Environmental Bargaining and Boundary Organizations: Remapping British Columbia's Great Bear Rainforest

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In recent decades, the creation of conservation areas has been a significant and contested trend in resource peripheries around the globe, embracing the "remapping" of resource extents, tenures, and values and thereby land use patterns and regional development trajectories. Environmental nongovernmental organizations (ENGOs) have emerged as key actors in the conflicts underlying this remapping, as advocates of environmental values and opponents of vested economic and political interests engaged in large-scale resource commodification. Remapping is contentious because it is inescapably normative, rendering moral judgments and alterations of property rights and the meaning of sustainable development. The outcomes of remapping are highly contingent, driven by environmental bargaining processes that describe the formal and informal interactions among ENGOs, industrial interests, different levels of government, and other actors with conflicting interests, strategies, and alliances. This article explores how conflicts were resolved in the creation of the Great Bear Rainforest on British Columbia's central coast. Conceptually, the stakeholder model approach to resource conflict is elaborated by emphasizing the roles of ENGOs as advocates and representatives of environmental values within scientific boundary organizations created specifically to be key facilitators in the bargaining process. The study draws on forest policy documents, records of negotiation, surveys of the region's ecological and socioeconomic structures, and field visits. The analysis reveals the Coast Information Team as the multirepresentative scientific boundary organization that developed a shared, accepted multilayered geographic information system of the region. This map provided a "shared currency" and the basis for agreement regarding (1) land use zoning at multiple scales, (2) ecosystem-based management, and (3) conservation mapping. *Key Words: bargaining, boundary organization, ENGOs, environmental governance, remapping.*

近数十年来, 保留地的设立在全球资源偏远地区已成为显著且高度争议的风潮, 包含资源幅员、所有权、价值以及土地利用模式与区域发展轨迹的 "重划"。非政府环境组织 (ENGOs) 成为重划过程冲突中的主要行动者、环境价值的倡议者, 以及大规模资源商品化中既得政经利益的反对者。重划的动作极具争议, 因其不可避免地具有规范性, 对财产权与可持续发展的意义进行道德的评判与变更。重划的结果相当难以预料, 该结果是由非政府环境组织、产业利益、不同层级的政府与其他利益、策略及结盟关系相互冲突的行动者之间的正式与非正式互动的环境协议过程所驱动。本文探讨加拿大卑诗省中部沿海地区设立大熊雨林的冲突如何化解。就概念上而言, 本文透过突显在专门成立做为协议过程主要促进者的科学跨界组织中, 非政府环境组织做为提倡和代表环境价值的角色, 以此阐述资源冲突利害关系人的取径。本研究运用了森林政策文件、协商纪录、区域生态与社会经济结构的调查及田野探访, 分析结果揭示了海岸信息小组做为建立区域中共享且公认的多层地理信息系统的多重代表科学边境组织。该地图提供了 "共享的流通性" 以及下述协议基础 (1) 多重尺度的土地使用分区, (2) 根据生态系统的管理, (3) 保留地制图。*关键词: 协议, 跨界组织, 非政府环境组织 (ENGOs), 环境治理, 再制图。*

En décadas recientes, la creación de áreas de conservación ha sido una tendencia significativa y controvertida en las periferias de recursos alrededor del globo, proceso que abarca el "remapeo" de la extensión, tenencia y valor de los recursos, y los consiguientes patrones de uso de la tierra y trayectorias del desarrollo regional. Las organizaciones ambientales no gubernamentales (OANG) han surgido como actores claves en los conflictos asociados con este remapeo, o nueva delimitación cartográfica, a título de abogados de los valores ambientales y opositores a intereses creados de orden económico y político comprometidos en la mercantilización de recursos a gran escala. Una nueva delimitación cartográfica es polémica por cuanto es ineludiblemente normativa, dando lugar a juicios morales y a alteraciones en los derechos de propiedad y al significado del desarrollo sostenible. Los resultados del remapeo son altamente contingentes, orientados por procesos de regateo ambiental que describen las interacciones formales e

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informales entre las OANG, los intereses industriales, diferentes niveles gubernamentales y otros actores a quienes mueven intereses conflictivos, estrategias y alianzas. Este artículo explora las maneras como se resolvieron los conflictos para la creación del Bosque Húmedo del Gran Oso (Great Bear Rainforest) en la costa central de la Columbia Británica. Conceptualmente, el enfoque del modelo de partes interesadas sobre conflictos por recursos se elabora destacando los roles de las OANG como defensoras y voceras de los valores ambientales en el seno de organizaciones de delimitación científica creadas específicamente para desempeñarse como facilitadoras claves en el proceso de negociación. El estudio es basado en documentos sobre políticas forestales, registros de negociación, estudios sobre las estructuras ecológicas y socioeconómicas de la región y en trabajo de campo. El análisis destaca al Equipo de Información de la Costa como la organización multirepresentativa de delimitación científica que desarrolló un sistema de información geográfica de la región de capa múltiple, compartido y aceptado. Este mapa proporcionó una "moneda común" y las bases del acuerdo en lo que concierne a (1) zonificación de uso de la tierra a múltiples escalas, (2) una administración de base ecosistémica y (3) la cartografía de conservación. *Palabras clave: regateo, organización de límites, OANGs, gobernanza ambiental, remapeo.*

Around the world, policy tools for implementing environmental conservation have been primarily geographical, leading to the creation and governance of conservation territories. Nationally designated terrestrial protected areas amounted to 14 million km^2 in 2006, up from 2 million km^2 in 1965. A further 3.8 million km^2 of marine area was protected, compared to virtually nothing in 1973. The model of the protected area as a bounded zone in which certain human uses are excluded and others restricted has been adopted worldwide. This expansion has taken place largely in resource peripheries, especially frontier forests. In 2010 the area of forest where biological diversity is designated as the primary purpose accounted for 4.6 million km^2, or 12 percent of the world's total forest area (United Nations Food and Agriculture Organization 2010). In British Columbia (BC), Canada, for example, terrestrial protected areas increased from 3.1 to 13.5 million hectares between 1970 and 2008, amounting to 14 percent of the provincial land base, including the iconic United Nations Educational, Scientific and Cultural Organization (UNESCO) biosphere reserve established in Clayoquot Sound in 2000 and the equally iconic Great Bear Rainforest agreement of 2006 (BC Parks 2008). The momentum of this trend toward "new geographies of conservation" continues (Zimmerer 2006; see also Zimmerer 2000; Zimmerer, Galt, and Buck 2004), highlighted by the creation of a vast, transcontinental Canadian Boreal Forest Agreement of 2010 that covers 76 million hectares (Boychuk 2011). These agreements are iconic by virtue of their size, global as well as local significance, and paradigmatic implications for environmental governance.

The creation and management of protected areas and other forms of conservation territories have been problematical, highly contested, and framed by recent literature with reference to "resource wars," "remapping," and "reterritorialization" (Brogden and Greenberg 2003; Hayter 2003; Clapp 2004; Ajani 2007; Reed 2007; Le Billon 2008; Roth 2008; Peluso and Vandergeest 2011). Indeed, in the 1980s and 1990s these conflicts became deeply entrenched, featuring apparently implacable foes representing economic and environmental interests with seemingly little if any common ground. In BC, an antilogging protest in 1993 seeking to preserve the remaining old-growth forests at Clayoquot Sound resulted in the largest mass arrest in Canadian history. This protest was immediately followed by a massive demonstration of forest workers in a nearby community wishing to save their jobs (Wilson 1998; Stanbury 2000). These protests were themselves part of a sequence of escalating "valley by valley" conflicts in southwestern BC that culminated in attention to the central coast, the world's largest remaining region of relatively intact temperate rainforest. The name used in the title—the Great Bear Rainforest—was itself chosen by environmental nongovernmental organizations (ENGOs) for this region to be both evocative and provocative (McAllister, McAllister, and Young 1997). Yet, after years of struggle, bitter opposition, and a legacy of distrust, agreement was reached on new conservation maps for the central coast. This article attempts to explain how that agreement emerged.

Its specific objective is to understand the remapping of BC's central coast as a process of environmental bargaining that evolved over two decades. This process was shaped by the creation of new institutions, first to negotiate and eventually to resolve the conflict. In this study, remapping is used as an umbrella term for two closely related processes: first, the specific changes to land use designations and zoning regulations, built on techniques of assembling, analyzing, and representing

geospatial data; and second, the broadly based, profound changes in resource valuations reflected in land use plans in which land uses shift from an industrial and commodity base to incorporate environmental and nonconsumptive uses.

This shift in values is worked out through environmental bargaining, a process that engages a diverse range of actors and agencies, including multiple levels of government and related legal systems, different types of businesses and employment interests, communities, First Nations, and ENGOs. In this article we focus on two institutions that are sometimes neglected in stakeholder models of regional development: ENGOs and scientific boundary organizations. ENGOs have become common, even ubiquitous, actors in environmental governance from the local to the global level. Relationships between contemporary globalization and the increasing institutional complexity of environmental governance are not coincidental. The recognition that environmental problems were truly global came in the second half of the twentieth century, and environmental legislation has proliferated at every level of government. ENGOs have emerged as a new institutional voice of environmental imperatives, empowered by communication techniques that are themselves global. At the same time, environmental challenges and forms of environmental management vary among regions; indeed, they can be site specific, distinguished by particular local–global dynamics (O'Riordan 2001; Reed 2007).

Environmental bargaining is conducted through assertions about the properties of landscapes and ecosystems using the language and representations of science. Science frames the proposals that actors debate and generates the components of the solutions on which the parties ultimately compromise. Although industry, government, and ENGOs have long employed scientists and other specialists to further their arguments (e.g., Willems-Braun 1997; Krimsky 2003; Prudham 2003), boundary organizations, for example, in the form of scientific advisory bodies, seek to demarcate science from politics and thereby to establish empirical foundations for debate that are acceptable and credible to all parties (Guston 2001; Forsyth 2003; Goldman 2009). As such, boundary organizations are scientific institutions that evaluate alternative scenarios, advise decision makers, and mediate among multiple interest groups.

Empirically, the article provides an anatomy of the bargaining processes leading to the Great Bear Rainforest agreement. It draws directly from forest policy documents, records of the formal negotiations, analyses of the region's ecological values and socioeconomic structure, and other records and reviews of the extended process. Indirectly, it draws from field investigations in the region by each of the authors that have focused on ENGO activities, local community agencies, industrial firms, and the longevity of the underlying conflicts (Hayter 2000, 2003; Clapp 2004; Affolderbach 2008, 2011; Clapp and Mortenson 2011, Hayter and Barnes 2012). This article, however, is focused on the development of environmental policy through a bargaining approach to conflict resolution that emphasizes the roles of bargainers, brokers, and boundary organizations.

Globalization, Environmental Governance, and ENGOs

A progressive relationship between globalization and environmental governance might seem counterintuitive. After all, in recent decades globalization has been defined by the rise of neoliberalism or at least by a growing faith in markets in allocating resources; industrialization has spread to all corners of the world, by no means least to China and India; and multinational corporations (MNCs) seem to be ever more geographically mobile. Further, the cumulative impacts of global environmental degradation and climate change will continue for decades regardless of policy paths taken (Zickfeld et al. 2009). Yet globalization has witnessed increased environmental legislation from local to global scales, growing social responsibility for environmental values, and the rise of a significant sector of nongovernmental organizations committed to sustaining and preserving the environment (O'Riordan 1976; Soyez 2000; Mol 2003; Zimmerer 2006). The intervention and legislation taken so far might be inadequate to resolve global environmental problems, but the greening of business, consumer behavior, research and development, and public policy has begun and is intensifying. The expansion of conservation areas that withdraw significant areas from commodity extraction is at the heart of remapping processes, and the spread of spatial conservation strategies is a neglected component of globalization generally. The remapping of territory toward environmental values, policies, and conventions is conducted through decision-making institutions and related communication channels that are sensitive to environmental concerns. The emergence of this enriched form of environmental governance is not a mechanical or

even inevitable process. Rather, such shifts are highly contested.

In the context of nature–society studies, stakeholder models provide an institutional representation of the conduct of environmental governance in situations characterized by conflict. Stakeholder models are specifically relevant to pluralistic, democratic societies where alternative views and grassroots or bottom-up approaches to changing laws, rights, and conventions of acceptable behavior are tolerated and encouraged, even if such challenges are controversial. Stakeholder models directly address questions concerning the definition of stakeholders and their relative importance, the weighting of an increasingly broad range of economic and noneconomic values, and the processes through which decisions are made, with respect to forms of communication, adjudication, negotiation, arbitration, rights of appeal, and enforcement. In general, problems of environmental governance are extraordinarily difficult because they involve noneconomic considerations that are impossible to quantify, vary from place to place according to both the biophysical and cultural properties of the resources and landscapes in question, and cannot be separated from questions of ethics, morality, long time horizons, and diverse values. In seeking to represent problems of environmental governance in terms of conflicting institutional interests, stakeholder models hope to provide a basis for policy resolution. Boundary organizations are an institutional innovation designed to integrate diverse values among stakeholders to help reduce conflicts and to promote more cooperative problem-solving behavior.

Stakeholder models have long been used as a conceptual starting point for understanding conflicts in resource peripheries in terms of clashes of institutional interests. At a generalized level, resource conflicts in the contemporary period of globalization can be contextualized by a four-legged stakeholder model that stresses interactions among differing industrial, political, environmental, and cultural institutions (Figure 1). Resource industries are distinctly embedded in nature, and their restructuring is subject to resource cycle

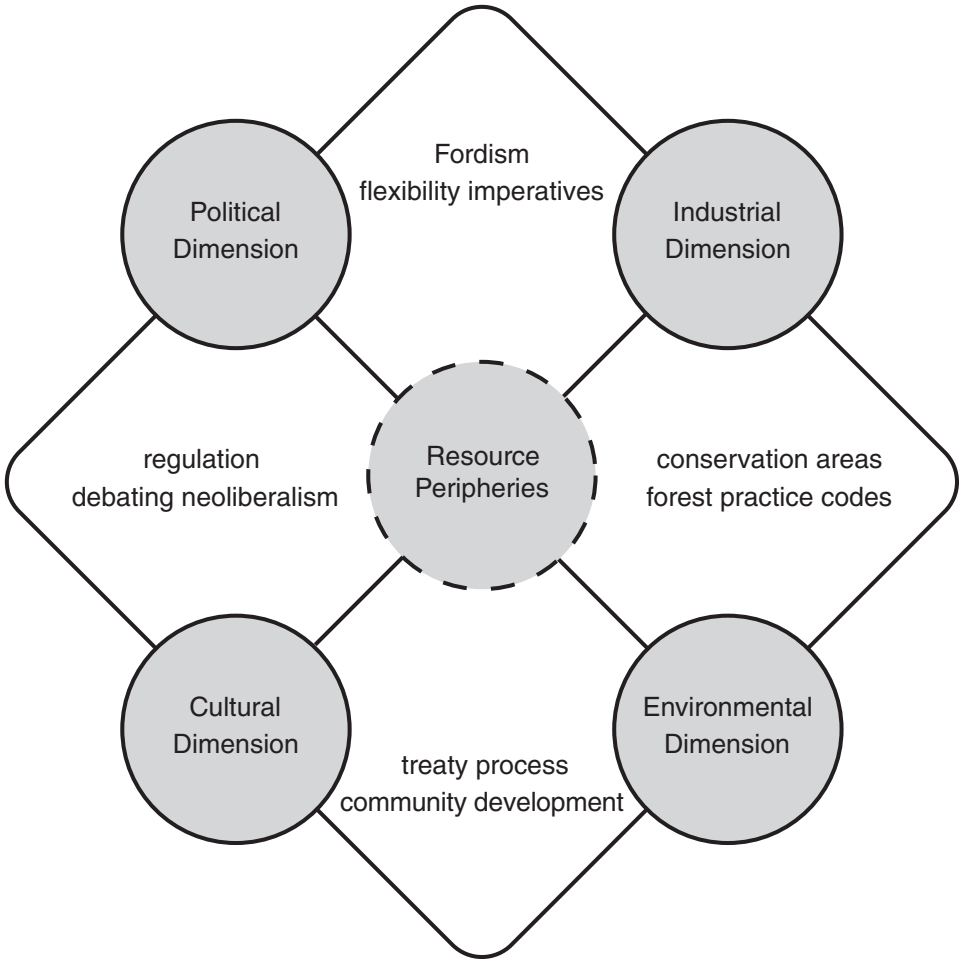

Figure 1. Four-legged stakeholder model.

dynamics in which the best, most accessible resources are used first and depletion is a threat even for renewable resources. Governments in resource peripheries are challenged to extract full value from resource exports, either as taxes, royalties, or forward and backward linkages, because of high levels of global competition in commodity industries, unfair trading relations with core countries, foreign ownership, and distance from markets. Moreover, the industrial and nonindustrial values of resources are socially defined, subject not only to technological but also attitudinal change. Indeed, society's emphasis on the nonindustrial values of resources has been a key trend of the last forty years that in turn underlies demands for greater efficiency, sustainability, biodiversity, and reduced pollution. ENGOs have provided a formal and forceful voice to these changing attitudes, and the sites of resource exploitation in resource peripheries have been priority targets for ENGO opposition. Finally, as the homes of surviving aboriginal cultures, resource peripheries are sites of the assertion of aboriginal rights and title that, contrary to the 1960s' expectations of assimilation, have not been extinguished but expanded with globalization. Aboriginalism is not to be conflated with environmentalism, but these institutional voices are connected, frequently jointly oppose vested industrial interests, and add to the complexity of remapping and environmental bargaining.

The particular mixes, interactions, and global–local dynamics of economic, political, environmental, and cultural institutions vary over time as well as space (O'Riordan 2001). Reed (2007), for example, interpreted regional variations in environmental management regimes, defined by the informal and formal institutions that underlie environmental attitudes, behavior, and policies, in terms of regional economies, regional environments, institutional capacity, and cultural change and continuity. Moreover, external and globalizing influences themselves can be regionally discriminating. For example, since the 1980s American introduction of tariffs and quotas on softwood lumber imports only targeted Canada, and especially BC. More generally, global institutions, ranging from MNCs to the World Bank to big ENGOs like Greenpeace, develop strategies that target particular places at particular times.

Environmental bargaining describes the strategic interactions and power struggles that underlie and shape remapping processes that seek to enhance environmental values (Affolderbach 2008, 2011). The proliferation of ENGOs, and of associated resource conflicts, has been driven by the scale and scope of resource exploitation during Fordism, the maturation of resource cycles and impending depletion of resources once thought inexhaustible, and the recognition of the globalization of environmental problems (Clapp 1998; Hayter 2003). ENGOs act both locally and globally (Barker and Soyez 1994) and have become embedded in decision-making forums. By shaping social attitudes and government agendas, and coopting other interest groups to enhance environmental values, they readily move across spatial scales (Miller and Martin 2000). Beginning in the early 1970s, professionalized ENGOs emerged as a major segment of the nonprofit sector as an integral part of globalization.

Based on moral and social power, ENGOs have provided the environment or what they consider to be the environment, globally and locally, with institutional voices to promote environmental values (Princen and Finger 1994; Bryant 2005). Their legitimacy rests on their single-minded focus on environmental values that are deemed important by society in general. Yet, ENGOs have been criticized for autocratic and paternalistic attitudes and for seeking to impose urban and urbane values on rural folk, underlined by opposition to resource activities, such as fishing, mining, logging, and oil drilling (Barton 2002; Wilshusen et al. 2002; Chapin 2004). One major focus of ENGOs has been preventing resource-based developments, or at least modifying resource bargains traditionally dominated by negotiations between governments and business. If resource conflicts are highly varied and complex around the globe, the environmental implications of commodity exports are typically a core concern, and their ability to hinder and sometimes to block those exports makes ENGOs key players in the bargaining process. Their interventions take place at scales from global discussions, such as the Kyoto Protocol, to local initiatives that seek to protect a particular site or habitat. In these committees and forums, ENGOs function formally as members or informally as highly proximate watchdogs or behind-the-scenes facilitators and persuaders (O'Riordan 1976; Mol 2000).

ENGOs could be seen as part of a "shadow state," performing functions on behalf of governments (Wolch 1990). Such a view, however, underestimates ENGO influence. A more proactive interpretation conceptualizes ENGOs as a "fourth estate" of independent institutions seeking to influence government policy as well as business and consumer behavior (Ballard and Banks 2003). ENGOs lack the legislative and democratic authority of government, as well as the ability to raise money through taxes, but they are not limited by

territorially defined mandates or constrained to balance the demands of multiple constituencies. As adversaries of big business, ENGOs share common ground with labor, and alliances have sometimes been formed; for example, in protests during recessions when labor is made redundant even as resources continue to be exploited. Labor, however, might or might not accept ENGO claims that ecological sustainability is a prerequisite for sustainable jobs, and sustained cooperation has proven problematic. ENGO tactics have contributed to a belief that economy and environment are zero-sum games, but particularly in recent years, ENGOs have increasingly demonstrated a willingness to cooperate with business, usually on a project basis (Mol 2000); for example, with respect to certification and eco-labeling and in projects such as Greenpeace's Greenfreeze campaign (Falkner 2008).

In Ballard and Banks's (2003) stakeholder model, in which ENGOs are interpreted as a fourth estate, MNCs and labor (government and community are the other two stakeholders) are combined to recognize that although they are adversaries, they need each other and have mutual interests in maintaining the viability of industrial operations. At the risk of oversimplification, from a bargaining perspective, the starting positions of labor–management relations and ENGO–management relations differ in the existence or absence of common ground. For ENGOs, whether a particular industry fails is not of direct consequence; it might even be considered desirable. For its part, labor is a market institution that seeks to provide jobs and obtain as big a share as possible of the economic pie generated; labor's rewards usually increase with the size of this pie. ENGOs, on the other hand, are nonmarket institutions that are not directly interested in the size of economic pies or shares in them. Rather, they want a different kind of environmental pie. For bargaining to occur between ENGOs and business, there has to be some kind of mechanism or incentive to create overlapping areas of mutual interest.

There are reasons to be optimistic about a shift toward mutual cooperation between ENGOs and business. First, the general environmental claim that the economy depends on a sustainable environment is recursive; if people cannot work or enjoy the benefits of a functioning economy, there is likely to be little interest in saving the environment. There is also growing understanding, including among many ENGOs, that positive-sum solutions between economy and environment are possible and indeed are urgently needed under current threats of global climate change (Hayter 2008). Second, ENGOs' power derives from their ability to shape public attitudes. Although an urbane public might not be too concerned about the loss of jobs in peripheries, there might be frustration with ENGOs that remain stridently negative or excessively narrowly focused. Moreover, there is considerable weight of judgment and evidence in the regional development literature (Patchell 1996; Storper 1997) and in ecological economics (Ostrom 2009) that community welfare, competitiveness, and sustainability are enhanced by cooperative behavior and that excessive conflict loses the benefits of external economies while creating uncertainty over outcomes and reducing the willingness of firms and individuals to undertake long-term investments. The growing role of ENGOs in integrated resource management is a policy expression of this cooperation and the emergence of scientific advisory committees and other boundary organizations are examples of their engagement.

Remapping Resource Peripheries

Resource conflicts and environmental bargaining are frequently intense, deeply felt, prolonged, and complex struggles (Wilson 1998; Affolderbach 2008, 2011; Widick 2009). They involve a wide range of different actors with different goals and attitudes; they seek to redress a wide range of economic and noneconomic values and the latter are especially hard to quantify; deadlines might have little meaning for key actors; ENGOs themselves are single minded, and many require conflicts to sustain themselves from a funding perspective; and debates about remapping are fundamentally normative and moralistic, involving difficult issues related to environmental and cultural justice (Sachs and Santarius 2007; Schlosberg 2007). Crucially, for resource producers, remapping undermines resource tenure, and the associated legal sanctity of property rights, supposedly essential for markets and business to perform effectively and for regional development as conventionally conceived.

Remapping is also contentious because it threatens vested interests. Thus, remapping reassigns resource tenures, or reterritorialization (Brogden and Greenberg 2003), and impinges on the broader questions of property rights, democratic control, and the meaning of sustainable development. Remapping is driven by prescriptions for alternative regional land use plans based on new scientific information and on new names and norms that imply new forms of restructuring and regional development. Such prescriptions require more complex institutional arrangements and institutional

thickening for good and bad, with respect to both processes and outcomes.

The process of remapping often extends beyond the establishment of conservation areas. It is recognized in both the theory and practice of environmental planning that there are limitations to the creation, maintenance, and efficacy of conservation areas (Hazen and Harris 2007; Goldman 2009; Lockwood 2010). There are relatively few places where human encroachment has not occurred and wild populations are not seriously threatened, and conservation often implies take-backs from vested interests and removals from consideration of interests that seek to vest. To be effective, remapping has to be very large-scale for reasons of ecological integrity. Climate change and changing disturbance regimes further complicate remapping exercises (Noss 2001). Mental models of pristine parks and uninhabited wilderness are often a poor fit for zones contemplated for protection in the twenty-first century (Cronon 1995). For example, the Great Bear Rainforest, although heavily forested and lightly disturbed by human impacts, has been settled by human societies for at least 9,000 years, one of the earliest records of human occupation of any region in the Americas (Suttles and Ames 1997). More adaptive models of protection within larger regional contexts will be needed to assure the resilience of protected areas—as well as industrial areas—in response to global environmental change.

In the context of resource peripheries, remapping processes seek to redefine resource values, allocations, and rights. Remapping is a reexamination of the assumptions embodied in the existing map, especially assumptions about the values of nature, the purpose of resources, and the extent and longevity of human occupation (Clapp 2004). Among New World countries, the establishment of formal property rights following settlement and colonization could be regarded as a first mapping of resources that typically featured their incorporation within the market system, or commodification. From this perspective, contemporary resource conflicts and environmental bargaining are attempts to remap a colonial map that was legitimized by legally sanctioned property rights and the assumption of terra nullius. By implication, remapping casts doubt on government autonomy, established laws, and dominant conventions and blurs the lines among legal, political, and scientific debate. Furthermore, the bargaining processes are conducted using a currency of land use designations and regulations, such as quantitative restrictions on logging practices. The complex compromises required for win–win solutions depend on environmental data and models that are themselves constructed in conditions of conflict. Conflict resolution often requires institutional innovation to establish the basis for agreement. Boundary organizations are examples of such innovation.

Environmental Bargaining and Boundary Organizations

Whereas bargaining parties in conventional bargains between MNCs and governments (Kobrin 1987) or business and labor (Holmes 2004) have mutual interests to settle, such as the interest in maintaining economic activity in the long term, ENGOs do not have this commitment. Moreover, they lack traditional bargaining power based on property rights, profits, or territory. Rather, their power consists of refusal and prevention of economic activity with few or no assets of their own to lose. Although ENGOs and other neglected interests initiate bargains to redress injustices and remap the uses and allocations of natural resources, there is no assurance that the outcomes of the bargaining will be socially optimal or that they will lead to regional resilience. Indeed, the bargains emerging from remapping reflect the interests represented at the table, denying to the excluded the chance to shape or veto decisions.

Environmental bargaining can be formal or informal (Figure 2). Formal bargaining follows established rules and takes place where bargaining parties mutually recognize each other's stake; for example, at planning tables, round tables, and in comanagement. Informal bargaining, on the contrary, takes place outside of formal negotiation processes driven by excluded and marginalized interests. These oppositions seek alternative ways to influence decision making; for example, through direct action or by lobbying politicians and the public; by initiating boycotts and legal action; and through the mobilization of environmental science to challenge the authority, legitimacy, and sustainability of claims made by government and industry. Informal bargaining frequently involves various spatial scales simultaneously or successively. As such, environmental bargaining does not necessarily deliver outcomes through agreement but often resolves conflicts—or sometimes continues them indefinitely—in the absence of agreement between opposing interests.

In informal bargaining, ENGOs, industry, and government each deploy science and scientists as advocates defending their interests. Defusing the adversarial form of science is often achieved by constructing an institutional nexus that formally links ENGOs, industry,

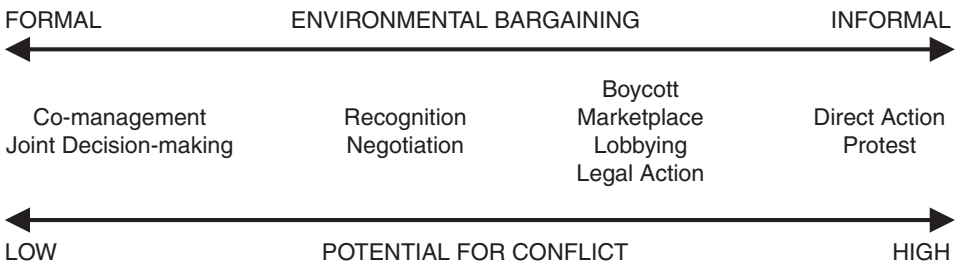

Figure 2. Bargaining spectrum.

governments, and other parties in trying to separate scientific from political claims. Resource peripheries are often extensive and ecologically complex with little known aside from their commodity values. Getting from informal to formal bargaining requires an information base that is scientifically credible and politically acceptable to each of the bargainers. A common and shared knowledge base allows different remapping scenarios to be evaluated and different environmental values to be compared over space, and establishing such a foundation is a key step in creating common ground for a collaborative resolution.

Establishing the knowledge base commonly requires a boundary organization—an institutional structure for science to make it transparent and useful and to distinguish the political debates from the scientific ones. Boundary organizations often take the form of scientific advisory bodies or data collection and monitoring agencies, institutions in which environmental science and politics are coproduced (Guston 2001; Forsyth 2003). They attempt to realize the injunctions of common property theory that effective governance requires "informational systems that simultaneously meet high scientific standards and serve ongoing needs of decision makers and users" (Dietz, Ostrom, and Stern 2003, 1908) and, in doing so, they place science in a central support role in sustainable development strategies (Cash et al. 2003).

A key feature of boundary organizations is a pluralist model of science that does not promise to achieve scientific consensus or dictate a "science-based" solution but instead serves to mediate debate and structure information flow to the negotiators who seek a political solution. This process-oriented model of the institutional role of science in planning and politics is consistent with Jasanoff's observation that in environmental planning, science rarely exists at the scale and detail needed for decision making, so expertise must usually be constructed rather than found. In turn, this construction requires that science be understood as "a mini-republic of ideas, in which trustworthy governance requires a multiplicity of views to be represented" (Jasanoff 2003, 161). It is also consistent with Pielke's (2007) call for science to play the role of the honest broker of policy options, in which scientists are not assumed to be impartial or disinterested but more capable of becoming so when diverse views are explicitly included. Indeed, the institutional model assumes the opposite—that scientists working for or with industrial or ENGO interests will be motivated by strong normative interests (Frickel 2004) and that those interests should be represented within a boundary organization, counterbalanced by experts of opposing interests, as well as those aspiring to objectivity (Clapp and Mortenson 2011).

As collectors and analysts of data, boundary organizations are subordinate to political decision makers, but their work usually defines the key indicators for evaluation and the resulting policy options (White, Corley, and White 2008). Boundary organizations further promote the creation and use of boundary objects—systems for constructing and sharing information that are sufficiently pliable to allow groups with different interests to work cooperatively. These systems have a recognizable common structure to which different, even opposed, meanings can be attached by different participants. Star and Griesemer (1989) identify a variety of artifacts and systems that can serve as boundary objects: repositories like museum collections that are indexed in a standardized fashion; ideal types or conceptualizations like a species; and standardized forms. Their fourth type, maps with coincident boundaries that can contain a variety of layers and types of information, is especially important for remapping, as different layers can coexist in the same geographic information systems (GIS) without necessarily agreeing with each other (Harvey and Chrisman 1998).

The Great Bear Rainforest, located on BC's central and north coast (Figure 3), shows several ways in which formal bargaining can occur despite the clashing visions of the negotiating parties that bear considerable potential for conflict. In particular, it demonstrates the role that boundary objects and organizations can play in

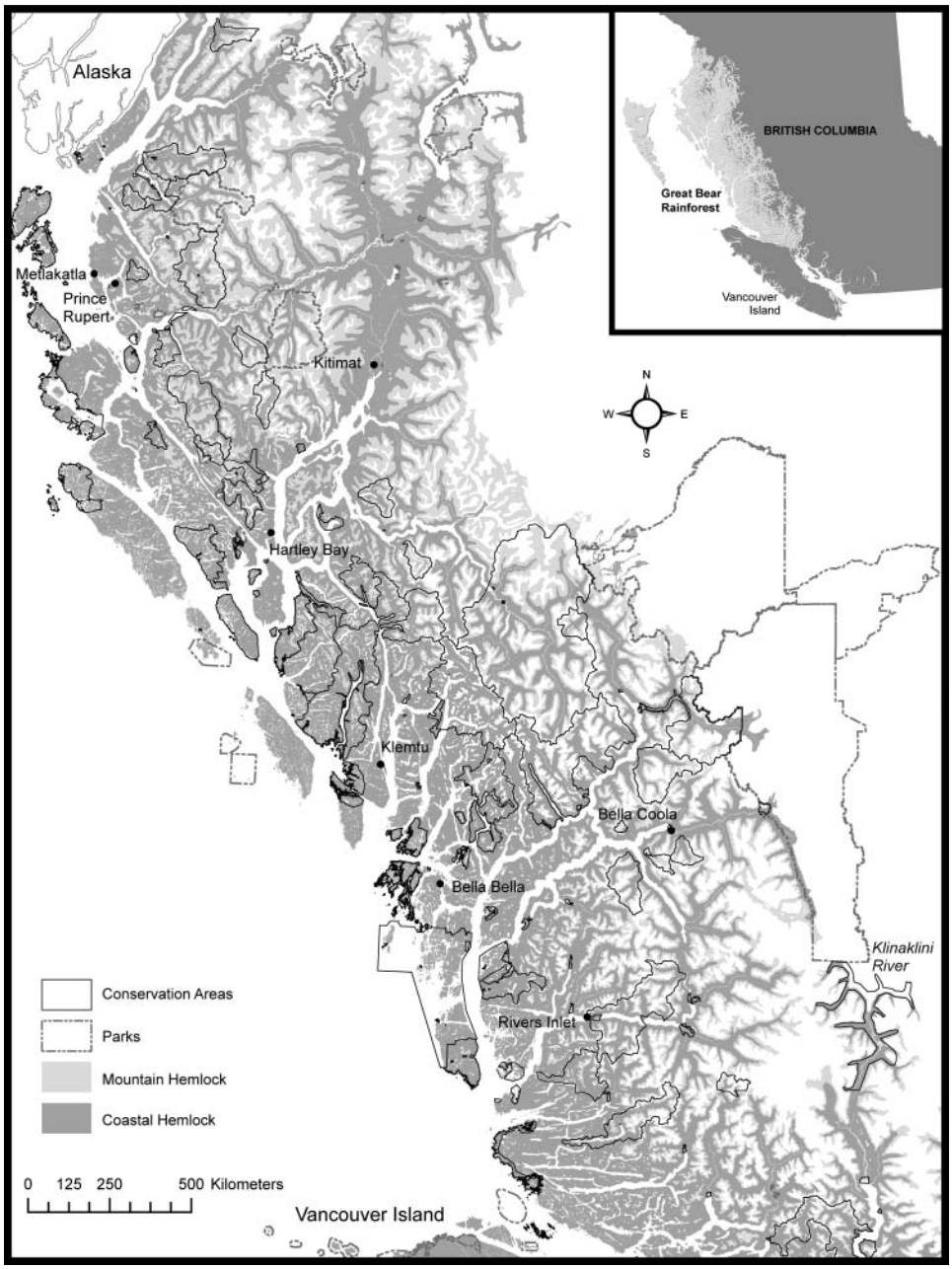

Figure 3. The Great Bear Rainforest. Cartography: John Ng.

supporting productive negotiations by creating a common currency of "bargaining chips" to facilitate comparison, compromise, and exchange between opposing interests. The construction of a shared database, mutually agreed on and mutually funded, created mutually recognized and measurable units of the environment, including the assurance that the complicated compromises constructed in win–win scenarios could be implemented once agreement was finally reached.

Remapping British Columbia's Central Coast

British Columbia's coastal forests have been the scenes of environmental conflict for decades (Wilson 1998; Satterfield 2002). From Canada's largest civil disobedience protests in Clayoquot Sound in 1993, to international market campaigns against products from old-growth forests, ENGO tactics have taken many

forms but always create a spectacle. In some respects the conflict is inevitable. BC's central coast is one of the last mostly intact regions of old-growth temperate rainforest left in the world, after the industry's wave of expansion up the Pacific Coast from the coastal redwoods (*Sequoia sempervirens*) of California through the Douglas-fir (*Pseudotsuga menziesii*) forests of Oregon, Washington, and BC. The central coast contains most of the province's remaining stands of giant western red cedar (*Thuja plicata*), as well as extensive stands dominated by western hemlock (*Tsuga heterophylla*). Environmentalists' passion for old-growth forest ecosystems and the timber industry's desire for trees of great size, durability, and wood quality are directly opposed. Both parties have seen old-growth forests as vanishing resources and struggle over each valley, exhibiting the tenacity of antagonists in a lose–lose scenario. For many years common ground has been hard to find, except as battleground.

It is hard to overestimate the challenge facing the remapping of BC's forests or the differences between the new emerging map and the one that developed with the onset of industrialization in BC in the nineteenth century and underwrote Fordism throughout the twentieth century. Forest policy was equated with industrial policy, but the speculative frenzy and destructive nature of early logging practices forced the provincial government to establish in 1909 a Royal Commission to inquire into BC's forestry. The subsequent Forest Act of 1912 affirmed industrial priorities over the timber resource, although further sales of forest resources were stopped, and licensing arrangements were largely put on hold. Following a second Royal Commission in 1945, the 1912 Forest Act was amended in 1947 and the provincial government introduced new forms of long-term timber leasing and licensing arrangements, and other regulations, specifically to stimulate the development of large-scale, export-oriented integrated industrial forestry throughout the province (Marchak 1983; Prudham 2007). A third Royal Commission in 1956 blessed these arrangements, and a fourth in 1975 led to a new Forest Act of 1978 that modified rather than radically changed forestry practices (Schwindt 1979). In Wilson's (1998, 79) terminology, from the 1940s to the 1980s forest policy was based on a "liquidation model" and organized by a closely knit "wood exploitation alliance" between the ministry of forests and big business, tacitly supported by union labor.

This model and alliance began to fall apart in the deep-seated recession of the early 1980s and the rise of various conflicts, often labeled "wars in the woods," led by ENGOs, aboriginal peoples, and U.S. protectionist interests, that demanded radical changes to BC's forest policies. In response, a battery of legislation by the provincial government, and by the federal government especially in relation to trade, has profoundly changed forest policy and policymaking in BC. The nonindustrial values of forests have been given much higher priority and the narrow, secretive alliance between government and business has been replaced by more pluralistic approaches (Hayter and Barnes forthcoming). Within BC the change in policy thinking was signaled in particular by the Protected Area Strategy (1993), the Forest Practices Code (1995), the Commission on Resources and Environment (1993), and the Land Resource Management Plans (LRMPs) that the Commission initiated. Collectively, these laws, plans, and processes constitute a fundamental reregulation of forest policy based on a multistakeholder model of decision making. The creation of the Great Bear Rainforest agreement is part of this transformation.

The model of environmental planning that the provincial government pursued for the central coast aimed to move beyond the hostility built up during the wars in the woods. Delegation of provincial powers to stakeholders was expected to make it more likely that the participants would reach agreement, the process would produce better decisions, and greater stakeholder buy-in would improve implementation of the decisions and contribute to the generation of social capital (Day and Gunton 2003; McGee, Cullen, and Gunton 2010). The Central Coast Land and Resource Management Plan (CCLRMP), established by the provincial government in 1996, recognized many different interests. Industrial resource users included major forest companies, small business forestry, and energy and mining. Non- (or less-) consumptive sectors like terrestrial conservation, tourism, and recreation were also represented, along with labor, local communities, the provincial government, and five First Nations. Each had formal representation and a voice at the negotiating table (Mortenson 2005).

The interest-based stakeholder model alone did not resolve the conflict, but it did formalize the hitherto informal bargaining, moving the disputes over environmental values from the media and market campaigns into formal negotiations where stakeholders could make their arguments to each other rather than to the public. Competing claims to knowledge exacerbated the negotiations as much as they informed it, however, exemplifying Houck's (2003, 1927) dictum that "the higher the stakes, the more contested the science. The

problem was not information, it was closure." Government and industry were no longer the sole suppliers of information brought to the CCLRMP table, as ENGOs challenged the government's claims by producing alternative maps, including a full Conservation Area Design proposal (Jeo, Sanjayan, and Sizemore 1999). First Nations in the central coast also produced their own maps. One Heiltsuk leader observed that court decisions, an increasing awareness of aboriginal rights, and global attention on the central coast made it a critical time for the First Nations to create their own formal land use plans (Brown 2003). Maps are used to assert and defend claims to natural resources, traditional knowledge, and the mantle of sustainability, and public meetings were dominated, and sometimes derailed, by the spectacle of dueling GIS (Clapp and Mortenson 2011).

The multisector negotiations were so contentious that a bilateral initiative between industry and ENGOs was needed to break the impasse. The Joint Solutions Project was a bilateral collaborative initiative among four forest companies—Interfor, Norske Canada, Western Forest Products, and Weyerhaeuser—and four ENGOs—Forest Ethics, Greenpeace, Rainforest Action Network, and the Sierra Club of BC. In March 2000, the Joint Solutions Project agreed that the ENGOs would suspend the international market campaigns that had brought global attention to the central coast, and the companies would defer logging in thirty watersheds critical for conservation. The bilateral accord broke the deadlock in the multisector negotiations, and all parties agreed on a regional land use map and a commitment to apply ecosystem-based management (EBM) in the Great Bear Rainforest.

The negotiators reached an interim agreement in 2001 at the end of the provincial government's term in office. In one of its last acts before being replaced by the Liberal opposition, the NDP government accepted the interim agreement and established the terms for a second round of negotiations that lasted from 2001 to 2003. For this second phase, the CCLRMP developed an institutional framework for moving beyond a battle of the sciences: the Coast Information Team (CIT) of scientists, a boundary organization separate from the negotiating table. The CIT itself was multisector, with government, the forest companies, and the ENGOs each represented on both the working groups and the management team. Separating specialists' disputes over data quality and interpretation from negotiations over values promoted both processes. Conflict over the science did not cease in Phase II (2001–2003), but its relocation to the CIT meant that it no longer paralyzed the broader process as it had in Phase I (1997–2001).

Bargain 1: Land-use zoning at multiple scales

33% of the central coast was designated as protected areas.

Grizzly bear management zones encompass multiple watersheds and protected areas.

Visual quality zones were established along the Inside Passage and around tourist sites.

Bargain 2: Ecosystem based management

EBM regulates land use and logging intensity in the matrix.

EBM establishes goals and objectives for ecosystem representation at multiple scales.

Some higher risk activities are permitted as long as low risk is maintained at larger scales.

Target definitions and retention levels were established in negotiations where bargainers could split the difference in order to reach agreement.

Bargain 3: Conservation financing

A Coast Opportunities Fund of C$120 million supported conservation-based development in local communities, funded jointly by philanthropic foundations and the provincial and federal governments.

The Coast Information Team had multi-party funding and management.

Figure 4. Formal bargains in the Great Bear Rainforest. EBM = ecosystem-based management.

A key contribution of the CIT was the development of a single, shared, and authoritative data set to avoid dueling GIS presentations derived from conflicting databases. The result was a twenty-four-layer GIS to support the CIT's analyses of different land use scenarios. Overlays of ecosystem types and timber resources helped the negotiators evaluate proposed protected areas for the volume, value, and accessibility of their timber as well as their ecological rarity and value for landscape connectivity. GIS provided a currency—watersheds of varying economic and ecological value and proportions of protection—that allowed ENGOs and industry to bargain. Figure 4 summarizes those bargains, and the following sections describe them in detail.

Bargain 1: Land Use Zoning at Multiple Scales

Constructing win–win compromises requires confidence in information, both to split the difference during bargaining and to reassure the bargainers that compliance with their agreements can be verified during

implementation. The resulting land use map embodies those compromises (Figure 3). Formal protected areas, often the central demand of ENGOs, are one of the outcomes of most regional environmental planning processes. In the Great Bear Rainforest planning area, encompassing the central and north coasts of British Columbia, 107 new parks or conservancies were established, and protected areas reached 28 percent of the land base (McGee, Cullen, and Gunton 2010). An additional 7 percent was placed in biodiversity areas, where mining but not forestry will be allowed. Some of the conservancies are small in area, protecting highly productive habitat like estuaries; others take in entire watersheds from ice fields to salt water. The remaining 65 percent of the land base is open to extractive resource use under EBM.

The consensus recommended several further land use zones as well—grizzly bear management zones linking multiple watersheds to maximize connectivity for grizzly bear dispersal and visual quality zones along the Inside Passage and around tourist sites. Grizzly bears were considered keystone and umbrella species because of their large home ranges, vulnerability to human impact, and interaction with salmon (Jeo, Sanjayan, and Sizemore 1999). Two Grizzly Bear Management Areas were designated for the central coast, one in the Anuhati River and neighboring valleys, the only remaining cluster of intact watersheds in the heavily logged southern half of the planning area. A second management area was designated in the upper Kimsquit River valley, linked to the adjacent Kitlope Heritage Conservancy by a low-elevation pass frequented by grizzly bears.

Visual management zones emerged from another set of bilateral negotiations, this time between timber and tourism. The tourism sector was concerned that visual quality would not be safeguarded by conventional forest practices, harming existing tourism operations and limiting the potential for growth in marine travel and the small "pocket" cruise ship industry. The solution entailed three zones of visual impacts from forestry operations, in an effort to maintain the illusion of wilderness (Mortenson 2005).

Several further compromises are evident in the map (Figure 3). High-elevation parks and wilderness are sometimes dismissed as being of limited habitat value—merely rocks, ice, and an excuse not to protect highly productive lowland ecosystems. The conservancies recommended by the negotiators and established by the province include a range of landscape types and values, from alpine lakes to old-growth forests, often encompassing entire watersheds. Other conservation areas are small but protect highly productive estuaries that provide essential foraging habitat for bears and other large mammals; some other small areas protect scattered remaining patches of old-growth forest in watersheds that have already been logged.

Mitigating the impact of protected areas on potential timber harvests remained a central goal for most of the stakeholders at the negotiating table, and the ultimate recommendations rarely placed high-value timber stands in conservation areas. Low-elevation valleys and floodplains with old-growth forest were of prime interest to both the timber industry and the ENGOs, but even in these most contested areas, some win–win compromises were designed.

One conservation area where the currency of bargaining is apparent can be found in the upper Klinaklini River, a regionally unique transmontane valley that provides low-elevation connectivity between moist maritime ecosystems and their drier interior counterparts. Grizzly bears are known to use the corridor between their interior and coastal habitats (Mortenson 2005). Instead of conserving the entire watershed, the park includes all potential harvestable timber within a protected area. These forests were not economically accessible when negotiations were ongoing in 2003 and thus fell outside the Timber Harvesting Land Base. The alpine reaches of the upper Klinaklini are a conservation territory in reality, if not in law, because the high-elevation areas of the Klinaklini would not be accessed unless roads were first driven through the valley floor. The effect of the agreed shape was to minimize the total area of new parks, meeting a provincial concern, while increasing the protection of low-elevation old-growth forest. The CIT's ecosystem spatial analysis made it possible for each negotiator to compare the effects of different scenarios on timber supply and ecosystem protection at the regional level and for each to maximize the variable of paramount concern. The resulting park was acceptable to the timber industry because road access to the upper valley would have been prohibitively expensive in any outcome, whereas ENGOs valued the precedent of protecting the most productive habitat rather than alpine ridges and ice fields with no pressures for resource extraction.

The impact of conservation on the timber harvest was minimized in several other ways. Several conservancies protect narrow valleys where the costs of road construction exceed the value of the available timber: Hot Springs, SW King Island, Swallup, Nekite, and Tzeo each exceed 20,000 hectares, but less than 10 percent of each falls within the Timber Harvesting Land Base

(Mortenson 2005). In contrast, the lower Klinaklini valley also had high ecological values (Jeo, Sanjayan, and Sizemore 1999) but was never considered for protection because of high timber values, already extensive logging, and easy access for log barges at the head of Knight Inlet.

If these are win–win compromises, it should be noted that bargaining only optimizes the interests of those present at the bargaining table, not necessarily for the broader society. Those not represented at the CCLRMP bargaining table considered the outcome nonoptimal, and debate continued over whether the CCLRMP had selected the right areas for protection. Scientists and ENGOs outside of the participating environmental coalition were critical of the land use proposals and the inadequate inventory of biological diversity beyond a few umbrella species like the grizzly bear (e.g., Wells et al. 2003; Gilbert et al. 2004; Moola et al. 2004; Paquet et al. 2004). Provincial biologists and others criticized the coarse filter approach toward conservation taken by the CCLRMP, with its focus on conservation of large pristine watersheds and consequent exclusion of ecologically productive regions that were modified or fragmented. Gonzales et al. (2003) used the SITES selection algorithm to optimize the inferred goals of the ENGOs and timber companies, producing a map that should in theory preserve more wildlife habitat and old-growth forest and achieve better representation of rare ecosystem types in the central coast than did the 2001 CCLRMP interim solution.

A further problem was the prioritization of ecological and economic over social values. The CIT ecosystem spatial analysis and socioeconomic spatial analysis were supposed to provide the ability to rank watersheds by ecological and economic indexes, but the economic study had not received final approval from the CIT Management Committee by the time that the negotiations ended. Whereas timber companies and ENGOs had the information necessary to make measurable and verifiable bargains, other stakeholders, including communities and labor, did not.

Bargain 2: Ecosystem-Based Management

Ecosystem-based management (EBM) emerged as an early component of the compromise between the timber and conservation sectors in the Joint Solutions Project and was a key component in the 2001 interim agreement that concluded Phase I of the CCLRMP. EBM was vital to the interim agreement because it provided ENGOs with assurance that ecosystem function would be better maintained than in conventional forestry and conversely assured communities that social and economic well-being would be cultivated while promoting conservation. EBM was defined as an integrated set of principles, goals, objectives, and procedures that together seek to ensure the coexistence of healthy, fully functioning ecosystems and human communities (CCLRMP 2004). Ecological integrity and human well-being were considered coequal top-level objectives, each dependent on the other.

Translating social values and evolving ecological science into specific targets and thresholds at multiple scales is a highly complex process in its own right, and the emerging operational framework was correspondingly complex. Like the land use map, EBM is a social agreement mediated by science and technology. EBM sets goals and objectives at multiple scales: at the subregion or territory (500,000–5,000,000 ha), the landscape (30,000–100,000 ha), the watershed (1000–50,000 ha), and, in a few cases, the site (under 250 ha). The CIT ecosystem spatial analysis provided a detailed mapping of ecosystems and enabled their characterization by regional rarity as well as their commodity values and economic accessibility.

The targets developed for EBM rely on risk curves that translate the range of natural variability, defined as "the range of dynamic change in natural systems over historic time periods" (Allen 2005, 10), into benchmarks for developing operational guidelines. The risk-based approach reflects a model of environmental planning that seeks to decide not between right or wrong answers but between higher and lower risk choices. Furthermore, the concept of risk is framed at multiple scales, such that higher risk activities in one location can still allow for ecological integrity as long as low risk is maintained at larger scales. For instance, the target for retention of old-growth forest cover at the landscape level is "50 percent of the natural proportion, provided the average across all landscapes is 70 percent (the subregional target); and at the watershed level 30 percent, provided the average across all watersheds is 50 percent (the landscape level target)" (Allen 2005, 11). Target definitions and retention levels provide an exemplary case of a currency that enables bargainers to split the difference to reach agreement.

At the last two meetings the CCLRMP formally agreed on some critical thresholds for ecosystem representation and operational guidelines. As a sign of commitment and as first steps toward implementation, the forest companies agreed to voluntarily implement

seven key EBM elements for a one-year transitional period, subject to government-to-government negotiations. These include commitments to conserve red-listed habitat, 15 percent retention of trees within cut blocks, conservation of high-value fish habitat, and old seral stage ecosystem representation targets. In the end, detailed commitments to EBM took several years beyond the CCLRMP itself (Price, Roburn, and MacKinnon 2009), but ultimately they were approved by the province and now govern the management of the forest matrix outside the new conservation areas.

Bargain 3: Conservation Financing

The central coast embraces local, regional, and global values, and the stakeholders at the table reflected those values. Certain stakeholders can be characterized as representing local interests (e.g., First Nations or the community representatives), others regional (e.g., tourism or labor), and others, although also reflecting local concerns, are global actors embedded in global markets and media (e.g., major timber and conservation). Combining environmental and social interests requires some recognition that the costs of falldown and protection are borne disproportionately by local interests and should be mitigated by global resources. Conservation financing is a third element beyond land use zoning and EBM that allows for bargaining and becomes part of the resulting social compact for regional development.

Conservation financing refers to money offered by philanthropists, foundations, and conservation investors seeking to promote conservation of biodiversity; for example, through carbon finance, biodiversity offsets, conservation trust funds, and tourism revenues. Along the central coast, conservation financing provided incentives for conservation-based development in local communities, particularly First Nations (Ramsey 2004). These commitments reflected a shift away from an approach of demanding conservation spaces be allocated and government, if anyone, foot the bill. During the market campaigns of the late 1990s and subsequent negotiations, First Nations and local nonnative communities challenged the conservation sector to "put their money where their mouth was. . . . They said, 'if it's true that you can create a new economy based on conservation, we challenge you to actually work with us to do that'" (Ramsey 2004, 2).

Early versions of a Coast Investment and Incentives Initiative proposed that up to C$200 million would be available for capital for business ventures, assistance for First Nations implementation of their land use plans, and building a conservation economy, contingent on achieving 35 percent of the region in protected status and also contingent on matching funds from the provincial and federal governments. This gave ENGOs some leverage in negotiations, but at the same time they were bound to expectations by donor organizations that they had to deliver specific outcomes, and the plan placed 35 percent of the region in protected or biodiversity areas. Ultimately, conservation financing emerged in January 2007 as a Coast Opportunities Fund with C$120 million in capital, C$60 million from philanthropic foundations, and C$30 million each from the provincial and federal governments (Davis 2009). The Coast Opportunities Fund with twenty-seven participating First Nations manages two funds, a long-term Conservation Fund and a short-term Economic Development Fund. The first is a permanent endowment fund of C$56 million designed to ensure ecological integrity of the region. The second administers C$58 million for sustainable businesses and community-based employment opportunities consistent with conservation goals in the project area. Projects approved to date include nontimber forest businesses (e.g., distillation of conifer oil), traditional seafood businesses (e.g., clam gardens), ecotourism (e.g., lodge development), alternate energy development, and financial support for community plans. Whether this conservation financing will generate new forms of sustainable development or is merely of symbolic importance is as yet unclear, and the growing role of international foundations such as the Pew Charitable Trusts merits further research.

There is no doubt that the forest industry has benefited from the new peace in the woods in its improved reputation in global markets, in greater provincial flexibility in permitting the export of raw logs, improved consultation and accommodation with the First Nations, and overall in securing its social license to operate under EBM. Forest Stewardship Council certification has been obtained for coastal pulp and paper (Coast Forest Conservation Initiative 2009), and Tsimshian Forest Resources, a firm owned by the Lax Kw'alaams nation, has won new contracts for hemlock log exports to China, building a market outlet for a low-valued species.

ENGO financial commitment to the CCLRMP can also be seen in the tripartite funding for the CIT. The CIT's initial C$3.3 million budget came from the province (53 percent), the federal government (through Western Economic Diversification Canada; 6 percent), and the ENGOs (18 percent) and forest companies (18 percent) involved in the Joint Solutions Project (Allen

2005). Multiparty funding was intended to ensure that funding would not influence the prioritization or practice of research sought by any one group. The importance of multiparty financing can be judged, at least in part, by the ways in which the CIT failed. Both the ENGOs and the forest sector saw their essential interests reflected in the ecological analysis, which generated rich, multilayered models and representations of the distributions of ecosystems and timber resources. The inability to send an approved socioeconomic analysis to the negotiating table, however, suggests that the information interests of the ENGOs and the forest industry prevailed and that the effects on local communities and labor were last considered and least documented.

Boundary organization theory posits that by stabilizing knowledge, shared data can promote collaboration and reinforce agreements among competing interests. In this case, stabilization of knowledge only extended to spatial and ecological information. The urgency of meeting the provincial deadline, and the broadly shared reluctance to sacrifice the positive-sum solution reached by two formerly irreconcilable antagonists, meant that social and community interests were not considered on an equal evidentiary basis. Although social and community concerns were short-changed in the process of knowledge production, they were addressed in the broader social agreements that emerged from the negotiations. At the same time, the concerns of First Nations were addressed through the institution of government-to-government negotiations that implicitly affirm indigenous sovereignty and strengthen First Nations claims to aboriginal title. The remapping of BC's forests continues.

Conclusion

Environmental bargaining requires collaboration among interests more accustomed to and adept at conflict, so identifying the processes by which this collaboration can be promoted is of central concern. Waddock (1989) identified seven antecedents to the construction of social partnerships: crisis, broker, mandate, common vision, existing networks, leadership, and incentives. The central coast exhibits all of these, and the provincial planning process was designed to promote collaboration by fostering the development of the last four. The Joint Solutions Project was initiated during the stagnation of Phase I and drew on a broker to assist in developing the common vision and mandate fundamental to negotiating resolution. ENGOs had always regarded the logging of old-growth forests as a crisis, and the Great Bear Rainforest market campaigns generated a similar assessment by the forest industry. A broker was found in the formal LRMP negotiations and also in the Joint Solutions Project talks for the participating antagonists. To the degree that conflict between timber and conservation sectors was resolved in the Joint Solutions Project, aspects of the larger conflict over land use in the LRMP were also resolved. The Joint Solutions Project and later the CIT provided the framework for a cooperative and then a collaborative relationship to develop between former antagonists. This was supported by, and fed into, the collaborative foundations of the provincial LRMP processes.

This article points to several further antecedents to collaboration, particularly the establishment of a shared and scientifically credible data foundation for collaboration. Once a broker has established the potential for common ground and parties have agreed to a mandate, some of the scientific questions and resulting technical challenges can be delegated to a boundary organization (Figure 5). Ultimately, the CCLRMP can be successful at reducing conflict to the degree that it is effective at including within remapping all the interests affected by the process. Land use decisions such as protected areas and visual management zones are examples of formal remapping that directly met sector needs. EBM provided another forum for engaging many of the same interests and values within the remapped matrix. Finally, conservation financing explicitly raised the questions of who should bear the costs as well as the benefits of conservation and acknowledged that global interests require global resources.

At a more general level, the recognition of new values and claimants and the restriction of industrial uses reflect a profound reshaping of control and process under the broad heading of crown or public land. The remapping process does not change the underlying state property model—what was crown land remains crown land—but it substantially refashions the tenure arrangements by which different groups access the resource and influence others' access to it. Some of those claims are nonconsumptive, which distinguishes conservation territories from traditional consumptive resources, such as fisheries, grazing allotments, and irrigation water. Furthermore, the matrix designated for timber extraction is spatially reduced, and logging is encumbered by landscape-level ecosystem retention goals where still permitted. Protocols signed with First Nations limit state autonomy to change land uses or accelerate timber harvests. The outcome of remapping has been the

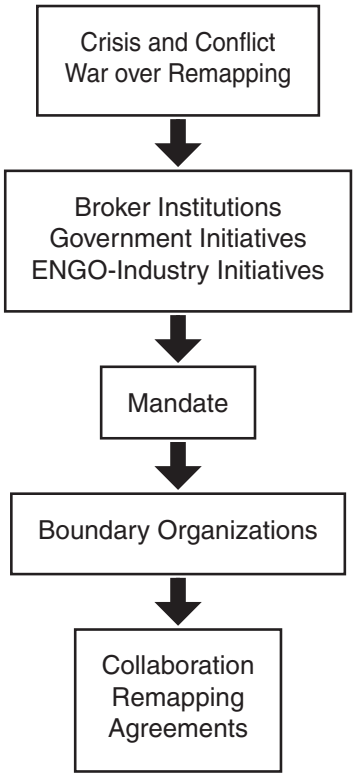

Figure 5. Establishing environmental nongovernmental organization (ENGO)–industry bargains.

recognition and inclusion of a broader community of those with claims on the resource, framed by new criteria to evaluate the consequences of those uses and new institutions to gather the data and implement the results.

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