from creating economic alternatives for local residents and preserving fragile ecosystems to fostering national identities.
Figures

Figure 1 Wolong Nature Reserves is located in central Sichuan province. It borders the slopes of the Tibetan highlands to the west. The map also shows forest cover and the location of human settlement in the reserve (Yang et al. 2013).

Figure 2 Tibet is China’s second largest autonomous region. It was incorporated into the PRC in 1950 after military conquest (University of Central Arkansas 2016)
Figure 3  Location of core, buffer, and experimental zones at Wolong Nature Reserve. Note that since 1998, Wolong residencies have been designated as experimental zones (Hull et al. 2011).

Figure 4  Major cities and national parks in Taiwan. Taroko National Park is one of Taiwan’s largest parks (YuanShan National 2005).
**Figure 5** Steep cliffs and marble gorges of Taroko National Park (Hualien Tourist Service 2016).
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