MARKING TERRITORY AND MAPPING DEVELOPMENT

PROTECTED AREA DESIGNATION IN THE DOMINICAN REPUBLIC

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Sovereignty implies 'space', and what is more it implies a space against which violence, whether latent or overt, is directed--a space established and constituted by violence (Lefebvre 1991: 280).

STATE AND MAP IN THE AGE OF DEVELOPMENT

As "political discourse in the service of the state" (Harley 1988), maps have been made to facilitate and legitimate conquest, define the state as a spatial entity, and construct postcolonial nationalisms (Anderson 1991; Biggs 1995). Cartographers have also helped to produce the "social space of development," but in this context maps have other ends. Examining the interplay between the makers and users of the maps of state formation and the maps of development can reveal much about the political consequences of maps as spatial narratives. In this paper, I offer a rough typology of the maps of state formation and development and show how the Dominican state has appropriated the maps of development for nationalist ends, translating a globalizing resource management narrative into a nationalist, territorializing story that legitimates military control over regions of refuge

The maps of state formation. Third World maps are often produced by outsiders and their political consequences the result of a dialogue between cartographers and their patrons--often northern governments and international agencies--and readers--Third World state agencies

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who revise and transform them into artifacts suitable for guiding and legitimating state-building. This dialogue has a contrapuntal quality. An international agency introduces a cartographic theme, which is picked up, rearranged and played out by the state against newer themes emerging in international cartographic discourse. Thus, the intent underlying a map's creation may be subverted in its use,[1] and the power of a particular kind of map may be enhanced or reshaped as it is combined with other forms of maps.

In Third World settings the maps of state formation have a stratigraphic quality. The expense of data collection means that data and assumptions guiding earlier maps are likely to be embedded in later ones. The earliest maps of state formation have to do with penetration and orientation--identification of routes to the interior and critical landmarks on the way, and the placement of glyphs suggesting the existence of treasure. A second order of cartographic business is territorialization or the demarcation of the limits of the state and delineation of property within it. A third mapping task is creation of administrative jurisdictions to facilitate centralized control over the national territory and its subjects. A fourth kind of map, the zoning map, prescribes land uses. Within this schema, each type of map has a specific function, and each is associated with a different phase in the state formation process, although these different phases may overlap.[2]

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[1] As Wood (1992) and Harley (1988)demonstrate, the map is a product of its social context, but its use can be transformed over time and in other social contexts.

[2] This typology is not exhaustive. I have only included maps that are of immediate interest to land use and the state formation process. Excluded are navigation charts of importance to state and commercial interests, but peripheral to land use concern. Also excluded are maps which inform type 1 and type 4 maps, but which generalize finding from data points to lines rather than to two dimensional space. In this category of map, I include maps that show isotherms, isobars, and elevation lines. Note that it is easy to create zone maps from the latter. The Holdridge life zone classification is one of the more sophisticated extrapolations A simpler,

(1) **Penetration or orientation maps** are the maps of conquest. One form is the military ordnance survey or topographic map on which physical features are precisely pinpointed to guide troop movements in an alien region. Certain ethnographic maps may also be included in this category, insofar as they are designed to alert the military expedition or commercial explorer to the presence of potential threats associated with the landscape. A second form, the economic penetration map, locates infrastructure and resources.

(2) **Territorial maps** define national boundaries or allocate landed property within the state.[3] The two distinct types--the national territorial map and the property map--share a binary notion of space. One is in the national territory or in a foreign land. One stands on one's own property or on the property of another. Abstracted as polygons, territorial maps become icons of nation (Anderson 1991). Cadastral surveys are tools for commodification of property relations and, as a corrollary, for tax assessment.

(3) **Administrative maps** establish a spatial context for political control by creating a nested hierarchy of territorialized jurisdictions with its apex in the national capital.[4] Like the cadastral surveys, administrative maps change as lands within the *de*

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prescriptive zoning system based on climatic zones appears in common garden catalogs (figure 3).

[3] Gregory (1994), drawing upon Lefebvre's *Production of Space*, refers to this as the "commodification of space" one component of one of the two major processes that have resulted in the imposition of the abstract space of modernity on the concrete space of every day life.

[4] This corresponds to what Gregory (1994:401) identifies the second major process in the construction of abstract space: "*bureaucratization of space*, whereby each administrative system 'maps out its own territory, stakes it and signposts it,' and a heightened *bureaucratization through space*, which involves the installation of juridico-

jure territorial boundaries of the state, but once beyond its effective control, are integrated into the national polity and economy.

(4) **Zoning and special area designation maps** are instruments for state control over land use and, as a corollary, economic livelihoods and settlement patterns. Included in this category are soils, land use, and ecological maps, as well as North American zoning maps that designate allowable land uses. Zoning maps can be descriptive (e.g. soils maps), implicitly normative (e.g biodiversity maps) or openly prescriptive (urban zoning and rural land use maps).

The resource zoning map--the focus of this paper--is problematic for several reasons. First, by sacrificing resolution for legibility, these maps frequently portray zones as falsely consistent within boundaries and overdifferentiated across zones. Second, it contributes to "the naturalization of the cultural" (Wood 1994), obscuring the perspective and interests of cartographer and patrons through the attachment of scientific terminology to visual representations. The association of land use maps with "Science", lulls the casual reader into assuming their political neutrality.[5] Third, the descriptive informs the prescriptive--or worse, slides into the prescriptive so seamlessly, that its prescriptive character goes unrecognized. For example, maps based on the Holdridge life-zone classification (figs. 1 and 2) suggest a vegetational norm rather than describe existing flora. Land use maps, based on apparently neutral geologogical, elevation and climatic data us openly

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political grides by means of which social life is subject to systematic surveillance and regulation by the state." Again, Gregory draws heavily on Lefebvre for his model.

[5] This is seen as a problem common to map making, but I would argue that the neutrality is most likely to be assumed in the case of so-called scientific mapping. Although the topographic sheet also appears quite neutral.

prescriptive language like "apt only for forest use" or "land with an agricultural vocation." Fourth, ecological and land use maps create new boundaries that override territorial and administrative jurisdictions, privileging resource management at the expense civil administration, and, by implication, natural resources at the expense of civil society.[6] To the extent that resource management policy is implemented at a bioregional level, mechanisms for representation of local human communities (if they exist at all) are likely to be superseded by parastatal authority and administrative fiat.

Maps as Development Discourse. Escobar (1995: 9) argues that "development discourse inevitably contained a geopolitical imagination that has shaped the meaning of development for more than four decades." Expanding on his framework, I would argue that the social production of the space of development is intimately associated with the resource zoning map as an instument of technological problem solving that would provoke massive changes in land use.

If economics is one key element in development discourse (Escobar 1995, ch3) associated with the rhetoric and maps of property "rationalization," equally important in this globalizing ideology are the applied natural sciences.[7] In first two decades of the development era, the

[6] I am grateful to Peter Vandergeest (personal communication 5/19/96) for pointing out this distinction. Zerner (1993:18) notes the obliteration of administrative boundaries in a GEF mapping exercise in Laos: "Laos, in this GEF Project Brief, is a series of valued environmental zones and species contained within globally constructed boundaries within which privileged non-human populations of plants and animals lie. It is toward these natural republics, representing not the democratic will of peoples, but rather 'biogreographic zones,' which this narrative directs the reader/investor's gaze."

[7] Escobar (1995) explores the language and organization of technical expertise in development, and Wright (199)van der Ploeg (199), and others explain its implications of agriculture in the hemisphere.

agricultural sciences dominated, ceding territory to conservationist ecology by the late 1980s. If the penetration map helped to produce the space of colonialism and the territorial and administrative maps produced the space of nationalism, the resource zoning map is a critical instrument for the production of the social space of development.

In the 1960s and 1970s, the International Agricultural Research Centers, bilateral development assistance agencies and regional and national agricultural research institutions in the North and South supported agricultural mapping efforts focused on soil classification, identification of erosive potential, climatic characterization, inventories of water resources and identification of regions for agricultural investment. In the 1990s, the Global Environmental Facility, managed by the World Bank in consultation with the UNDP and UNEP, became the chief patron of conservation-based development. The languages of conservation and rational rural land use are not new, nor is their association with maps (Dupuis 1996; Hays 19--, Harrison 199-). The first Caribbean national soils map was produced in 1928 (FAO-UNESCO 1975).[8] However, resource zoning maps began to proliferate during the development decade. In 1960, the Seventh Congress of the International Society of Soil Sciences recommended publication of a set of soil maps of the "great regions of the world" (FAO-UNESCO 1975:1), and in 1961 FAO and UNESCO agreed to prepare a soils map of the world, based on existing field data and additional data collection as needed. The objectives of this grand design were to "promote agreement among soil scientists all over the world on an international soil correlation system" and to evaluate the potential of "vast

[8] Soil Map of Cuba. Tropical Plants Research Foundation and the U.S. Department of Agriculture. Washington DC 1928.

areas . . . which have been scarcely touched by man . . . in growing food for the rapidly increasing population." (FAO/UNESCO 1975.2). The project sought only to compile data on climate, soils, physiography, lithology, etc., but to assess the suitability of different lands for cultivation.The FAO/UNESCO program produced and/or disseminated "just so stories" about backwardness and adversity overcome by scientific expertise, modernization and a global development strategy:

> "When rising population restricted to a limited land area forces the Amerindian to recultivate his lithosolic terrain at shorter and shorter intervals the traditional system of farming begins to break down and the soils become permanently damaged (FAO 1975:)."
>
> "Indeed, what once may have existed as a no-mans land, separating the scattered Afro-Indian lowland coastal settlements from the populous Amerinidian highland territories, for centuries continued to be largely unsettled until quite recent times. Only in the past few decades has modern agricultural technology been pitted against the somewhat inferior soils, adverse climatic factors and the exuberant natural plant cover of this area (FAO 1975:)."

Three key story elements were encoded in the soils maps of the 1960s and 70s: agricultural progress as the outcome of scientific land management, the notion of land as possessing a vocation or aptitude for a particular economic use, and the idea of overpopulation as a prime cause of land degradation. These stories, passed down from one generation of experts to the next, became central to regional development discourses in Latin America. The maps constituted their illustrations

But stories change with time, and in the 1980s the myth of untapped agricultural potential was challenged by a related global story, this too accompanied by its own maps and coterie of experts--the story of sustainable development in which conservation and economic growth are reconciled. Among its various formulations, perhaps the widely cirulated was the Brundtland

Commission's 1988 report "Our Global Future." And as noted above, the major international implementing agency for "sustainable development" practice is the GEF. The maps of sustainable development have created new social spaces of development: biosphere reserves, with core and buffer zones, biodiversity hot-spots, parks, protected areas and the corridors of landscape ecology. As Zerner (1993:19) argues, the "GEF narrative creates a kind of green tabula rasa, a cultureless, timeless, flattened biological playing field in which interventions are planned authorized, and sited."

Common to the maps of development is their globalizing vision and intent. The international development agencies and NGOs who make resource zoning maps do so with global policy objectives--whether rationalizing land use or protecting biodiversity. While they recognize national boundaries, they generally homogenize landscape, supress subnational administrative boundaries, and lend a timeless quality to human-landscape relationships that obscures their historicity.

Maps as Nationalist Discourse. In much of the Third World, the maps of development were produced at roughly the same time as national maps were being made, map which would define and promote the territorial state by drawing and infilling borders. Anderson (1991:173) identifies the border and "a segment of a continuous map-line corresponding to nothing visible on the ground" and country imagined in terms of "bounded territorial space," as late nineteenth and early twentieth century inventions The territorial map made it possible to abstract a polygon from its charted surroundings by erasing landmarks, lines of latitude and longitude, and the territories of neighboring states

The map as logo lent a territorial aspect to integration as a state project and made it easier to think in terms of a binary opposition of land and peoples, traits and qualities on either side of the imaginary line,[9] defying the complexities of frontiers as regions with shared physical features and land uses and overlapping ethnicities. Asserting state control over the flows of goods and people across international borders involves both the creation of symbolic lines and a rhetoric of differentiation.

Extending Anderson's argument, I argue in this paper that the definition of protected areas within nation-states replicated this process, creating polygons within the national polygon by using and reinterpreting the resource zoning maps of development. The new internal polygons were then used to legitimate military control over internal regions of refuge and to justify changing definitions of the public lands. As international border consolidation neared completion, governments turned to public places within the national territory which, due to geography or ethnicity, had proved resistant to integration. These areas were surveyed--subjected to geometric definition-- and their economic potential assessed. They were then bounded, legally set aside for restricted uses, and characterized in contrast or opposition to surrounding lands as range, forest, Indian reservation, national parks, thus becoming state as opposed to public property.

The nationalist rhetoric of the border may be applied to interior boundary definition. Language differentiating citizens and foreigners may be used to devalue area residents' cultural identity and their livelihood strategies. Peoples living within or dependent upon resources in the

[9]For an interesting discussion of this process on the U.S.-Mexico border, see Anzaldúa (1987).

zone thus defined, may be redefined themselves--either as belonging to the bounded lands and not to the territory beyond (as in the case of prisons, military installations or Indian reservations) or as aliens or intruders not belonging to the land.

MAPPING THE DOMINICAN TERRITORY AND ITS RESOURCES

In the following section I show how resource zoning maps have been appropriated and transformed by the Dominican state to facilitate and legitimate state control over internal regions of refuge and to create new territorial maps. In keeping with the history of Dominican permeability to European and U.S. influence, Dominican cartography has been dominated by foreigners. But the uses and reinterpretations of these maps reveals reveal a tenacious nationalism firmly grounded in anti-Haitian sentiment.[10] The ubiquity of foreign assistance agencies in the country--particularly in the field of environmental and natural resource management--is counterbalanced by their limited power to control domestic policy. As a result, their impact has been more to legitimate actions taken by the state than to direct them. By untangling the braided evolution of Dominican nationalism, development discourse and mapping, we may get a better sense of why this is so.

Successive periods of Dominican state formation are associated with distinct types of maps. Direct colonial occupation by the U.S marines (1916-29) brought with it mapping of the Haitian-Dominican border, the consolidation of local penetration maps into a national territorial

[10] The centrality of anti-Haitianism to Dominican political discourse is evident in the following electoral commentary by a 40-year old Dominican farm worker: "I'm for Leonel [Fernández, Dominican Liberation Party (PLD) presidential candidate] because Peña Gomez is a dangerous man. He wants the Haitians to take over."

map, and cadastral surveys. The Trujillo regime (1930-61) used the border as symbol a basis for nation building. Resource zoning maps were associated with the international development interventions of the 1960s, and informed a new nationalism in the 1980s and 1990s. In appropriating resource zoning maps for state consolidation goals, the Balaguer regime has produced new territorial maps.

The U.S. Presence and the Rhetoric of Order: Penetration and Territorial Maps. Major marine occupation projects included rural road building, introduction of individual titles to rural lands, development and training of a local constabulary, and counterinsurgency. According to a Marine spokesman, by 1923, "the Department of Public Works has accomplished much in the unification of the Republic, and has created through its road building an impetus to both agriculture and industry" (Wellman 1923:172-3).

Making the Republic safe for North American enterprise entailed disarming campesinos who had hitherto combined husbandry with service in the forces of local and regional caudillos. The pacification strategy included forcible eviction--burning of houses and outbuildings, destroying crops and domestic animals--and relocating campesino populations in cities (Mariñez 1984). Mapping was central to the pacification effort.[11] In 1922-23, the Marines assigned recruits to make sketch maps indicating roads, trails and other features of military interest. Under the direction of second Lieutenant Leslie H. Wellman, the corps prepared twelve contour sheets

[11] The U.S. marine occupation of the Dominican Republic from 1916-24 is of interest to military historians because, like contemporary actions in Haiti and Nicaragua, it is a template or prototype for later counterinsurgency. Fuller and Cosmas (1974: v) see the Dominican effort as important because of its emphasis on establishing and training a local police force, use of coordinated ground and air forces, and its emphasis on " 'win[ning] the hearts and minds' of the population."

covering the country and a road map, superceding all prior maps which Wellman considered to be "of a very doubtful nature," and furnishing the organizations of the Brigade "with sufficient maps to meet their needs." A two-volume companion handbook presented information on population, resources, "local customs" and geographic conditions (Fuller and Cosmas 1974: 58-9; Wellman 1923). The handbooks relied heavily on a 1923 "Directorio, Industrial y Commercial de la Republica Dominicana" (Peynado 1923) whose contents included data on sugar production, rainfall, population, distances in nautical miles from the Dominican Republic to foreign ports, lists of foreign diplomats, a Dominican government directory, and commercial and industrial directories for Dominican cities The handbook supplemented these data with Intelligence reports on sugar estates, railroads, roads and trails, rivers, and local products (Wellman 1923).

Cadastral maps. Titling and expropriation of rural lands were carried out to benefit two sectors: timber extraction (which was greatly facilitated by creation of an interior road network) and sugar production, particularly in the East. A second function of cadastral mapping was to aid in enforcement of land tax laws to finance infrastructure development (San Miguel 1993).

Marking Territory: the Haitian-Dominican Border. The border as continuous line segment was another U.S. military, which surveyed the line in 1907-8. The survey was part of a larger effortt to foster collection of customs revenues by both governments in order to generate public revenues which could then be used to repay outstanding government loans to U.S. creditors. The line was provisionally adopted by the Haitian and Dominican governments in 1912, reified as an administrative division during the marine occupation, and ratified in a treaty of 1929 in defiance of local trading and demographic patterns Mapping the border thus transformed

frontier communities into "a region of refuge . . . a sanctuary of anti-modern, anti-state and anti-imperialist activity (Baud 1992b:8)."

During the Trujillo regime the line became a focal point for the creation of Dominican national identity.[12] Trujillo's border strategy coupled a rhetoric of Haitian inferiority and fear of Haitian expansionism with "development" policies. In the 1930s, in order to accentuate racial difference on either side of the line,Trujillo built agricultural settlements and peopled them with light-skinned colonists who would owe their access to land to the state. The brutal massacre of an estimated 18 to 200,000 Haitian workers residing in the Dominican Republic in 1937 also assisted in achieving this objective (Castor 1988).[13]

Trujillo also enlisted Dominican intellectuals to elaborate the myth of "invasion pacifica," the threat of penetration by "hostile foreigners who were culturally and racially inferior to the Dominican people" (Sagás 1993:2). This myth justified policies designed to keep residents of Haitian parentage from sharing in the benefits of Dominican citizenship (Girard 1992:73) and military control over the international border, often overriding local civilian authority in adjacent regions. But Trujillo's border policies were also designed to permit the flow of Haitians into the Republic where they constituted a key component of the agricultural labor force.[14] This

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[12] The relatively brief history of the Dominican border is the subject of a growing body of historical research (e.g., Castor 1988; Moya Pons 1993; Girault, 1993; Baud 1992a; 1992b).

[13] Castor (1988:21) remarks that by the standards of Latin American massacres in the early twentieth century, the massacre of Haitians in 1937 not only approached the 1932 matanza in El Salvador in terms of brutality, it was the only one perpetuated in a time of peace, "un acte délibéré et de sang-froid d'un gouvernement contre des travailleurs immigrés sur son territoire."

[14]Figures cited in Baud (1992a) show an estimated 100,000 Haitians working in the Dominican Republic in 1926.

necessitated construction of a culturally and geographically fixed, but permeable boundary. Anti-Haitian nationalist rhetoric made this combination of hardness and permeability work.

Border rhetoric posited difference between Dominicans and Haitians along three axes: culture, color and population. The Dominican was defined as hispanic and Haitian as African--leading to a systematic disparagement of African cultural and agricultural forms. Dominicans were classified as white or "indian," Haitians as black. Haitians were seen as wantonly prolific, an "ola negra" or black wave crashing over the line (Balaguer 1985; Sagas 1993).

Administrative mapping. Dominican state formation meant supression of local caudillos and centralization of authority, rather than development of local government or administrative institutions. Interest in local institutional development or administrative decentralization remains low, and municipalities are weak as is the presence of line agencies in the countryside. The paraje, the smallest Dominican territorial unit in the nation, is little more than a census tract. Mapping census data at the paraje level had reified boundaries that have little administrative significance. Weak territorial administration facilitates policies and practices that favor resource "management" over governance and privilege the resource zoning map.

Development maps and planning. International attention to Dominican natural resource development in the 1960s was the result of the conjuncture of a political opening that followed Trujillo's assassination, fear of a Cuban-style revolution, and growing interest in agriculture and resource management on the part of the Alliance for Progress, the OAS, the World Bank, and the United Nations. The 1960s saw the first systematic Dominican resource inventories: a comprehensive study begun by the Organization of American States (OAS) in 1963,

and an FAO inventory of forest resources made in 1967. The OAS series included soils, rainfall, geomorpology, land use and population maps as well as resource zoning maps which prescribed agricultural development and conservation measures.[15]

What is striking about the series is the way in which descriptive categories give way to normative ones, and how normative categories becamse land use planning guidelines. Also striking is the way in which homogenization forced by the high cost of data collection and cartographic convention is translated into homogeneous prescriptions. For example, the productive capacity map color codes large areas according to their "aptitude for agriculture" (Fig. 3).[16] Eight distinct categories are defined and for each, land management practices recommended. Lands were designated as having an agricultural or forestry vocation--as if the two could not in principle coexist in one zone. Large portions of the Dominican landscape which had been subject to at least limited cultivation, were designated as not apt for agriculture: "The vocation of lands with a slope of greater than 16 degrees--that is a slope of 18 percent is 'forestal'."

Subsequent resource planning efforts included a USAID funded watershed management program, begun in 1975, and preparation of a nationwide environmental profile in 1982--also with USAID support (Morell 1986). The profile was followed by a forestry plan (CONATEF 1984), a biodiversity assessment (1988) and, most recently, a plan for water quality improvement. Both

[15]The cartographic basis for the OAS series consists of areal photographs and topographic sheets (1:50,000) made in 1961-62 by the Instituto Cartografico Universitario and the United States Army Map Service.

[16] Note that the map considers the aptitude of land for agriculture, rather than in terms of the aptitude of one or another form of agriculture for a particular type of land.

environmental profile and biodiversity assessment based their analyses on the Holdridge life-zone classification. European efforts included water quality, coastal resource and forest management studies, integrated regional resource management programs--notably for the Dominican Southwest. But, by 1986, one observer noted "None of these recommendations for rational approaches has been followed. . . The assumption is that a change in potential use will solve at the same time the social problems and the resource degradation. A further inadequately understood point is the local political reality" (Morell 1986:427).

Counterinsurgency, State Consolidation, and the Public Lands. As development mapping and planning proceeded, succesive post-Trujillo governments were laying the groundwork for new public land policies. In 1962, responding to widespread support for agrarian reform, a provisional government undertook token resettlement efforts,[17] pending survey and inventory of state holdings. In the same year, the Dirección General Forestal (DGF) was created by presidential decree (D 8086, Law no. 5856), ostensibly to promote forestry and forest conservation.

In 1965, the U.S. responded to popular unrest in Santo Domingo by sending in the Marines. While the 1965 intervention was primarily an urban action, the U.S. role in reestablishing Trujillo's ideological heir Joaquin Balaguer in office in 1966 and its subsequent involvement in domestic agrarian and natural resource policy had a pronounced, albeit indirect impact on state consolidation and control over remote areas. It is hard to know to what extent

[17] Four asentamientos were established, and 863 families relocated on 3,848 ha (Mariñez 1984: 110).

the Cuban experience, the 1959 attempted coup, and urban insurgency in 1964-65 drew attention to remote areas--particularly the Central Sierra, but we do know that U.S. assistance to the Dominican military in the early 1960s emphasized counterinsurgency capability and that Dominican military budgets included items for protection of forests, mountains, rivers, and lakes and reforestation (Atkins 1981:34). Designation of natural resource protection as a military function may have been part of a larger counterinsurgency strategy and was intended to consolidate state control over remote areas that could become guerrilla focos. It may also be that military control over the forests was the best way to ensure a continuing supply of railroad cross ties to state sugar enterprises

In any case, the late 1960s and early 1970s saw increasing state violence coupled with national and international attention to rural areas. In 1967, responding to the OAS resource review, President Balaguer closed the nation's sawmills and enacted a law banning all tree cutting, whether for fuel or timber (Law 211). An executive decree placed the DGF under Air Force control (Law 206).[18] The following year, the first forest preserves were designated

In 1972, responding to international donor priorities and renewed fears of rural unrest, the Balaguer government enacted an agrarian code and called for creation of a commission to "locate and determine all the property of the state that is now in private hands" (Mariñez 1984). During the 1970s, the Agrarian Reform redistributed over 47,000 parcels.[19] Resettlement programs,

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[18] Reynoso et al (1988) cite criticism of DGF military control as an opportunity for economic gain by individual officers with no interest in conservation. While corruption is difficult to verify, its presence would be consistent with Dominican history (Atkins 1981) and with practices in Guatemala and Indonesia (Peluso 1992).

[19] Lands reverting to the state in the 1960s were augmented by cessions to the state by land owners in compliance with the Ley de la Cuota Parte, a law which required that the beneficiaries of agricultural improvement

reminiscent of Trujillo's colonias, created a semiautonomous peasantry with relatively secure use rights to inadequate lands, heavily engaged in non-sustainable forms of market production to meet their cash needs and, in some cases, the conditions of access to land in the settlements. But if Trujillo's goal was maintenance of state hegemony through clientelism (Turits 1995), ostensible reasons for the 1972 reform were legitimation of international development programs and appropriation of public lands for timber production and watershed protection. In 1973, an armed guerilla group with nominal Cuban support landed near Azua and held out for a brief period in the hills of San Jose de Ocoa. The landing may have provided additional justification for removing cultivators from remote areas.

The 1970s also saw a legal if not a practical distinction between administration of national park and forest lands. In 1974, the Dirección Nacional de Parques (DNP) was established and the first national parks designated By 1988, nearly 11.8 percent of the national teritory was set aside as national parks, which appeared as uniform green splotches on official maps (Reynoso et al. 1988). Additional tracts of forested state lands were supervised by the DGF. In theory, if not in practice, regions of refuge had become representative ecosystems set aside as state reserves for forest and biodiversity conservation. In sum, public land polices since 1960s and 1970s were designed to remove rural peoples from remote areas and to concentrate them on state-owned parcels in the formal sector. Designation of forest reserves and enforcement of the forest law were major instruments for eviction, agrarian reform was the instrument for resettlement.

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programs (largely irrigation) give some portion of their lands to the land reform agency, the Instituto Agrario Dominicano (IAD) for resettlement

Zoning for Exclusion: Vocation and Dominicanidad. As noted above, the OAS map series identified potential areas for enclosure, using the concepts of aptitude for agriculture and "vocation." State agencies used these terms to attribute blame for environmental degradation. For example, a 1989 number of *Parques Nacionales*, states:

> This historic process of deforestation, caused by the practice of shifting cultivation, indiscriminate use of forests for firewood and charcoal, the act of slash and burn . . . has produced grave consequences. . . .in order to combat the increasing problems of deforestation and erosion, which are placing in danger the environmental and productive stability of the country, the present system of protected areas must be protected in the immediate future.

The 1991 Forestry Action Plan for the Dominican Republic (Basilis and Rodriguez 1991) uses similar language:

> The permanant or temporary existence of an estimated million persons engaged in subsistence production on lands whose vocation is forestry, is the fundamental reason for the damage to which are subjected the woods, soils, water, fauna, and the environment in general.

Negative statements about small cultivators, or *conuqueros,* and swidden agriculture, which was routinely blamed for deforestation, erosion and dam siltation, were undergirded by antiHaitian discourse. The 1981USAID environmental profile (Hartshorn et al 1981) fanned the flame by publishing an areal photograph of a portion of the border. In the photo, the border appeared as a stark line, forested on on the Dominican side and bare on the other, lending a scientific aura to nationalist rhetoric. And so it became fashionable to discriminate against Haitians on environmental grounds (Silie 1993; 1994, Sagas 1993; Moya Pons 1993; Charles

1993). Economic activities associated with Haitians--notably, charcoal production and shifting cultivation--were conflated with poor environmental stewardship.

In *La Isla al Reves,* President Balaguer added another dimension to the stereotype--condemnation of Haitian common property institutions as unsuited for agricultural development and, hence, a push factor in Haitian emigration (1985: 142), implying that, to avoid recreation of Haitian-like conditions in the Dominican Republic, it is necessary to eliminate common property and open access to public lands. Thus, the concept of Dominicanidad developed to reinforce the territorialization of the Dominican state was adapted to foster internal consolidation.

In sum, between 1961 and 1990, we find international interest in natural resource inventories, maps and policies for "rational" resource management coupled with a growing interest on the part of the Dominican state in eliminating open access to strengthen state control over remote areas. Policies included draconian forest laws, forest reserve and national park designation, and a limited agrarian reform designed to integrate shifting cultivators into production for national and international markets. Natural resource protection was designated as a military function. In the absence of incentives and funds for "rational" land use administration and assertion of state control over the interior, the Balaguer government in the 1980s and early 1990s turned increasingly to conservationist, anticonuquero, antiHaitian rhetoric to justify sporadic, arbitrary and repressive enforcement of land use laws and decrees. Enforcement was legitimated through the drawing and redrawing of internal boundaries describing new polygons of

state land and rendering traditional livelihoods within them illegal.1

TERRITORIALIZING THE ZONING MAP AND THE LOS HAITISES EVICTIONS

The Los Haitises *desalojo*, or eviction, a product of these two historical trends, illustrates the political consequences of the territorialization of resource zoning maps. Before 1960, los Haitises--a hilly karstic region--was sparsely but continuously occupied by shifting cultivators. Immigration quickened in the early 1960s with the reversion of Trujillo family holdings to the state and peaked around 1972, when high U.S. sugar quotas encouraged conversion of state lands to sugar production.[20] Sugar expansion and deforestation went hand in hand as logging enterprises sought timber for the narrow-gauged railways that carried sugar from cane fields to the mill. Growth of sugar, African palm, pineapple and wet rice cultivation in surrounding regions pushed conuco (traditional food crop) cultivation to the karst hills to compete with grazing (see also Rocheleau and Ross 1995). A 75 percent reduction in the U.S. quota for Dominican sugar between 1983 and 1988 coupled with U.S. support for nontraditional exports attracted speculative producers who hired fugitive Haitian sugar workers to burn and prepare plots. In the late 1980s, yautia cultivation was stimulated by government programs (Raynolds 1994).[22] In

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1 Rocheleau and Ross (1995) describe in detail how these laws have destabilized the lives of small cultivators, and how their growing insecurity mitigates against environmental protection measures.

[20] During this period, a significant number of migrants were small farmers facing displacement from sugar lands in the Haina and San Cristobal regions (Thomas, 1995, personal communication).

[22] Few data are available on the impact of specific agricultural practices in los Haitises on forest regeneration. Swidden agriculture competes directly with humid tropical forest, but the latter can regenerate readily, in a mosaic of forest patches Long-fallow swidden cultivation and occasional burning may damage mogote slopes and tops, but forest regeneration generally occurs on the valley floors. However, increasing demand for yautia in the mid-1980s, which caught the Dominican Secretariat of State for Agriculture by surprise, created

1992 yautía prices dropped sharply, but by this time commercial production of Dominican root crops had become a feature of the landscape.[23]

Mapping Los Haitises. Los Haitises made its cartograhic debut on the 1967 OAS project map as a triangular portion of the province of Samana bounded on the North by the Río Barracote plus a small strip of coastline in the adjacent province of El Seibo be made a national park (fig 4). In 1968, a non-contiguous, 208-km^2 sausage-shaped forest reserve was designated along the southwestern fringe of the karstic platform under FORESTA supervision (fig. 5). In 1974, the DNP received jurisdiction over los Haitises as a national park, preserving the original forest reserve boundaries (DNP/ICI 1989). The stated objectives of the park were tourist development and protection of the region's biotic resources (Valdez and Mateo 1989), but conflicting decrees and policies allowed for multiple use. Government agencies took park timber for posts and cross ties, and government credit and marketing programs encouraged land occupation (Reynoso et al 1988). A 1981 USAID natural resource inventory reported that "nearly all of the original park area has been grossly altered by rural invasions of landless peasants seeking agricultural lands Slash and burn clearing practices and indiscriminate use of fire have

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pressure to reduce fallow periods.

[23] Reviewing the ecological impact of swidden on Los Haitises forests, a 1991 management plan for Los Haitises national park and the surrounding area (Junta de Andalucía 1991) concluded that long-fallow traditional swidden systems were sustainable, but that the shorter fallows associated with yautia were likely to result in permanent damage (see also Geilfus 1985). Cattle were seen as a more serious threat to the forest. Non-sustainable successions from forest-fallow agriculture to pasture, and--as pasture productivity diminishes--to bush fallow agriculture were noted by the park plan, which found in bush fallow agriculture a proliferation of weedy species and with it increasing use of herbicides. In sum, the plan saw nothing inherently unsustainable in swidden cultivation, but attributed declining sustainability to commodification of traditional crops in the absence of an adequate labor supply

destroyed much of the value of the older park area" (Hartshorn 1981:77). The report supported a government proposal to radically modify park boundaries, thereby creating a host of newly illegal activities (fig. 6).

By 1988, only 20 percent of Los Haitises remained in forest. A 1988 presidential decree (law 176), seeking to subject los Haitises to stricter land use controls, authorized the Secretariat of State for the Armed Forces to "take whatever measures necessary for effective and strict protection of the park" and suspended development of IAD asentamientos on CEA lands bordering the park and DGF permits to cut timber for cross-ties, beams and posts (Reynoso 1988.5). The decree also enjoined the Secretariat of State for Agriculture, IAD, the Banco Agrario and the Price Stabilization Institute to refrain from programs and policies favoring yautia cultivation, and called for eviction of some 3,000 farmers from the park following harvest of the yautia crop.

This first serious attempt to exert military control over Los Haitises management coincided with a resource inventory and mapping/zoning effort conducted in collaboration with the Agencia Española de Cooperación Internacional and the Junta de Andalucía Agencia de Medioambiente (1986). Based on a four-year study of the area, the team elaborated a comprehensive plan based on a biosphere reserve model and combining biodiversity protection with compatible economic activities. The Spanish team redefined the working boundaries of the park and drew maps suggesting transport, communications and marketing networks to link communites on the park's periphery to one another and create new economic opportunities that could substitute for non-sustainable uses of park land The team mapped core, buffer zone and

transition zones (fig. 7). The continuum encompassed an area far larger than either the park boundaries recommended by the OAS in 1968 or those drawn by the DNP in 1976 and modified in 1980. Some evictions were called for in order to protect ecosystems in the "core" area, but these would be limited to about 200 families.

After a lengthy review process, the DNP approved the plan, but without enabling legislation to clarify the rights of residents and cultivators in the core and buffer zones. The findings of the Spanish team report did not inspire the DGF and the DNP to adopt an ecologial approach to zoning Rather, it inspired continued reference to a exclusionary pattern of boundary definition--but this time in a greatly expanded area. Furthermore, in 1991, boundaries were neither clearly defined, well-marked, nor stable. Local residents could not know whether they were inside the park or in a core or buffer zone. Cultivators did not know whether the ley de mejoras, which gave them the right to occupy and use up to 50 ha. of public land on which improvements had been made, would be observed. Finally, both DGF and DNP operated in the reserve, but with different regulations and mandates.

In June 1992, clarity was introduced into the situation. New boundaries were drawn showing core and buffer zone, the former overlapping the latter in the east (fig 8), obliterating the distinction between national park and forest reserve. Taken together the two zones would cover 1,435 km_2 and extend from rice asentamientos on the north to sugar plantations on the west and south to the African palm plantations on the east, leaving no conuco cultivation outside park boundaries. The DGF, under the direction of Col. Pedro Candalier (who came to Los Haitises from the Haitian border), called for total evacuation of residents, cultivators, and livestock both

from the core and buffer zones. The Spanish team was said to have retired from the zone, along with their recommendations (Ultima Hora 13 june 1992, p 4).

An June 15, 1992 decree (192-92) created a commission consisting of the Secretary of Agriculture, the DGF, the DNP, the Direccion de Ganaderia and the Consejo Estatal de Azucar (CEA) to arrive at politically acceptable procedures for indemnification of evicted residents and provisions for their relocation in "other parts of the national territory in which they can carry out their agricultural and livestock raising labors, without damaging the national flora and fauna." The decree prohibited hunting and authorized the armed forces and national police to assist relevant agencies (DNP, FORESTA, Vida Silvestre) in law enforcement. Attributing damage to pig-raising and livestock, it concluded that the "Dominican ecology in large part depends upon the eviction of park residents, dictated by the necessity of conserving at all cost this natural resource" (Listín Diario June 16, 1992)

That same day, Secretary of the Armed Forces, lieutenant general Héctor Garcia Tejada declared the desalojo an emergency (El Siglo, 16 June 1992), and Col. Candalier affirmed that populations located in the Los Haitises buffer zone, including the communities of Pilancón, Trepada Alta and Los Arroyones would be removed and their homes destroyed, and that these areas would be subject to permanent military control. Estimates of the number of families affected by the eviction ranged from 17,000 to 20,000, and up to 70,000 individuals (Rocheleau and Ross 1995). Conuqueros and small livestock producers were forced to sell their livestock and crops at "fire sale prices." (Listín Diario, 16 June 1992, p. 6). Area residents also accused the troops of destroying crops outside of the buffer zone

Director General of Migration, Contraadmiral Victor García Alacont, reported that 43 Haitian families evicted from Los Haitises would be relocated to CEA batey Consuelo, despite long-term residence in the Dominican Republic. García Alacont defended his decision, saying that "the Haitians were dedicated to short-cycle cultivation and charcoal production in Los Haitises, with which they were destroying the ecosystem in an important ecological reserve." (Ultima Hora, 15 June 1992, p.17).

Promises to relocate evicted families were partially carried out. In August 1992, plans were made to construct 3,000 housing units for evicted families; this would only take care of some 15 percent of the desalojados (Listín Diario, August 10, 1992, p. ?). Some CEA lands no longer fit for sugar production, were dedicated to new asentamientos for the desalojados, but in 1995, many still lacked cultivable land. At times, those assigned to new asentamientos often displaced other informal cultivators. In any case they lacked clean water and other basic amenities (D. Abramo, personal communication 1994). Responding to increasing pressures from area clergy, President Balaguer inaugurated new public works programs in the peripheral towns of Monte Plata and Bayaguana and announced the creation of yet another official commission to study proposals for preservation of the reserve and to "define the destiny of some 1,200 families evicted from the area." (Listin Diario, June 9, 1995, p. 1).

> **Lines in the sand.** Application of a territorial logic to a complex resource/livelihood issue was an act of violence. Relations between park managers and local cultivators, characterized by fear and hostility for a decade, deteriorated markedly. Bounding of the public lands accentuated the difference between the semi-African, fugitive conuco and the technology-dependent monocultural farming systems of the asentamientos. The in-out logic of the territorial map coupled with dominicanization discourse and the symbolism of the conuco within it legitimated the closure of the public domain to shifting cultivators whose continuing presence constitutes a challenge to state consolidation..

Despite the fact that the Spanish plan found traditional swidden systems compatible with park management in all but a few small areas, los Haitises cultivators faced continuing harassment from public authorities. Administration directed at the maintenance of the park's "wild" status coupled with the territorial imperative has made insecure tenure even less secure and may be inhibiting sustainable production of permanent crops and fruit trees (see Ultima Hora 16 junio 1992, p. 15). The presence of fugitive Haitian sugar workers in the park provoked the conditioned anti-Haitianism of the border discourse.[24] Roundups of Haitians, justified by laws confining migrant workers to the bateys, made military patrols a daily presence in los Haitises.

Boundary definition in Los Haitises was by no means settled in 1992. New maps are being made, new lines drawn, and new policies formulated to regulate land use within these lines. Meanwhile, repressive, arbitrary enforcement policies have created a situation reminiscent of the maroon societies that characterized Caribbean society before emancipation--shifting cultivation on rugged terrain amid considerable insecurity and fear of loss of livelihood. Army patrols enforce the forest law within ever shifting boundaries; fugitives from the sugar plantations and from the inevitability of urban life continue to cultivate on ever-shifting parcels Because the sustainability of swidden agriculture depends on access to public lands, its very existence threatens state control. But the Los Haitises conflict is not just about access, but about ownership and disposal of the Trujillo properties. Successive Balaguer governments have treated the Trujillo

[24] In 1992, an America's Watch team interviewed a rifle-bearing, ex-military CEA guard near Sabana Grande de Boya on the western edge of Los Haituses. When asked why he had detained six Haitians caught cultivating plots and performing agricultural labor on private lands in the area, he replied. "They have to stay here. This is their home. They can't just go to the hills and deforest our country."

patrimony as state land and have attempted to sharpen the distinction between private and state property and to increase control over the latter.

Users of state-owned reserves become subject to harassment and eviction as their status changes from informal to illegal and as land access rights based in natural law and in a history of communal land tenure give way to private property and state patronage. And, in what we may assume are the final days of the Balaguer regime, state consolidation may be giving way to a privatization, patronage politics, and disposal of the public domain to the faithful and powerful. It is increasingly plausible to think of evictions from protected areas not as as a state consolidation or conservation effort, but as first step in a state-supported program to depopulate public lands, redevelop them as resort enclaves, and transfer them to Dominican and international resort developers.

POLITICAL CONSEQUENCES OF THE ZONING MAP

The history of Los Haitises raises questions about how the spaces of development is produced, and the role of maps in that production. First, resource zone and ecological maps tend to abstract human settlement and livelihoods out of the landscape, creating an ideal of emptyness and homogeneity. Second, the failure of resource zoning maps to distinguish between geological description and policy prescription accedes to the arena of technical decisionmaking that which should be the object of political process. This does not mean that decisions are apolitical, but rather, that the politics of decisionmakers are less open to public scrutiny.

The conflict also raises questions about the relationship between resource zoning and

territorial maps. Application of an oppositional notion of boundary to the definition and management of "protected areas" did not reflect "biosphere reserve" thinking which draws on concepts from landscape ecology (Batisse 1982; Keller 1986; Gregg, 1991; Peña Franjul and Geisler, 1992). The latter implies a continuum uses ranging from wilderness to intensive human use--a spatial and temporal progression from biocentric to the anthropocentric and management to preserve a moment in time, preventing further advance of the anthropocentric land use frontier. The Spanish Plan for Los Haitises was based on resource zoning, but eschewed the polygon. Yet, because authority for creating protected areas ultimately lay with the state, geopolitical concerns prevailed; the polygon has won out over the continuum

In sum, despite or perhaps because their ability to naturalize the social through the guise of abstract neutrality, maps are ambiguous development tools subject to various interpretations and continual revision. Most maps have a stratigraphic quality. The discerning reader can see in any given map the earlier maps which gave rise to it. But the end product may be constructed to serve a very different end than the base maps upon which it is built. The history of Los Haitises mapping from 1967 to 1995 shows how a geological feature can evolve into a project, a project into a polygon on a map, and a polygon on a map into a site of violent confrontation. It also shows that no matter how concrete and timeless boundaries can be made to appear on a map, they can be reshaped on paper far more quickly than the lives and livelihoods that they affect.

REFERENCES

A. Books, Articles and Reports

Americas Watch and National Coalition for Haitian Refugees. 1992. A Troubled Year: Haitians

in the Dominican Republic. New York.

Anderson, Benedict. 1991. *Imagined Communities*. Revised edition. London and New York: Verso.

Atkins, G. Pope. 1981. *Arms and Politics in the Dominican Republic*. Boulder: Westview.

Balaguer, Joaquin. 1985. *La Isla al Revés: Haití y el Destino Dominicano*. 3rd ed. Santo Domingo: Librería Dominicana.

Baud, Michel. 1992a. A border to cross: rural society across the Dominican-Haitian border, 1870-1930. Paper presented at Eighth World Congress for Rural Sociology, State College, PA. August.

Baud, Michiel. 1992b. A Border of Refuge: Dominicans and Haitians against the State: 1870-1930.

Betances, Emelio. 1991. The formation of the modern state in the Dominican Republic: theories and perspectives. Working Paper No. 7, Bildner Center for Western Hemisphere Studies, City University of New York.

Biggs, Michael. 1995. Putting the state on the map: cartography, territory, and European state formation. Paper presented to the Annual Conference of the American Sociological Association. Washington, DC. August.

Castor, Suzy. 1988. *Le massacre de 1937 et les relations Haitiano-Dominicaines*. Port-au-Prince, Haiti: Centre de Recherche et Formation Economique et Sociale pour le Developpement (CRESFED).

Centro para la Conservación y Ecodesarrollo de la Bahía de Samana y Su Entorno, Inc. (CEBSE). 1993. Documento Sintesis: Propuesta Descriptiva para la Implementación de la Reserva de Biosfera Bahia de Samana y su Entorno. Santo Domingo and Samaná.

del Rosario, Pedro Juan. 1987. Economia rural en la Republica Dominicana· Una nueva vision de los problemas agrarios. Paper presented at Seminario sobre Teledeteccion, Sistemas Agrarios y Degradacion Ambiental. Universidad Catolica Madre Y Maestra, Santiago, R D.

Derby, Lauren. 1994. Haitians, magic and money: Raza and society in the Haitian-Dominican borderlands, 1900-1937.

Dirección Nacional de Parques and the Instituto de Cooperación Iberoamericana (ICI). 1989. Plan de uso y gestión del Parque Nacional "Los Haitises" y sus Areas Periféricas. *Parques*

Nacionales 3: 4-7.

Dirección Nacional de Parques, Agencia Espanola de Cooperación Internacional, and the Agencia de Medio Ambiente, Junta de Andalucia. 1991. Plan de uso y gestión del Parque Nacional de Los Haitises y Areas Periféricas. Documento Sintesis. Santo Domingo: Editora Corripio.

Dupuis, E. Melanie. 1996. In the name of nature: ecology, marginality, and rural land use planning during the New Deal. In Dupuis, E.M. and P. Vandergeest, eds., *Creating the Countryside: The Politics of Rural and Environmental Discourse.* Philadelphia: Temple.

Dupuis, E. Melanie and Peter Vandergeest, eds. 1996. *Creating the Countryside: The Politics of Rural and Environmental Discourse.* Philadelphia· Temple.

Escobar, Arturo 1995. Encountering Development: The Making and Unmaking of the Third World. Princeton NJ: Princeton University Press.

FAO-UNESCO. 1975. Soil Map of the World, Volume III: Mexico and Central America. Paris: UNESCO.

Geilfus, Franz. 1985. Estudio de Impacto Ambiental de Alternativas Agroforestales en Los Haitises. Informe para la realización del Plan de Manejo Parque Nacional Los Haitises. Santo Domingo: Dirección Nacional de Parques.

Gregory, Derek 1994. *Geographical Imaginations.* Cambridge, MA: Blackwell.

Hartshorn, Gary et al. 1981. Dominican Republic: Country Environmental Profile. (USAID Contract No. AID/SOD/PDC-C-0247). McLean, VA: JRB Associates.

Hays, Samuel. 19--. Conservation and the Gospel of Efficiency.

Hoetink, H. 1982 [1972]. *The Dominican People, 1850-1900: Notes for a Historical Sociology.* Trans. S. K. Ault Baltimore· Johns Hopkins University Press.

Incháustegui Cabral, J. Marino 1964. Geografia Descriptiva de la República Dominicana. 10th edition, revised. Santo Domingo: Librería Dominicana

Junta de Andalucia. 1989. Parque Nacional de los Haitises y Areas Periféricas· Documento Informativo. Seville: Agencia Española de Cooperación Internacional, Dirección Nacional de Parques de la Republica Dominicana.

Kryzanek, Michael and Howard J. Wiarda 1988. *The Politics of External Influence in the Dominican Republic.* New York. Praeger.

Lefebvre, Henri. 1991 [1974]. *The Production of Space*. Trans. D. Nicholson-Smith. Oxford, UK and Cambridge, MA: Blackwell.

Lozano, Wilfredo. 1993. *La Cuestion Haitiana en Santo Domingo: Migracion International, Desarrollo y Relaciones Inter-Estatales entre Haiti y República Dominicana.* Santo Domingo: FLACSO and North-South Center, University of Miami.

Mariñez, Pablo. 1984. Resistencia Campesina, Imperialismo y Reforma Agraria en República Dominicana (1899-1978). Santo Domingo: Ediciones CEPAE.

Moreno Fraginals, Manuel, Frank Moya Pons, and Stanley L. Engerman, eds. 1985. *Between Slavery and Free Labor: The Spanish-Speaking Caribbean in the Nineteenth Century.* Baltimore: Johns Hopkins University Press.

Morell, Merilio. 1986. Needs for landscape planning· landscape and enviromental problems in the Dominican Republic. *Landscape and Urban Planning 13*: 419-428.

Peluso, Nancy. 1993. Coercing conservation. *Global Environmental Change* (June):199-217.

Perruci, Gamaliel, Jr. Environment and the "national interest:" the national security state in the Brazilian Amazon Paper presented at the XVIII International Congress of the Latin American Studies Association Atlanta, March 10-12.

Raynolds, Laura. 1994. The restructuring of Third World Agro-Exports: Changing Production Relations in the Dominican Republic. The Global Restructuring of Agro-food Systems, ed. Philip McMichael. Ithaca, NY: Cornell University Press.

Reynoso, Franklin et al. 1988. Biological Diversity Assessment. Report to USAID (Contract No. 517-0000-1-00-7167-00; Project Nol LDNA-88-25517-KG13). Instituto Superior de Agricultura. Santiago, Dominican Republic.

Rocheleau, Dianne and Laurie Ross. 1995. Trees as toolss, trees as text: Struggles over resourcers in Zambrana-Chacuey, Dominican Republic. Antipode 27 (4): 407-428.

Sagás, Ernesto. 1993. A case of mistaken identity: *Antihaitianismo* in Dominican Culture. Latinamericanist (Center for Latin American Studies, Univ. of Florida, Gainesville)29 (1):1-5.

San Miguel, Pedro L. 1989 El campesinado del Cibao en la República Dominicana, 1910-1960. Paper prepared for Latin American Studies Association, XV Annual Congress, San Juan, Puerto Rico (Miami).

San Miguel, Pedro L. 1993. Exacción estatal y resistencias campesinas en el Cibao durante la ocupación norteamericana de 1916-24. Ecos 1: 77-100.

Silie, Rubén. 1994. El prejucio racial y el antihaitianismo: elementos de perturbación en la identidad dominicana? Unpublished ms.

Valdez Sierra, Gabriel and José Manuel Mateo Féliz. 1989. *Sistema de Areas Protegidas de Republica Dominicana.* Dirección Nacional de Parques, Departamento de Parques Nacionales, Santo Domingo

Valenzuela Arias. 1995. Legislación ambiental, desarrollo sostenible e integración. Paper prepared for International Seminar: Habia Una Agenda Socio-Politica de la Integración en el Caribe. Facultad Latinoamericana de Ciencias Sociales, Programa República Dominicana, Santo Domingo.

Vandergeest, Peter and Nancy Lee Peluso. 1993. Fixing Property in National Space· Territorialization of the State in Siam/Thailand. Unpublished ms.

Vedovato, Claudio. 1984. *Politics, Foreign Tade, and Economic Development in the Dominican Republic.* Lund Economic Studies.

Zerner, Charles. 1993. Telling stories about biological diversity· a preliminary analysis of "Charting the Biosphere" and Global Environment Fund project briefs. Paper presented at the conference on Intellectual Property Rights and Indigenous Knowledge, Lake Tahoe, 5-11 October.

B. MAPS

Blesch, Robert R. 1967. Mapa Geomorfologico de la Republica Dominicana. Scale 1:500,000. Organizacion de los Estados Americanos. Washington,DC.

CLEARS. 1995. Los Haitises: 1993 Presidential Decree

Freeman, Peter H. 1967. Uso Actual de la Tierra y Tipos de Vegetacion: Republica Dominicana. Scale 1:250,000. Organizacion de los Estados Americano Scale: 1:250,000. Washington, DC.

Organizacion de los Estados Americanos. 1967. Mapa de Proyectos: Republica Dominicana. Scale 1:250,000. Washington, DC.

Pretell, Oscar F. 1967. Capacidad Productiva de la Tierra: Republica Dominicana. Scale 1:250,000. Organizacion de los Estados Americano. Washington, DC.

Publicaciones Triunfo. 1993/4. Dominican Republic: Tourist Map. Scale 1:575,000. Santo Domngo: Editora Compio.

Tasaico, Humberto. 1967. Mapa Ecologico de la Republica Dominicana. Scale 1:250,000. Organizacion de los Estados Americano. Washington, DC.

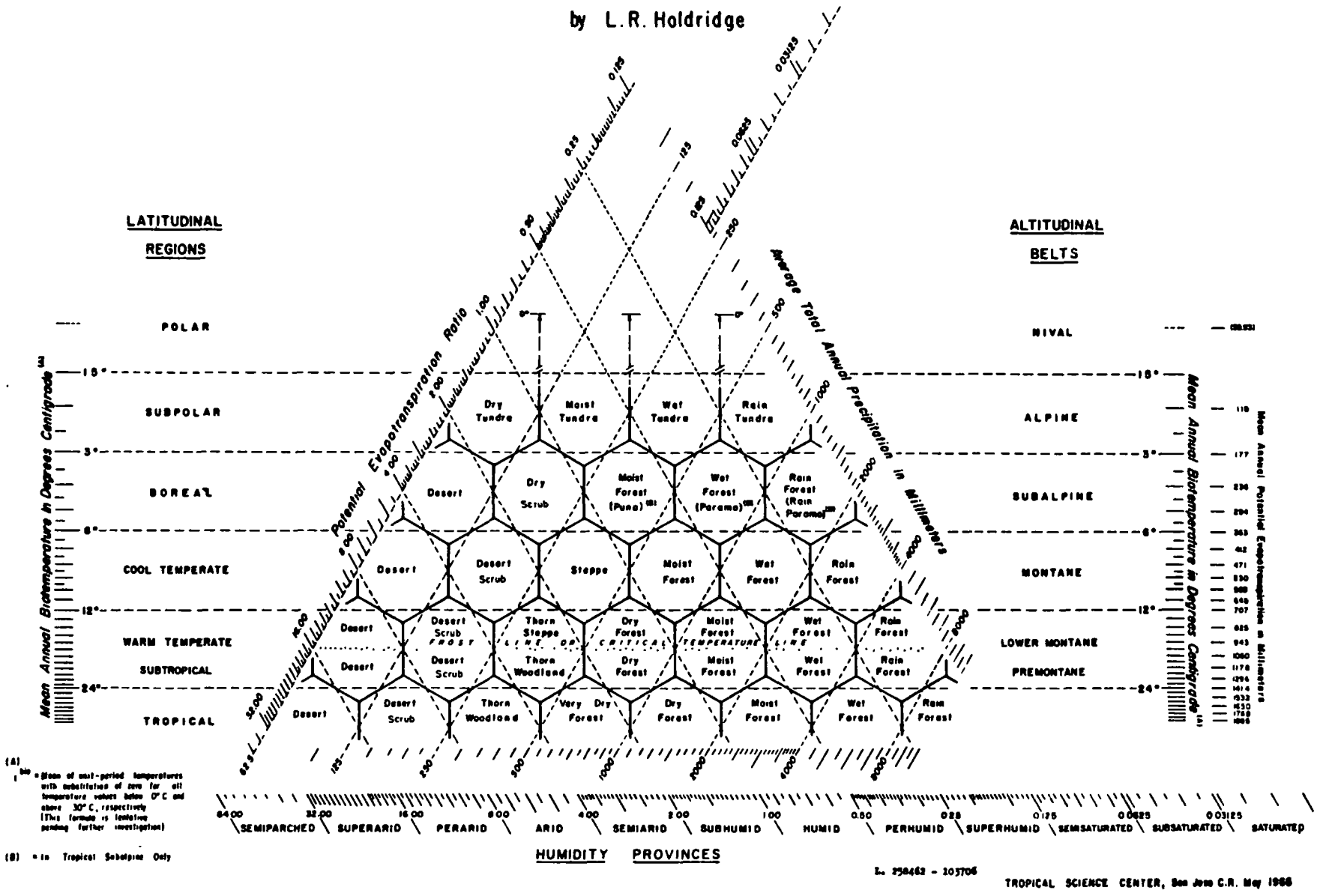


Figure III-1. *Life Zone diagram for the Holdridge Classification of World Plant Formations. (Courtesy of Tropical Science Center San Jose Costa Rica)*

Figure 1

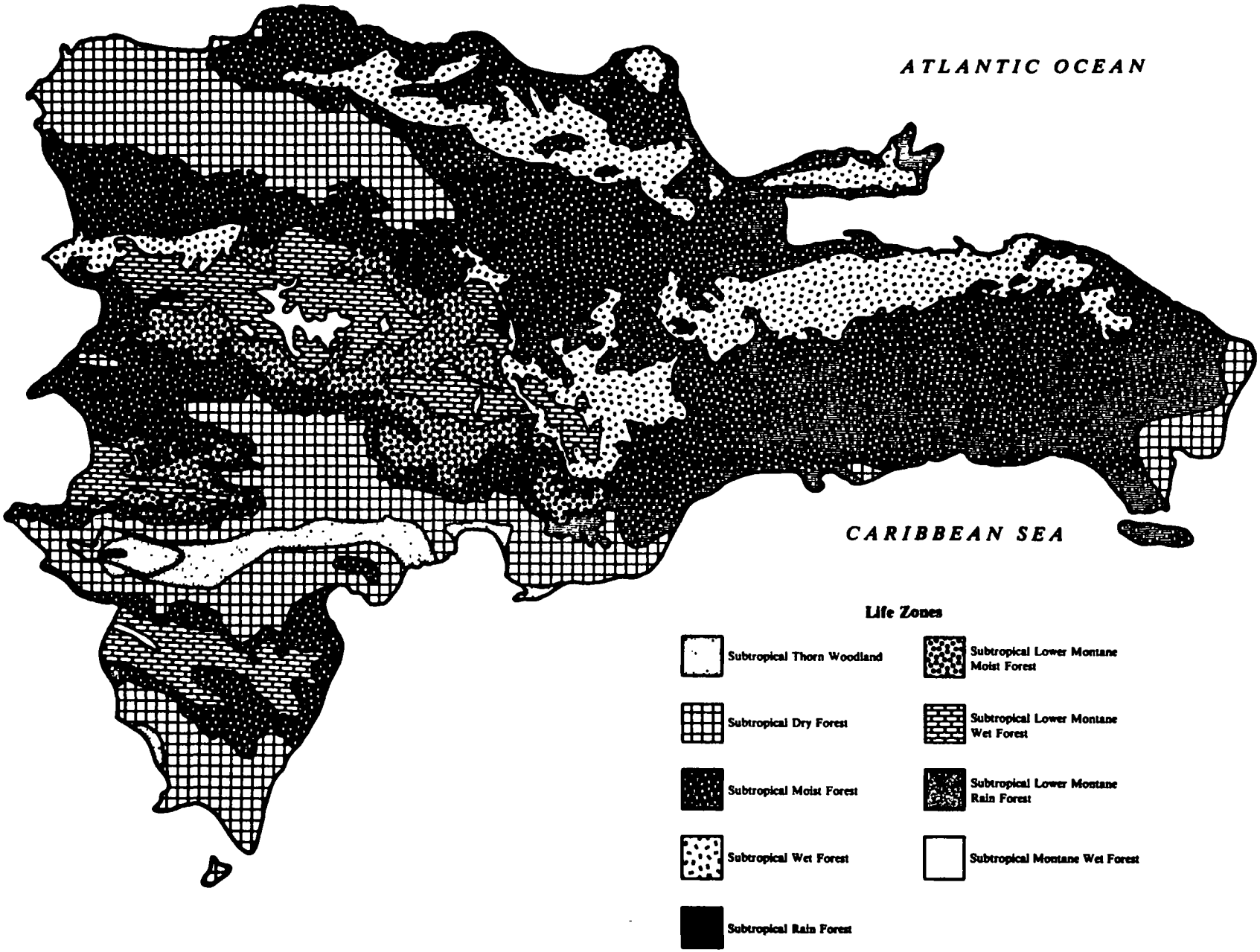


Figure III-2. *Holdridge Life Zones in the Dominican Republic. (From: OAS 1967).*

Figure 2

Figure 3: OAS Land capacity map 1967

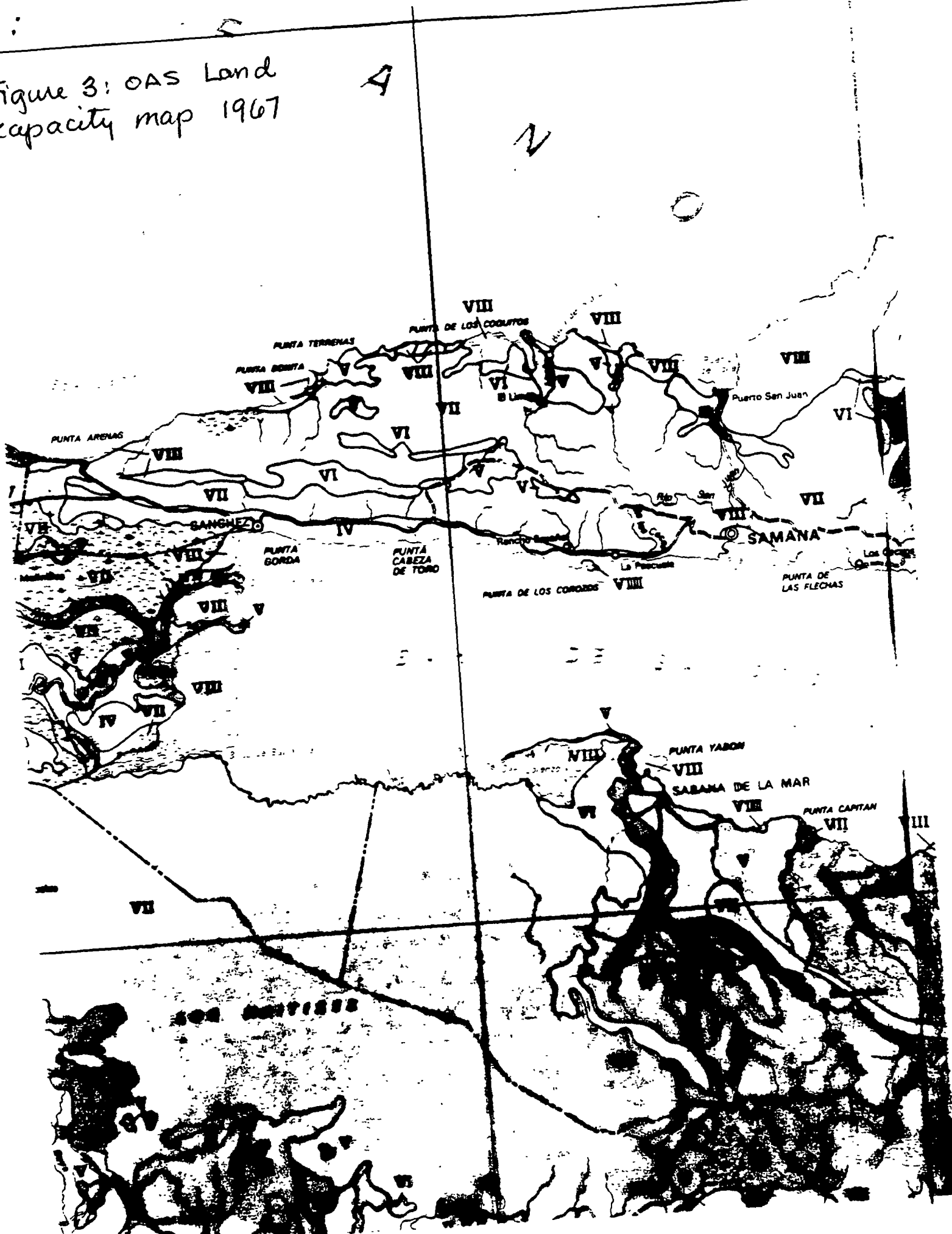
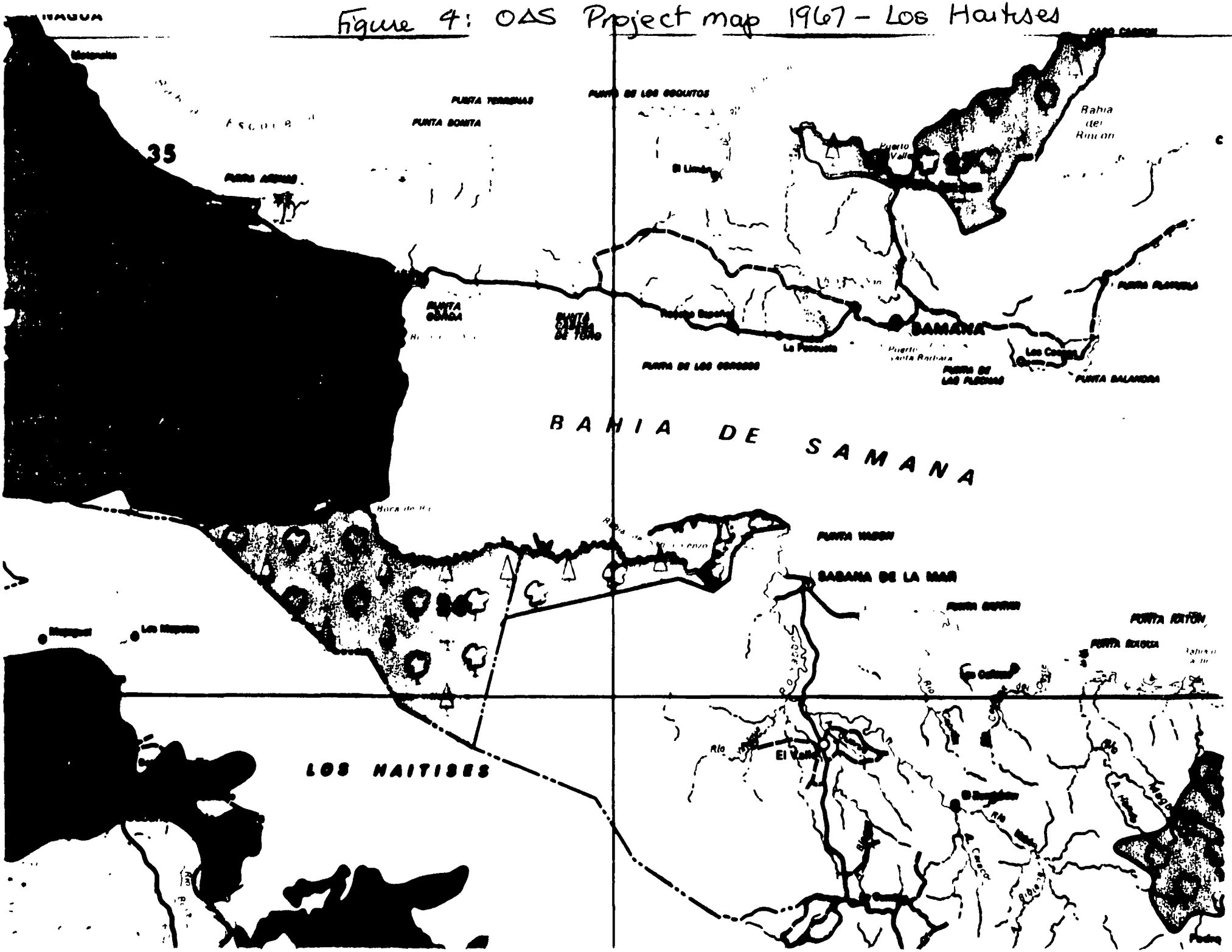


Figure 4: OAS Project map 1967 – Los Haitises



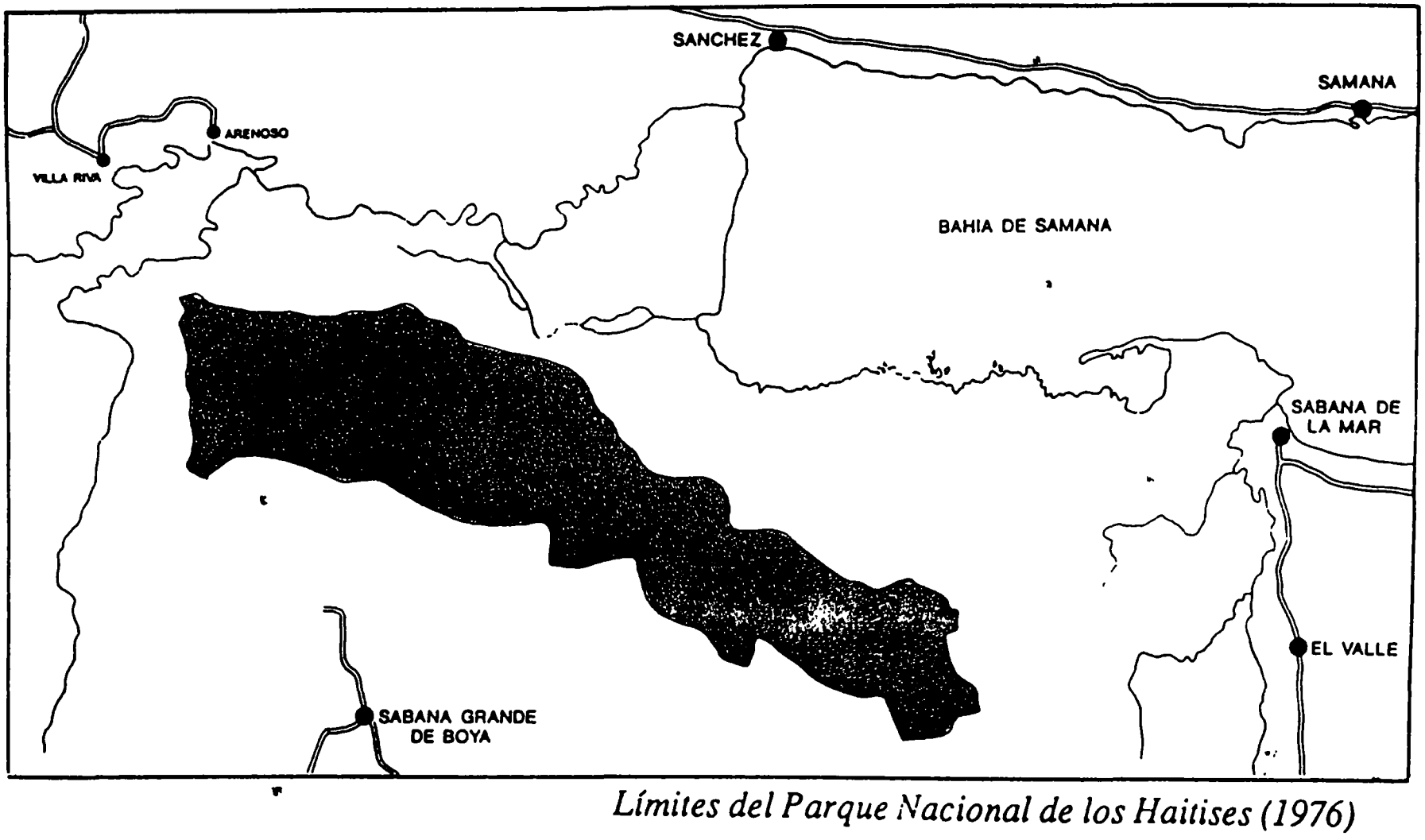


Figure 5: Parque Nacional de los Haitises, 1976 boundaries.
Source: Plan de Uso y Gestion del Parque Los Haitises y Areas Perifericas (1991).

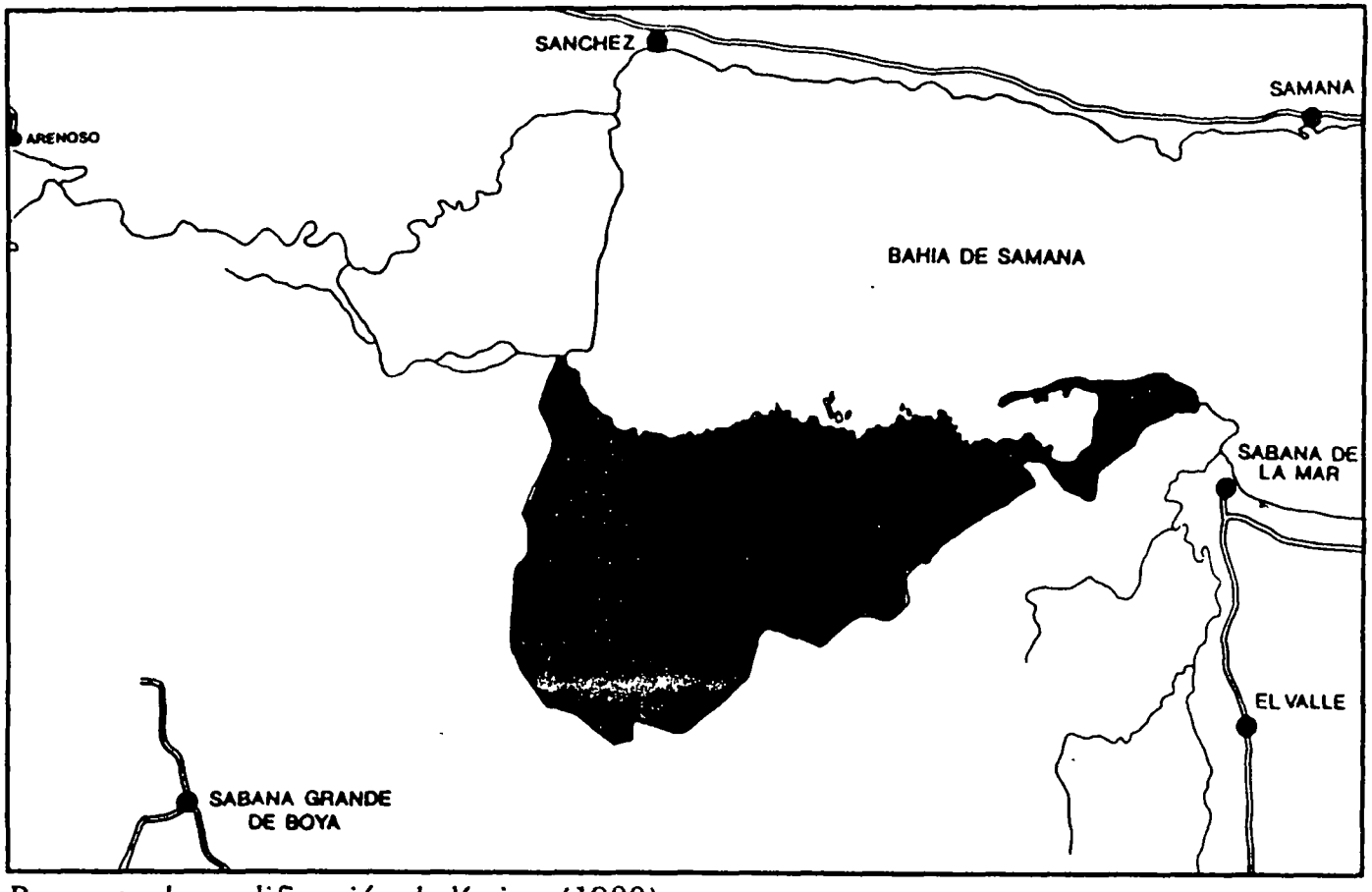
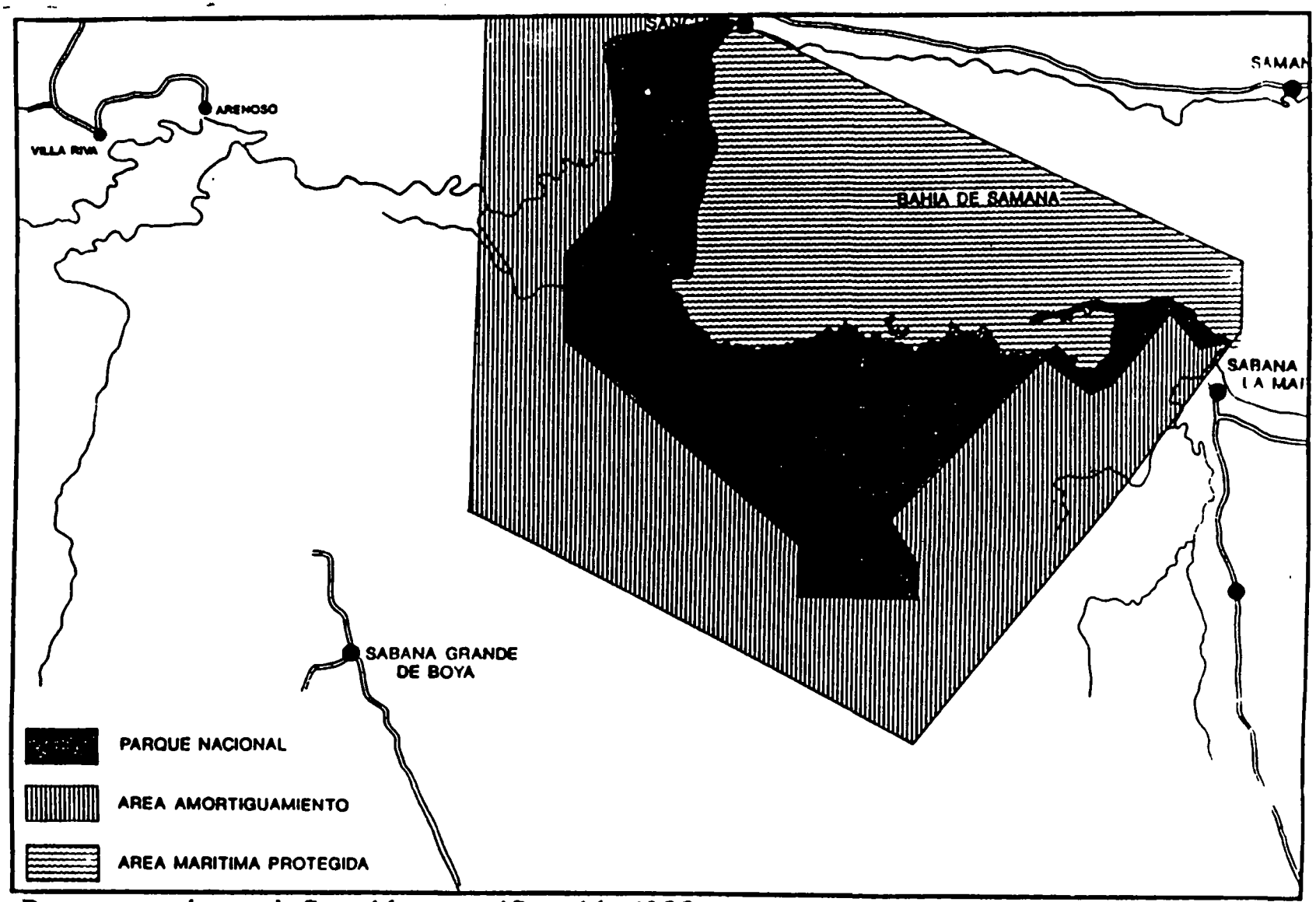
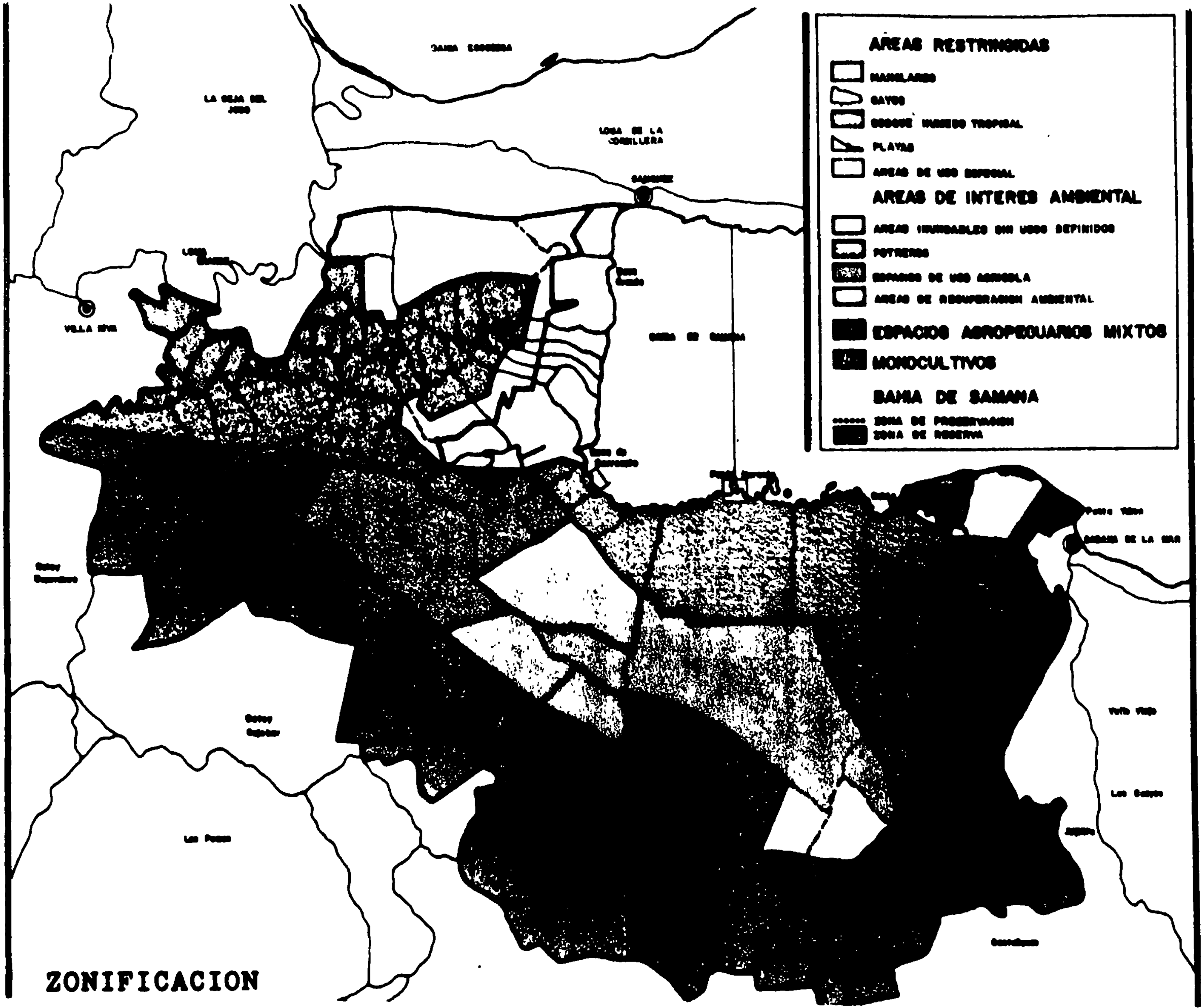


Figure 6: Parque Nacional de los Haitises, 1980 boundary modification project.
Source: Plan de Uso y Gestion del Parque Los Haitises y Areas Perifericas (1991).



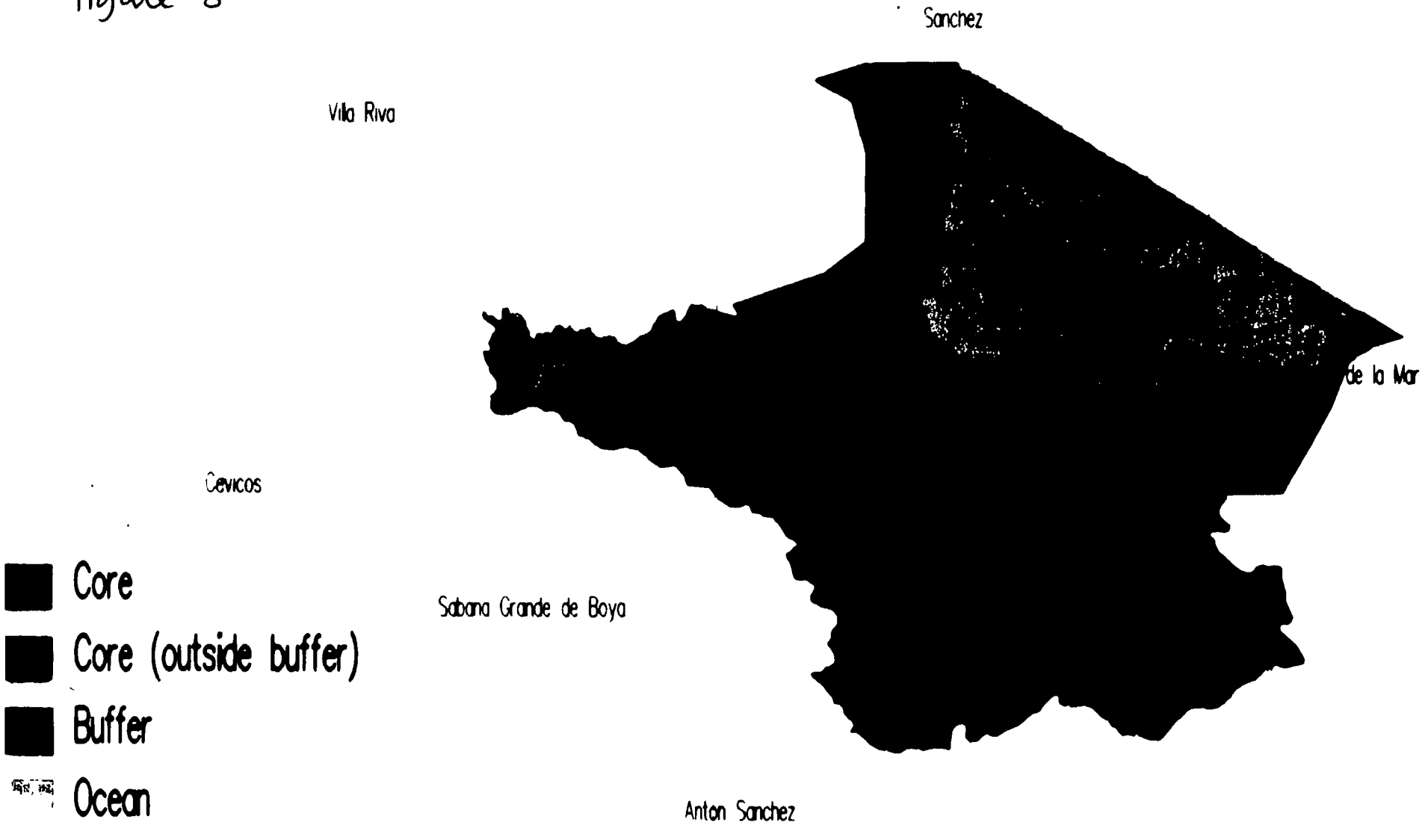
Propuesta de modoficación y zonificación (1985)

Figure 7: Parque Nacional de los Haitises, 1985 proposed boundary modifications.
Source: Plan de Uso y Gestion del Parque Los Haitises y Areas Perifericas (1991).



Fiaure 7a Aaencia Espanola de Cooperación Internacional 1991.

Figure 8



1993 presidential decree

Scale: 1:200,000

Source: CLEARS, Cornell University