The Eastern Caribbean Natural Area Management Programme: A Regional Approach to Research and Development for Conservation Action

Allen D. Putney, Ivor Jackson, and Yves Renard
West Indies Laboratory
St. Croix, US Virgin Islands

ABSTRACT. *The paper describes the activities of the Eastern Caribbean Natural Area Management Programme (ECNAMP), a non-governmental endeavour to improve local capacity to manage natural areas critical to development. The programme consists of a series of projects which combine field action, training, and research activities in ways that are mutually reinforcing. The paper presents a series of insights into planning from the bottom up, showing how substantive materials and field demonstration areas can improve the local capacity to manage. As the field projects generate experience, examples, and guidelines, emphasis will shift to broadening the effort to improve the local capacity to manage. In this way, it is expected that the programme will have an increasing impact on the effective and realistic management of natural resources in the region, and provide a documented experience for managers in other parts of the world.*

1. INTRODUCTION

The Eastern Caribbean Natural Area Management Programme (ECNAMP) is a non-governmental endeavour to improve local capacity to manage natural areas critical to development. The programme consists of a series of projects which combine field action, training, and research activities in ways that are mutually reinforcing.

The geographical area of focus is the islands of the Lesser Antilles in the Eastern Caribbean (see Fig. 1). This is a multi-national, small island archipelago characterized by dense populations and limited natural resources.

The case study will detail the reasons for initiating the programme, the way it functions, and some of its successes and failures. We hope to share some experiences and insights that have been gained, especially with respect to regional systems of national parks and protected areas, integrative methods of programme development, and the full involvement of local people. Although the programme is new and our ignorance often seems overwhelming, it is hoped that the insights that have emerged will stimulate discussions on alternative strategies and approaches, especially when compared to experiences in other parts of the world.

While this study emphasizes action on national parks and protected areas, the programme itself uses an integrative approach to resource management, which covers both ecological and socio-economic aspects of resource use systems, and which uses a variety of management tools. This is necessary when dealing with small islands because of the close inter-relationships and dependencies which predominate within and between the human and natural systems.

2. PROBLEM STATEMENT

Islands by nature are fragile, both in terms of their natural ecological systems and their human social systems. These systems have evolved in relative isolation. When this isolation is removed by air and sea transport links, outside organisms and influences are introduced, and compete with, and sometimes eliminate, the indigenous.

The islands of the Caribbean are particularly under stress. They have some of the densest populations in the western hemisphere and generally are poorly endowed with natural resources. Because of the small size of the islands of the Lesser Antilles, inter-relationships are everywhere evident. What occurs in one part of an island is linked to and has effects on all other parts of

the island and its surrounding waters. Thus, the need for effective management of natural areas critical to development is pronounced.

The problems of the islands have been exacerbated by the historic uses to which the resources have been put. The plantation system, monocultures, and dependency on outside resources and economies have been the pattern of resource use from the time European man came to the islands. The natural systems have been severely disrupted by large scale deforestation, and resultant soil erosion and change of micro-climatic conditions, over-exploitation of fish and wildlife stocks, degradation of habitats critical to economically important species, and alteration and pollution of watersheds essential to water production and utilization. The effects on the human societies, especially those caused by the slave and indentured labour systems, have been pervasive and even today are not well understood.

A central and historical problem, then, is one of intensive use of fragile natural ecosystems, often for the benefit of far-distant economies. A long history of this pattern has created significant stress on both the indigenous ecosystems and local societies. The stress is intensified by lack of awareness by governments of the requirements for efficient and sustainable natural resource development; insufficient coordination of management efforts among government, business and local resource user groups; lack of trained resource managers and of institutions in which to train them; and the lack of communication among the islands with respect to natural resource use and management.

At the same time, the small size of the islands involved and the intensive use of their resources provide an opportunity for creating a variety of tools for managing natural resources, especially those found in natural areas, under conditions of stress and competition. The challenge is to determine how protected areas can best contribute to stimulating and sustaining socio-economic development, and how to improve the human capacity to manage. To do this, it is necessary to: determine the role of living natural resources in the development process; learn how to maximize their contribution to society; identify those land and water areas that require particularly careful management as parks or other kinds of protected areas; and create the local capacity to develop and manage adequately these resources. As human populations and resource competition increase worldwide, conditions will more and more approximate the intensive resource use of the islands. Thus whatever can be learned under the stressful conditions of the islands will have increasing application worldwide.

3. BACKGROUND

As shown in Fig. 1, the islands of the Lesser Antilles stretch from east of the islands of the Greater Antilles, near Puerto Rico, to the South American continent near eastern Venezuela. This is a distance of some 750 km, and the marine areas between islands are large compared to their small land mass. The island chain is composed of an inner arc of high volcanic islands with a variety of terrestrial ecosystems and a small marine shelf, and an outer arc composed of low coraline islands with little variety in terms of terrestrial ecosystems, but with significant marine shelf areas.

The socio-economic setting of the region is one of low per capita income, but relatively higher quality of life, in terms of life expectancy and literacy, than in many other developing areas of the world. The disparity among the various social groups is not large when compared to most continental areas. Agriculture, tourism, and fisheries tend to be the leading economic sectors, although the percentage of employment in the public sector is generally quite high.

Historically the plantation system has predominated in agriculture, although this system is tending to decline in importance in many areas. The plantations have produced monocultures for export, especially sugar, coconuts, and bananas. The newer leading economic sectors, especially tourism, are generally in the hands of outside interests. Thus, the historical dependency on and control by outside interests remains to this day.

The utilization of the best agricultural lands by the larger plantations and the increasing use of coastal areas for tourism have had the effect of displacing both small farmers and fishermen from prime areas. In addition, large-scale use of fertilizers and pesticides on the plantations and the pollutants generated by tourism complexes have contaminated water supplies and caused the degradation of many coastal ecosystems. The net result is the shrinking of relatively unaltered natural areas, increasing stress on the natural ecosystems critical to development, and decline in the productivity of traditional agriculture and fisheries.

The historic patterns of development and the colonial past have left the islands deeply divided by language, culture, and economic dependencies. Of the 15 islands or island groups of the Lesser Antilles, 6 are independent countries, 2 are Departments of France, 3 are islands of the Netherlands Antilles, and 4 are dependencies of the United Kingdom. This makes any kind of coordinated action or sharing of infrastructure or human resources extremely difficult.

4. CONSTRAINTS

Given the natural, historical, economic, and insitutional setting, there is a web of constraints to natural resource management in general, and to management of national parks and protected areas in particular. It is often difficult to specifically identify the major constraints to management of natural resources, but many of them appear to be mainly institutional in nature. These include:

- The need to approach management on an island-by-island basis because of the large number of political entities. Each entity requires its own policies, legislation, management infrastructure, and training and education programmes;
- the making of major decisions affecting resource use by outside interests based on foreign criteria and pressures;
- land tenure patterns that limit efficient natural resource utilization;
- structuring of national priorities which tends to undervalue natural resource management and to perpetuate a situation of inadequate funding, staffing, and training; and
- the difficulties of educational and training institutions in developing meaningful and practical curricula oriented to local conditions and environments.

In addition to the institutional constraints, there are severe constraints regarding human resources. Each island is greatly limited in the number of natural resource management personnel that can be trained, hired, and effectively supported. Thus, there are few experienced resource managers, and a poor data base for identifying priorities and initiating effective action.

5. ACTION

For many years, there has been a growing awareness of the few remaining natural areas, the stress on natural ecosystems and local culture, and the aforementioned constraints imposed by the geography and history of the region. This led to the establishment of a non-governmental conservation organization in the region, the Caribbean Conservation Association (CCA), some 15 years ago.

ECNAMP itself was begun in 1977 in response to the concerns of a private U.S.-based foundation, the Rockefeller Brothers Fund (RBF). This foundation had been instrumental in stimulating the Latin American Regional Wildlands Project of the Food and Agriculture Organization, during the early 1970s, and extended this concern to the Eastern Caribbean during the late 1970s. Because of institutional capabilities and key personnel, RBF this time found it useful to support implementation of the Eastern Caribbean programme through a cooperative non-governmental undertaking. This was later dubbed "The Eastern Caribbean Natural Area Management Programme," and linked up the CCA and the School of Natural Resources, University of Michigan, in a common endeavour.

The programme's efforts were initially concentrated on Dominica, an island with an on-going programme for parks and protected areas. As experience in working with the special problems of small islands was gained, the programme was extended to cover the 15 islands, or island groups, of the Lesser Antilles. Greatest emphasis has been placed on natural areas which are critical to development.

Initially the programme was funded in its entirety by the Rockefeller Brothers Fund. That funding base has expanded over the years to include many other sources, especially IUCN, WWF, The Jackson Hole Preserve, Inc., the Canadian International Development Agency, and the Arkville Erpf Fund. Smaller grants have also been received from UNEP and the Caribbean Development Bank. During the past three years, the overall budget for ECNAMP has averaged about US $175,000 per year.

ECNAMP operates through a range of contacts with individuals and institutions. To avoid the drawbacks and overhead expenses of larger institutions, ECNAMP has no permanent staff nor centralized office. This approach is particularly realistic under present circumstances, since most work is funded on a project-by-project basis. It is a particularly cost-effective approach, especially compared to bi-lateral and multi-lateral technical assistance programmes.

Activities are coordinated by a Principal Investigator whose office is located at the West Indies Laboratory of Fairleigh Dickinson University, St. Croix, U.S. Virgin Islands. Three Staff Consultants, each located on a different island, organize and implement activities together with the Principal Investigator. Numerous short term consultants are contracted on a project-by-project basis and a strong preference is given to individuals from the region. All project activities are carried out jointly with local governmental, or occasionally non-governmental, organizations. Efforts are made to maximize the involvement of local communities. Close working relationships are maintained with a variety of organizations, both inside and outside of the region, which have common objectives.

ECNAMP's working format permits it to evolve to fit in with changing circumstances, be they in terms of personnel, perceived needs and priorities, institutions, or funding possibilities. At present, major areas of programme focus include the identification of regional conservation priorities, assistance in developing local capacity to manage, development of effective methods and approaches for the management of living natural resources, building of public awareness and participation in management, and linking of natural resource use to overall development goals.

5.1. ECNAMP's field activities

The projects being undertaken during 1982 provide an indication of how overall programme goals are translated into action. Several of these projects centre on the development and management of national parks and protected areas. Other projects focus on conservation efforts at the island or regional level, or provide services to cooperating governments or institutions.

5.1.1. Field projects for protected areas have been selected for their suitability for specific experimental themes, local concern for and commitment to the particular area, logistical considerations, and the availability of suitable personnel. All projects, however, include activities which cover all of the elements of the management process (e.g. research, policy and planning, training, education, implementation, and field operations). The major experimental or demonstration themes that have been selected include:

- Methods for identifying and managing a system of national parks and protected areas for small islands;
- evaluation of alternative uses of natural areas critical to development;
- methods for establishing a meaningful process of public participation in the planning and management of protected areas critical to development;
- methods for stimulating social and economic development through national parks and protected areas; and
- new approaches to tourism based on the use of natural and cultural resources and the maximizing of benefits to local people.

5.1.2. Island or regional projects have been initiated in response to particular problems, to develop and disseminate information on a regional basis, or to synthesize the results of field projects. Major areas of effort have focused on:

- A survey of conservation priorities on a regional basis with the production of atlases of graphic information on habitat, environmental, socio-economic, and legal data for each island. Using this information base, regional and local systems of parks and protected areas have been identified and proposed;
- methods for planning and implementing an integrated development approach to marine resources;
- methods for developing island conservation strategies based on user group participation; and
- an assessment of the role of natural areas in the rural production systems of the islands.

5.1.3. A range of service activities promote the dissemination of results of the field and support projects. These include the following:

- Meetings or conferences sponsored by other organizations;
- workshops sponsored by ECNAMP;
- development of publications and articles, especially ones which increase communications between resource users and resource managers;
- use of project areas for demonstration purposes, especially in conjunction with workshops;
- presentations to meetings and lectures at universities;
- consultations or short-term consultancies with other organizations; and
- training and education activities through scholarships, student internships, and workshops.

6. RESULTS

The results that have been obtained from the programme are generally encouraging. The various islands have benefitted from better information about key natural resources, training of personnel involved with the management of natural resources, and management of selected natural areas. The conservation institutions of the region have benefited by an enhanced information base, a more constant presence and service to their membership, and improvement of methods for dealing with the resource management issues of small islands. At the university level, teaching has improved with the experience gained from the field projects and the close collaboration between research and field implementation.

The added knowledge that has been gained contributes to improved management in a variety of ways. In some instances, new data on critical areas have been developed. In other cases, such as with the publication of the Data Atlases for each island, already available data have been compiled and made readily available for decision making. By standardizing the Data Atlas format, it was possible to make regional analyses and comparisons. This supplies critical information for selecting priorities and synthesizing action programmes, and conservation priorities are now more clearly defined at the regional, island, and local levels.

Improved knowledge of the institutions of the region, and of key specialized personnel, has also resulted from programme activities. Thus, with the non-governmental format of ECNAMP and the funding that has been generated, it has been possible at times to share particular individual or institutional capabilities among the islands. Better communication links between the islands have developed. But perhaps the most important output in terms of new knowledge has been the identification of approaches and methods that are applicable to the special setting of small islands.

Another important output from the programme has been the contribution to education and training. Some of the best training has been derived from the close collaboration of ECNAMP consultants with local project participants. Selected individuals have been provided with financial support to pursue university degree programmes or to serve as project interns. Materials for training in the form of case studies and guidelines for management, have been generated from the field projects. These projects also provide potential demonstration areas for future workshops and training exercises, and considerable materials for publications and lectures.

Another important aspect of the programme has been the emphasis on an integrative approach to resource management. This approach has at times caused key personnel to change substantially their perceptions of, and attitudes towards, resource problems or particular management strategies. Integration has been achieved in terms of disciplines and perspectives. For example, the ecological perspective has been integrated with economic, sociological, and cultural perspectives. Scientific and technological knowledge has been combined with traditional and folk knowledge. Projects have often integrated governmental and non-governmental inputs, as well as the knowledge and expertise of the various island, cultural, and language groups.

Although many of the results of the ECNAMP projects have been encouraging, there continue to be several areas of difficulty. The most basic and important problem continues to be the lack of concern on the part of governments, bi-lateral and multi-lateral assistance organizations, and individuals with respect to the conservation of man's biological support systems in general and natural areas critical to development specifically. Thus, the basic receptivity to ECNAMP's programmes must be carefully nurtured in each case. Advisory and Coordinating Committees, which are organized locally for each project, are extremely useful in this respect.

ECNAMP has also had difficulty in finding competent personnel to assist with the promotion of business related to sound resource management. There often seems to be a large gap between the government and conservation organizations on the one hand, and the business community on the other hand. Thus, the goal of integrating good resource management with local business has proved to be elusive.

A similar dilemma has been experienced in relation to the few local universities. They have placed priority on the basic sciences rather than the applied aspects of management. Thus there is neither interest nor travel funds available to relate to the real problems of field activities in natural resource management, either in education or in research. There are recent signs, however, that perceptions may be changing, and that the local universities may be more willing to get involved in applied management activities in the future.

Funding has been an obstacle, not so much in terms of overall availability, but more in terms of specific programme items. Most difficulty has been experienced in funding programme overheads, even though they are quite small compared to most other organizations. Funding projects that aim at synthesizing results of various activities, so that successful approaches can be defined and specific guidelines drawn up, has also been a problem. In general, the longer-term educational outputs seem to be less attractive to donors than the more immediate outputs of environmental management and economic development. Additionally, funding for follow-up projects or for maintaining a relatively constant effort for specific areas over periods longer than a few years has not been easy to secure.

7. CONCLUSIONS

Because of the relative newness of ECNAMP, and the on-going nature of many of the projects, it is perhaps premature to speculate on definitive conclusions. Some initial insights, however, based on only five years of experience, can be tentatively identified.

Overall, the most important insights relate to the basic question of how to select natural areas critical to development and manage them effectively. A more integrative approach to management has evolved, building on experience in Latin America and, more recently, the Caribbean. This approach merges the use of strategic planning with increased emphasis on widespread participation at all project stages. The effect has been to give greater breadth and depth to the research and planning aspect of projects, which in turn smooths the way for realistic implementation. Research, planning, training, and implementation are seen less as distinct project phases and more as fluid elements of a total, non-linear process.

The selection of priorities for the management of natural areas, as carried out by ECNAMP, is based on a variety of criteria. However, we have found that the strategic approach to planning is a useful tool for providing an initial selection of areas. The criteria for establishing priorities may change depending on the focus of the project. Once these criteria are clearly specified, relevant data on the bio-physical and human elements can be gathered, compiled, and presented. These data are then verified and supplemented, as much as possible, through actual field visits. The data are analyzed in their component parts, and then synthesized to enable the selection of action priorities. A further prioritization can be based on other important criteria such as availability of personnel, urgency, local receptivity and interest, etc.

While the strategic approach provides a framework for systematic selection of priorities, it does not of itself provide much guidance for management—it answers the question of "where", but does not guide determination of "what" or "how". The definition of the full range of management objectives for a given area, and of the specific management options available (the "what" and "how" aspects), seem to be best approached through widespread participation. All of the relevant institutions and individuals must participate in the project from the beginning. Consultations after the fact are not adequate. The most meaningful participation is perhaps best initiated at the project planning stage through the formation of a Project Coordinating and Advisory Committee. This committee should consist of interested and committed representatives from relevant government departments, conservation organizations, and resource user groups (e.g. farmers, fishermen, landowners, businessmen, tourism operators, recreationists, educators, and scientists). Often, however, basic groups, such as farmers and fishermen, are reluctant to participate in such committees. A special effort needs to be made to

involve them in a meaningful way, and this can many times be accomplished during research activities. Local fishermen and farmers can usually provide detailed information on natural resources and their local uses. This traditional knowledge is often more comprehensive than published scientific information, especially with respect to specific areas.

Perhaps the greatest value obtained from the emphasis on widespread participation is that it establishes an atmosphere conducive to effective implementation. On most of the islands, law enforcement bodies are not able to enforce regulations pertaining to natural resource utilization. In practice, then, regulations tend to be enforced only when there is already consensus at the local level. Conversely, when individuals or groups are not consulted during the early stages of a project, there is quite often active opposition to the implementation of management.

A variety of less comprehensive insights can also be drawn from the experience gained by ECNAMP. Some of the more important include:

- The non-governmental organization has some particular advantages in promoting the establishment and better management of parks and protected areas. Although it tends to receive smaller budgets, it can be significantly more efficient and cost-effective than inter-governmental organizations. It also can maintain a greater degree of flexibility institutionally, administratively, technically, and in response to changing conditions or new insights. It appears that these advantages can only be maintained, however, as long as the programme remains relatively small and personnel are dispersed among field projects.
- The non-governmental organization can promote projects which integrate the inputs of various governmental departments, non-governmental organizations, businessmen, landowners, and local resource users. This creates a realistic working environment for managing natural resources through national parks and protected areas, an important management tool, and it exposes the various groups to, and familiarizes them with, this tool. Too often, it seems that knowledge of protected area management techniques is restricted to a small group of national park enthusiasts, rather than being part of the experience of, and thus available to, a wide range of decision makers.
- While personnel have had to be generalists because of ECNAMP's small size and the dispersed nature of its activities, this has proved to have a variety of practical advantages. It has forced each Project Leader to identify and involve local specialists, both in and out of government, in projects. It has made it possible, and indeed logical, to integrate policy, planning, research, training, and implementation activities so that they become mutually reinforcing parts of a whole. In many cases, these integrative activities have fostered good working relationships that have later carried over to many other activities outside of the immediate project.
- Appreciable project results require long-term involvement in management over a broad range of activities. Short projects with isolated outputs, such as a piece of legislation, a single training session, or a plan for a particular area, usually are not productive in the long run. Such efforts tend to concentrate resources and interest over short periods that cannot be sustained.
- Management of renewable resources in general, and of national parks and protected areas in particular, should: be sustainable ecologically, economically, socially, and culturally; improve the livelihood of the neediest groups at the local level; promote flexibility and the maintenance of multiple options for development; and promote linkages between new leading sectors, such as industry, tourism, or recreation, and traditional resource uses such as farming, hunting, or fishing.
- Most of the already developed technology and natural resource management methods are not applicable to the small island setting. Local solutions need to be sought, documented, and disseminated.
- As far as is practicable, management techniques should respond to the needs of traditional user groups and be implemented at the lowest possible level of social organization (e.g. the family or village level). As resource conflicts arise or manpower constraints dictate, higher levels of social organization will have to be used (e.g. district or national level).
- The local technician is a key element to the success of any management strategy. He should receive priority attention for training and support.
- Training of resource managers is most effective when it is carried out within an institutional and biophysical setting similar to that of the trainee's working environment. Some of the best training takes place, therefore, when it is linked to ongoing field projects in the region.
- Interaction with local people has demonstrated time after time that there is an urgent need to bring conservation awareness and methods into the heart of the governmental, business, and individual planning processes. To do this successfully, it is necessary to de-emphasize the concern for single spectacular species, and shift attention to the maintenance and sustainable use of biophysical and social systems to support development.
- Stimulating the proper utilization of natural resources is just as important as curbing or restraining improper practices. Thus, the positive promotion of desired approaches and development

of appropriate businesses is just as important as establishing regulatory mechanisms.

- Since traditional natural resource utilization techniques have endured during periods of relative stability, they are by definition sustainable as long as conditions of stability remain. Modified techniques are needed when new factors substantially change conditions that prevailed during a period of stability or in response to local perceptions of the need to improve the efficiency of resource utilization. To ensure that the intricacies of traditional methods and attitudes are understood, they should first be described in detail before any management prescriptions are ventured. Indeed, this is a basic part of the participatory emphasis of management, and is the function of research and information dissemination (education) activities.
- Many of the problems encountered by the natural resource manager seem to arise when there is a lack of understanding of both the human and the natural systems, and of the dynamics of the interaction of the two, involved in managing any particular resource. Resource managers tend to have backgrounds in the natural sciences and thus it is often necessary to compensate for the relative lack of knowledge of, and importance attached to, the social sciences.

While the insights derived from ECNAMP are tentative, project activities increasingly provide substantive materials and field demonstration areas for improving local capacity to manage. During its first five years, the programme has concentrated on implementation of field projects. As these projects generate experience, examples, and guidelines, emphasis will shift to broadening the effort to improve local capacity to manage. In this way we hope that the programme will have an increasing impact on the effective and realistic management of natural resources in the region, and provide a documented experience for managers in other parts of the world.

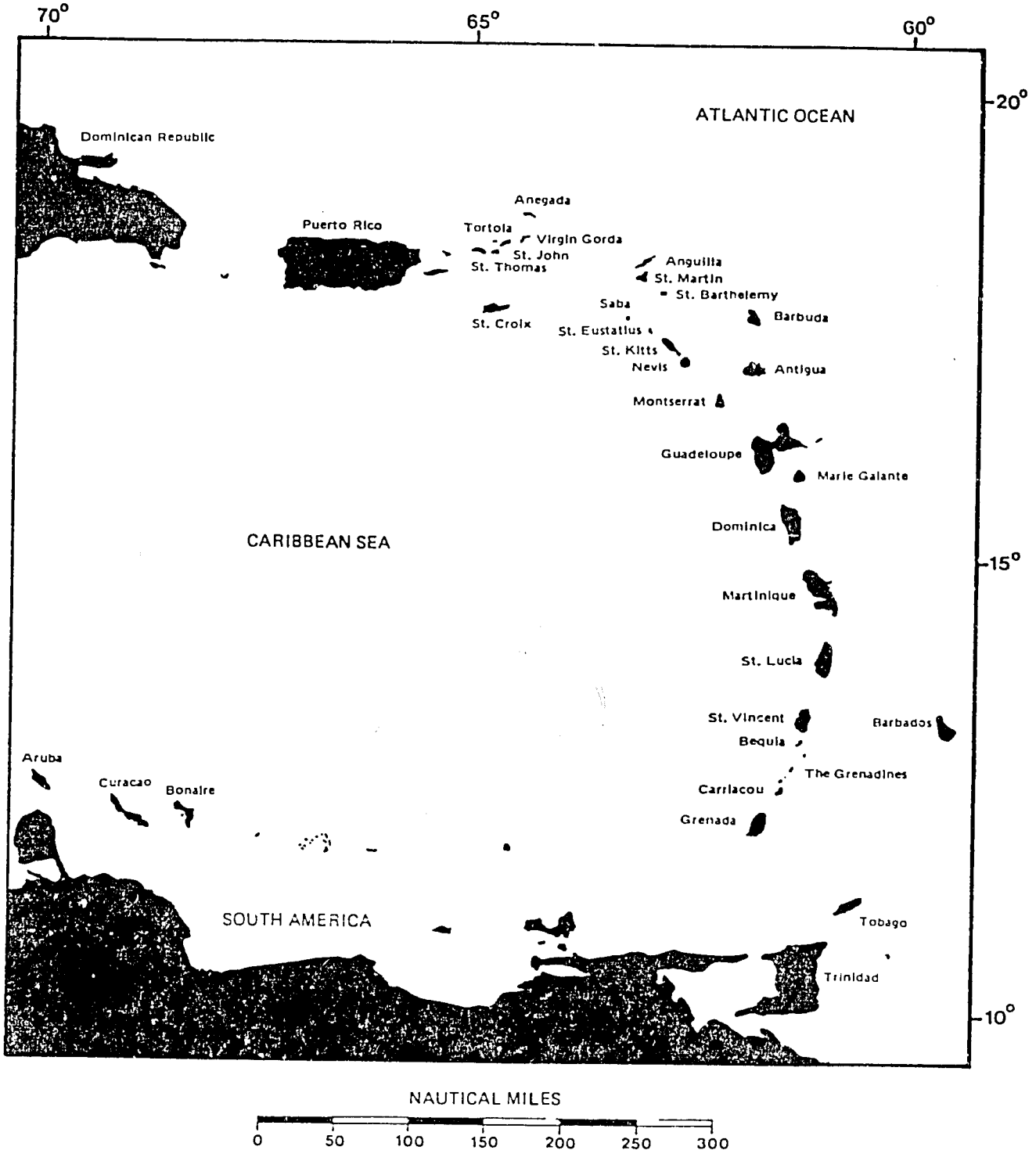

Figure 1. Map of the Eastern Caribbean showing the Lesser Antilles.