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Essay

A Property Rights Approach to Understanding Human Displacement from Protected Areas: the Case of Marine Protected Areas

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Abstract: *The physical, economic, and sociocultural displacement of local peoples from protected areas generates intense discussion among scholars and policy makers. To foster greater precision and clarity in these discussions, we used a conceptual framework from the political economy literature to examine different forms of human displacement from protected areas. Using marine protected areas (MPAs) to ground our analysis, we characterized the 5 types of property rights that are reallocated (lost, secured, and gained) through the establishment of protected areas. All forms of MPA "displacement" involve reallocation of property rights, but the specific types and bundles of rights lost, secured, and gained dramatically shape the magnitude, extent, and equity of MPA impacts—positive and negative—on governance, economic well-being, health, education, social capital, and culture. The impacts of reallocating rights to MPA resources vary within and among social groups, inducing changes in society, in patterns of resource use, and in the environment. To create more environmentally sustainable and socially just conservation practice, a critical next step in conservation social science research is to document and explain variation in the social impacts of protected areas.*

Keywords: fisherfolk, livelihoods, marine reserves, national parks, social impacts

Desplazamiento Humano y Áreas Marinas Protegidas: una Estrategia de Derechos de Propiedad

Resumen: *El desplazamiento físico, económico y sociocultural de habitantes locales de áreas protegidas genera discusiones intensas entre académicos y políticos. Para promover una mayor claridad y precisión en estas discusiones, utilizamos un marco conceptual tomado de la literatura de economía política para examinar diferentes formas de desplazamiento humano de las áreas protegidas. Usamos a las áreas marinas protegidas como la base para nuestro análisis, y caracterizamos cinco tipos de derechos de propiedad que son reasignados (perdidos, asegurados y ganados) mediante el establecimiento de áreas protegidas. Todas las formas "desplazamiento" por AMP implican reasignación de derechos de propiedad, pero los tipos y paquetes específicos de derechos perdidos, asegurados y ganados moldean la magnitud, alcance y equidad de los impactos — positivos o negativos — de la AMP sobre la gobernabilidad, el bienestar económico, la salud, la educación, el capital social y la cultura. Los impactos de la reasignación de derechos en las AMP varían dentro y entre los grupos sociales. Para crear una práctica de la conservación más sustentable ambiental y socialmente, la documentación y explicación de la variación en los impactos sociales de las áreas protegidas son un paso crítico en la investigación de la ciencia social en conservación.*

Palabras Clave: impactos sociales, medio de vida, parques nacionales, pescadores, reservas marinas

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Introduction

In recent years scholars have increasingly examined conservation interventions as both a vehicle for sustainable social development and as a source of social costs (e.g., Newing & Wahl 2004; Agrawal & Redford 2006; Wilkie et al. 2006). Of particular interest are the positive and negative social impacts of national parks and other types of protected areas (PAs), the cornerstone of most biodiversity conservation strategies (Colchester 1997; Stevens 1997; Brechin et al. 2003). The physical, economic, and sociocultural displacement of local peoples from PAs has generated especially intense discussion in the academic literature (e.g., Brechin et al. 2003; Brosius 2004; Agrawal & Redford 2007) and popular press (Chapin 2004; Dowie 2005; Paddock 2006), as scholars and others have debated the concept of "displacement" (Cernea & Schmidt-Soltau 2006; Schmidt-Soltau & Brockington 2007), its extent and magnitude (Cernea 2000; Schmidt-Soltau 2005; Cernea & Schmidt-Soltau 2006), and its moral or ethical appropriateness (West & Brechin 1991; Brockington 1999).

Differing in size, scope, and objectives, PAs are socially constructed sets of rules that collectively govern human interactions within a specified area and, thus, allocate access to and use of natural resources among stakeholders (Mascia 2004). Because PAs allocate access to natural resources—and the economic wealth associated with these resources—it is not surprising that PA development, management, and reform are politically and socially contentious (Blaustien 2007). To foster greater precision and clarity in academic discussions and public policy making, we used a conceptual framework from the political economy literature (Schlager & Ostrom 1992) to examine different forms of human displacement from PAs. Using marine protected areas (MPAs) as an example, we explored the impact of PA establishment on resource rights and discuss how the reallocation of rights to PA resources directly and indirectly manifests itself in different social domains, across time, in space, and among groups.

Conceptualizing Displacement

Displacement has been defined in various ways by different authors. For some authors, displacement includes physical, economic, and social exclusion (Cernea 2000), whereas others view displacement as the product of physical exclusion, a phenomenon conceptually and morally distinct from the loss of economic or resource use rights (Agrawal & Redford 2007). The concept of "displacement," however, focuses on just one side of the coin (the excluded). To understand the full empirical and ethical dimensions of PA displacement, it is critical to consider the disempowered who lose rights and the empowered who gain rights. Examining the empowered and the disempowered provides insights into issues of power, equity, and justice. Are the powerful gaining additional rights? Are empowered actors more marginal or impoverished than disempowered actors? Through the loss of some rights, are others gained?

Focusing on rights reallocation, rather than displacement, also allows one to differentiate between the process through which PA rights are reallocated and the substantive impacts of this reallocation. The structure of decision-making processes has a major impact on how rights are reallocated—and to whom (Ostrom 1990). Focusing on the process through which protected-area rights are reallocated allows one to better identify illegitimate decision-making processes (which may have either positive or negative substantive impacts) and to design appropriate procedural reforms. Discussion of procedural aspects of PA decision-making processes has focused on stakeholder participation and free, prior informed consent (McNeely 1999; Dearden et al. 2005; Lepp & Holland 2006). Procedural justice, however, is distinct from substantive justice (Stone 1988). Accordingly, we focused on the substantive impacts of MPA rights reallocation, which enabled us to characterize the types of social impacts that follow the emergence and evolution of MPAs (which may be the product of either legitimate or illegitimate decision-making processes). Rigorous study of the substantive social impacts of PA rights reallocation provides the basis for decision makers to develop appropriate policy responses to these complex issues.

MPA Establishment and Rights Reallocation

Property rights are "social institutions that define or delimit the range of privileges granted to individuals" regarding specific assets or resources (Libecap 1989:1). Like all PAs, MPAs reallocate preexisting rights governing resource access and use. Singly or in bundles, these rights may be held by a lone individual, shared by a group, or held collectively by multiple groups (e.g., user groups, communities, government agencies, and nongovernmental organizations). Rights may occur at any spatial scale, from local to global, and may have a mix of formal and informal components with written and unwritten origins (e.g., legal statutes, policy statements, organizational practices, social norms, cultural traditions; Libecap 1989). As a result, the de facto rights that are actually affected by MPA establishment often differ from the preexisting de jure rights outlined in formal legal documents (Mascia 2004). Legally designated MPAs may formalize or invalidate preexisting de facto rights, thus reinforcing or undermining preexisting privileges. The social impacts of MPA establishment are mediated by this preexisting

structure of resource rights, as well as other preexisting social and ecological conditions.

All forms of "displacement" involve reallocation of property rights, but the specific types of rights created, lost, secured, and gained dramatically shape the magnitude, extent, and distribution of social impacts. (Hereafter, we use the term *reallocation* to encompass the formation of entirely new rights; the reaffirmation or securing of existing rights; and the restructuring of existing rights.) The most basic property rights that an individual may hold are the rights of access (Schlager & Ostrom 1992). *Access rights* determine who may enter a defined area and who is eligible to exploit a specific resource. Access rights may be conferred by birth (e.g., citizenship), social relations (e.g., family member), geography (e.g., local resident), or contract (e.g., fishing license). In Bonaire, Netherlands Antilles, for example, only those scuba divers and scuba tourism companies who pay an access fee are permitted to enter the Bonaire Marine Park (Dixon et al. 1993). Reallocation of rights regarding who may enter an MPA and exploit its resources may have significant social impacts, particularly for individuals living in or adjacent to MPAs. Loss of access rights may disrupt livelihood strategies, weaken social relationships among communities, and diminish sense of place (i.e., memory, history, and myth associated with location; Fortwangler & Stern 2004, 158). Conversely, restricting access to a certain number or type of individuals (e.g., local residents) may sustain cultural traditions or enhance subsistence or other forms of resource use and exploitation.

Withdrawal rights govern the appropriation of goods or resources generated by a natural or human-made resource system (Schlager & Ostrom 1992). Withdrawal rights, therefore, define what resources may be exploited, and when, where, and how individuals with access rights may exercise these rights and engage in consumptive (e.g., fishing) and nonconsumptive (e.g., scuba diving) forms of resource use. In MPAs and other natural resource systems, reallocation of withdrawal rights may have significant economic and social ramifications—particularly in resource-dependent communities. In the Philippines, for example, establishment of an MPA in Mabini created economic opportunities for tourist boat operators and restricted fishing to designated zones (Oracion et al. 2005). Researchers have documented both positive and negative impacts of MPA reallocation of withdrawal rights on patterns of subsistence and commercial resource use (Ngugi 2001; Hoffman 2002), traditional lifestyles (Fortwangler & Stern 2004; Gelcich et al. 2005), and cultural identity (Oracion et al. 2005). Collectively, access and withdrawal rights are known as *use rights*.

Management rights are the rights to regulate resource withdrawal and to "transform the resource by making improvements" (Schlager & Ostrom 1992, 251). Thus, management rights confer the authority to determine what MPA resources may be exploited and when, where, and how such exploitation may occur. In countries with state-managed marine resources, the establishment of collaboratively managed and community-based MPAs, for example, represents the partial (collaboratively managed) or complete (community-based) transfer of state-held management rights to local resource users. Devolution of management rights in the Moheli Marine Park (Comoros Islands), for example, led the local community to restrict certain types of fishing gear (Granek & Brown 2005). Significantly, management rights also include the rights to control resource transformation and improvement. In the case of MPAs, this includes, for example, installing mooring buoys to prevent boat anchor damage (e.g., U.S. Virgin Islands National Park; Marion & Rogers 1994) and adding fish-aggregating devices to enhance fish catches (e.g., Miyako and Okinawa; Kakuma 2004). Recent trends toward decentralization and devolution of marine-resource management rights, often in the form of MPAs (Johannes 2002), have reversed a centuries-old pattern of state appropriation of marine resource management rights from resource users (Johannes 1978; Ruddle 1996).

Exclusion rights, as the name suggests, confer the authority to exclude individuals from entering a defined space or exploiting a specific resource (i.e., restrict access rights, Schlager & Ostrom 1992). Thus, although MPA management rights confer the ability to shape what MPA resources are exploited when, where, and how, exclusion rights confer the ability to determine *who* may engage in consumptive and nonconsumptive resource exploitation. In community-based and comanaged MPAs, local resource users ("insiders") with exclusion rights may prevent "outsiders" (e.g., nonlocal fishers) from entering the MPA for any kind of resource use (e.g., Apo Islands and Philippines; Russ & Alcala 1999) or require nonlocals to obtain a license or permit for entry (for which a fee is often required, e.g., Hol Chan Marine Reserve; Mascia 2000). These preferential resource use rights grant local users a greater share of MPA benefits and may reduce local rates of resource exploitation and create incentives for more sustainable patterns of resource withdrawal. Loss of exclusion rights, by contrast, transfers significant aspects of control over resource use to new rights holders; the resultant impacts on MPA resources and resource users depend on how these new rights holders exercise their authority.

Alienation rights are the rights to transfer resource management and exclusion rights to another actor (Schlager & Ostrom 1992). The state generally holds alienation rights to MPA resources, but alienation rights may be held by other actors or transferred as part of MPA establishment. In MPAs with terrestrial components, for example, local residents may hold rights of alienation to the land on which they live, enabling them to sell or lease it to others. Similarly, fishers and other resource users may

be entitled to transfer the right to manage resources and exclude others from marine territories or other marine resources. In Melanesia and elsewhere, communities or kin-based groups often hold alienation rights over specific coral reefs or other defined features of the marine environment, which they may sell, lease, or rent to others (Akimichi & Ruddle 1984; Ruddle 1996). In Belize establishment of the Hol Chan Marine Reserve resulted in the reconfiguration of alienation rights; the authority to transfer lagoon fishing rights shifted from local fishers ("owners" of fishing territory) to the comanaged MPA authority, which subsequently restricted the transfer of fishing rights to intrafamilial transfers only (Mascia 2000).

Marine protected areas often reallocate bundles of these 5 types of rights (Fig. 1). In Australia, for example, establishment of the Lord Howe Island Marine Park reallocated access and withdrawal rights: who could enter (residents), the type of gear that entrants could use (drop lines), and what entrants could do with their catch (consumption allowed only on the island, Bishop et al. 2004). In the Philippines MPAs reallocated management, withdrawal, and use rights by involving local stakeholders in some management decisions (i.e., how the MPA would be used) and subsequently reshaping rules governing consumptive (seasonal restrictions on shellfish gathering) and nonconsumptive (dive operations) activities (Oracion et al 2005). Establishment of the Moheli Marine Park in the Comoros Islands led to significant reallocation of management rights; local guards now monitor and enforce the decisions of local communities regarding withdrawal rights (e.g., location and method of extraction) and access rights (no motorized boats; Granek & Brown 2005). The reinstitution of Ra'ui on Rarotonga similarly reallocated some management rights (community meetings determined what uses would be allowed) and withdrawal rights (all consumptive uses banned for months to years, particular recreation uses allowed; Hoffman 2002). In some cases, reallocation of exclusion and management rights does not affect withdrawal or access rights. Establishment of the Marine Extractive Reserve of Arraial do Cabo, Brazil, led to reconfiguration of decision-making arrangements without substantively changing resource use (Pinto da Silva 2004). By contrast, establishment of the Hol Chan Marine Reserve restructured the full set of property rights (alienation to access) governing local marine resources (Mascia 2000).

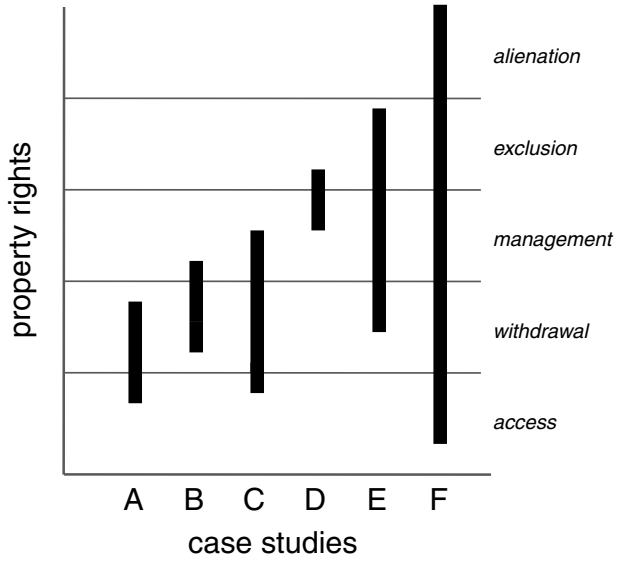

Figure 1. Groups of property rights to marine resources that are affected by establishment of marine protected areas (derived from framework developed by Schlager & Ostrom [1992]). Establishment of the Lord Howe Island Marine Park (A), for example, affected both withdrawal and access rights: A, Lord Howe Island Marine Park, Australia (Bishop et al. 2004); B, Mabini, Philippines (Oracion et al. 2005); C, Rarotonga (Hoffman 2002); D, Moheli Marine Park, Comoros Islands (Granek & Brown 2005); E, Arrial do Cabo Marine Reserve, Brazil (Pinto da Silva 2004); F, San Salvador Island, Philippines (Christie et al. 1994); G, Hol Chan Marine Reserve, Belize (Mascia 2000).

Ripple Effects of MPA Rights Reallocation

Marine protected areas rights reallocation may affect the governance, economic well-being, health, education, social capital, and culture of resource users, local communities, and other social groups (Table 1; Mascia 2004). As many have noted, MPA establishment may have negative impacts on those individuals and groups losing ownership and use rights, whereas those gaining corresponding rights may benefit accordingly (Mascia 2004). By reallocating rights to land, water, and living resources, MPAs may affect resource control and other elements of governance (e.g., conflict-resolution mechanisms, gender roles in decision making, and engagement in broader political processes). Reallocation of resource rights may also affect aspects of economic well-being, including employment, income, consumption, and natural and material assets (Ngugi 2001). Changes in food security may be considered either a wealth or a health effect of MPAs. Other health effects may include shifts in nutrition, morbidity, and mortality (Gjertsen 2005). These economic and health effects may, in turn, shape rates of school enrollment and other educational variables. Less tangible (but no less important) effects of MPAs on social capital and culture may include shifts in trust, partnerships and alliances, identity, and sense of place.

The impacts of reallocating rights to MPA resources vary within and among social groups, often creating winners and losers. Actors engaged in extraction of nonrenewable marine resources, such as coral mining,

Table 1. Potential direct and indirect social costs and benefits of MPA rights reallocation (M.B.M. and A. Khurshid, unpublished data).

Governance
decreased/increased resource control
property lost*/gained
use rights lost/gained
conflict resolution mechanisms weakened/strengthened
Economic well-being
employment lost*/gained
income lost*/gained
assets lost*/gained
consumption reduced/increased
Health
health diminished*/enhanced
food availability reduced*/increased
nutritional status diminished/enhanced
psychological well-being diminished/enhanced
health services reduced/increased
Education
public services lost*/gained
human capital lost*/gained
education opportunities lost/gained
Social capital
social networks degraded*/increased
social status lost*/gained
partnerships/alliances lost/increased
trust lost/gained
Culture
cultural space lost*/gained
local knowledge lost/gained
sense of place diminished/enhanced
norms and values undermined/reinforced

**Highlighted by Cernea's (2000) framework of physical displacement risks.*

often see these rights severely restricted within the MPA. Land-based activities that affect the adjacent marine environment, such as farming and forestry (through runoff of sediment and other pollutants), are sometimes also restricted as part of MPA establishment. The benefits of these restrictions accrue to actors engaged in other MPA activities, such as fishing, scuba diving, scientific research, and other commercial and recreational activities (Mascia 2000). No-take MPAs prohibit all forms of fishing, often creating new economic opportunities for individuals engaged in dive tourism and other forms of nonextractive resource use (Vogt 1997). Marine protected areas sometimes also limit nonconsumptive uses, such as dive tourism and research, which transfers benefits to fishers and other extractive users (Roberts et al. 2001). These changes in use rights and patterns of resource use among groups are shaped by the reconfiguration of ownership rights associated with MPA establishment.

Establishment of MPAs also commonly results in the reallocation of use rights among subgroups. In some instances MPAs limit certain modes of resource use (e.g., fishing), which transfers the benefits of resource extraction from one specialist group to another (e.g., fishers using nets vs. spear guns) (Goodridge et al. 1996). In other cases, rights are transferred from one community to another (e.g., local fishers often establish MPAs to exclude nonlocals from fishing in their waters) (Russ & Alcala 1999). Spatial zoning is used in MPAs to restructure patterns of resource use, often as a means of reducing conflict among groups and subgroups of resource users (Pomeroy et al. 2007). This reallocation of resource rights and benefits may induce broader positive and negative shifts in economic well-being, health, education, and culture, which often vary in accordance with not only specific modes of resource use (e.g., occupation) and community of residence but also with gender, class, religion, and age (Mascia 2004). In many instances MPA establishment will have mixed impacts on a particular group or subgroup (e.g., net fishers experience both increased income and loss of cultural identity).

Rights reallocation in MPAs may also have secondary social impacts, although these are even more poorly understood and documented than the most immediate social impacts of MPAs. Users whose rights are restricted within an MPA may migrate to exploit natural resources in adjacent areas, creating new social challenges (e.g., resource conflict) and opportunities (e.g., novel management practices) for existing resource users and others in these new host communities. Simultaneous with this outmigration, those who gain rights may physically migrate to an MPA to take advantage of new opportunities, which induces change in their communities of origin and creates new challenges and opportunities in the MPA community. Successive ripple effects, presumably weaker and more diffuse, play out in successive resource-user groups and associated communities. The social impact of these ripple effects depends on the diversity, complexity, and dynamics of the social and ecological systems and vulnerability of these systems (Jentoft et al. 2007).

Marine protected areas not only reshape resource governance and patterns of resource use but, through these processes, they also induce changes in the resource system itself. Limiting consumptive resource use within MPAs generally leads to increases in the populations of fish and other species targeted by fishers (Halpern & Warner 2002; Halpern 2003). As these target populations increase within the MPA, adult organisms and their offspring may spill over into adjacent waters outside the MPA. Such an export of fishery resources may compensate for the loss of fishing access within the MPA through increased catches in adjacent waters (Alcala & Russ 1990; Russ et al. 2004; but see McClanahan & Kaunda-Arara 1996). These ecological dynamics occur across oceanographically connected seascapes tens to hundreds of kilometers wide, but become more diffuse at increasing distances from the MPA (Sala et al. 2002; Shanks et al. 2003). The positive externalities generated through this MPA dynamic may create incentives for resource users to restrict their own behavior. (Although MPA biological success and subsequent spillover may create incentives for resource users to restrict use and to comply with rules,

the biological success of terrestrial PAs may create negative externalities [e.g., spillover of crop-raiding wildlife] that encourage exploitation within the PA and, thus, limit spillover and conservation effectiveness.) Research suggests that the initial biological benefits of MPAs appear within several months after MPA establishment (Halpern & Warner 2002), although it may take several years or longer for the full benefits to accrue (Roberts et al. 2001; Ward et al. 2001; Galal et al. 2002).

Management Implications

The rights reallocation framework outlined here provides scholars and practitioners with the starting point for rigorously assessing and addressing the substantive social impacts of PA establishment. Such a process might include the following steps:

- identify discrete groups and subgroups whose resource rights are affected by PA establishment (e.g., nonlocal net fishers);
- characterize the reallocation of resource rights associated with PA establishment for each of these groups and subgroups (e.g., gain or loss of management and withdrawal rights to pelagic fish);
- assess the impact of PA-induced rights reallocation on specific elements of governance, economic well-being, health, education, social capital, and culture for each of these distinct groups and subgroups (e.g., increased or decreased resource control, food security, and viability of traditional way of life);
- examine trade-offs and synergies among social impacts for any single subgroup or group and the distributive impact of PA establishment among subgroups and groups;
- identify and implement contextually appropriate actions to address the social impacts on the basis of management goals, social norms, legal standards, and available policy instruments.

This assessment process can be conducted prior to PA establishment (as part of a traditional preproject environmental- or social-impact assessment process) or at any time after establishment (as part of a monitoring and evaluation program).

Conclusion

Human displacement from PAs touches on numerous conceptually distinct and socially charged issues. Effective resolution of legitimate procedural and substantive concerns requires one to disaggregate these issues, so that each of them and the collective relationships among them may be better understood. A property rights approach to understanding the substantive social impacts of PA emergence and evolution provides one with a fine-grained analytic lens through which to examine not only displacement but the full range of positive and negative social impacts. As we have shown with MPAs, PAs have varied impacts on local people and communities, depending on local environmental, economic, and social conditions and on how the PA is designed and implemented (West & Brockington 2006). To date, however, scientific discussion of these impacts has focused on only a few variables, and the spatial, temporal, and cross-PA variation in the magnitude and extent of social impacts remains largely unexamined and unexplained. To create more environmentally sustainable and socially just conservation practice, a critical next step in conservation social science research is to document and explain variation in the social impacts of protected areas. Such knowledge is the foundation of adaptive management that meets the needs of both people and nature.

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