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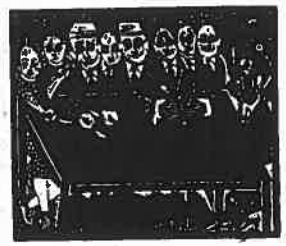
In NATURAL CONNECTIONS: Perspectives in Community-based Conservation

Ed. by David Western and R. Michael Wright
Shirley C. Strum, Assoc. Ed.

DC: Island Press, 1994

# CHAPTER 16



# Tenurial Rights and Community-based Conservation

*Owen J. Lynch and Janis B. Alcorn*

A growing number of conservationists have concluded that secure property rights are essential elements for community-based conservation (CBC) initiatives (Brown and Wyckoff-Baird 1992). According to at least one analyst, it is more important for conservationists to promote recognition or establishment of appropriate property rights in buffer zones and conservation areas than to establish appropriate vegetation structures and land use in buffer zones.

A major challenge for conservationists is to promote tenure incentives in situations where communities have no state-recognized tenurial rights. Conservationists need a solid understanding of the dimensions of tenure (particularly community-based tenure), the existing range of relationships between tenure and conservation, and the procedural challenges that they may face if they choose to pursue strengthening local tenure.

Several of the case studies in this book highlight the relationship between tenurial security and conservation incentives. Only a few (KAKADU, AMBOSELI, and CAMPFIRE) provide any detailed analysis of tenure considerations or explicitly lay out any practical procedures used for addressing them.

Community-based conservation implies that local communities are making management decisions. Communities must have or gain tenurial security in order to make management decisions, either by themselves or as members of decision-making boards that include other stakeholders.

## Community-based Tenure: Some Common Characteristics

Tenure is often misunderstood as defining relationships between people and property; in fact, tenure defines social relations between people. Those with tenurial rights have a certain social status vis-à-vis natural resources in comparison to those without tenurial rights to those resources. In other words, tenure determines

who can (and can't) do what with the property in question and under which circumstances they can (or can't) do it.

Tenurial rights may be held by the state, a corporation, an individual, a nuclear or extended family (clan), a neighborhood, or a community. Terms such as *ownership* and *leasehold* oversimplify the complex nature of rights and relationships. Rights often overlap and invariably encompass spatial, temporal, demographic, and legal dimensions. Tenure specialists acknowledge this complexity when they describe tenure as encompassing a "bundle" of rights and responsibilities. Natural resources rights, for example, may include rights of direct use, rights of indirect economic gain, rights of control, rights of transfer, residual rights, and symbolic rights (Crocombe 1971).

Community-based tenure systems usually include a complex mixture of group and individual property rights. As with state-created property rights, none is absolute or permanently fixed. The distinguishing characteristic of community-based tenure systems is that they draw their primary legitimacy from the community in which they operate and not from the nation-state in which they are located. In other words, local participants, not the national government, are the primary allocators and enforcers of local rights to resources. This is true whether the community-based tenurial system covers areas the state deems to be private or public.

Although community-based tenure systems are extremely variable, complex mixtures of individual and common-property rights, they often share several characteristics. Community-based tenure systems, for example, tend to be flexible and ever evolving. They are more than just a set of rights; they are institutional systems that include processes for establishing and allocating property rights to groups or individuals, including tenurial rights to specific agricultural lands, trees, or other resources within the community's territory. Traditional tenure systems also include conflict-resolution mechanisms and strategies of varying effectiveness for defending the local resource base against incursions by outsiders and resolving intracommunity disputes.

Rights to use or manage a given patch of forest, particularly its trees, wildlife, or water resources, may overlap in a community-based tenure system. As seen in NIGER, seasonal migrants may have forest-access or wildlife-use rights at certain times of the year. Seasonal flooding of agricultural land under individual tenure may create ponds to which the entire community has fishing rights. The rights of pastoralists, foragers, fishers, and peripatetics to move across a given space further demonstrates the complex political nature of group rights over resources (Casimir and Rao 1992).

Community-based tenurial rights and responsibilities can be inherited in complex ways, and bundles of rights often get reorganized in each new generation. For example, an individual's lifelong right to farm a particular piece of land may be returned to his or her community upon death, and the elders may allocate that land to an unrelated person. Rights to protected fruit trees in the forest or to certain



fishing grounds may be allocated to someone else. At the same time, however, people may not think of themselves or of anyone else as having "ownership" in the sense that land can be sold; instead, land is an inalienable part of the community. As a Pacific Melanesian man told John Cordell, "I couldn't sell you my land. That would be like cutting off my arm and selling it to you. It would be of no use to you." Likewise, indigenous peoples commonly say that the land owns the people. These complexities make it difficult for outsiders to fully understand or accurately codify the structure of a given community's tenure system and hence presents a particular challenge for community-based conservation.

Perhaps most important from a conservation perspective, community-based property systems generally evolve with the changing availability of the resource. As a resource becomes scarce, communities often restrict use rights and institute enforcement mechanisms. Local ecological feedback can have an impact on the system. Likewise, community-based systems evolve with changing historical relationships between different communities, including relationships with outsiders (such as conservationists, the military, or commercial buyers). Community-based systems are not operated by "ecologically noble savages" living in harmony with nature (see NEOTROPICAL FORESTS:315), nor by individuals whose best interest is always to seek short-term gain, but by individuals responding to tenurial and other incentives to act in their own best interest and maintain the collective resource base (Berkes 1989; McCay and Acheson 1987; Gadgil and Berkes 1991; Ostrom, Walker, and Gardner 1992).

## Community-based Tenure: Private or Public?

In supporting community-based conservation, it is important to clarify the distinctions between public and private ownership on the one hand and individual and group rights on the other. *Public* is the legal label applied to natural resources owned by the government. *Private* refers to resource rights owned by nonstate entities, whether individually or as groups. Thus as with individual ownership, community-based tenure systems can involve private rights. The second point to be made is that community tenure systems almost always include *both* individual and group (or common-property) rights.

Most tenure theorists, meanwhile, use a different topology that recognizes four basic types of property rights: private, common, state, and open-access (situations in which no property rights or no rules limiting access have been defined). There are two fundamental flaws in this topology. First, private ownership usually is deemed synonymous with individual ownership, when, in fact, group ownership also can be private. Second, the topology virtually requires that community-based tenurial systems that include both individual and group rights must be disentangled and separated before any of these rights can be recognized by the nation-state.

concerned. The very process of separating individual group rights may render the community-based system ineffective. Furthermore, group rights often overlap, and within a given community, there may be several distinct groups.

An alternative classification scheme that has advantages for conceptualizing and implementing improved laws and policies for supporting community-based conservation entails four tenure combinations: private individual, private group, public individual, and public group. Each combination refers to a bundle of rights. Private-group and public-group tenure often include overlapping individual and common-property rights located within the perimeter of a particular area.

While private individual tenurial rights can be legitimized through titles or leases the state grants to legal entities (individuals, corporations, etc.), private-property rights (whether individual or group) need not always be contingent on state grants or documentation. Some private-property rights predate and are independent from the nation-states where they are located; many traditional community-based tenure systems fall within this category.

Property rights are not, and should not, always be contingent on state grants or documentation. More often than not, however, long-established community-based tenurial rights are not recognized by nation-states (Lynch 1990; Siriat et al. 1992). Instead, most national governments promote expansive claims of state ownership and insist that community-based property rights are not legally recognizable unless they are established and documented pursuant to grants from the state. There are exceptions, and some states have recognized preexisting community-based tenurial rights through innovative mechanisms such as the Panamanian semiautonomous *comarca* and the Aboriginal Trust described in KAKADU. Such recognition enables communities to maintain customary law within their "private" territories.

The advantage of private community-based property rights is that there is usually more local control and less governmental regulation than if property rights were deemed "public" and owned by the state. As will be discussed, ineffective government regulation has resulted in a substantial loss of biodiveristy. NORTH YORK MOORS reveals that holders of private-property rights can legally oblige the government "to rely on the agreement and cooperation of the landowners to achieve its land-management aims (290)." They also oblige the government to give better notice and pay compensation before expropriating rights for public purposes. Private rights generally provide the holder with greater bargaining leverage and therefore tend to establish a more durable comanagement structure for sharing both rights and responsibilities between communities and government.

But no property rights, including private ones, are absolute; all property rights located within the boundaries of nation-states are subject to some degree of regulation. The recognition or grant of private rights therefore does not preclude governments from taking steps to ensure that conservation objectives are being met by the holders of these rights and from intervening when they are not. Zoning laws



are a prime example of this governmental prerogative. In some instances, forest zoning laws, wildlife laws, and other restrictive policies can assist communities in achieving conservation objectives.

How tenure is officially classified depends in large measure on the state's interest in the resources in question. In most developing countries, large areas (including areas gazetted as forest land), water, and mineral resources are deemed by the nation-state to be "public." Communities living within these areas, by contrast, often consider the natural resources within their locales to be "private." More often than not, however, nation-states do not recognize such community-based tenurial rights. Instead, most national governments promote expansive claims of state ownership and insist that local property rights—whether group or individual—are not legally cognizable unless they are established pursuant to documented grants from the state. The conservation issue is whether these state claims of ownership promote or weaken the conservation of resources.

Finally, the difference between what is legally or formally the case and what actually occurs on the ground should be recognized. While forest or other natural resources may be owned by the state or by indigenous peoples on paper, the people who live in or use a given area often determine what happens to its resources. The tenurial security necessary for effective community-based conservation does not only mean rights on paper, but also state acceptance and exercise of its responsibility to assist communities in exercising their right to defend their territories and their biodiversity.

## Relationships Between Tenure and Conservation

With these tenurial complexities in mind, what are the general relationships between tenure and conservation? What are the known problems associated with strong, "public" tenure, or "state ownership"? When does strong private, community-based tenurial security contribute to conservation success? What kinds of balances between state and community tenurial rights can have positive impacts? When might private individual titling be viable as a conservation option? Comparison of the conservation effectiveness of public or state tenure versus community tenure is important because these represent the two primary conservation options in areas of relatively high biological diversity.

By briefly assessing states' performance in managing forest, wildlife, and fishery resources under "public" tenure; considering under which range of conditions community-based tenurial security may contribute to reaching conservation objectives (including situations of comanagement as well as situations in which communities have semi-independent status); and briefly considering situations in which conservation ends can be served by granting private individual tenure, we can attempt to answer these questions.

## Conservation Performance under "Public" Tenure

No global assessments of the success of state-owned parks and protected areas exist. The Nature Conservancy's assessment of parks in Latin America found that the ecological integrity of many of the parks surveyed was at risk. An informal survey of knowledgeable field biologists from Latin America, Africa, and Asia yielded the uniform opinion that states everywhere are failing to carry out their full responsibilities to manage biodiversity and in fact may be contributing to its destruction. The status of the world's "public" forest reserves is better studied; rapid deforestation of these forests has been recognized as a global crisis.

Conservation failures under strong public tenure are, in part, the result of factors noted in NEOTROPICAL FORESTS and POLICY: government's tendency to support economic development, its lack of sensitivity to socioeconomic needs and conservation interests, and its lack of resources to monitor resource conditions. In addition, many case studies (see NIGER, AMBOSELI, INDIA) cite widespread evidence to conclude that strong public tenure has failed to support conservation because states have followed colonial patterns of mining natural resources for quick capital to maintain state coffers and the political status of its elites.

Negative impacts on biodiversity have paralleled the erosion of traditional community-based tenurial rights that occur as states impose "public" rights. The most well-documented causal links between loss of tenurial security and biodiversity loss come out of studies seeking the causes behind the loss of the world's tropical forests.

States historically have assumed rights over forests, particularly for revenue generation; these include rights to decide harvest schedules, royalties, who can harvest (timber permits), export tax, and rights to nontimber forest products, etc. (see INDIA, ANNAPURNA). In this process, states generally have ignored customary property rights. In India, for example, the state incrementally overcame local resistance and community-level assertions of rights to manage forests by slowly shifting from granting communities forest "rights" to restricting communities to more limited "usufruct (use) rights" and "privileges," and finally to denying all rights to forest products and other privileges altogether. Local communities fought to retain forest management rights, but over several decades, the state eliminated all community-level tenurial security.

Historical records show that India's forests were biologically rich, despite being used by high populations of people and livestock for thousands of years prior to central control under British colonization. Tribal authorities, local elites, and princes enforced strict local forest management rules through methods including taxes, fines, land-use zoning, required labor commitments, and community forest guards. The British ignored these local institutions and transformed community-managed forests into state forests that became de facto open-access areas. Now, after the forests and their biodiversity have become severely degraded, various Indian states are granting certain tenurial rights to local communities in recognition of strong empirical evidence that communities can effectively manage and, in this case, regenerate their own forests (see INDIA).



The degradation of biodiversity under public control is not limited to forests. That inappropriate management and ignorance of traditional regimes have contributed to the degradation of grasslands and wildlife in Africa is widely accepted (see AMBOSELI, CAMPFIRE). Establishment of parks and wildlife reserves sometimes has led to degradation or destruction of biodiversity by people who view the park as territory taken from them by outsiders for outsiders' benefit. Likewise, numerous cases in which traditional communities have attempted to defend their fishing territories against outside fishing interests are well documented in Oceania and other coastal zones throughout the world. The resulting degradation of fisheries has been especially well documented in India but applies globally.

By insisting that biologically rich lands are owned by the state (under public tenure), national governments often create conditions of "open access." Garrett Hardin's (1968) "The Tragedy of the Commons" was actually about the tragedy of open access, a situation that is promoted when community-based resource management systems are delegitimized and states fail to manage the resource (McCay and Acheson 1987; Berkes 1989). When community-based tenure is weakened, biodiversity is often pillaged in a wide-open race for short-term gain. In effect, public land, or other public resources, belong to no one in particular but to everyone in general. This ambiguous official status acts as a magnet that pulls charcoal makers, loggers, landless farmers, and other short-term users onto "public" forest land.

In practice, however, access generally is not equally open to all when profits can be made from exploiting public resources. Many nation-states grant legal privileges either to favored elites (e.g., logging concession holders, plantation developers) or to troublesome "excess" populations of the landless rural poor through planned or incentive-assisted resettlement schemes. As an example of such political use of public resources, in many countries, land tenure laws reward new settlers with titles if they "improve" land by clearing it of trees (see BOSCOSA). In a twist on the usual story, an indigenous Sarawak community made the hard choice to cut down their forest when the state designated it as a public forest reserve. If they had tried to fight the reserve, arguing that the forest was theirs, the community would have lost its village lands as well as the right to harvest the forest. On the other hand, migrants following logging roads would have been permitted to cut down the trees with the legal protection of the government and granted title to the same land. By cutting down all the trees, the existing community was able to secure tenure to the land, since village lands are deemed "agricultural land" once they are cleared. The village paid a small fine and then planted rubber trees.

When communities traditionally have managed resources sustainably, government claims may destroy any incentive to continue to do so. Without official recognition, communities do not have access to the formal legal structure t

exclude those who encroach on their rights and overexploit their resources, be they local elites, multinational corporations, or landless migrants. Lacking legal recognition, indigenous peoples and migrants living on "public" lands can not legally benefit from exploitation of the local natural resources base. Deprived of the legal means and incentives to exclude newcomers and manage the forest for long-term sustainable benefit to themselves, many communities become increasingly responsive to market pressures to overexploit and join in the free-for-all.

In the case of wildlife, public management is often nonexistent, although most states claim the right to regulate hunting. As noted in AMAZON and CAMPFIRE, local communities tend to carry out wildlife management in rural areas more effectively than government authorities.

In summation, rational human beings face disincentives to make long-term improvements and take short-term losses to sustainably manage their local resource base when they lack assurance that they and their successors will continue to profit from their investments. The growing clamor for tenurial security by rural people around the world demonstrates the importance of this assurance. Simply stated, tenurial security is an important precondition for sustainable resource management, principally because it encourages long-term planning and greater investments of labor and resources. In the words of Harvard economist Theodore Panayotou,

> Property rights need to be *secure*. If there is a challenge to ownership, risk of appropriation (without adequate compensation), or extreme political or economic uncertainty, well-defined and exclusive property rights provide little security for long-term investment such as land improvements, tree planting, and resource conservation. *(1989)*

## Communities' Conservation Performance under Private Tenure

How do communities manage and conserve biodiversity under a range of community-based tenure situations (except in the case of individual titles)? Communities may have community title, a lease, or some other type of specific legal instrument—such as a *comarca* (Panama), a *comunidad* (Mexico), or an indigenous reserve (as in several South American countries)—that recognizes their special authority to regulate tenure within their borders. More frequently, however, communities have no legal instrument from the state that recognizes their tenurial rights. Tenurial security, as discussed here, is not defined merely by the existence of a legal instrument but by strong legal and institutional mechanisms (e.g., customary law and institutions, or support from national judicial or police systems) that enable a community to defend tenurial claims against outsiders, make decisions about how to allocate resources among its members, and retain the authority to resolve conflicts among its members.



source management regimes. Conservationists' concern for tenurial security should translate not only into concern for state-sanctioned de jure tenurial security, but also into concern about the strength and authority of the underlying community-based resource management institutions.

Most of the world's biodiversity is found outside protected areas. Often areas with high biodiversity and areas where traditional community-based control over resource access and management are also in place overlap—creating situations in which local people possess community-based de jure tenurial security and effectively exclude others. Yet no national-level assessments to ascertain the extent to which traditional management systems are responsible for the presence of high diversity have been carried out.

Throughout the world, biologists have identified biologically rich areas and selected them for protected-area status. These areas include territories that are occupied by indigenous communities and/or migratory pastoralists that rely on utilization and management of wild resources as part of their livelihood strategies. For example, in Central America, more than 85 percent of all protected areas are occupied by indigenous peoples, and a similar percentage applies to many countries. Communities living in what are currently high-biodiversity areas generally enjoy, or have enjoyed until recently, de facto tenurial security and consequently have regulated resource access among themselves and excluded outsiders. These are often communities of ethnic minorities or indigenous peoples.

Many local people believe they have played an active role in maintaining biodiversity. A Karen headman in northern Thailand recently spoke of a village threatened with loss of tenurial security and resettlement:

> [The conservationists] think they created this World Heritage Site by filling out a bunch of papers and encircling this area on a map. They didn't create it. This forest and these animals wouldn't be here if we hadn't kept others out. We took care of this forest that our ancestors left us. We Karen are responsible for creating this World Heritage Site, not the conservationists.

While community agricultural lands often are held under rights that Westerners might consider to be very close to private individual property rights, the forests, reefs, grasslands, and other ecosystems used by community members are generally under complex, often overlapping tenure rights that share benefits across a broad range of the community, restrict community use, and work to exclude noncommunity members. Overlapping rights protect the system from outsider acquisition or exclusive use by any one entity that might destroy it; such traditional systems, in effect, are a partnership between individuals and the broader community to maintain the community's resource base. As MALUKU ISLANDS relates, rules for using and protecting biodiversity generally are enforced by the threat of religious sanctions and social ostracism. On a more pragmatic level, enforcement is carried

who regularly monitor resources and extractive activities. Penalties can be severe, including expulsion from the community.

Peoples who have traditionally lived in a given area for long periods of time generally have deep ecological knowledge about their area and the impact of their activities. For example, they often utilize sophisticated agricultural systems that rely on ecological processes. Extensive research has demonstrated that many traditional shifting cultivators possess local knowledge bases and operate swidden systems that are well suited for sustainably managing local resources (Warner 1991; Lynch 1990; Alcorn 1989). Communities operating these swidden agricultural systems generally manage a wide range of nonagricultural resources as well. For example, they may carry out agroforestry, maintain freshwater fisheries, manage harvest of nontimber forest products and game, and protect sacred forest areas.

Customary rights to wildlife are understudied, but they appear to be most frequently allocated in one of two ways. If there is a chief, headman, or other powerful leader, wildlife may be owned by the leader, who has the authority to give out rights to hunt particular species within the group's lands, usually on a day-by-day basis. The hunter often is required to share the hunt with the entire community. It is the chief's responsibility to regulate hunting in order to maintain game stocks. Outsiders must seek permission to hunt from him and may be required to pay a fee or give some portion of the meat to the community. Also common is the allocation of rights to hunt or trap in specific places. In these systems, regulation of hunting pressures may be the purview of a boss (or council) who makes sure that game populations are not severely depleted.

Alternatively, hunting and trapping in a family's territory customarily may be done only at particular times of the year, resulting in reduced impact on game species. Rights to hunt certain species may be held by particular groups—by certain castes in India, for example. In other cases, however, there is no apparent ownership of game beyond the communal right to hunt in a particular territory—which may overlap with the hunting rights of other communities. In such cases, however, there is still the expectation that meat will be shared. CAMPFIRE illustrates an adaptation of these kinds of rights to a cash economy where the animal has high value to outsiders. These outsiders, in effect, purchase the right to hunt from an authoritative body representing the community and the state, which, under the CAMPFIRE program, share comanagement decisions.

Indigenous management systems do not always maintain maximum levels of biodiversity; rather, community-based systems (just as in biological evolution) appear to evolve to be "good enough" to maintain ecosystems that provide a wide variety of resources and situations to buffer livelihoods in the face of changing weather, population growth, public tenurial claims, market demands, and other factors. The institution is good enough to maintain levels of biodiversity that are also good enough. The level of how well the institution functions (what makes the institution good enough) and the level of how much biodiversity is good enough depends on costs of maintenance, return on investment (e.g., is it worth dying in



confrontation with the military or local elites to protect the forest?), other resource options, degree of political cohesion, and cultural values. Good enough, in such institutions, may be the same as what is good enough in evolution: adequate to ensure survival of the biotic populations, communities, and ecosystems in question. Any system's current configuration depends on history, chance, selective pressures, and the "material" (social and ecological) that is available as grist for evolution in the face of changes.

Communities' standards of what constitutes good enough levels of biodiversity may not be the same as biologists' standards for parks and strict reserves. In areas where high or medium levels of biodiversity exist, community standards are used to maintain viable populations of most species in the habitats that are managed for diversity. At the other end of the scale are the standards of good enough applied by suburbanite Americans who apply weed killer to eliminate diversity in their immediate environment. Forestry departments apply similar good-enough standards as they cut down natural forest (for profit) and put in plantations. As BOSCOSA reminds us, the indigenous Guaymi community was the only community interested in natural forest management at the start of their project. The Guaymi standard for good enough valued high diversity; the settler community had lower standards. The standard managers use inside parks is also under question. Often, management seems to be guided by whatever is good enough to maintain populations of large mammals. Recently, there has been some debate over whether this strategy is indeed always maintaining overall diversity.

Levels of biodiversity under community-based tenure may or may not be different from those of reserves under state management. In some areas of high biodiversity (particularly in Amazonia), human population density is extremely low, participation in the market economy is minimal, and few outsiders have threatened to destroy forests. In these situations, large game animals are the species most likely to be affected by community hunting pressure (see AMAZON, NEOTROPICAL FORESTS), but the effect on overall biodiversity levels may be small. In other areas, communities are struggling to adapt to a wide variety of internal stresses to their systems, as well as struggling to stave off escalating threats from outsiders who are either extracting resources without regard for local regulations or who are actively settling on communities' lands. All of these stresses affect traditional tenurial security, but there is widespread evidence that many communities continue to fight to maintain their own authority over their resources (Lohmann 1991). As their territories shrink before colonists' penetration (or incursions by outside fishing boats), communities often set aside forest areas (or selected reef systems) in their now reduced territory as reserves where hunting, tree-cutting, or other extractive activities are forbidden, or they may enact stricter laws, perhaps outlawing hunting and fishing for sale. Embara communities in the Darien region of Panama and some Indonesian communities (see MALUKU ISLANDS) currently are taking such action.

When the stresses of social change or encroachment by commercial resource

exploiters occur, communities may have difficulty in adapting (see MALUKU ISLANDS). In some cases, after a community perceives an initial drop in the populations of exploited species, effective restrictions are established, but in other cases, accommodation never occurs. If the resource is overharvested, the population of the exploited species may be radically reduced or destroyed. This may lead to loss of the market, and then the population may be able to recover. In CRATER MOUNTAIN, AMAZON, and NEOTROPICAL FORESTS, new monetary values of biota led to new pressures on those populations not found in the subsistence system that were difficult to address through existing social norms.

In the face of stress, then, many communities adapt their strategies for maintaining biodiversity. In some cases, especially when outside pressures on forests have intensified and communities recognize that specific species are being lost, communities have opted for extraordinary efforts to maintain those species. Some Brazilian indigenous groups, for example, have sought World Wildlife Fund assistance to combine new scientific methods with their traditional knowledge in order to develop monitoring systems to track the impact of increased hunting on their lands and develop improved management techniques (see AMAZON, NEOTROPICAL FORESTS). Some maintain high levels of biodiversity by tightening up community regulations and introducing new conflict-regulation mechanisms.

Some communities, however, are unable to adapt to stress due to a variety of factors often related to the strength and interests of community leadership, loss of traditional culture, etc. As a result, biodiversity levels, or the population levels of particular species, drop radically (see AMAZON, NEOTROPICAL FORESTS). The reasons for variations in adaptive capacity, and the relative number of systems that adapt versus those that fail to adapt, have not been well studied. The biology of the species or ecosystem in question certainly plays a role. The degree of de facto tenurial security also seems to be important, yet there are instances of two neighboring communities, one of which was able to conserve biodiversity while the other was not. (Such micro-level variation between communities is not uncommon in other realms, such as communities' adaptation/adoption of modernization options.)

Where stress is "internal" due to increasing population or decreased access to traditional resource areas, some communities elect to intensify one aspect of their livelihood system in order to maintain biodiverse zones. For example, Southeast Asian groups often have opted for labor-intensive terraced agricultural systems, thus maintaining biodiversity in forested areas elsewhere in their territories instead of clearing their entire area for agricultural purposes. Mexican Huastec Mayan families with secure communal tenure (at densities of more than 100 people per km$^2$) have opted to intensify cash crops on 25 percent of their communal land and dedicate 50 percent to short-fallow swidden fields that produce corn and fuelwood, so that the remaining 25 percent of their holding can retain biodiverse forests. The reasons they give for their decision to maintain biologically



cine, construction materials, and unknown products they may find useful in the future); the superior quality of life offered by fresh breezes, shade, clean water, and clean air; protection of the earth; and ecological services such as soil-quality protection, prevention of erosion, and site improvement for swidden agriculture.

Where the stress of resource scarcity is caused by outsiders, it is not uncommon for communities to respond by seeking government assistance. Given the generally poor support they receive from the state, however, recently they have also sought assistance from NGOs (see AMAZON) and formed alliances with other communities that have the same problems (although some states view such activities as antigovernment).

The tenacity of community-based management of biodiverse areas under stress offers evidence of many communities' commitment and ability to maintain biodiversity under changing conditions. Numerous theorists have tried to explain why and how rural communities have resisted incorporation into the global economic system, despite colonial and market pressures. While explanations vary, it is clear that rural communities and traditional groups have struggled to retain their territories, their self-reliance, their cultural identity, and their biodiversity, even when engaging in wage labor outside their community lands. Maintaining biodiversity reserves is one strategy that enables communities to maintain their identity and self-reliance; biological resources, as the ultimate safety net for the poor, also serve to secure survival.

In addition to state expropriation, a number of stresses can cause changes in biodiversity-maintaining traditional systems: demographic changes, cultural changes, failure to educate young people in traditional-systems management or traditional ecological knowledge necessary for decision-making, new market demands, community institutions that are unable to interface effectively with outsiders, technological changes, and crop changes. Many of these factors also directly contribute to changes in community tenurial regimes, and it is change in tenurial regimes that is often the ultimate cause of biodiversity degradation.

An observer of the buffer zone of Ranthambhore National Park in India, for example, would be tempted to blame communities for the extremely degraded forest that exists there. A more careful analysis would reveal that the state is largely to blame. State-sponsored logging was followed by overuse condoned by corrupt officials. Rather than try to engage buffer-zone communities in comanagement, park officials increased the number of armed guards. Even in the face of such degradation and lack of government assistance, Ranthambhore communities continue to struggle to establish and enforce social regulations to control access to biodiversity in their section of the buffer zone (Sarabhai et al. 1990).

Communities under stress often do what they can to adapt their land use in ways that retain biodiversity, but tenurial erosion (and the concomitant erosion of biodiversity) often continues. In cases under stress, it is not uncommon for communities to practice a form of triage to secure the survival of certain species while

biodiversity under increasingly intensified farming, some Bangladeshi communities have continued to use common-property regimes to regulate access to highly biodiverse fisheries in floodplain and wetland waterways. These food-rich waterways also provide habitat for a wide array of migratory birds. This last bastion of biodiversity is now threatened by loss of tenurial security as waterways under community-based tenure and management are now being appropriated by wealthy private individuals who engage in capital-intensive fish farming. The development schemes include lucrative loans that provide payoffs to corrupt officials and often never require repayment. These fish-farming systems probably will fail, but loans, not profitable production, are the main "profit" sought by the elite. The resulting depauperate fish communities are likely to be further depleted under open access since traditional tenure and regulatory institutions will lose their legitimacy during the farming takeover.

In sum, strong evidence suggests that erosion of community-based tenure is linked to erosion of biodiversity, and that, even under stress, communities will strive to retain biodiversity. There is insufficient information to identify which succession of factors predicts whether communities will be able to adapt their community-based management systems to stresses that threaten their conservation success, particularly when these stresses are externally generated.

Biodiversity levels are being maintained or improved where efforts are made to recognize existing private community-based resource-management regimes; create new community-based systems that are quasi-public, quasi-private, or a combination of public and private rights; and develop comanagement systems that usually operate under strong "public" tenurial rights (see INDIA, NIGER, AMBOSELI). These efforts have grown in the last decade. Unfortunately, few of these efforts are being closely monitored from a biodiversity perspective, so it is difficult to point to "successes" or learn lessons from "failures."

Despite enthusiasm for these new approaches, few researchers actually have generated and reported measurable results to assess whether, or under which circumstances, tenurial security leads to conservation success. An exception may be the case of the semi-independent Kuna *comarca* established in Panama more than fifty years ago and since awarded Biosphere Reserve designation. Aerial photography and historical knowledge of the forests and reefs indicate that the Kuna are effectively using their strong tenurial security to manage biodiversity successfully and keep outsiders from encroaching on their forests and reefs. Some Philippine groups who hold community forest leases can tell a similar story.

Some of the most ambitious (and most important, from the biodiversity point of view) efforts to support community-based conservation through improved tenurial security involve creation of indigenous reserves in Latin America—efforts widely supported by international conservationists as a means of protecting biodiversity in tropical forests. The tenurial security these reserves offer varies widely. The highly publicized Colombian reserves in fact give only limited tenurial security and decision-making authority to local institutions or communities. The state re-



tains rights to make management decisions about forest, water, and mineral resources. This same pattern marked the start of tenurial erosion and concomitant forest destruction in India.

Many field-workers on the front lines of conservation activism are now convinced that tenurial security is an essential—but not necessarily a sufficient—condition for conservation. It is very important to remember, however, as Western observes in AMBOSELI, that however just empowerment may be, it does not necessarily lead to conservation. There is no guarantee that better defined and more secure tenurial rights automatically will result in a slowing of deforestation or reef destruction or lead to more sustainable systems of production.

The challenge of predicting the outcome of efforts to involve people in conservation is immense. Community-based systems do not guarantee the success of conservation efforts. Suspicious of relying on communities, some scientists promote comanagement through partnerships of NGOs, the state, and communities under strong state guidance. KAKADU demonstrates success under strong community comanagement. Globally, however, there is insufficient evidence upon which to evaluate the track record for conserving high biodiversity through comanagement or to ascertain whether it succeeds best when communities initiate comanagement through requests to the government. Comanagement, as in INDIA, works in some situations where biodiversity is severely degraded, of little commercial value, and therefore of minor interest to the state. On the other hand, even when communities have expressed a strong willingness to protect their healthy forests, comanagement generally has not been acceptable to the Indian government for forests that have monetary value. This is changing, however, in Indian states such as Orissa, where tribal communities are gaining control over and protecting still-forested areas.

Evidence from the field supports the premise that tenurial security, especially where communities are relatively intact, is generally a strong conservation tool. Local situations, tenurial systems, and community cohesion vary widely, however, and traditional systems and communities often disintegrate in the face of more powerful interests. The difficulties and mixed results, at best, of efforts to revive defunct community-based systems (particularly after resettlements or other social upheavals) and efforts to create new systems should be acknowledged. An exception may be parts of Southeastern Asia, where, through the centuries, communities have developed institutional and cultural methods with which to maintain community cohesion under resettlement. Success is much more likely if conservationists work to support tenurial security for intact communities with strong traditional institutions that can effectively regulate common-property management and adapt existing institutions to new stresses.

The conservation incentives most appreciated by communities with strong tenurial security include security necessary for long-term management planning, expectations that ecosystem management decisions will be made by the local community, expectations that the community will be able to exercise power to

evict or manage the behavior of users in accordance with long-term management objectives, and the freedom to evolve appropriate management institutions and conflict-resolution mechanisms as conditions change.

## State Recognition of Local Rights

In areas where local people have a demonstrable concern for the environment, a stated desire to manage it sustainably, and a desire for state recognition, the best governmental response to community-based tenure would be to officially recognize community-based rights and delineate the spatial perimeters of existing systems. When existing systems are rooted in the local ecology and already possess legitimacy in the minds of local people, recognition facilitates more environmentally and culturally appropriate evolution and development.

However, there is a tension between broad state recognition of traditional rights and codification of its intimate details. The latter may be impossible due to their complexity, will certainly be time-consuming, and may, in fact, destroy the flexibility and adaptability of the system—one of the greatest virtues of traditional systems.

Despite the complexities of community-based tenure systems, recognition of them in governmental laws and policies should not be contingent on project planners' and implementers' first becoming familiar with the intricacies and nuances of these regimes. Only general familiarity with the existence and viability of community-based tenure systems is necessary. Requiring that intracommunity tenurial variations be specifically addressed in policies, programs, and projects will complicate and even block widespread systemic efforts to support and gain legal recognition for community-based tenure systems. Such requirements will make recognition efforts more complicated, prolonged, and expensive than they need be.

In most instances, customary laws are based on oral traditions that allow the flexibility necessary to respond to changing conditions. Codification of existing tenurial rights and processes at a particular moment in time is a common—and often well-intentioned—attempt to validate traditional rights for incorporation into modern systems. Codification efforts, especially by outsiders, reify customary laws at a particular moment in time and therefore provide outsiders with an inappropriate tool that disrupts internal community functioning. Furthermore, codification fails to preserve the traditional flexible system of conflict resolution. Thus the traditional system dies, since it must evolve on its own terms to remain valid, and authority shifts from the community to the state.

The solution may be simply to delineate the perimeters of community-based tenurial systems. Perimeter delineation would obviate the need for national governments to conduct more expensive and culturally disruptive surveys of individual property rights. More important, it would enable governments to determine the exact location and range of community-based tenure systems. If this information were in hand, governments could better formulate more appropriate natural resources policies.



Powerful political and economic interests' opposition to recognition strategies—and their insistence that legal rights to natural resources are contingent on detailed state grants and documents—ensures that efforts to promote the recognition of community-based tenurial rights in most countries will require long-term effort. With the exceptions of Great Britain and Papua New Guinea, official strategies for securing community-based tenurial rights in the case study countries only appear possible by way of grants made under the auspices of government-sponsored conservation and social forestry programs.

## Private Individual Titling and Private Title Holders in CBC

By definition, community-based conservation appears to require an intact community capable of reflecting collective interests and exercising appropriate authority. What occurs in the absence of such a cohesive community? The information available about the effectiveness of individual private titling programs for community-based conservation efforts is insufficient to allow for generalization.

Inequities in the distribution of rights to arable lands may spur migration into ecologically fragile areas rich in biodiversity, especially when landless farmers have no alternative but to migrate into fragile forest areas. In such situations, land-titling programs that stabilized the frontier would seem to be an effective way to conserve still-intact forest areas. Land-reform programs that offer individual titles in an effort to stem migration onto public lands, however, are not necessarily the conservationist's best answer to resource distribution problems, since land reform can have negative impacts on biodiversity. For example, some land-reform programs in Africa that focus on individual documentary titling at the expense of community-based tenure have contributed to increased landlessness and destruction of biodiversity (Porter, Allen, and Thompson 1991). In countries with frontier forests, such as Costa Rica, the availability of individual titles and homesteading laws encourages the clearing of forests on public land, thereby "improving" it and establishing state-sanctioned rights that lead to titles. Often these titles are later sold (frequently to ranchers who encouraged the initial settlement), and the settlers move to a new forested area. During times of land speculation, these incentives for individuals to benefit from titling programs are especially strong.

Experience shows, furthermore, that the benefits of individual titling may not actually reach the desired resource users. When procedures for individual titling do exist, they tend to be overly complex, culturally inappropriate, time-consuming, and expensive, especially for people living on traditionally owned forest lands. Influential outsiders, meanwhile, often possess the wherewithal and knowledge needed to meet the procedural obstacles and thus acquire state-sanctioned legal rights to land that is already occupied and, in many instances, customarily owned.

In theory, however, individual titling should help traditional resource owners defend at least some of their rights against powerful outsiders. Unfortunately, as noted above, too often in practice one of the dangers of titles is that once acquired, the land is then sold to someone outside the community. Individuals not protected by community-based tenure often lose their land rights this way. Nevertheless, it may be appropriate to provide individual titles or leaseholds as one element of a conservation strategy when the territory of a group seeking community-based tenure has been invaded by noncommunity members who can not be made to respect the legitimacy of the community system. For example, one proposal to protect Cuyabeno Reserve in Ecuador suggested giving titles to colonists in return for their agreement to defend their parkside borders against incursions by other settlers. Indigenous residents (the Siona-Secoya) allowed to live inside the Cuyabeno Reserve have community-based tenure, but they are unable to keep the colonists out by themselves. By using two different types of tenure recognition, conservationists planned to stem invasion and destruction of the park by working with all local residents.

Community-based efforts also can be built around situations in which individuals hold individual titles. NORTH YORK MOORS, for example, describes a comanagement arrangement between individual English title holders and the state. In a few other such situations in Latin America, particularly in Costa Rica and Mexico, communities of people with individual holdings have sought special reserve status to prevent unwanted development that would destroy forests.

## Conclusions

Support for state recognition and defense of community-based tenurial rights is an essential element of any community-based conservation initiative. What, then, are the obstacles to strengthening such tenure? The key limiting factor in most developing countries is that the nation-state claims ownership of most environmentally important areas, or ownership of specific resources of conservation interest such as forests or wildlife. For example, 80 percent of all forest areas in Peru, Bolivia, Brazil, Venezuela, the Dominican Republic, Panama, Belize, Jamaica, and Trinidad and Tobago is considered to be state owned. Similarly high percentages of state ownership have been reported in Africa and tropical Asia. The only reported exceptions are Zambia, Zimbabwe, Botswana, and Papua New Guinea and other Pacific Island nations. In many countries, states are effectively executive committees of elites who make policies and laws enabling politically, socially, or economically powerful interests to use state and public resources for their own benefit. While states often allow community-based tenurial regimes to continue in areas where they do not presently conflict with these interests, they generally refuse to acknowledge their presence when they present obstacles to elite profiteering from natural resources exploitation, as in the case of timber sales to polit-



As a result, most forest dwellers are considered, regardless of their length of occupancy, to be squatters on "public" (i.e., state-owned) land. In many countries, including Indonesia and many Latin American countries, de jure squatter status is less obvious to outsiders because constitutional provisions theoretically protect undocumented customary rights. But these undocumented rights are often ignored within national legal systems that promote expansive claims of public ownership (Davis and Wali 1993).

Despite dramatic improvements in the rhetoric of community-based conservation of natural resources—and a growing number of programs, projects, and, in some instances, even national laws and policies—most national governments still do not recognize in any effective, broad-based manner the tenurial rights of forest- and fishery-dependent people or their contributions to conservation and sustainable management. Neither do most countries, as Feldmann notes in POLICY, provide rural people with effective access to decision-making processes involving conservation and resource management.

The democratic foundation for popular sovereignty has been reiterated in the constitutions of many countries. Yet the transition from colonies to republics resulted in little change in state laws, policies, and practices for allocating power and wealth among the nations' citizens. Instead, the new republics largely mirror the policies and designs of the former colonial government.

The underlying problem is that many modern nation-states usually fail to reflect, in a supportive and substantive way, native values and aspirations, especially those that endure on local levels among impoverished and disenfranchised poor rural majorities. This phenomenon appears to be widespread. Despite positive rhetorical developments, most national policies and legal systems, including most conservation policies and programs, still tend to benefit international and domestic elites and disenfranchise hundreds of millions of people who inhabit or are directly dependent upon, environmentally fragile and important areas for their subsistence and livelihood. These outcomes reinforce an inequitable legal distribution of the benefits of natural resources conservation and utilization. They directly contribute to accelerating rates of tropical deforestation, biodiversity loss, and coastal degradation.

ACKNOWLEDGMENTS

We gratefully acknowledge the assistance and insights gained from discussion and debate with Michael Wright, Tom Fox, Forrest Swick, David Anderson, Frances Seymour, Jorge Tejerina, Kent Redford, and Marvic M. V. F. Leonen. In addition, this chapter draws upon unpublished work and discussions with the following researchers: Henry Chang, Eric Worby, Mac Chapin, Gerald Murray, Peter Herlihy, John Butler, Shelton Davis, Elizabeth Reichel, Nickie Irvine, Miguel Piñedo-Vasquez, John Cordell, Bob Johnannes, Jeff Campbell, G. Raju, James Thompson, Mark Freudenberger, George Dei, Nancy Peluso, Tania Li, Theo Panayotou, Arturo Gómez-Pompa, Harold Conklin, Witoon Permpongsacharoen,