Fourth World Journal
A Publication of the Center for World Indigenous Studies
Volume 5, Number 1
Pages: 98 thru 149

CONSERVATION BY SELF-DETERMINATION in CENTRAL AMERICA

Addressing the Global Biocultural Diversity Crisis from an Alternative Development Paradigm

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In this essay I undertake to investigate the need for, and the theory behind, conservation by self-determination through a regional focus on Central America. "Conservation by self-determination" is a program of action that addresses the global biocultural diversity crisis. Biocultural diversity encompasses biological diversity, cultural diversity and the geographically coterminous, mutually dependent relationship between them. The current biocultural diversity crisis is a consequence of, as well as a fundamental precondition for, conventional development or modernisation. This is because the normative basis of modernisation is dependent upon a product-oriented, capitalist market economy and is based upon a "top down" approach (Rahman 1993:216-217).

Conservation by self-determination is founded in an alternative development paradigm: one advocating sustainable or ecodevelopment based upon "bottom up" or "grassroots" initiatives and recognising that '[w]hat matters in development is whether the capacity of the people of a region to meet their own needs, solve their own problems, guarantee the ecological survival of the region and enjoy life is approaching a satisfactory state at a satisfactory pace' (Trainer 1995:38).

The first part of this paper defines the biocultural diversity crisis and reviews how it has been addressed to date. Initially, the crisis was viewed only in terms of the conservation of biological diversity, and addressed through the creation of protected areas such as national parks. More recently however, the broader implications of the biocultural diversity crisis have begun to receive international attention, and a possible relationship between indigenous peoples and conservation is increasingly being recognised. Modern conservation initiatives can currently be divided into three broad approaches in relation to their significance for indigenous nations: classic nature conservation, green capitalism and social ecology. A theoretical and empirical investigation of these approaches and how they have been applied in Central America however, demonstrates that, as they are currently implemented, none effectively promote biocultural diversity.

The second part of this paper suggests an alternative approach to conservation: conservation by self-determination. This approach emerges from the social ecology approach, but aims to more effectively incorporate indigenous self-determination. In this way it becomes socio-political, as well as a conservation strategy. It is this merging of conservation and indigenous peoples that creates the potential to promote biocultural diversity.

Conservation by self-determinaton is examined theoretically, complex issues inherent in its framework are discussed, and two case studies of attempts by indigenous nations to implement this approach in Central America are presented for comparative analysis. These initiatives of the Kuna in Panama and the Miskito in Nicaragua have taken place in different historical and political contexts, and had different outcomes. The aim of this comparative analysis is to identify those conditions which facilitate the implementation of conservation by self-determination, and to critically determine the potential of conservation by self-determination as environmental and political action.

This paper proposes a list of both internal and external conditions conducive to the implementation of conservation by self-determination, and concludes that , if these conditions can be met, then conservation by self-determination has potential as a theoretically grounded program of action capable of changing conditions, engendering new understandings, and contributing to the emancipation of the oppressed nations of the Fourth World.

THE GLOBAL BIOCULTURAL DIVERSITY CRISIS

Biocultural Diversity

Biocultural diversity is a term that amalgamates three concepts: biological diversity, cultural diversity and the relationship between them (McNeely 1992:38). The term **biological diversity**, or biodiversity, refers to 'the variety of life forms, the ecological roles they perform, and the genetic diversity they contain' (Wilcox 1984:640). Global biodiversity is represented by the total number of species, both wild and domesticated, that exist on earth (Nietschmann 1992:1). Estimates indicate that anywhere between five and 50 million species exist, only about 1.4 million of which have been recorded (May 1992:18; McNeely *et al*. 1990:17). It has been estimated that global biodiversity is being lost at a rate as high as 30,000 times the rate of biodiversity loss in a state of unperturbed nature (Gray 1991:ii). Since ecosystems interconnect, environmental destruction within a single ecosystem has serious consequences not only locally, but for global biodiversity as a whole. This is the **global biodiversity crisis** (Gray 1991:ii).

Cultural diversity refers to 'the variety of human life ways, the social and ecological roles they perform, and the knowledge they contain' (Nietschmann 1992:1). Global cultural diversity is represented by the total number of distinct nations on earth (Nietschmann 1992:2). **Nations** are made up of "one people" based on common ancestry, history, society, institutions, language, ideology, territory and often religion (Nietschmann 1994). They are fundamentally different from **States** which are centralised political systems

that use civilian and military bureaucracies to enforce certain institutions and laws, and sometimes a certain language and religion, without regard for the pre-existing nations within their boundaries (Nietschmann 1987).

There are currently some 190 internationally recognised States and between 5,000 and 8,000 distinct nations, most of which are not recognised by, and have not consented to be part of, the States which occupy them (Nietschmann 1992:1-2). Thus, nations of indigenous people, who number between 200 and 600 million (Kemf 1993:4) and constitute only 4 percent of the global population (Burger 1987:11), represent 90 to 95 percent of the world's cultural diversity (Barzetti 1993:10; Gray 1991:8). Within the last 150 years, between 30 and 50 million indigenous people have perished (Kemf 1993:4). Moreover, surviving indigenous nations world-wide continue to lose, or are threatened with losing, their territories, their cultures, and in some cases, their lives. This is the **global cultural diversity crisis** (Gray 1991:ii).

The homelands of the world's surviving indigenous nations cover almost 20 percent of the planet (Martin 1993:xvi). Many are located in more inaccessible regions such as tropical forests, mountains, deserts and tundra (Dasmann 1991:11), and probably half are located on islands and along coasts, particularly in tropical waters (Nietschmann 1992:1). These environments are also those that shelter most of the planet's surviving biodiversity. The **geographically coterminous** relationship between biological and cultural diversity is expressed as the Rule of Indigenous Environments: '*Where there are indigenous peoples with a homeland there are still biologically-rich environments*' (Nietschmann 1992:3). This is no coincidence. The reality is that 'many of the same forces that degrade environments and reduce biological diversity, also displace, disperse, and destroy cultural diversity, and whole nations' (Nietschmann 1992:2). Consequently, the homelands of suppressed or displaced indigenous nations are usually characterised by degraded environments. Biological and cultural diversity coexist because they are **mutually dependent** (Nietschmann 1992:2). This interdependence is a product of the relationship between indigenous peoples and the environment, the essence of which is a connection between people and land that is based on social and cultural, as well as economic, considerations (Clarke 1995:8).

Indigenous peoples traditionally depend upon their environment for subsistence. Consequently, over thousands of years, they have developed finely tuned **knowledge of local ecosystems and their processes** (Clarke 1995; Posey 1989:242; Schmink *et al*. 1992:3). They have also developed **culturally encoded resource management practices** that are well adapted to the sustainable use of these ecosystems (Alcorn 1993:425; Balée 1989; Clay 1988; Davis and Wali 1994:4; Oldfield and Alcorn 1991a:120; Redford 1991:47).

In the process of using and managing their resources indigenous peoples interact with and modify the environment (Clay 1988; Gray 1991:21-22; Redford 1991:46; Redford and Stearman 1993a:252). While historical evidence suggests that 'in their efforts to make a living, [indigenous peoples]...at times, degraded the ecosystems in which they lived' (Clarke

1995:5; also McNeely 1994a:10,14), Wilcox and Duin report that:

> It has become a more or less accepted principle among ecologists that moderate levels of physical disturbance, such as often imposed by *traditional forms of resource exploitation*, enhances ecological complexity, landscape heterogeneity, and species diversity, thus *promoting overall biodiversity* (1995:50, emphasis added).

Scientific findings indicate that through thousands of years of interaction between humans and their environment, virtually all terrestrial habitats have been inhabited, modified, or managed (Balée 1989; Deihl 1985:37; Dufour 1990:658; Gomez-Pompa and Kaus 1992:273; McNeely 1993:251, 1994; McNeely *et al*. 1990:51; West and Brechin 1991:385). The most pervasive modifications arising through indigenous interaction with forest ecosystems, for example, have been attributed to agroforestry (McNeely 1994a:7).

Agroforestry is based on land-use systems in which numerous annual crops and/or animals are deliberately raised interspersed with native ones (Clarke and Thaman 1993; Clay 1988:32; Nations and Komer 1983a:235; Redford *et al*. 1992:333). It is a process that takes advantage of natural environmental variation and relies on native successional processes to transform natural forests into harvestable ones (Alcorn 1990; McNeely 1994a:7). The focus of agroforestry is whole landscapes or agroecosystems (Oldfield and Alcorn 1991b), as well as individual species, and its objective is to maintain and enhance the natural capabilities of the land (Clarke 1995:7). In addition to the intensification of agricultural production, landscape enhancement entails aesthetically "improving" the land in ways compatible with cultural perceptions of beauty (Clarke 1995:7).

Agroforestry practices, such as selective burning and other forms of forest clearance, create a mosaic of forests in many different states of ecological succession and under differing degrees of management (Dufour 1990; McNeely 1994a:10). The changing composition of succeeding forests **promotes landscape biodiversity** (McNeely 1994a). Agroforestry also **promotes cultural diversity** through its contribution to **agrodiversity**: the variety of ways in which farmers manage diverse natural ecosystems for production (Clarke 1995:7).

Since agroforestry involves protecting, sparing and planting specific crops, the species composition of mature forests in many parts of the world may well be the result of past human action (Dufour 1990; Gomez-Pompa and Kaus 1992:274; McNeely 1994a). Thus, just as indigenous peoples are dependent upon the environment for subsistence, many of the world's ecosystems are dependent upon continued interaction with local human populations for their long term maintenance (McNeely *et al*. 1990:51; West and Brechin 1991:385).

Such observations concerning the interdependence of biological and cultural diversity reveal the notion of "pristine wilderness" to be a largely Western construct (Deihl 1985:37; McNeely 1994a; Redford and Stearman 1993a:253). Since the majority of the

world's ecosystems are actually at least partially anthropogenic, its biologically rich environments must be recognised as 'humanized, cultural landscapes and seascapes' (Hyndman 1994:299).

The Global Biocultural Diversity Crisis

The greatest threat to global biocultural diversity is best explained through a comparison of the relationships between indigenous nation peoples and the environment, and State people and the environment. Dasmann (1991:7) sees these relationships as a dichotomy between "ecosystem people" and "biosphere people". Ecosystem people are 'people who are dependent on and have learned to live in a sustainable manner within a natural ecosystem or group of closely related ecosystems.' In contrast, biosphere people are 'those who, potentially at least, draw on the resources of the global economy or from the entire biosphere to maintain ways of life that are not necessarily sustainable and may be destructive to any one ecosystem' (Dasmann 1991:7).

Geopolitically, these groups translate into nations and States. **State environments**, dominated by State culture and typically large and dense numbers of State people, are characterised by 'environmentally unsustainable centrifugal economies, biological impoverishment, and, most often a razed landscape' (Nietschmann 1992:3). **Nation environments** on the other hand, typically dominated by low densities of long resident indigenous peoples, are characterised by 'ecologically adapted, centripetal cultures and economies, surviving biological richness, and variegated, healthy landscapes' (Nietschmann 1992:3).

In sum, since 'the loss of genetic, species, and ecosystem diversity both stems from and invites the loss of cultural diversity' (World Resources Institute *et al*. 1992:11), the greatest threat to biocultural diversity is that posed by the world's States. While most nations have no need to leave their territories to take resources from others, most States survive solely by the unsanctioned invasion and takeover of the territories and resources of nations (Nietschmann 1992:2-3). Such invasion is rationalised as "development" under the normative modernisation paradigm. As biologically rich environments are ravaged to meet the demands of States, established indigenous lifeways can no longer be maintained, indigenous ecological knowledge and resource management practices are lost, and ultimately, global cultural diversity is reduced (Hyndman 1994:297).

Conversely, as indigenous nations are destroyed or expelled from their cultural landscapes, processes such as agroforestry, which have contributed to the maintenance of indigenous ecosystems, are replaced by processes such as **agrodeforestation** (Clarke 1991): the depletion of useful species from cultural landscapes (Hyndman 1994:297). Furthermore, as the stewardship of biological diversity is removed from indigenous nations, biologically rich environments are left undefended against States, whose subsequent invasion and exploitation further contributes to the loss of biological diversity. This is the **global biocultural diversity crisis**.

Biocultural Diversity in Central America

Central America, the 500,000 km^2 isthmus incorporating the States of Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama, forms the land bridge between the two largest terrestrial ecosystems of the Western Hemisphere: North and South America (Heckadon 1992:5). A central mountain range, covering three quarters of the isthmus, runs its entire length and divides the region into three geographic zones: the humid Caribbean Slope, the drier Pacific Slope and the Central Mountainous Zone (Heckadon 1992:8).

Central America's geographical and climatic variation, having given rise to 20 vegetational and six soil zones, and its location as the mingling place for the species of two continents, have contributed significantly to its extraordinary **biological diversity** (Chapin 1992a:63; Heckadon 1992:5-6). Its surviving tropical forests are particularly rich in biodiversity and have been referred to as 'among the richest habitats on earth' (Leonard 1987:26). Its 2,000 km Caribbean coast is also exceptionally diverse, being 'the single most important area of marine and coastal biological diversity in the Americas' (Nietschmann 1992:5).

It is estimated that when the first Europeans arrived in Central America, the region was home to between 5.6 and 7 million indigenous people (Chapin 1992b:232; Woodward 1992:643). Soon thereafter, fewer than one million had survived the disease, warfare, and slavery of Spanish colonialism (Chapin 1992a:64; Woodward 1992:643). Today, between 4 and 6 million of Central America's inhabitants are indigenous. **Cultural diversity** remains considerable and is represented by over 43 distinct indigenous nations whose homelands span 40 percent of the region (Chapin 1992a:65-66, 1992b:232; Nietschmann 1988:280). **Table 1** documents the estimated population of each indigenous nation. Central America's demographic profile reveals that these 6 million nation people comprise 20% of the population, while 30 million, or 80% of the population, are State people.

TABLE 1. THE INDIGENOUS NATIONS OF CENTRAL AMERICA: LOCALITY AND ESTIMATED POPULATION

STATE	NATION (# AS LOCATED ON MAP 2)	ESTIMATED POPULATION
BELIZE	Garífuna.....(1)	11,000
	Kekchi.....(2)	4,400
	Mopan.....(3)	4,000
	Yucateco.....(4)	5,800

		TOTAL 25,200
COSTA RICA	Bribrí.....(5)	6,700
	Brunka.....(6)	2,660
	Cabécar.....(7)	8,300
	Guaymí.....(8)	2,036
	Hueter.....(9)	855
	Maleku (Guatuso).....(10) Matambú (Chorotega).....(11)	520
	Teribe (Terraba).....(12)	793
		1,504
		TOTAL 23,368-30,000
EL SALVADOR	Cacaopera.....(13)	-
	Lenca.....(14)	-
	Pipil.....(15)	-
		TOTAL 500,000
GUATEMALA	Achi.....(16)	58,000
	Akateko.....(17)	20,000
	Awakateko.....(18)	16,000
	Chorti.....(19)	52,000
	Chuj.....(20)	29,000
	Garífuna.....(1)	4,000
	Itza.....(21)	3,000
	Ixil.....(22)	71,000
	Jakalteko.....(23)	32,000
	Kaqchikel.....(24)	405,000
	K'iche' (Quiche).....(25)	925,300
	Mam.....(26)	686,000
	Mopan.....(3)	1,000
	Poqomam (Pokomam).....(27)	32,000

	Poqomchi' (Pokomchi).....(28)	50,000
	Q'anjob'al (Kanjobal)....(29)	112,000
	Q'eqchi' (Kekchi).....(2)	356,600
	Sakapulteko.....(30)	21,000
	Sipakapense (Sipacapeno).(31)	3,000
	Tektiteko (Teco).....(32)	2,500
	Tz'utujil (Tzutuhil).....(33)	80,000
	Uspanteko.....(34)	2,000
	Xinka.....(35)	2,000
		TOTAL 2,963,400-4,500,000
HONDURAS	Chorti.....(19)	2,000
	Garífuna.....(1)	70,000
	Lenca.....(14)	50,000
	Miskito.....(36)	25,000
	Pesch (Paya).....(37)	1,800
	Tawahka Sumu.....(38)	900
	Tol (Xicaque).....(39)	8,000
		TOTAL 157,700
NICARAGUA	Garífuna.....(1)	800
	Miskito.....(36)	80,000-150,000
	Rama.....(40)	650-1,000
	Sumu.....(41)	7,500-13,000
		TOTAL 88,950-164,800
PANAMA	Bribrí.....(5)	500
	Emberá.....(42)	15,000

	Guaymí.....(8)	128,000
	Kuna.....(43)	48,000
	Teribe.....(12)	2,200
	Wounaan.....(44)	3,000
		TOTAL 196,700
CENTRAL AMERICA		3,955,318-5,574,400

(After Grosvenor *et al*. 1992)

Adams (1992:501-503) notes that the post-invasion increase in Central America's indigenous population has not been evenly distributed. While Guatemala's indigenous population has recovered 225 percent, for example, Costa Rica has less than 7.5 percent of its previous population. Such imbalance can be attributed in part to the **geographic marginalisation** that Central America's indigenous nations have suffered.

Historically, while the majority of Central America's non-indigenous population inhabited the Pacific Slope, and to a lesser extent, the Mountainous Zone, the Caribbean Slope and parts of the Mountainous Zone remained relatively isolated. Consequently, it was to these "regions of refuge" within their homelands that surviving indigenous peoples, escaped black slaves, and mixtures of the two, retreated (Chapin 1992a:64). Similarly, it is largely only within these areas that contemporary indigenous nations have been able to maintain autonomous lifeways (Chapin 1992b:232-233).

Much of the indigenous population of Central America currently occupies two fairly isolated regions: the Guatemalan highlands and the Caribbean coast. The highlands of Guatemala are the territory of 22 Mayan nations whose 3 to 4.5 million indigenous members make up 35 to 50 percent of Guatemala's population (Chapin 1992a:66; Nietschmann 1989:50). Likewise, 70 percent of Central America's Caribbean coast is the territory of 10 indigenous nations (Nietschmann 1992:5). These are also the regions that shelter most of Central America's surviving biological diversity.

Conversely, the Pacific Slope, and much of the Mountainous Zone, which together currently support most of Central America's total population of around 30 million (Heckadon 1992:11; Utting 1993:4), are regions in which indigenous nations have been suppressed or displaced and the environment has been largely degraded (Houseal *et al*. 1985:10). The 500,000 strong Pipil and Lenca nations of El Salvador, for example, have been stripped of much of their traditional culture, language and territory, and the State flatly denies their existence (Chapin 1989, 1993:224). Predictably, El Salvador has no surviving

forests (Nations and Komer 1987:162).

Thus, in accordance with the aforementioned Rule of Indigenous Environments, most of Central America's remaining biologically rich environments are **geographically coterminous** with its surviving indigenous nations.

Central American evidence also demonstrates that this coterminous relationship is one of **interdependence**. Despite having entered into the cash economy to varying degrees, most contemporary indigenous nations with a homeland who survive in Central America retain extensive ecological knowledge and continue to practice a mixed subsistence economy based upon migratory agriculture, fishing, hunting and gathering. In short, they maintain a dependence upon their environment (Davis and Wali 1994; Harp 1994; Houseal *et al*. 1985; Kutay 1991; Nietschmann 1973).

Conversely, indigenous environments in Central America continue to be humanised, cultural landscapes and seascapes whose composition may be dependent upon the maintenance of indigenous practices (Gomez-Pompa and Kaus 1992:274; Park 1992:33). As McNeely observes:

> The current composition of the vegetation in Central America...is the legacy of past civilizations, the heritage of cultivated fields and managed forests abandoned hundreds of years ago. ...[M]any of the tree species now dominant in the mature vegetation ...were and still are the same species protected, spared, or planted in the land cleared for crops as part of the practice of shifting agriculture (1994a:10-11, emphasis added).

The Biocultural Diversity Crisis in Central America

During the sixteenth century, when European colonial powers reached Central America, the region's forests covered 400,000 km^2 (Nations and Komer 1983a:232). Although some Pacific Slope deforestation occurred during the subsequent periods of colonial domination and independence, the environmental situation remained fairly stable until the 1940s. At this time, intensive resource exploitation accelerated as the new technology of heavy-duty vehicles and machinery facilitated road building and land clearing, making the extraction of oil, minerals, and most significantly, timber, from isolated areas economically viable (Chapin 1992a:64). Since then, more than two thirds of Central America's rainforests have been cleared (Nations and Komer 1983a:232).

A significant threat to indigenous peoples in Central America is the destruction of their environment. In accordance with the theory that States pose the main threat to global biocultural diversity, the threat to Central America's indigenous peoples is posed primarily by the non-sustainable norms of modernisation and development pursued by the States within which indigenous nations are encapsulated (Halle 1992).

This type of development drives the number one type of environmental destruction in Central America: deforestation. Deforestation is a three stage process (Chapin 1992a:64-65; Myers 1981; Nations and Komer 1982, 1987). Initially, external interests enter the forest to extract valuable hardwoods and sub-surface resources. Even when selective, this

type of resource extraction damages remaining forest and denies indigenous resource rights. Once logging roads provide access to the area, State populations of landless peasants, driven by population pressures and inequitable land distribution, and often encouraged by State governments, colonise, clear, and cultivate the land. Since rainforest soils are not highly fertile, they soon become depleted and new land must be cleared. As these colonists advance, indigenous nations are further deprived of their resources, expelled from their land, and pushed further back into the forest. Finally, as colonising peasants are forced to move on to new land, the areas they have cleared are bought up by cattle ranchers and turned into pasture. Rainforest soils are unable to support even pastures for long however, and soon these too become weeded, eroded wastelands which are eventually abandoned.

This "development" process is clearly not ecologically viable. Nor is it economically efficient. Cattle-raising on rainforest soils offers a much lower production rate than many other food production systems, particularly the indigenous agroforestry systems of the region (Nations and Komer 1987:162-163). Furthermore, neither indigenous peoples nor local colonists benefit from beef production. As beef production increases, local per capita beef consumption actually decreases because most is produced for export. Ninety percent of Central America's beef exports go to the United States. There, comparatively high prices are paid for lean grass-fed, as opposed to grain-fed, beef by hamburger manufacturers who supply the fast-food industry (Myers 1981; Salati and Vose 1983:68). Myers (1981:8) calls this protein flight 'the "hamburgerization" of the rainforests.'

As a result of this process, the rate of deforestation in Central America has increased significantly every decade for the past 50 years (Chapin 1992b:233). As the forests which form the wildlife corridor between the Americas disappear, Central America's biological diversity is being lost forever. As Central America's indigenous nations subsequently lose their homelands, the region's cultural diversity is also being lost forever. This is Central America's biocultural diversity crisis.

ATTEMPTS TO ADDRESS THE CRISIS THROUGH PROTECTED AREAS

Since the late 19th century, aspects of the global biocultural diversity crisis have been internationally recognised. Comprehension of the problem, however, has been largely limited to the biological diversity crisis, and attempts to redress it have been channelled through conservation initiatives. Accordingly, when the term **conservation** was coined in the United States in 1907, the objective was to protect "nature" (biodiversity) from humans. This objective was based on the premise that 'man (sic.) disrupts the fundamental harmony or balance of nature' (Smith 1971:4).

Since its conception in 1832 (see Dasmann 1988; Harmon 1987; Nash 1970), the **protected area** has been the predominant *in-situ* conservation strategy. In 1872, the first Western protected area, Yellowstone National Park, was established (Nash 1970:734).

By the 1920s, national parks had been established on all continents, and in 1969, the International Union for the Conservation of Nature (IUCN) defined a **national park** as:

> ...a relatively large area which is *not materially altered by human exploitation and occupation*, and where the highest competent authority of the country has taken steps to prevent or eliminate exploitation or occupation in the whole area (McNeely 1994b:392, emphasis added).

Predictably, as this Western ideal was adopted world-wide, serious contradictions between conservationist rhetoric and what was practical in the field emerged (Hough 1988:129-130). Since most biologically rich areas *are* occupied or exploited, and thus materially altered by humans, eliminating occupation and resource exploitation created serious conflicts with local people, often indigenous nations

Fortunately, since the 1970s, it has gradually been recognised that the goal of conservation should be the protection of *biocultural* diversity, and conservation has been redefined as:

> ...the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations (International Union for the Conservation of Nature 1980:2).

Consequently, an increasing number of conservation initiatives have moved away from the model of protected areas as "isolated islands" (McNeely 1994b:399) towards one oriented towards protecting the environment *and* meeting human needs (Hales 1989:141; Ishwaran 1992:18). An essential difference between the many types of protected area now in existence is the degree of human resource use and environmental alteration which occurs (Brechin *et al*. 1991:7).

Indigenous Peoples and Protected Areas: Evidence from Central America

Since biological and cultural diversity are coterminous, indigenous homelands, harbouring diverse and intact ecosystems, are often targeted for protected area designation. Current protected area initiatives consider the rights and interests of indigenous peoples to differing degrees. Gray (1991:56) proposes that modern conservationists can be divided into three categories with respect to their position regarding the relationship between indigenous peoples and protected areas: "classic nature conservationists", "green capitalists" and "social ecologists". He also identifies three parallel groups amongst those who seek solutions to the problems faced by indigenous nations: "isolationists", "pro-indigenous capitalists", and "proponents of self-determination". All of these positions address threats to the environment and indigenous nations with the same sense of urgency, however each emphasises a different set of priorities.

Classic Nature Conservation

Classic nature conservationists advocate a preservationist approach to

conservation. They see the environment targeted for protection as "pristine wilderness", and all people, including the area's indigenous inhabitants, as destructive and predatory. Their solution to environmental destruction is to guard endangered species and non-renewable resources by excluding all human activity from protected areas (Gray 1991:56; Hyndman 1994:296).

In so guarding the environment, classic nature conservationists support the creation of **national parks** based on the Yellowstone model (Kemf 1993:6; Lewis 1990:18). Yellowstone National Park was established on the territory of the Crow, Blackfeet and Shoshone-Bannock indigenous nations. Despite the fact that some history books report that when the park was created the Shoshone willingly accepted an invitation to move to a reservation in 1871, more recent accounts note that, in 1877, 300 people were killed in a series of battles, and in 1886, the park's administration was finally turned over to the United States army (Kemf 1993:5-6). In accordance with this "model", it has been common practice to first establish national parks, and later to inform local, indigenous landowners that they will have to move or follow new rules (Clay 1985:2; Deihl 1985:37; Gray 1991:iii; Hyndman 1994:296; Kemf 1993:6; Lewis 1990:18; Nietschmann 1991a:373; Poole 1989:25-26; Utting 1993:105).

This lack of consideration for indigenous peoples inherent in the classic nature conservationist approach is evident throughout Central America, where 80% of all recognised protected areas are inhabited by indigenous peoples who have been subjected to some type of land/resource use restriction (IWGIA 1996:72). The Honduran government, for example, has recently decreed the formation of two national parks on Garífuna territory: **Cayos Cochinos**, comprising 18 small islands, and **Punta Sul Park**, which incorporates five communities. These communities are living in fear of imminent expulsion (IWGIA 1996:72-73).

Parallel to the classic conservationist position is that of the **isolationists** which argues that indigenous peoples need a large land base upon which they can be protected from encapsulation into the modern world system (Gray 1991:56; Hyndman 1994:296). This position has been rejected as an impossible 'zoo-like arrangement of an enforced primitive state' (Goodland 1988:403).

Dispossessing indigenous peoples of their territory, and/or restricting or prohibiting their access to resources may have negative effects on both indigenous peoples and the environment. In terms of the environment, '[e]fforts to totally exclude human influence from "natural" ecosystems, as in strictly protected national parks, can lead to a situation that has not occurred for thousands of years and will have unknown ecological implications' (McNeely *et al*.1990:51).

For indigenous peoples, the consequences of classic nature conservation are devastating. When established lifeways and livelihoods can no longer be maintained due to the loss of land and resources, indigenous nations in many cases suffer from social collapse and greater cultural and economic dependency (Gray 1991:24-28; Hyndman 1994:297; Rao

and Geisler 1990). This situation contributes to the erosion of indigenous ecological knowledge and established resource management practices, and ultimately, to the loss of cultural diversity (Hyndman 1994:297).

Furthermore, indigenous peoples' subsequent resentment toward an imposed protected area is likely to result in social conflict, clandestine activities, non-cooperation or apathy, all of which will ultimately undermine the possibility of achieving the goals of biodiversity conservation (Lewis 1990:19; Rao and Geisler 1990:21,22; Utting 1994:257). In Belize, for example, the management strategy of **Crooked Tree Wildlife Sanctuary**, established in 1984, forbids all hunting within the park. Since no alternative is available to local people who depend upon waterfowl and wild game for protein, many 'have begun to hunt the endangered and protected animals to demonstrate their dissatisfaction' (Steinberg 1993:260).

Costa Rica's protected area system, covering 30 percent of the State (Budowski 1992:50-51), and often held up as a model for other countries in Latin America (Barzetti 1993:101,105; MacFarland *et al*. 1982:592), also demonstrates the fundamental weaknesses of the classic approach to conservation. There too, serious conflicts have arisen as indigenous peoples have responded to the inconsiderate way the State has established protected areas, often without socioeconomic studies of peoples likely to be affected, and rarely offering alternative land or employment to displaced peoples. The State's process of land acquisition which is often not financially viable, and the limits placed on resource use in protected areas, have also been problematic (Utting 1993).

When **Cahuita National Park**, in 1970, became the first legally established national park in Costa Rica, for example, the financing necessary to compensate Garífuna landowners for the loss of their land was unavailable to the National Parks Service. Twelve years later the owners had still not been paid. As a result, the Garífuna see the park as yet another imposition by outside authorities on their lives, and serious conflicts between park authorities and local communities continue (Kutay 1991; MacFarland *et al*. 1982:595).

The negative effects of the classic approach to conservation are compounded by the fact that the Costa Rican government's primary strategy for dealing with conflicts over national park resources is to ignore them, neglecting to enforce environmental laws, policies and regulations (Utting 1994:235). This, accentuated by limited human and financial resources, has meant that protected area status often exists only on paper (Utting 1994:239). This situation is common throughout Central America (Green 1990:123-124).

Since the aim of conservation is to benefit both present and future generations, the classic nature conservationist's perspective, although still powerful, is now discredited (Gray 1991:26; Hyndman 1994:297). It extinguishes the rights of indigenous peoples, contributing to the ultimate collapse of their relationship with the environment, and clearly fails to recognise the significance of biocultural diversity. Rather, it contributes to its destruction.

Green Capitalism

Unlike classic conservationists, **green capitalists** recognise the significance of biocultural diversity and support the integration of conservation and development. Through the promotion of the economic value of healthy forests, green capitalists create an economic and ecological argument for conservation strategies that support local sustainable resource extraction for the international market (Clay 1992:402; Gray 1991:56). Green capitalists are aligned with **pro-indigenous capitalists**, who argue that indigenous peoples need to penetrate international markets in order to obtain the capital they need to survive and fight for their homelands (Gray 1991:56; Hyndman 1994:296).

Green capitalists advocate protected area strategies that involve indigenous communities, sustainably harvesting rainforest products for the international market. They use economic incentive and protected areas called **extractive reserves** to compensate indigenous land owners for their labour, surplus subsistence goods and other commodities produced through the utilisation of indigenous ecological knowledge and sustainable harvesting techniques (Gray 1991:35-36; Hyndman 1994:298).

One example of the green capitalist approach in Central America is currently operating in the **Uaxactun-Carmelita Extractive Reserve** in northern Guatemala's Petén region. This reserve, based on the extraction of three renewable resources: chicle gum, *xate* palm and allspice (Nations 1992; Reining and Heinzman 1992), is now incorporated into the Maya Biosphere Reserve which is home to approximately 7,000 people, of which an estimated 3,000 are Mayan (Chapin 1992a:66; Santiso 1993:8).

In the Petén, the extraction of *xate* and allspice has been practiced for at least 30 years, and chicle, for more than 90 years. These products are thus exploited by a well-established forest culture with considerable knowledge and experience (Reining and Heinzman 1992:11). They are currently collected by more than 6000 people (Santiso 1993:6), many of whom are dependent upon them for a substantial part of their cash income. Combined, they produce between US$4 million and US$7 million per year in export revenues for Guatemala (Nations 1992:209). There is thus a strong economic incentive for conserving the reserve's forests.

A substantial number of biologists, anthropologists and indigenous peoples however, are opposed to green capitalism (Pearce 1990). They argue, for example, that increased demand for new and exotic commodities could lead to their over-exploitation (Corry 1993:153), or even encourage their cultivation as cash crops (Clay 1992:409; Posey 1990:96), ultimately destroying the ecosystems targeted for protection. They also argue that green capitalism may not provide indigenous peoples with a sustainable income when it perpetuates a cycle of economic dependency on external markets, foreign intermediaries and consumer demands, which neither indigenous peoples, nor the companies they trade with, can control (Corry 1993:149; IWGIA 1993:8).

Accordingly, in the Petén, it is possible that local economic pressures will lead to an influx of inexperienced harvesters using non-sustainable harvesting techniques (Nations 1992:216). Already, harvesting techniques are inefficient as up to 40 percent of all *xate*

harvested is discarded once it reaches warehouses (Nations 1992:212). Furthermore, increased demand for these forest resources has already resulted in their over-exploitation since 'so far few products of existing or potential economic value have been identified, thus concentrating commercial extraction activities on only a few species' (Santiso 1993:9). The danger of over-dependence on three products was demonstrated in the early 1980s when sorva, a chicle substitute from Brazil, led to the temporary collapse of Guatemala's chicle industry (Nations 1992:215).

Those in opposition to green capitalism also argue that it only conditionally recognise the rights of indigenous peoples to the land and resources they occupy and utilise (Corry 1993:151), and may not strengthen indigenous peoples' community-level organisation (Clay 1992, 1993). It is a paternalistic, top down assumption that indigenous peoples are primitive capitalists, operating under a capitalist rationality and organised into communities conducive to forming the types of cooperatives necessary for this type of project. In reality, this conventional development model is not necessarily culturally appropriate for indigenous societies (Gray 1990; IWGIA 1993:9). Most indigenous peoples targeted for sustainable harvesting practice kinship modes of production (see Wolf 1982). These are systems of subsistence production and simple reproduction based on reciprocity with the internal regulation of production, distribution and consumption (Hyndman *et al*. 1994). When they enter into the international market these indigenous economies often clash with capitalist relations of production, and the economy is taken out of indigenous social control. Since sustainability based on internal subsistence production is very different from that controlled by consumer demands, indigenous economies encountering the market are faced with a fundamental contradiction between limiting and increasing demand (Gray 1990). Consequently, introducing economic incentives can radically change the values and priorities of indigenous communities (Clay 1992:410), contributing to internal division, and the breakdown of cultural diversity. Assigning economic exchange value to indigenous resources also detracts from international recognition of their subsistence use value (Corry 1993:148; IWGIA 1993:7).

In the Petén, since cooperatives have not been formed among the harvesters, it is the contractors and exporters who make the real money (Nations 1992:216). Due to inflation, the harvesters' real income is decreasing, while exporters are profiting from stable or increasing international prices (Reining and Heinzman 1992:116).

Thus, extractive reserves as currently implemented under the green capitalist approach may not be compatible with the conservation of biocultural diversity. While they may promote the short term protection of biological diversity, lack of local control means that the long term protection of the region's biocultural diversity cannot be guaranteed.

Another Central American extractive reserve, the **Terra Nova Rain Forest Reserve**, established in 1993 in Belize, is based upon an alternative approach to sustainably harvest indigenous resources (Balick *et al*. 1994; Moran 1994:105-106). Terra Nova's management plan incorporates the activities of traditional Mayan healers and their students. Following an indigenous pattern of communally owned and managed resources, the reserve has been

deeded to the Belize Association of Traditional Healers which represents the region's indigenous Mayan nations. Terra Nova is intended to become a self-supporting extractive reserve through the regulated harvest of medicinal plants for the local market. A clinic with a sliding fee scale will also benefit local villagers, at least 75 percent of whom depend on plant medicines for some aspect of their primary health care needs.

The reserve has received much support, particularly at the grassroots level, and the healers' association is working in collaboration with scientists, governmental policymakers and the local tourist industry in an attempt to make Terra Nova the world's first successful "ethnobiomedical" extractive reserve. Since, unlike in the Petén, production and marketing will be strictly under indigenous control for a local market, Terra Nova may have the potential to truly conserve biocultural diversity in Belize.

Thus, despite the significant drawbacks of the green capitalist approach, not all attempts to sustainably harvest indigenous resources will have detrimental effects on indigenous communities (Gray 1991:41). Given that many indigenous communities desire interaction with cash economies, achieving this is dependent upon careful planning and the empowerment of indigenous peoples (Colchester 1989; Corry 1993; Gray 1990). If trading is to be culturally appropriate, encourage real economic independence, and strengthen indigenous communities against immediate local, regional and national forces, commercialisation must start with the people themselves and the local market (Corry 1993:148-149; IWGIA 1993:9). Indigenous communities have had access to extensive trade networks for centuries (Stiles 1994:106). They can therefore utilise existing relationships on local and State levels in order to make their own contacts and develop their own systems of control over marketing channels, processing, and transport systems (Gray 1990; IWGIA 1993:9). For this to occur, legal recognition of indigenous rights to land and resources is essential (Pendelton 1992:256; Stiles 1994:109).

Social Ecology

This second approach to sustainable harvesting is advocated by **self-determination proponents** who believe that the indigenous voice is paramount. They support political empowerment and land rights for indigenous peoples, which they believe can insure their future (Gray 1991:56; Hyndman 1994:296). Self-determination proponents are aligned with **social ecologists** who believe that there are no other land use models that preserve ecological stability or biological diversity as efficiently as the established land use models of indigenous nations (Houseal *et al*. 1985:10). Thus, social ecologists emphasise the need for integrating conservation with ecodevelopment programs (Hyndman 1994:297; Wells and Brandon 1993). Thus, they too identify the true goal of protected area management as the conservation of biocultural diversity.

Protected area strategies arising from the social ecology perspective were internationally recognised in the 1970s when The United Nations Educational, Scientific and Cultural Organisation (UNESCO) launched a program called **Man and the Biosphere (MAB),** the first *in situ* conservation program for the preservation of *cultural* land and

seascapes (Oldfield and Alcorn 1991b:44). MAB's central component is an international network of **biosphere reserves**. Biosphere reserves are protected areas designed to conserve representative (as opposed to exceptional) samples of major ecosystems (Eilers 1985:9). They incorporate resident indigenous communities and aim to promote their participation in land use and management (Gregg 1991:278).

These objectives are combined within biosphere reserves through the demarcation of various zones: a strictly protected "core area", an adjacent or surrounding "buffer zone" where limited resource use occurs, and an exterior, often open ended "transition area" where sustainable resource exploitation by local communities occurs (Brandon 1991:371; Gregg 1991:279-282; USMAB 1989).

The **Rio Platano Biosphere Reserve** in Honduras was, in 1980, the first such reserve established in Central America (Kolankiewicz 1989:36). Later, in 1982 and 1983 respectively, the **La Amistad** and **Darién Biosphere Reserves** were established in Costa Rica and Panama. All three of these reserves incorporate significant indigenous communities and their homelands (For detailed case studies of these three biosphere reserves see Glick and Betancourt 1983; Gradwohl and Greenberg 1988:78-80; Houseal *et al*. 1985; Kolankiewicz 1989; Olson 1989; Poole 1989:58-62; Torres *et al*. 1989.)

The experiences of the now 324 biosphere reserves in 82 States (Semple 1995) have demonstrated that 'the main problem for all existing biosphere reserves is that of their proper management' (Batisse 1993:4). This has been attributed largely to problems associated with the practical aspects of buffer zones and local participation (Wells and Brandon 1993), and a lack of resources and organisational framework necessary for their implementation (Ishwaran 1992:20).

More than ten years after their creation, the Central American biosphere reserves mentioned above are not well managed: all face the possibility of having major highways constructed through them (Houseal *et al*. 1985; 248; IWGIA 1995:73; Nations and Komer 1983b; Olson 1989); all are threatened by the presence of both illegal, and government approved, mining and logging, as well as contraband and narcotic-related activities (Gradwohl and Greenberg 1988:80; Houseal *et al*. 1985:14; IWGIA 1994a:49, 1995:72; Kolankiewicz 1989:36; Olson 1989:250; Poole 1989:61-62; Torres *et al*. 1989:257); and colonists are currently farming and rearing cattle within the borders of all three reserves (Gradwohl and Greenberg 1988:80; Houseal *et al*. 1985; Olson 1989:250; Poole 1989; Torres *et al*. 1989:256).

Significantly, while biosphere reserves provide short term territorial security, it is not a pre-requisite that the indigenous peoples within their borders receive legal title to their lands and resources (Davis and Wali 1994:8). Furthermore, although social ecologists are committed to the participation of indigenous peoples in protected area management, rarely has genuine participation been elicited (West and Brechin 1991:395). Instead, most biosphere reserves have treated indigenous peoples as passive beneficiaries of project activities (Wells and Brandon 1993:160).

The management plans of Rio Platano, La Amistad and Darién Biosphere Reserves all neglected to involve resident indigenous peoples to any significant degree during the planning and implementation stages. Although education teams were sent to explain the reserve concept to indigenous communities within the Rio Platano Reserve during its initial planning stages, for example, these communities were viewed as a user group within the reserve rather than members of the planning team (Glick and Betancourt 1983:172; Houseal *et al*. 1985:15). Clearly in Central America, as in the rest of the world, biosphere reserves have not lived up to one of MAB's expectations.

Hence, although social ecology provides the most viable theoretical approach to biocultural diversity conservation, 'the potentially important role of indigenous cultures in developing the conservation role of biosphere reserves has yet to be fully realized' (Gregg 1991:290).

CONSERVATION BY SELF-DETERMINATION: AN INTEGRATED SOCIAL ECOLOGY/SELF-DETERMINATION APPROACH

It is proposed that in order to overcome some of the problems affecting the successful implementation of biosphere reserves, and other protected areas based on the social ecologist's approach to conservation, the involvement of indigenous peoples and their homelands must be under indigenous control. Conservation by self-determination, a conservation strategy which is the product of a truly integrated social ecology/self-determination perspective, is thus proposed as one approach that may achieve this goal.

Self-determination

Self-determination is the exercise of 'the right [of a people] to freely determine its social, economic, political and cultural future without external interference' (DeLaCruz 1989:1). What self-determination means for indigenous nations varies from external self-determination: full sovereign independence through the establishment of a new ethnically homogeneous State, to internal self-determination: autonomy or self-government through the establishment of a cultural and political niche within the framework of an existing State (Hannum 1990:97; Wright 1988:381).

During the last decade, '[w]ithin the UN human rights system, the issue of [indigenous] rights has moved...from the fringe to the mainstream' (Wiggins 1993:352). In 1982, the UN Working Group on Indigenous Populations was established to develop international standards concerning the rights of indigenous peoples (Lopez-Reyes 1995:53). In 1985, the Working Group began to draft a Declaration on the Rights of Indigenous Peoples (DRIP) (Hannum 1990:85). The draft DRIP, agreed upon by the members of the Working Group at its eleventh session (Fourth World Documentation Project 1993) declares in Article 3: 'Indigenous peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.'

Furthermore, Article 26 states:

> Indigenous peoples have the right to own, develop, control and use the lands and territories, including the total environment of the lands, air, waters, coastal seas, sea-ice, flora and fauna and other resources which they have traditionally owned or otherwise occupied or used (Fourth World Documentation Project 1993).

Central to the indigenous struggle for self-determination is the legal recognition of these **rights to land and resources** (IWGIA 1994b:171).

Also central is the facilitation of political dialogue for the generation of constructive agreements between States and indigenous nations. In order for this dialogue to occur, indigenous nations must be politically empowered (IWGIA 1994b:171). Political empowerment is based on **self-organisation**: 'the creation of representative or participatory institutions which enable people to aggregate and articulate interests, [and] mobilize in defence of such interests' (Utting 1993:169). Such indigenous institutions must construct alliances on local, national and international levels in order to bring local issues to national and international attention, and to exert pressure on policymakers (Utting 1993:169-170).

Self-determination in Central America

In Central America, as in the rest of the world, indigenous nations are committed to the struggle for self-determination. In only a few cases however, have indigenous peoples' collective rights to land and resources been legally recognised. While Panama, Costa Rica, Belize, and Nicaragua, legally recognise indigenous territories, Guatemala, El Salvador and Honduras have 'no clear policy or mechanism for establishing Indian reserves or territorial status' (Herlihy 1993:55-56). Furthermore, the indigenous reserves that do exist, often exist on paper alone. In Costa Rica and Panama for example, approximately half of all land designated as part of indigenous reserves is currently owned or occupied by non-indigenous interests (Carmack 1989; Utting 1994:238).

In an endeavour to improve this situation, almost all Central American indigenous nations are involved in organised, territorially-defined self-determination movements (see Berkey 1995:13; Carmack 1989; Chapin 1993:220; Cultural Survival Quarterly 1992a; Luthin and Calderon 1995:38; Nietschmann 1992:4; Stocks 1992; Wilk and Chapin 1989). In order to promote the legal recognition of their homelands, indigenous organisations have begun to prepare land-use maps and land tenure studies (Anaya and Macdonald 1995; Berkey 1995; Cultural Survival Quarterly 1996; Gonzalez *et al*. 1995; Herlihy 1993; Luthin and Calderon 1995; Nietschmann 1995). They are also fighting for their rights in State courts, legislative bodies and constitutional conventions (Wiggins 1993:353).

Conservation by Self-determination

Advocates of conservation by self-determination recognise and promote biocultural diversity, and believe that indigenous self-determination and environmental protection can

be interdependent and mutually reinforcing (Nietschmann 1991a:373). Accordingly, conservation by self-determination is conservation in which the involvement of indigenous peoples and their homelands is under indigenous control. It is a grassroots initiative in which conservation efforts, although initially propelled by external financial and political support, are locally driven. This type of conservation is in accordance with Article 28 of the draft Declaration on the Rights of Indigenous Peoples: 'Indigenous peoples have the right to the conservation, restoration and protection of the total environment and the productive capacity of their lands, territories and resources' (Fourth World Documentation Project 1993).

Complex issues regarding the theory behind conservation by self-determination are evident in continuing discussions concerning the nature of the relationship between indigenous peoples and conservation (Alcorn 1993; Clad 1984; Dwyer 1994; Peres 1994; Posey 1992; Redford 1991; Redford and Stearman 1993a, 1993b). One facet of this discussion centres on the relationship between indigenous peoples and the environment, and the contrast between this relationship and that between Western conservationists and the environment.

One position expounded in the first part of this paper was that indigenous peoples both use and manage their resources. Some debate has surrounded the matter of the extent to which indigenous peoples' resource management practices are "conscious" however, and whether any "real" concepts of conservation exist within indigenous cultures (Posey 1992:21). Indigenous resource management practices are characterised by 'the commingling of knowledge, practice and belief' (Gadgil *et al*. 1993:155, emphasis added), and thus, may function 'to satisfy religious, ritual or utilitarian needs [and] may or may not be intended by the participants to achieve the observed outcome' (Dwyer 1994:92). Since most ecologists argue that unless people consciously articulate their intention with regard to their production practices, they are using rather than managing their resources (Gray 1991:21), indigenous peoples are often seen solely as resource users rather than managers.

This view is used to support the assertion that indigenous peoples are not conservationists. Indeed, indigenous peoples themselves have made this claim (Chelala 1992:45). Such claims have been used to support the contention that the goals of indigenous peoples are not compatible with the goals of conservation (Redford and Stearman 1993b). Yet clearly, the absence of this Western concept amongst indigenous ones 'does not mean that conservation is new to indigenous peoples' (Alcorn 1993:425).

While "conservation" may not exist as a concept within indigenous cultures, conservation can and does occur. It is simply that 'individuals from different cultures inevitably think and speak with different cognitive "realities"' (Posey 1992:22). Thus, indigenous cognitive realities concerning the environment and its maintenance differ from Western conservationists' reality. It is for this reason that subsistence activities such as agroforestry hold value for Western conservationists (Clarke and Thaman 1993). In many coastal areas, for example, 'detailed indigenous marine knowledge has led to systems of customary sea tenure that observed almost every form of modern reef conservation centuries

before the need was even recognized in the West' (Hyndman 1994:297). Indigenous models which perceive entire landscapes as units of management are thus commensurate with Western ideas of watershed and coastal zone management, or of landscape ecology and human ecosystem science (Clarke 1995:7).

The conclusion that indigenous peoples' resource management practices are incompatible with those of Western conservation, thus reflects the failure of Western ecologists to understand indigenous realities. This inadequacy can only be overcome through a 'sharing of realities' leading to an understanding of *emic* interpretations (those that reflect indigenous cognitive and linguistic categories) of indigenous realities (Posey 1992:22).

At the opposite end of the continuum is an image of indigenous peoples as "natural conservationists" who live in harmony with their environment (Dwyer 1994:91; Redford and Stearman 1993b). This notion has inspired the unrealistic and idealised reincarnation of the myth of "the noble savage" as "the ecologically noble savage" (Redford 1991:46). While it has been demonstrated that 'there are methods used by indigenous peoples that are definitely superior to those used by non-indigenous peoples living in the same habitat' (Redford 1991:47), such methods are often sustainable only under a certain set of conditions: low population density, favourable ratios of population size to land and resource availability, and limited indigenous involvement in the market economy (Dwyer 1994:92; Redford 1991:47).

Since indigenous nations are increasingly faced with internal population and resource pressures, and increased involvement in market economies, many indigenous peoples have adapted to integrate external values and lifestyles at the expense of indigenous ecological knowledge and resource management practices. Moreover, as indigenous homelands have been reduced in the face of external pressures, becoming mere remnants of once more extensive biospheres, indigenous resource management practices may no longer be appropriate (Clad 1984; Dwyer 1994; Gadgil *et al*. 1993:156; Rao and Geisler 1990:29; Redford 1991; Redford and Stearman 1993a:252). This predicament has led to speculation concerning the ability of indigenous peoples to drive conservation efforts (Peres 1994).

To recognise the value of indigenous knowledge and practice therefore, is not to suggest that optimal conservation means absolutely no outside management input (Rao and Geisler 1990:27). For this reason, current attempts at conservation by self-determination are based on **comanagement**. Comanagement involves shared decision making between indigenous peoples and conservationists (as equals) for protected area management. It also encourages the integration of indigenous and non-indigenous knowledge and practice (DeWalt 1994:127; Rao and Geisler 1990).

It has been argued (Alcorn 1993:426; Cox and Elmqvist 1993:12) that conservationists need to respond to indigenous needs and concerns by initiating frank discussion and debate with indigenous peoples in order to foster 'the explicit recognition of different priorities and consequent trade-offs, and the understanding and compromise that

this process engenders' (Redford and Stearman 1993a:254). It has also been argued that:

> When the practical concerns of conservationists and indigenous peoples meet, then it is the former...who must make concessions to the needs of the latter. ...through acknowledgment of the rights of those peoples and in full understanding that by acting in this way they may compromise the global reach of modern conservation (Dwyer 1994:96).

While both these views are incorporated into the argument for conservation by self-determination, the latter makes an important point: ultimately, decisions concerning indigenous land and resources must rest with indigenous peoples. For this reason, only where indigenous peoples see a need to protect their environments, is conservation by self-determination proposed as an approach through which indigenous peoples may establish protected areas within their homelands, simultaneously achieving the goals of conservation and demanding recognition of their indigenous rights. Indigenous self-determination and environmental protection *can be* interdependent and mutually reinforcing, but they are also *separate* matters. Consequently, if Fourth World nations choose to undertake practices antithetical to conservation, this too must be their choice, as it has been the choice of the States of the First, Second and Third Worlds.

Conservation by self-determination has been attempted globally through recently established biosphere reserves, integrated conservation/development projects and other community-based projects. In Central America, two notable indigenous initiatives have been undertaken by the Kuna nation in Panama and the Miskito nation in Nicaragua. While both have a degree of legal autonomy within their respective States, the political contexts within which they have sought to protect the biocultural diversity of their homelands have differed.

A Project for the Management of Kuna Yala (Pemasky) Forested Areas

When they launched their Project for the Management of the Forested Areas of Kuna Yala in 1983, the Kuna became responsible for the design and implementation of 'the world's first internationally recognised forest park created by an indigenous group' (Clay 1988:6).

Kuna Yala: Biocultural Diversity

Kuna Yala, the autonomous homeland of the Kuna nation lies on the Caribbean coast of Panama. Its 321,159 hectares extend from the Caribbean slopes of the San Blas Mountains to the coast, and include the San Blas Archipelago, more than 300 coral islands stretching 375 kilometres along the coast (Archibold 1992:25). Its forests, low lying wetlands, mangroves, rivers, coastal lagoons, and rich offshore waters exhibit rich biodiversity (Archibold 1992:25-27; Breslin and Chapin 1984:34; Castillo 1992:17; Houseal *et al*. 1985:16).

The Kuna nation consists of over 30,000 people, the vast majority of whom are distributed among 50 small coastal islands and 12 mainland villages. Kuna subsistence production is thus based on both terrestrial and marine resources. In addition to hunting, fishing and gathering, the Kuna practice a mix of family and communal slash and burn agriculture on small parcels of land along the coast (Chapin 1985:41). Since they have also entered into various avenues of the cash economy (for example cash crops, salaried employment, small businesses and cooperatives), a market-oriented, cash-based economy currently operates alongside their subsistence production (Breslin and Chapin 1984; Houseal *et al*. 1985:16; Swain 1989:92).

The Kuna retain an intimate relationship with their environment, continuing to identify their culture with a specific expanse of land - Kuna Yala (Breslin and Chapin 1984:31). Their rich oral history teaches that humans must act in balance with nature (Archibold 1992:25; Houseal *et al*. 1985:16; Sherzer 1990:67,73). This balance is reinforced through cultural constraints which function to protect the environment (Archibold and Davey 1993:52,55; Breslin and Chapin 1984:34; Chapin 1985:48-49; Houseal *et al*. 1985:16). The Kuna retain extensive ethnobotanical knowledge, identifying and using many species relatively unknown to Western scientists (Archibold 1992:27; Archibold and Davey 1993:55). An ethnopharmacognostic study undertaken in one Kuna village, for example, resulted in the collection of 99 species, from 42 plant families, all of which held some medicinal value for the Kuna (Gupta *et al*. 1992). They also maintain diverse agroecosystems. A study of one area of Kuna Yala, for example, identified 72 plant combinations utilising 48 tree species and 16 domestic crops (Houseal *et al*. 1985:16; Utting 1993:49).

Kuna Autonomy: Towards Self-determination

> For the Kuna of Panama, contact with Europeans began early, was brutal, and is remembered, mythologized, recreated, and performed in detail to this day... (Sherzer 1994:902,922).

When the Spanish reached Kuna territory during the sixteenth century, the Kuna nation staunchly resisted invasion. Since, at that time, Central America's Caribbean coast was a zone of British-Spanish colonial conflict (Nietschmann 1989:19), the Kuna instead allied themselves with the British traders and pirates of the Caribbean (Stout 1947:51). Their resistance against the Spanish culminated during the early eighteenth century in a widespread war that, although temporarily evicting the Spanish (Nietschmann 1988:278), culminated in the Spanish calling for the 'reduction or extinction' of the Kuna (Herlihy 1985:43).

Although the Kuna were never conquered or subjugated, they were eventually forced to retreat from large tracts of their homeland, which then extended from the Caribbean coast across the forested Darién region as far as the Pacific coast (Chapin 1985:43). They initially sought refuge in the thick forests of the more isolated Caribbean

slopes of their homeland, and by the mid-nineteenth century had begun transferring their villages to the San Blas Islands in order to avoid the pests and plagues of the mainland (Chapin 1985:43; Houseal *et al*. 1985:16).

Despite this history of conflict, the Kuna are one of the few indigenous nations in the Americas to have survived the impact of colonisation with their social, cultural, political and linguistic independence intact (Breslin and Chapin 1984:26; Sherzer 1994:922). Consequently, they are 'perhaps the most socially and culturally cohesive indigenous society in the hemisphere' (Wright *et al*. 1988:356). This cohesion, based on strong principles of autonomy and self-reliance, enables Kuna identity to be retained while they confront outside influences (Chapin 1985:42; Houseal *et al*. 1985:16).

Early this century, Kuna territory, resources and cultural integrity were once more threatened. While non-Kuna resource pirates and colonists were expropriating Kuna land and resources, the Panamanian government was implementing a full-scale program of coercive acculturation (Herlihy 1989:17; Howe 1986:19; Nietschmann 1988:279). Consequently, in 1925, the Kuna took up arms to successfully defeat and drive out government police and non-Kuna invaders (Herlihy 1989:18; Howe 1986:19).

By 1938, the subsequent negotiations between the Kuna and the State had generated legislation recognising an official, autonomous Kuna reserve, which was called for the first time in Panama's history, a *comarca* (Herlihy 1989:18; Howe 1986:19; Stout 1947:87). In 1945, Kuna and State authorities drew up a constitution which was formally recognised in 1953, establishing regional governance and formalising the Kuna political system (Herlihy 1989:18; Howe 1986:20). Consequently, Kuna Yala, which is the Kuna's preferred name for their territory (Howe 1986:xiii), legally became the *Comarca de San Blas*.

The Kuna have thus retained their traditional democratic political system, embodied in frequent village meetings, and the biannual Kuna General Congress. Three national chiefs represent the Kuna to Panamanian society (Archibold 1992:29; Houseal *et al*. 1985:16). Moore (1984:36) has compared Kuna congress procedures with the Panamanian legislature's, and concluded that it is the indigenous model that is the more democratic, while the Panamanian model is 'not so much a structure for inputs to express popular demands as...a structure for outputs.' (For a discussion of Kuna politics see Howe 1986.)

According to Panamanian law, no non-Kuna can hold claim to land within the comarca. Thus, the State has legally recognised indigenous rights to land and resources (excluding sub-surface resources) (Breslin and Chapin 1984; Herlihy 1989:21,23). It was this legal status, and their history of political resistance and social cohesion, which empowered the Kuna to continue to defy the territorial invasion and environmental destruction of their homeland.

Kuna Yala Under Threat

In the 1970s, the construction of a road linking the Pan-American Highway to Panama's Caribbean coast opened Kuna Yala to a flood of landless peasants and cattle

ranchers. Soon, tracts of forest along the mountain ridge bordering Kuna Yala were decimated. This invited increased poaching and plunder of Kuna forest resources, and colonisation of Kuna territory (Archibold 1992:21; Archibold and Davey 1993:52).

Furthermore, deforestation in the mountains meant that before long the Kuna would be faced with the serious effects of erosion. Large quantities of soil would be washed down the coastal slopes, affecting Kuna farms, and continuing into the ocean to jeopardise the coral reefs and Kuna fishery (Archibold and Davey 1993:53; Wright *et al*. 1988:353). Effectively, their subsistence base would be destroyed.

PEMASKY - Conservation by Self-determination

In order to protect themselves, the Kuna decided to establish a permanent presence at Udirbi, the site where the road met Kuna Yala's border. Their initial efforts at small-scale farming in the area, although recognised as a comarca-wide effort (Chapin 1985:46; Houseal *et al*. 1985:17), failed due to the area's unsuitability for agriculture (Archibold and Davey 1993:53-54).

At this point, the Kuna requested outside technical assistance, and in 1981, through liaison with technicians from the Tropical Agronomic Centre for Research and Education (CATIE) in Costa Rica, the concept of a Kuna protected area was born (Chapin 1985:46-48; Houseal *et al*. 1985:17). In mid-1982, the Kuna received international funding and, working with CATIE staff, they developed a comprehensive project design which was formally launched, in late 1983, as the Research Project for the Management of the Forested Areas of Kuna Yala (Proyecto de Estudio para el Manejo de Areas Silvestres de Kuna Yala (PEMASKY)) (Breslin and Chapin 1984:34; Chapin 1985:48-49).

The key aim of PEMASKY is 'to protect [Kuna Yala's] natural resources and tropical ecosystems while ensuring that the resources are used sustainably for the benefit of the Kuna people' (Archibold and Davey 1993:54). It also aims to stimulate environmental education, ecotourism, traditional Kuna crafts, and scientific research. An underlying goal is the maintenance of Kuna cultural values (Archibold and Davey 1993:54).

The most encouraging aspect of PEMASKY is the degree of control the Kuna have been able to maintain over the project. Although CATIE provides technical assistance, the Kuna themselves have designed the project, managed the organisational aspects, defined the objectives, and controlled personnel arrangements (Houseal *et al*. 1985:17). They have also protected their traditional ecological knowledge by firmly establishing guidelines concerning the behaviour and obligations of visiting researchers (Archibold 1992:30; Chapin 1991; Clay 1988:66-7; Martin 1995:246-248).

Western scientists and the Kuna entered into PEMASKY with radically dissimilar world views and consequently became involved for very different reasons. The scientists' interest was in the study and preservation of species and the furthering of Western science. The Kuna, on the other hand, are there to protect their homeland, livelihood, and identity as

a people (Chapin 1985:50). Yet both converged on a single goal: to conserve the biocultural diversity of Kuna Yala.

To this end, PEMASKY attempts to incorporate knowledge from both worlds. The Kuna contribute valuable ethnobotanical and agroforestry knowledge, giving scientists a better understanding of the Kuna Yala ecosystem in general. The scientists, in return, contribute valuable technical knowledge, enabling the Kuna to monitor and strengthen established practices. In addition, PEMASKY facilitates and encourages Kuna involvement in national and international conservation and indigenous rights networks (Houseal *et al*. 1985:17).

Since their protected area has been up and running, the Kuna began to pursue nomination for international biosphere reserve status. This move reflects their awareness of the benefits of establishing themselves within the international conservation network. Such benefits include improved access to technical and financial knowledge and assistance, and international recognition of Kuna land title and autonomy (Gregg 1991:288). Consequently, since November 1987, the Kuna have managed Kuna Yala as a biosphere reserve divided into several management zones (**Map 5**) (Archibold 1992:29; Wright *et al*. 1988:355). The Buffer Zone has now been established outside Kuna Yala in an area under State government administration (Archibold and Davey 1993:54; Wright *et al*. 1988).

Emerging Problems

Despite its positive management strategy, PEMASKY is facing several obstacles. There are fears, for instance, that the growing influence of Western practices may negatively affect the project. Significantly, many Kuna youth are rejecting, or simply failing to learn, established beliefs and local resource management practices (Chapin 1990:44). Kuna elders largely blame the Western education curriculum, which fails to address cultural links to the environment. The Kuna are considered 'easily the best educated [indigenous people] in Panama, perhaps in Central America' (Breslin and Chapin 1984:31), yet while they acknowledge the role of Western education in preparing them to interact with the outside world, the Kuna are concerned that the next generation is being taught the language and traditions of a foreign culture before their own (Archibold 1992:30-32).

As a result, there is now some concern over Kuna land use and fishery practices. It has been suggested that, during the last 10 years, poor agricultural and fishery practices have replaced established ones and lead to some resource deterioration (Archibold and Davey 1993:56).

This erosion of cultural ties is reinforced as young people move to Panama City to further their education. While some return to Kuna Yala as professionals, others do not (Archibold and Davey 1993:56). Despite migration away from Kuna Yala however, its resource base is under pressure from an increasing population. It is becoming difficult to meet society's needs using established techniques, some of which have evolved to support only a small population (Archibold 1992:32; Archibold and Davey 1993:56-57).

Uncontrolled tourism is also becoming a problem. While the Kuna have always endeavoured to keep tourism in Kuna Yala under Kuna control and regulation (see Swain 1977, 1989), tourists are placing additional pressure on the resource base, and increasing pollution (Archibold 1992:30-32; Archibold and Davey 1993:56-57). Furthermore, initial Kuna attempts to foster ecotourism through PEMASKY have failed. Although the protected area is ideally located just two hours from Panama City, there is a significant lack of nature tourism infrastructure linking the protected area to the capital (Chapin 1990).

PEMASKY's general management plan includes programs for the development of carefully controlled ecotourism, agroforestry, and socioeconomic research to assess the extent to which Kuna needs have changed over the last decade. Unfortunately, a lack of funding and personnel to develop these programs has prevented the Kuna from taking action (Archibold 1992:32; Archibold and Davey 1993:56-57). Although during its first phase PEMASKY received financial support from many national, multinational, and private organisations, funds have largely dried up.

Also disheartening is the lack of support from the Panamanian government (Archibold 1992:32; Archibold and Davey 1993:56-57). While the Kuna continue to physically demarcate Kuna Yala's boundaries, conflict over the location of the boundaries has led to protests, as has the Panamanian government's continued granting of mining concessions on indigenous lands. The Kuna General Congress accuses one Canadian company, Western Keltic Mines, Inc., of aiming to divide, mine and weaken Kuna political institutions as it prepares to begin exploiting five concessions on Kuna territory (IWGIA 1996:74-76).

The Miskito Cays Protected Area (MCPA)

Yapti Tasba: Biocultural Diversity

Yapti Tasba, the united homelands of the Miskito, Sumu, Rama and Creole nations, lies on the Caribbean Coast of Nicaragua. It covers a combined land and sea territory of 110,000 km^2, extending along Nicaragua's entire Caribbean coast (Nietschmann 1989:12). Yapti Tasba is perhaps the most biologically diverse coastal area in tropical America (Jukofsky 1993:206). It incorporates part of the largest tropical rainforest north of Amazonia, the most extensive seagrass pastures in the Western Hemisphere, and the widest continental shelf and stretch of offshore coral reefs in the Caribbean (Nietschmann 1993a:270). Its forests, rivers, coastal lagoons, wetlands, mangroves, estuaries, reefs and seagrass pastures provide habitat for numerous species including the largest populations of manatees in Central America and the Caribbean, the world's largest remaining populations of hawksbill and green sea turtles, and the most economically significant spiny lobster and shrimp developmental and fishing grounds in the Caribbean (Jukofsky 1993:206; Nietschmann 1991b:232).

Yapti Tasba has a population of over 260,000, of which an estimated 150,000 are of

the Miskito Nation (Nietschmann 1989:15). The Miskito nation is bordered by the Sumu nation to the west, and the Rama and Creole nations to the south. Its 37,000 km^2 of tropical forest and pine savanna cover northeast Nicaragua and the disputed sector of Yapti Tasba which, since 1960, has been claimed by Honduras. The adjacent waters, cays, reefs and marine resources are also part of the Miskito nation (Nietschmann 1989:3-4).

Most Miskito communities are located in the forests along the rivers of the northeast region, or along the coast (Nietschmann 1989:3). Due to their proximity to the sea, the Miskito have developed the knowledge and ability to exploit both land and sea resources (Nietschmann 1973:89). Lowland tropical forest agriculture, fishing, hunting, gathering, and the raising of some domestic animals are the basis of Miskito subsistence production (Conzemius 1932:58-81; Nietschmann 1973). This system has survived 500 years of State encapsulation (Nietschmann 1973:25). Furthermore, since the Miskito have traded and had access to foreign wage labor and outside money market economies since the seventeenth century, '[h]unting and fishing, gathering of natural resources for barter and sale, and wage labor have all been equally important to the Miskito economy' (Helms 1971:4). Therefore, '[o]perating alongside the traditional subsistence economy is a market-oriented, cash-based economy' (Nietschmann 1973:60).

The Miskito have maintained a certain equilibrium with their environment, and 'land and their traditional rights to it is inseparable from Miskito culture' (Bach 1991:39). This relationship is reinforced through cultural constraints such as hunting restrictions, food preferences and taboos, and religious beliefs which function as adaptive mechanisms for maintaining acceptable exploitation levels of certain resources (Conzemius 1932:132-134,165; Nietschmann 1973:110-113). Specific birds and animals, for instance, are not hunted for fear of offending the animal's keeper. Others are avoided due to the danger of assuming some undesirable characteristic attributed to them (Conzemius 1932:133-134). Certain trees that are the abode of spirits are not felled for fear of retribution (Conzemius 1932:128-129), and, in some instances, entire areas are avoided (Conzemius 1932:169).

A History of Miskito Resistance

> *The Miskito people still exist not because of isolation but because they have defended their territory for 500 years* (Nietschmann 1991a:373).

When attempts were made by the Spanish to 'invade, annex and tax' (Conzemius 1932:8) Miskito territory, the Miskito resisted, maintaining their independence (Nietschmann 1989:19). Instead, they, like the Kuna, formed trade alliances with the pirates and British traders of the Caribbean (Bach 1991:38; Sollis 1989:483). As in the Kuna case, Miskito-Spanish conflict soon developed into a long-term war. The Miskito however, 'defeated every Spanish strategem to occupy their territory, either by trickery or force...[and] humiliated the Spanish military in open battle on almost every occasion that they met' (Day 1988:30).

Consequently, the Spanish never occupied Miskito territory. Furthermore, from the

mid-seventeenth to the late nineteenth centuries the Miskito's industriousness and their nation's abundant natural resources established it as 'a haven of political and social stability' (Day 1988:27) and the most economically prosperous region in Central America (Nietschmann 1989:19).

During the mid-nineteenth century, after Nicaragua's independence, the United States became the dominant power in the region, dislodging Britain and denying Miskito territorial sovereignty (Nietschmann 1989:20). Before the British left the region however, they gave each Miskito community a map and title to its land (Nietschmann 1989:22). Throughout the late nineteenth century, 'foreign states made treaties between themselves over the Miskito nation without the consent or representation of the Miskito government' (Nietschmann 1989:20). Eventually, in 1894, it was "reincorporated" into Nicaragua by Nicaraguan President General Zelaya, who ordered its military invasion (Conzemius 1932:9; Day 1988:29). This "reincorporation" 'did not take place without resistance' (Ortiz 1988:5).

For the Nicaraguan government "reincorporation" meant free resources and cheap labour. For the land, waters, resources and wildlife of the Miskito nation however, it meant ecological disaster (Ortiz 1987:47). For the Miskito it meant:

> ...the disruption of national and regional Indian government and autonomy and the temporary transfer and camouflage of these centuries-old institutions into village-level politics and economies...the Miskito nation survived by decentralization of its institutions (Nietschmann 1989:232).

Twentieth Century State Politics and the Environment

During the early twentieth century, an enclave economy, based on rubber extraction, banana plantations, forestry and mining, was established in Nicaragua to supply raw materials for the industrial economy of the United States (Bach 1991:38; Vilas 1989:44-51). Consequently, United States citizens controlled 90 percent of the region's productive and commercial activity (Sollis 1989:488-489). During the subsequent 42 year rule of the Somoza family (1937-1979) (for a synopsis of Nicaraguan political history see Skidmore and Smith 1992:326-330), environmental destruction continued to accelerate (Sollis 1989:490-497). By the late 1970s, rapid growth of lumbering, cattle ranching, cotton cultivation, and marine resource exploitation had left Nicaragua with one of the highest deforestation, soil erosion and species depletion rates in the world (Nietschmann 1993a:270).

During this time, the Miskito nation's geographical isolation from the capital, and the Somoza strategy of procuring maximum profits through minimum presence, ensured that, although capitalism threatened their society and resource base, Miskito communities remained functionally autonomous (Nietschmann 1988:275, 1989:23-24).

In 1979 however, the Somoza government collapsed and the Sandinistas seized power (Nietschmann 1990:44). The Sandinista revolution (1979-1990) was limited by class-based Marxism and could not fathom an identity and a resistance based on culture (Nietschmann 1989:28). Consequently, it approached the nations of Yapti Tasba with

ignorant and insensitive integrationist and developmentalist policies (Mohawk 1982; Nietschmann 1989:26-27; Ortiz 1988:6-7; Sollis 1989:497-501; Vilas 1989:96-119).

In response, delegates from 256 indigenous communities founded MISURASATA (Miskito, Sumu, Rama, Sandinista United) to represent indigenous interests to the Sandinista government (Nietschmann 1989:28). Through MISURASATA and Sandinista agreement, a mapping and land tenure study of community lands was planned for presentation to the government in 1981. The 100-year-old maps and titles provided by the British were brought from each community to Bilwi. A composite map produced from these documents revealed that 'each community's lands bounded with another community's to form extensive, unbroken territories' (Nietschmann 1989:30).

The central government saw this as a threat to the revolution, and nine days before the study was to be presented to the government, MISURASATA leaders were arrested, files were burned, and four armed Sandinistas and four unarmed Miskito were killed (Nietschmann 1989:32-33). Within six months 5000 Miskito and Sumu had fled to Honduras, and 65 young Miskito and Sumu began surprise hit-and-run attacks on Sandinista outposts. The Sandinistas mounted a serious counterattack, particularly against the villages along the Wangki River. Thus, in 1981, organised armed resistance against the occupation began (Nietschmann 1989:33-34). During the early 1980s 43,000 Miskito, Sumu and Rama people were displaced, either forced into Sandinista relocation camps or made refugees in Costa Rica and Honduras (Nietschmann 1984:32).

The Miskito-Sandinista war, along with the Contra-Sandinista war, was fought in the countryside. While military activities were environmentally destructive in some areas, these wars effectively halted large scale resource exploitation: wildlife exploitation decreased, cattle pastures shrank, gold-mining ceased, State-owned lumber mills and logging trucks were sabotaged, and roads and bridges were destroyed. Thus, the wars actually promoted biological diversity, producing a situation Nietschmann has described as "conservation by conflict" (1990:44,48).

Miskito Autonomy: Towards Self-determination

The Miskito-Sandinista war was about resources and territory (Nietschmann 1990:48). Thus, it was fought with Miskito autonomy as a major objective. By the mid-1980s, autonomy was accepted as the only path to reconciliation (Nietschmann 1993b:1,6), and during 1984-1985, a cease-fire was declared, and negotiations between Miskito leaders and the government began (Ortiz 1988:9). In 1987 a constitutional Autonomy Law was passed, guaranteeing respect for indigenous languages and culture, indigenous control over natural resources, and the need for local consensus concerning development projects (Bach 1991:40). By 1990, the nations of Yapti Tasba had a minister-level cabinet post in the central government, and two autonomous regions with autonomous governments (Nietschmann 1995:34-35). The North Atlantic Autonomous Region (RAAN), centred in Puerto Cabezas, consists of Miskito and Sumo communities. The South Atlantic Autonomous Region (RAAS), centred in Bluefields, includes Miskito, Rama, Creole and

Ladino communities (Nietschmann 1993b:6).

While this autonomy process decentralised some political power, decisions regarding resource exploitation depend upon trilateral agreement between local communities, autonomous governments and the central government (Nietschmann 1993b:6). Furthermore, while the autonomous councils are independent, they depend upon the State ministries for budget decisions. Thus, the main problem has been obtaining the necessary funding (IWGIA 1996:74). Despite these limitations however, the Autonomy Law provides an initial framework within which to work to strengthen Miskito autonomy in the future (Nietschmann 1993b:15).

Recent Environmental Threats

Since the wars and the 1990 elections which saw the Sandinista government replaced by that of Violeta Barrios de Chamorro, five groups have claimed and used Yapti Tasba's resources: the regional governments of RAAN and RAAS, the Institute of Atlantic Coast Development (INDERA), the Nicaraguan central government, local indigenous communities, and finally, in all the confusion, foreign resource pirates and drug traffickers. This last group has taken advantage of the quick pullout of the Sandinista army, which has left the once highly militarised Caribbean coast the least defended (Nietschmann 1993b:6-7).

The Chamorro government officially accepts the principle of autonomy on the Caribbean Coast. It is however, largely seen as a barrier to the resource exploitation deemed necessary for the reconstruction and economic recovery of the Pacific region. Thus, the government continues to seek ways to cash in on Miskito resources (Nietschmann 1990:48, 1993b:7), and illegal logging, which is now endemic throughout the Atlantic coast (IWGIA 1996:73), remains unchecked. By 1994 exports from these regions made up 36% of the GNP, while the regions only received 0.5% of the national budget (IWGIA 1995:71).

The theft of Miskito resources by external interests angers Miskito communities, who claim it is they, and not the central or regional governments, who have always defended their resources (Nietschmann 1993b:6-7). In addition to lacking the financial resources to defend their nation, environments, resources, and communities (Nietschmann 1992:5), the Miskito have been unable to legally prevent the exploitation of their marine resources because the continental shelf and waters of their homeland have not been legally incorporated into the autonomous regions (Nietschmann 1995:35).

The MCPA: Conservation by Self-determination ?

In response to repeated attempts by coastal Miskito communities to secure protection for their territorial fishing and turtling grounds, an internationally funded, Miskito-staffed, Miskito Cays National Park was first proposed by the Nicaraguan government in 1980. At this time, a grass-roots indigenous organisation began resource management plans (Jukofsky 1993:206). Unfortunately, the war interrupted these efforts (Nietschmann 1990:48).

After the war, in 1990, Miskito community leaders, international scientists and Nicaraguan natural resource officials arranged a fact-finding voyage to the Miskito Reefs. The outcome was a proposal to the government for the creation of a community-based marine protected area where resource exploitation would be managed so that the Miskito could continue utilising the area, and profit from the export of shrimp and lobster (Jukofsky 1993:207; Nietschmann 1995:35). The protected area would be designed and run by the 15,000 residents of 23 coastal Miskito communities (Nietschmann 1991b:234).

Community seminars and workshops were held in early 1991 to develop the concept of community management (Jukofsky 1993). Representatives of the 23 communities gave permission for the area to be developed within their coast and sea territories (Nietschmann 1995:35). In addition to protecting and sustainably using the area's resources, the protected area was seen by the Miskito as a way to reinforce their autonomy and to maintain their culture (Nietschmann 1992:5).

At this time, the Miskito created MIKUPIA ("Heart of the Miskito"), an non-government organisation, intended to organise the 23 Miskito communities to manage their protected area. With international funding, MIKUPIA's plans included demarcating Miskito territory, and training Miskito resource specialists and guards. Within a year, MIKUPIA's eight staff were coordinating with 90 "community promoters" to raise consciousness and to discuss the protected area concept within Miskito communities (Cultural Survival Quarterly 1992b).

In October 1991, President Chamorro officially created the provisional 1,300,000 hectare Miskito Cays Protected Area (MCPA) (Jukofsky 1993:209). The government stipulated that Miskito community representatives would be part of the planning team which had four years to complete scientific and legal studies for the establishment of a permanent protected area (Nietschmann 1995:35).

An advisory team recommended that the United States Agency for International Development (USAID) fund MIKUPIA US$3,000,000 for five years to work with Miskito communities on the protected area project. Instead, USAID funded the Florida based Caribbean Conservation Corporation (CCC). Once the CCC received funding it backed out of agreements with communities, and began planning a 'top-down, central government-based, foreign advisor-dependent old-style colonialist protected area' (Nietschmann 1995:35).

The CCC's first progress report, issued in 1994, made no mention of Miskito sea territories, sea tenure, marine resource rights, or traditional marine resource management. Furthermore, the Miskito were to be given only limited rights to fishing under the new protected area scheme. This report and the first draft of the management plan indicated that it was the Miskito themselves who were the environmental threat (Nietschmann 1995:35). After three years and almost US$2,000,000 nothing had been done to prevent, or even write a report on, resource piracy. Consequently, in late-1994, Miskito communities banned the CCC from further research on Miskito territory, and notified USAID of the conflict.

With no outside help, using the experience they gained during the war, the Miskito re-armed themselves against the pirates and drug traffickers. The Nicaraguan government's response was that the Miskito had no right to confront anyone in "Nicaraguan" waters (Nietschmann 1995:35). In April 1995, the Nicaraguan military arrested 40 Miskito for attempting to defend their waters against Honduran resource pirates. It is in the military's interest to allow piracy to continue since they get a cut of the stolen resources (Nietschmann 1995: personal communication).

MCPA: A Future ?

Clearly the MCPA, which began as a grass-roots project initiated in response to requests from Miskito communities, has not developed as hoped. The Miskito however, refuse to give up. Their most recent community-based initiative to regain control of their territory and resources has been the Miskito Reef Mapping Project (Nietschmann 1995:34). This project, begun in April 1994, proposes to accurately map the Miskito Reefs and surrounding waters, an area which is currently inaccurately charted on British Admiralty and United States Defence Mapping Agency charts.

The mapping project has three aims: to document the Miskito Reefs and surrounding waters, identifying them as Miskito territory; to justify Miskito community defence of their sea territory and resources; and to provide baseline geographic and biological information for future studies.

Miskito "captains" (the traditional sea knowledge specialists), turtle fishers, lobster divers and Miskito environmentalists have already begun work with invited marine scientists in order to combine indigenous knowledge with accurate and affordable mapping technology based on sail, scuba and satellite. The first of the project's four phases, completed in September 1994, produced a 1:175,000 base map bearing Miskito names for the area's underwater habitats and topographical features. This map has been distributed throughout local communities, the autonomous governments and other Central American governments. The other phases, to be completed by 1997, will produce a series of maps demonstrating community sea territories north and south of the reef, marine biodiversity and marine habitats.

It is envisioned that the maps will be invaluable in environmental monitoring, and in seeking international conservation support. It is hoped that the maps, and the documentation of illegal boats that is concurrently being carried out, will persuade the RAAN government to arrest resource pirates.

KUNA AND MISKITO EXPERIENCE: CONTRIBUTIONS TO A THEORY OF CONSERVATION BY SELF-DETERMINATION

A cross-cultural analysis of the experiences of the Kuna and the Miskito reveals similarities useful in an examination of the conditions which enable indigenous nations to attempt conservation by self-determination. Such comparison also reveals differences useful in an assessment of why Miskito attempts at conservation by self-determination have thus far been defeated.

Parallel Experiences

Both the Kuna and Miskito nations are located on Central America's Caribbean coast, one of the few regions in Central America that has remained rich in biocultural diversity. Both have also interacted with non-indigenous economies since the sixteenth century. Yet, having retained extensive ecological knowledge and established resource management practices, they have maintained an intimate, mutually dependent relationship with the environment. This has been possible because they have retained control of their subsistence systems and their ecosystems, and thus, have been able to make important societal and cultural changes, adapting traditional subsistence economies to incorporate market-oriented, cash-based economies (Nietschmann 1973:24).

The Kuna and the Miskito also share a common history of resistance against invasion. This resistance has been effective because their communities are characterised by enduring social and cultural cohesion, political organisation and independence (Chapin 1985:42; Houseal *et al*. 1985:16). Centuries of resistance have in turn strengthened Kuna and Miskito identity, and enhanced their understanding of immediate external political and legal realities (Gradwohl and Greenberg 1988:81-83; Houseal *et al*. 1985:18).

Consequently, when the need has arisen, both indigenous nations have been well prepared to take a stand against their respective States in demanding their rights. Indeed, both went to war with those States to secure negotiation and subsequent recognition of their homelands as autonomous territories. In both cases while legal autonomy is limited, it allows for some degree of political control, and most significantly the legal recognition of the indigenous nations' rights to land and resources.

This parallel history has strengthened and reinforced Kuna and Miskito self-determination, and most significantly, has created a suitable environment for attempting conservation by self-determination. In accordance, both nations have actively sought to establish protected areas within their homelands.

It is significant that neither people has attempted to establish protected areas without external input. Both the Kuna and the Miskito have attempted, with different degrees of success, to establish protected areas in co-operation with Western scientists. Both have also aimed for a mix of conservation and development goals in protected area strategies to benefit both present and future generations.

Although the Kuna now have a legally recognised protected area and the Miskito do not, the problems that both are currently facing largely stem from, or are intensified by, a lack of external financial and political support.

Conditions Facilitating Conservation by Self-determination

Since parallel circumstances have conditioned Kuna and Miskito attempts at conservation by self-determination, it can be concluded that certain conditions foster its successful implementation. The first and foremost of these conditions is that indigenous nations who survive within their biologically rich homelands, and maintain a healthy relationship with the environment, must want to protect their homelands' biocultural diversity. In order to act upon this desire, it is advantageous for nations to be socially and culturally cohesive; to have legally recognised rights to control their land and resources; to be able to organise politically; to have an understanding of, and ability to interact with, external political, economic and education systems; and to have access to external financial and political support.

Despite the existence of most of these circumstances in the case of the Miskito however, they have as yet been unable to successfully implement conservation by self-determination. The differences between the experiences of the Kuna and the Miskito shed light on why.

Divergent Experiences

A crucial difference between the experiences of the Kuna and those of the Miskito has been timing. The Kuna achieved legal autonomy within Panama almost 50 years earlier than the Miskito did within Nicaragua. Furthermore, while the Kuna war against the State leading to the activation of the autonomy process lasted a few days, the Miskito-Sandinista war lasted several years (Nietschmann 1988:279). Howe (1986) suggests that while the Kuna may have been more politically astute and more patient than the Miskito, the crucial difference between these two conflicts lies in the actions of the United States government, which intervened in both cases. While Kuna interests happily coincided with those of the United States, resulting in prompt mediation of a peace agreement between the Kuna and the Panamanian State, the Miskito were 'cynically manipulated [by the United States government] in the anti-Sandinista campaign' (Howe 1986:64), resulting in a more violent and prolonged conflict.

Consequently, while the Kuna have had 50 years to foster a healthy working relationship with the Panamanian government, the Miskito continue to suffer the backlash of their very recent conflict with a popular revolutionary government. It is fair to assume that, under these circumstances, it will take time for a working relationship to evolve between the Miskito and the Nicaraguan government.

Other differences between the experiences of the Kuna and the Miskito hinge on the conditions outlined above. The Miskito have not secured legal title to the area of their homeland in which the Miskito Coast Protected Area was established. In addition, they did not have access to the external financial support that was provided for its implementation. Consequently, they have been as yet unable to assert their control over conservation initiatives within their homeland. This experience reinforces the fact that indigenous nations

cannot achieve conservation by self-determination alone: the local, regional, national and international context has to be conducive.

Conservation by Self-determination: The Future

Future prospects for PEMASKY and Kuna Yala are not all bleak. The Kuna have successfully protected their territory from the original threat which motivated the project. They have also successfully maintained political and administrative control over PEMASKY, their homeland and its resources. The Kuna have initiated, planned, implemented and managed their protected area, and are continuing efforts to find solutions to the problems that have arisen.

The Miskito Coast Protected Area on the other hand has been expropriated by outside interests. The Miskito are, however, persevering in their attempts. Their case clearly reinforces the fact that self-determined indigenous involvement in conservation can only work if conservationists welcome indigenous peoples and work with them instead of against them.

Finally, it is important to note that, to date, the homelands of both the Kuna and the Miskito have remained rich in biocultural diversity. Therefore, neither group has thus far failed in their attempts at conservation by self-determination. While there is the possibility that PEMASKY and the MCPA may fail for many of the reasons that other protected area initiatives have failed, there is also the possibility that they may succeed, because, unlike the majority of the world's protected areas, they have the support of the indigenous nations within whose territories they are located.

For other indigenous nations, conservation by self-determination may hold the same potential. Already, other indigenous nations in Central America are involved in similar initiatives. The Tawahka Sumu in Honduras, for example, have formed the Indigenous Tawahka Federation of Honduras (FITH) and proposed a Tawahka Biosphere Reserve surrounding their homeland, which until now has lacked official protection (Herlihy 1993). The experience of this and other indigenous nations is at this stage not well documented. Future research of this type will have much to glean from the inclusion of their efforts.

As more nations organise locally, nationally and internationally, it is probable that more will seek ways to conserve the biocultural diversity of their homelands. Indeed, '[e]xperience is already showing that many indigenous peoples are moving to adopt the modern reserve concept to protect biocultural diversity' (Alcorn 1993:425). Conservation by self-determination is one possible course of action they may choose.

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