1. PRE-COLUMBIAN SOCIAL ORGANISATION AND INTERACTION IN THE LESSER ANTILLES: AN INTRODUCTION

The study of pre-Columbian social organisation and interaction in the Caribbean has largely centred upon the Greater Antilles, and only quite recently has attention started to focus on the Lesser Antilles. The past decade witnessed a notable increase in studies on pre-Columbian social organisation, concentrating in particular on the later pre-Columbian period in the northern Lesser Antilles (e.g. Crock 2000; Crock and Petersen 2004; Hofman 1993; Hoogland 1996; Hofman and Hoogland 2004; Knippenberg 2004). The present study aims to contribute to the understanding of pre-Columbian social organisation and interaction in a small region within the Lesser Antilles, namely the Eastern Guadeloupe micro-region.

1.1 EARLIER RESEARCH

1.1.1 Introduction

Caribbean archaeology has long focused almost exclusively on the construction of a regional chronological framework based on the study of pottery styles. This work was started by professor Irving Rouse in the early 1930s and many Caribbean archaeologists contributed to the constant refining of this framework (section 4.2.1). Mirroring trends in American and European archaeology, albeit slightly delayed, a gradual shift has occurred from this largely cultural-historical approach, that fitted well into prevailing scientific archaeological approaches of the first decades of the 20th century, to ecologically oriented studies. The latter, largely focussing on adaptation of pre-Columbian societies to prehistoric insular environments and on economic exploitation of these environments, became increasingly numerous from the 1970s onwards. Study of other aspects, such as socio-political organisation and ceremonial use and perception of the environment, has been becoming increasingly important, and it is deemed that when combined with more economically based studies, these aspects provide valuable insights into pre-Columbian social organisation and interaction.

As mentioned above, studies of pre-Columbian social organisation in the Caribbean have long been focused on the Greater Antilles. This is because of the relative wealth of Spanish ethnohistoric documents, dating from the first contacts between Amerindians and Europeans and describing different aspects of complexly organised pre-Columbian societies of the chiefdom type in the Greater Antilles. These societies were grouped in *cacicazgos* headed by a *cacique*. The complex character of these societies has been underscored by archaeological evidence, including the emergence of a site hierarchy and regional centres in the form of ball-court sites (e.g. Curet 1992; Siegel 1992; Torres 2001). Several attempts have been made to explain this emergence by hypothesising population growth (see for example those listed in Wilson 1997:52), but Curet (1992) noted through carrying capacity studies in the Valley of Maunabo on Puerto Rico that this could not account for the growing complexity observed. Thus no evidence was found that environmental circumscription, stimulating population pressure in case of demographic increase, played an essential role in the process of increasing complexity. According to Siegel (1992), monopolisation and intensification of ritual and cosmology played a pivotal role in developing complexity.

Much less attention has been paid to the social organisation of pre-Columbian societies inhabiting the Lesser Antilles. Information is lacking for the later pre-Columbian period in particular. It has generally been assumed that the region-wide homogeneity of Saladoid style ceramics (section 4.2.3), typical for the earlier period, indicates a tightly organised society, fostering close contacts over long distances within the Caribbean. However, though sharing many similarities, Saladoid ceramic assemblages throughout the region are more heterogeneous than has generally been thought (Hofman and Hoogland 2004). The end of this Early Ceramic Age is characterised by the development of more localised style zones (Hofman 1993). These styles have often been labelled post-Saladoid (section 4.2.4). Ethnohistorical sources, that may shed some light on relevant social processes, are less abundant for the Lesser Antilles when compared to those on the Greater Antilles and they postdate by more than a century the earliest contact period (section 1.4.7). French historical documents, dating from this later period, do not describe societies to be as complex as they were in the Greater Antilles but as small and egalitarian instead (Breton 1978[1647]; Moreau 1990). The nature of the archaeological record itself, which does not lend itself to easy correlations with certain stages of social complexity, did not provide a stimulus for the study of socio-political organisation within this area either, when compared to the Greater Antillean record.

1.1.2 Social organisation

As for pre-Columbian social organisation in the Lesser

Antilles, the general impression that arises when regarding archaeological evidence for the Early Ceramic Age, is that of communities dispersed over the islands, living in rather large villages, maintaining regular and close contact with each other by means of communal activities. The relatively swift and successful spread from the South-American mainland over several Caribbean islands and the long maintained uniformity in pottery style that all these communities share indicates the existence of long distance contact networks (Hofman and Hoogland 2004; Keegan *et al.* 1998; Watters 1997). These networks probably played an important role in the region-wide spread of semi-precious stone artefacts, which is typical for this period, as well. The evident degree of complexity has led Hoogland (1996:9) and Siegel (1989) to label those societies 'complex tribes'.[1] The absence of evidence for settlement hierarchy based on settlement sizes or for burial stratification suggests an egalitarian society without hereditary personal status differences (Curet 1992). So-called local 'big-men' may have played a role of some regional importance, however, in the initiation and maintenance of the long-distance contact-networks and therefore achieved leadership should not be ruled out (Boomert 2000). Siegel (1989:202) and Petersen (1996) also emphasise the existence of status variation and the absence of centralised authority.

The Late Ceramic Age in the Caribbean is characterised by divergent pottery styles (section 4.2.4). Part of the current archaeological discussion centres on the question whether Lesser Antillean communities surpassed the tribal level and were developing chiefdom societies instead during this period. Archaeological investigations at Kelbey's Ridge (Saba) and Anse à la Gourde (Guadeloupe) did not provide evidence for hereditary status variation, which may be considered typical for chiefdom societies (Hofman *et al.* 2001[c]; Hofman and Hoogland 2004). Site differentiation, however, does increase during this period, mirroring developments in a society experiencing growing social and political complexity (Hofman and Hoogland 2004). Others, however, are convinced of the existence of Lesser Antillean chiefdoms during the early period of the Late Ceramic Age. The presence of large residential sites on Anguilla and smaller special activity sites on St. Martin and Dog Island and the existence of an exchange network involving lithics in the Anguilla - St. Martin interaction sphere led Haviser (1991) and Crock (2000) to surmise the existence of a multi-island chiefdom in this region in which Anguilla occupied a central position. Based on a hierarchical site pattern on Late Ceramic Anguilla and the presence of special 'elite-related' artefacts, Petersen and Crock (1999) suggested that the social and political level of pre-Columbian social organisation was more hierarchical than is usually suggested on the basis of ethnohistorical accounts.

Knowledge of the socio-political organisation during the latest part of the pre-Columbian period, relatively well documented in the Greater Antilles thanks to Spanish ethnohistorical accounts, remains scarce for the Lesser Antilles. This period is characterised by a sizeable decrease in the number of sites and by influences from other regions or contacts with other regions. The discovery of the Chican Ostionoid site of Kelbey's Ridge 2 on Saba led Hofman (1993) and Hoogland (1996) to suggest that Saba was incorporated within the interaction sphere of one of the Greater Antillean *cacicazgos*. The Morne Cybèle site on La Désirade, dated to this latest period, yields pottery, decorated by a style not implemented elsewhere (Hofman 1993, 1995; Hofman and Hoogland 2004), that suggests influences from the South-American mainland, and a shell mask that appears to reflect Greater Antillean style influences (section 5.5.1).

Several Caribbean archaeologists have tried to obtain an insight into pre-Columbian social organisation by investigating settlement patterns (e.g. Goodwin 1979; Keegan 1985; Watters 1980). Site inventories have been made since 1907 onwards through non-systematic archaeological reconnaissance studies that were usually biased (section 2.1.3). Unfortunately, these incomplete inventories are widely used to investigate existing or new ideas on pre-Columbian landscape use. The attempts to make systematic site inventories in the Lesser Antilles are more limited, notwithstanding the fact that some very positive exceptions exist for other parts of the region (e.g. Antczak 1998 for the islands off the Venezuelan coast; Curet 1992 for parts of Puerto Rico). This is an obvious result of the time and resources constraints with which every archaeologist is familiar. Moreover, not all of the Antilles are equally suited to making efficient inventories through surface surveys, the problematic sedimentation histories and typically dense, impenetrable vegetation of those areas being the most significant problems.

1.1.3 Inter-insular relationships

Pre-Columbian interaction, a subject that is intertwined with social organisation to an important degree, has been studied from different perspectives, even though most are related to economic or socio-political exchange. One of the most eye-catching features in Caribbean archaeology, namely the region-wide occurrence of homogeneous pottery styles during a considerable time-span within the pre-Columbian period, is only one of the indications for pre-Columbian Amerindian interaction. The existence of contacts between inhabitants of different islands or direct access to non-local sources of raw materials has been well demonstrated in the Caribbean. Region-wide distributions of

semi-precious stones, valued for the manufacture of beads and pendants, have indicated the existence of long distance contacts between the South-American mainland and many of the Lesser Antilles (Boomert 1987[a]; Cody 1991). It has been made clear in earlier studies (e.g. Boomert 2000:3) that water passages separating the islands should be considered communication routes instead of barriers in view of the excellent sea-faring capacities of the Amerindian inhabitants of the Antilles. This created favourable conditions for inter-island contacts.

Contacts over shorter distances have been reported on the basis of distributions of non-local lithics, including chert, flint, calci-rudite *zemi*-stone and semi-precious stone material (Cody 1991; Crock 2000; Knippenberg 2001[a-b], 2006; Watters 1997). Haviser (1991) suggested an interaction sphere including the islands of Anguilla and St. Martin. The presence of volcanic inclusions in ceramics from limestone islands such as Anguilla and Barbuda indicates that temper materials, clays or possibly complete pots were transported from, presumably nearby, volcanic islands (Crock 2000; Donahue *et al.* 1990; Fuess 2000; Watters 1997). The procurement of certain artefacts or raw materials, such as shell, that are not distinctly 'exotic' can unfortunately not be demonstrated. It may be expected, however, that in some instances shell was obtained non-locally as well, as Serrand (1999) demonstrated based on the presence at Hope Estate on St. Martin of ornamental artefacts made of fresh-water *Unionoida* shell, which originated either from the Greater Antilles or the South American mainland. Micro-regional interaction spheres were demonstrated as well on the basis of similarities between the ceramic assemblages of the sites of The Bottom on Saba and Sandy Hill on Anguilla (Hofman 1993).

Although the presence of long-distance as well as short-distance contacts has been demonstrated, the nature of these contacts and of the underlying socio-political organisation is more difficult to determine. In many cases, it is not clear whether pre-Columbian inhabitants of sites had direct access to raw material occurrences on other islands that could be exploited during specially organised trips, or whether exchange of raw materials or finished artefacts was taking place between inhabitants of different islands. The presence of St. Martin lithics in Anguilla site assemblages, for example, has been explained by possible direct procurement, while it has been suggested that ceramics and other lithics were probably obtained through exchange (Crock 2000).

Ethnographic studies contribute to a better understanding of the nature of exchange, which is difficult to grasp, as it is usually not merely related to economic 'everyday' activities or to social storage acting as a buffer against periodic food scarcity (*sensu* Halstead and O'Shea 1982; O'Shea 1981). It involves complex socio-political and possibly ceremonial relations as well. This latter aspect emphasises the existence and reinforcement of inter-personal or inter-community contacts that are considered important for the functioning of society. These contacts need to be re-established from time to time during specially organised group meetings and exchanges of women and goods (e.g. Mauss 1950; Rappaport 1984[1968]; Sahlins 1965). This aspect is important enough, for example, for the Yanomamö to artificially maintain a differentiated product manufacture between villages (Chagnon 1983:149-150).[2] Such meetings often involve other important activities as well such as economic exchange of objects or raw materials that are not locally available. Alongside the long-distance ceremonial Kula system in Melanesia, for example, exchange of utilitarian goods, as well as customs, songs, art motifs and general cultural influences, takes place (Malinowski 1953).[3] Another important feature is the meeting of potential marriage partners, vital in small insular environments. The exchange of 'special' highly valued artefacts and the ability to maintain exchange relationships may also play a significant role in the emergence and consolidation of social stratification in societies. O'Shea (1981:167) warns, however, that the economic aspect of exchange should not be overshadowed or even neglected as a result of the great emphasis that is put on its social and ceremonial aspects nowadays.

1.2 RESEARCH PROBLEM

As can be concluded from the section above, several studies have been carried out with the aim of investigating pre-Columbian social organisation and interaction in the Caribbean. Although research at site or island level occurs, most studies aim at a regional approach and use an archaeological database based almost exclusively on relatively large and well investigated settlement sites. This produces rather vague patterns of relatively large regions that blur the view of local or micro-regional processes, and that tend to result in an overrepresentation of large settlements. This partly stems from the traditional nature of Caribbean archaeological research, focusing largely on the identification and investigation of large settlement sites with long periods of occupation instead of the creation and use of detailed and systematically compiled site inventories. Very little attention has been paid to site function differentiation and to pre-Columbian use of other types of sites related to activities other than permanent settlement. It is thought that without a detailed insight into processes related to pre-Columbian social organisation and interaction on a

micro-regional scale, it remains impossible to accurately understand these processes on a larger, regional scale. Detailed and systematically made site inventories, specially created to answer specific research questions and covering a complete micro-region, are required to obtain a more accurate understanding of social organisation relating to local and micro-regional inter-site and inter-island contacts. Such studies, however, are virtually non-existent, bar those of Crock (2000), Curet (1992), Hoogland (1996) and Keegan (1985).[4]

The present project, which is part of a Leiden University research-project focusing on pre-Columbian interaction on the Lesser Antilles (see preface), was designed to make a contribution to this micro-regional approach. It focused on the central research question: what information can be obtained on pre-Columbian socio-political, economic and ceremonial organisation and interaction through the intensive and systematic study of a micro-region? Obviously, the wish to understand regional patterns surpasses the possibility of creating and using fine-grained archaeological data. It should be specified here that the study aims to combat the traditional bias on large settlement sites by including other types of sites present within the research area as well. The study area selected includes the easternmost part of Guadeloupe, consisting of Pointe des Châteaux, La Désirade and Les Îles de la Petite Terre (section 1.4.2 and fig. 1.1).

1.3 RESEARCH OBJECTIVES

As a starting-point for this study, it was deemed that pre-Columbian social organisation in a micro-regional perspective would be best understood through the analysis of site patterns, providing dynamic overviews through time, and site hierarchy. The latter refers to the localisation and understanding of sites that may have played a central role in these patterns as well as the characterisation of smaller, peripheral sites.

The objectives of the project, formulated to answer the central research question presented above, were four-fold. The first objective relates to the natural environment, both past and present. The physical landscape of the research area during pre-Columbian times provides information on conditions for Amerindian settlement and use, exploitation and perception of the environment. In addition, recent environmental data provide useful information on site survival and fieldwork conditions in general. A team of geologists from the *Vrije Universiteit* of Amsterdam was asked to collect information on processes that may have influenced the local physical environment. Geological fieldwork was carried out in 1999 and 2000 and focused on the effects and rate of coastal erosion, the rate and impact of formation and movement of dunes, and the stability, extent and location of salinas in time (Troelstra and Beets 2001[a-b]).

Secondly, it is obvious that the study requires a reliable and detailed archaeological database. This has been provided through (micro-)regional surveys. To understand different facets of socio-political, economic and ceremonial organisation, the archaeological record should include a systematically collected site sample that can be used for the presentation of a detailed long-term settlement history and diachronic archaeological site patterns for the research area.

In the third place, archaeological data collected, including site information (site location choice, subsistence and artefacts) and site patterns, were studied to obtain information on local or micro-regional socio-political, economic and ceremonial organisation and interaction, and use and perception of the landscape in different pre-Columbian periods. It is assumed that stylistic analysis of ceramic assemblages as well as provenance studies on lithic artefact inventories of the sites provide information on interaction in micro-regional areas (*cf*. Hofman 1993; Knippenberg 2006.). The investigation of the site hierarchy is a point of interest here, as it may be expected that the hierarchy of the site pattern reflects the hierarchy of the society involved.

Fourth, and finally, as the research area represents a marginal area when compared to the large and ecologically diverse island of Guadeloupe, the information collected has been compared to archaeological data from Guadeloupe, particularly from Grande-Terre, and other Lesser Antillean islands. It is possible that site patterns as identified in the study area may be considered representative for the larger region surrounding it but they may reflect local adaptations as well. The project may provide information on relations between main sites and more marginal sites within the micro-region that can be used to launch ideas for larger areas on Guadeloupe.

Two basic assumptions needed to be made at the start of the project. The first and most important assumption was that pre-Colombian activities within the research area would be reflected to some extent by distributions of archaeological material on the surface. The second assumption was that surface surveys of the research area would adequately locate concentrations within these distributions, reflecting the areas where repeated or concentrated actions took place in the past.

1.4 RESEARCH STRATEGY, METHODOLOGY AND DEFINITIONS: THE EAST-GUADELOUPE PROJECT

1.4.1 Introduction

The East-Guadeloupe project was inspired by studies on landscape archaeology (e.g. Alcock 1993; Attema 1996[a-b]; Barker 1991; Barret *et al.* 1991; Cherry *et al.* 1991; Rossignol and Wandsnider 1992; Tilley 1994; Ucko and Layton 1999, among many others). Central in the landscape approach is the concept of landscape itself. Although palaeoecologists may choose to restrict the term landscape to the physical and biological environment, landscape may also be considered a social product or a cultural image. This implies that the way of living and understanding the world is not only dependent on time, place, historical conditions and personal conditions such as gender, age, and social and economic position (Bender 1993:2), but also that landscapes relate to human activity and transformation by humans of the natural environment. A landscape can be seen as an ancestral map (Tilley 1994:37) or "an enduring record of – and testimony to – the lives and works of past generations who have dwelled within it" (Ingold 1993:153, cited in Attema 1996[b]).[5] In this sense, a landscape reflects a cognitive or symbolic ordering of space (Attema 1996[b]:5) and important and enduring aspects shaping such orderings include landscape myth and memory (Schama 1995:15). Still, a landscape is seen here to primarily consist of the physical environment, including mountains, water sources and streams, the sea, vegetation and so on, with man-made arrangements as an additional characteristic. The meaning of such arrangements is only then visible in the archaeological record if activities took place in the past that left traces that are still perceptible today.

Ideally, the outside or 'etic' view, focusing on tangible features of the environment such as ecology and natural resources, should be combined with the inside or 'emic' perspective which is steered by the cognitive and symbolic meanings of the landscape. The problem, however, is that non-local archaeologists see the landscape in a very different light than the recent Creole inhabitants of the area, let alone the Amerindian inhabitants. Therefore, unfortunately, the archaeologist's perspective will remain that of an outsider, or, as Thomas (1993:24) puts it, that which will be represented is "a picture of past landscapes which the inhabitant would hardly recognise".

Archaeological landscapes, or, as in Rossignols (1992:4) definition, distributions of archaeological artefacts and features relative to elements of the landscape, may both invoke and reflect diachronic statuses and changes in socio-political, economic and ceremonial aspects ruling human life. The archaeological landscape may be considered the material reflection of actions and activities related to these aspects.

Recurrent aspects in landscape studies are the concepts of space and place. Tilley (1994) distinguishes between different kinds of space, which create a socially produced medium for human action. Space is an abstract and subjective construct in the sense that "what space is depends on who is experiencing it and how" (Tilley 1994:11, 15). Places, in the words of Cosgrove (1989:104), are "physical locations imbued with human meaning". They have biographies, narratives recalling their formation, use and transformation, stressing links between people and specific features of the landscape (Tilley 1994:33). As Agnew and Duncan (1989:2) correctly stress, three aspects of place should be considered complementary instead of competing dimensions. These are the spatial distribution of social and economic activities, settings for everyday social interaction, and "identification with a place engendered by living in it". These three dimensions are indispensable for an understanding of regional organisation and interaction but the third dimension of space, related to human perception of the landscape, which is not only based on personal experience by sense organs but also on collective memory, is obviously difficult to study archaeologically. As a consequence it is underrepresented in Caribbean archaeological studies.

A systematic investigation of the entire research area, and its socio-political, economic as well as ceremonial 'landscapes', is considered the best means to answer the research question formulated in section 1.3. The present study will not provide much detail on starting-points, history or methodologies of landscape studies in general, as sound overviews have been presented elsewhere (see references listed above) and as most focus on European cases. Instead, it isolates some aspects, relevant to the basic aspects of research strategy and methodology of the project. The aim of investigating complete landscapes naturally has an important impact on the area that can be investigated, the archaeological database to be used as well as the fieldwork methods required to provide a reliable regional database. These will be shortly introduced in the following sections.

1.4.2 Selection of the study area

Due to the character of this study (section 1.4.1) a regional approach was required. However, as it also demanded detailed archaeological fieldwork and as the time frame and resources of the project were limited, a strictly bounded area had to be selected. Out of many suitable possibilities a choice was made based on a series of practical arguments, resulting in the selection of the Eastern Guadeloupe micro-region. This area consists of the Pointe des Châteaux peninsula,

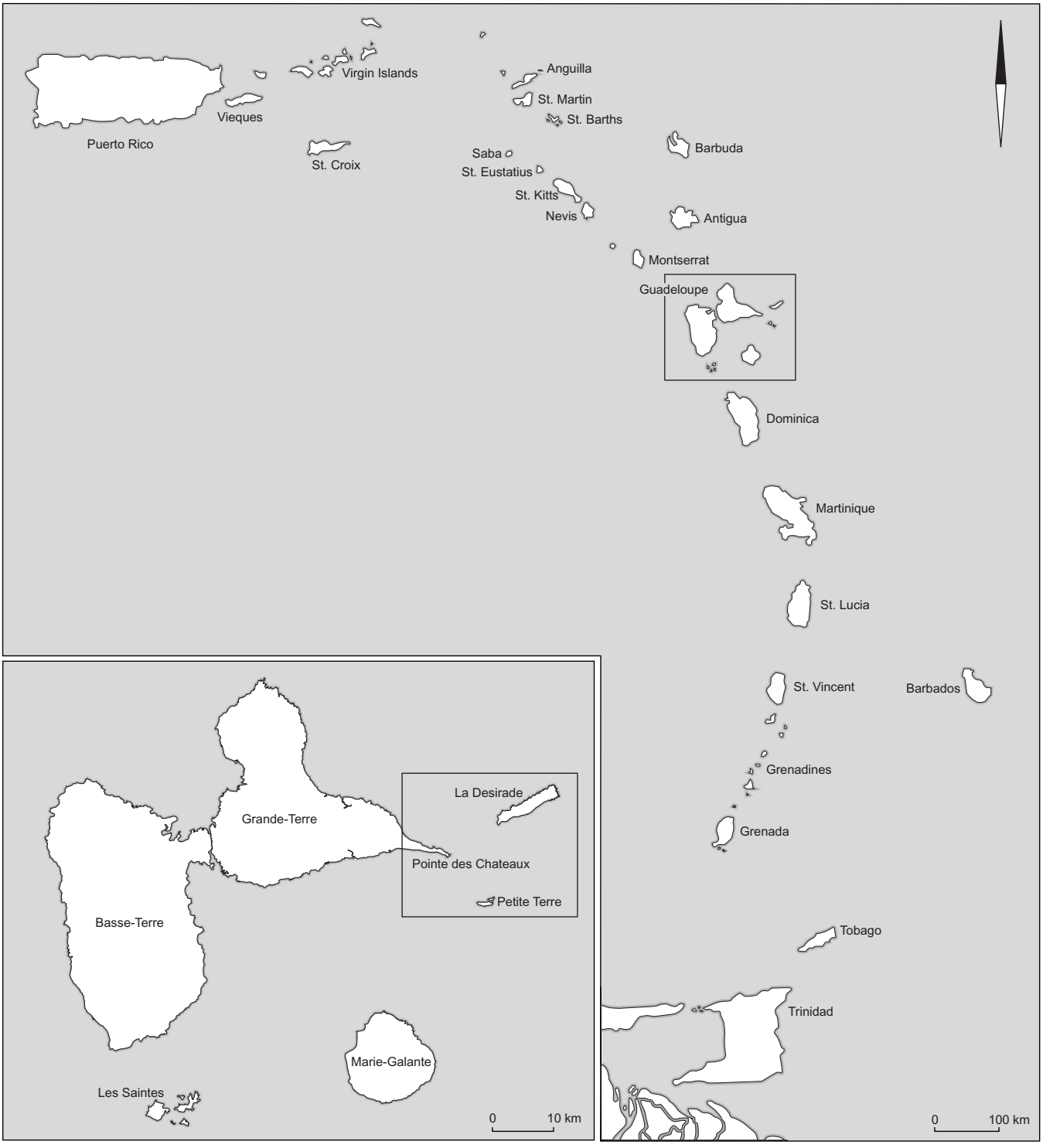

Fig. 1.1. Map of the Eastern Caribbean and the location of the research area (detail).

which is the easternmost tip of Guadeloupe, and the islands of La Désirade and Les Îles de la Petite Terre, as the small islands of Terre de Haut and Terre de Bas are called officially (fig. 1.1). They will be referred to as Petite Terre, as is common practice on Guadeloupe. In the present study, Eastern Guadeloupe does not refer to Grande-Terre but to the study-area instead.

Investigations at Anse à la Gourde, carried out by teams from Leiden University since 1995 on a yearly basis, had already demonstrated the great archaeological potential of this area (Hofman *et al.* 2001[a]). Some other large settlements, such as Les Sables (Bodu 1985[b]) and Anse Petite Rivière (De Waal 1996[a-b]) on La Désirade, had already been investigated as well. The presence of such large settlement sites suggests that a larger range of site types, more or less related to home ranges of the settlements, areas exploited on a daily basis, can be expected in their surroundings. Intensive study of the Eastern Guadeloupe micro-region would thus provide information on Eastern Guadeloupe settlement systems.

This specific micro-region was selected with the full support of André Delpuech, at that time the director of the archaeological service of the *Direction Régionale des Affaires Culturelles* (DRAC) of Guadeloupe. He wished to include this area, where very little systematic archaeological fieldwork had been carried out until then, into the *Carte Archéologique* project of the DRAC (section 2.1.4).

The selection of the Eastern Guadeloupe area was also considered attractive for other reasons. It was expected that the project would contribute to a better understanding of the pre-Columbian occupation history of Guadeloupe as a whole. Guadeloupe holds a key logistical position, being the largest island of the Lesser Antilles. Guadeloupe ceramic assemblages showing influences from both the northern as well as the southern Lesser Antilles suggest the island was strategically situated between the Leeward Islands and the Windward Islands (Allaire 1992). In addition, the short distances between the different parts of the study area as well as the marine shallow flats within this triangle must have facilitated transportation and communication, encouraging micro-regional interaction. Moreover, the parts of the study area are not isolated, but situated very near to Guadeloupe, Marie-Galante and Antigua, and close interaction can be supposed to have taken place. Finally, the present-day situation of the study area is favourable for the fieldwork required. It provides an environmental situation that allows surface surveys, needed for the site inventory, and it also has favourable administrative and social conditions, regarding acceptance of and authorisations for the project by local landowners, facilitating the fieldwork.

1.4.3 Fieldwork methods

1.4.3.1 Introduction

The study of human activity across an entire landscape requires a detailed archaeological database containing information on the past use of this landscape. It demands a method that provides an efficient and accurate inventory of the archaeological sites present and that furthermore allows an analysis of the long-term trends in site patterns within the selected study area. The method selected for the present study involves surface surveys. The physical characteristics of the research area allow this method of investigation, as the relatively flat and accessible area is characterised by modest sedimentation. In addition, it is rather small and therefore provides possibilities for easy orientation on topographic features related to the coastline. Finally, the vegetation slows down, but does not preclude surface observation, although dense acacia and mancenilla forest make working in some areas far from appealing. The leaves of both kinds of vegetation, however, are tiny and they can easily be removed from the surface.

Surveys are a reliable means of attaining region-wide and diachronic archaeological information. Although surface surveys generally provide data with a low chronological resolution and only little information on individual sites, in terms of site structure, they are well suited to the study of general and long-term processes or trends in human activity in a micro-region or a region (section 1.4.4). Other limitations of the method of surface surveying certainly exist as well. These are related to observation and have been outlined in section 5.2.1. It has been chosen, however, not to neglect possible disadvantages of surface surveys as a method but rather to investigate the potential impact of personal, environmental or methodological aspects of the fieldwork on the reliability of the archaeological site inventory that needs to be made.

1.4.3.2 Surface concentrations, sites and off-site or non-site material

In spite of some early criticism postulated by Thomas (1975) and Foley (1981) who questioned the utility of the focus on sites, the latter turning to off-site archaeology, the concept of site is widely accepted and has remained central to archaeological investigations. Sites have been described simply as places where archaeologists find concentrations of artefacts (Dewar and McBride 1992:231) or as "locations of concentrated residues of human activity" (Benes and Zvelebil 1999:74). More than a decade later, however, a growing number of archaeologists began to reject the site concept considering it an ambiguously defined, inadequate conceptual and analytic unit and advocated the use of

smaller-scale observational units, such as artefacts (Dunnell 1992). The main criticism of others, such as Rossignol and Wandsnider (1992), centres on the idea that sites are simply not the best unit for the investigation of land use. Zvelebil *et al.* (1992:193) argue that the concept of site should be replaced by the concept of 'the archaeological landscape'. It has been argued that in some regions it is profitable for specific time periods to study distributions of archaeological material directly related to the landscape without distinguishing between on-site and off-site archaeological material. Instead, the distribution of archaeological material at the surface, reflecting variations in densities and concentrations all over the landscape should be studied, without trying to distinguish more or less bounded activity areas. Others, including Binford (1992) and Dewar and McBride (1992), defend the use of the concept of site since they consider it a useful tool for understanding regional organisation, perceiving sites as unambiguous consequences of real archaeological and behavioural events in the past. Binford (1992:52) stresses that the focus is and needs to be on the explanation of patterning, and that the choice for site and non-site approaches merely involves a question of scale. Following Binford's line of reasoning the emphasis in the East-Guadeloupe project is on sites, and embracing the site concept automatically implies that off-site material is recognised as well.

The decision to focus on sites was based on the fact that, as this study is merely a first reconnaissance of the research area, it does not seem logical to start concentrating on details within the material distributions at the surface. In addition, the study asks for information on longer-term processes, and their resulting accumulations of material, surface concentrations or sites, in order to reconstruct regional patterns. Furthermore, archaeological material in the research area appeared to surface in rather distinct concentrations instead of revealing itself in continuous carpets. Among the most important reasons for choosing a site-based approach, however, is the limited possibility for studies of off-site or non-site archaeological material in the research area. It is usually impossible to provide chronological assignments for non-ceramic off-site material and ceramic off-site material, which tends to be rather weathered and fragmented, is very difficult to study as well. This is mainly a result of the traditional Caribbean archaeological studies, heavily focusing on the refinement of the regional chronological framework, based on and therefore slightly emphasising the analysis of ceramic morphology and decorations on ceramics. This greatly complicates the study of fragmentary or weathered ceramics and those from the latest part of the pre-Columbian period in particular, since only a minor percentage is decorated. A method based on a regional framework of technological pottery analyses is needed to improve possibilities for non-site or off-site studies. Such methods have been successfully applied in Mediterranean surveys (e.g. Van de Velde 2001:31-32) but in Caribbean archaeology they are still in a pioneer phase. Although several technological studies have been carried out on Caribbean ceramic assemblages (e.g. Arts 1999; Bloo 1997; Donahue *et al.* 1990; Dorst 2000; Fuess 2000; Hofman 1993, 1999; Hofman and Jacobs 2000/2001; Van As and Jacobs 1992), the outcomes of these studies present site-specific situations. Island-wide or even regional patterns cannot yet be discerned. Daan Isendoorn (Leiden University) has recently started a PhD study on this topic.

Sections 1.4.4 and 2.2.3 describe the identification and documentation of surface concentrations, sites and off-site material in the field. It is acknowledged that archaeological sites are artificial 'constructs' or interpretations made by archaeologists, representing one or more concentrations of archaeological material at the surface. It should be mentioned here that site is not used as a synonym for settlement, which, incorrectly and confusingly, often occurs. For the present project, fixed numbers or densities of finds are not used as a main criterion to distinguish between surface concentrations and isolated finds. It is virtually impossible to establish sherd number and density thresholds, as the study is diachronic in character and surface distributions may be expected to vary depending on period or site function, and may also be subject to multiple post-depositional processes (see Fentress 2000:49). As Plog *et al.* (1978:387) warned "rigid application of density-based definitions may thus result in the systematic exclusion from analysis of significant components of the archaeological record".

Surface concentrations are defined here, more or less artificially, as distributions consisting of archaeological material resulting from repeated actions. These may be expected to have a diameter of at least 5 m. Surface concentrations should be spatially bounded, in other words, they should be clearly delimited by significant areas without archaeological material at the surface. Each of these concentrations may be an archaeological site, but it is possible, however, that some sites consist of more than one surface concentration. This artificial definition of concentrations evidently involves a certain risk of subjectivity. Fentress (2000:48) warns, for example, that in such situations it may not be verifiable "whether a concentration was omitted from the record because the field walking team wanted lunch, or included because they hadn't found a site all day". Concentrations were not, however, characterised on single occasions, as they were revisited. During the field walking stage of the research program, when

material was encountered at the surface, only the dimensions of the surface distribution were established and the find spot was mapped on aerial photographs. It took at least a second visit to create descriptions and complete documentation of the concentrations recorded.

The prerequisite, proposed by Plog *et al.* (1978:389), that archaeological sites should be potentially interpretable, and thus yield "materials of sufficiently great quality and quantity […] for at least attempting and usually sustaining inferences about the behavior occurring at the locus" was not used as a starting-point for the present project. By restricting the investigation to searching for interpretable concentrations, it appears that only known and clearly recognisable patterns are being recorded. Small or low-density surface concentrations may very well contain important information on past human behaviour (Schiffer *et al.* 1978:14), and these would then probably be neglected.

Distributions consisting of archaeological material related to, presumably, single, individual actions are considered isolated finds, or off-site material. One might consider, for instance, the accidental loss or discard after breaking of artefacts such as shell or stone axes or ceramic vessels. Such finds appear to be less important and merely of complementary value for the patterns and overviews this study focuses on and that are provided by the study of archaeological sites). It is imaginable, though, that in some instances the result of a single action has a more profound impact on organisation or experience of the landscape, for example when deliberate or ceremonial depositions are involved. Such depositions can be considered sites.

1.4.3.3 Site survey

Taking a site-based study as a starting-point, a systematic and intensive transect survey, combined with a small-scale test excavation program, was designed to create a regional archaeological database. The aims of the fieldwork are to locate the archaeological sites within the study area and to provide as detailed site characterisations as possible. The resulting database should not only fit the purposes of the project but it should easily suit future archaeological research programs with other objectives as well. Finally, it should contribute to the archaeological inventory of the *Carte Archéologique* project of the DRAC. One basic fieldwork design, which has been described in detail in section 2.2, has been made although this had to be adapted to local circumstances from time to time.

At the start of the project, a full-coverage survey was envisioned, aimed at providing as complete an overview as possible of site and off-site material. Although off-site material was systematically collected and mapped during the surveys, it could not be presented in detail due to time constraints. As soon as investigation methods have been improved (see above), off-site material may be used in order to complement ideas on landscape use as brought forward by site information but these data must await publication elsewhere. This is true for colonial and sub-recent data as well.

As a final remark, it should be mentioned here that the fieldwork and the resulting investigations are considered 'micro-regional', as the study area represents merely a very small part of Guadeloupe, let alone of the Caribbean. Surveyors, however, especially those working in the Mediterranean, consider it to be regional instead, as the area, when regarding the high level of intensity and systematic of the fieldwork, is large (Van de Velde personal communication 2002). The term micro-regional has however been maintained deliberately in order to contrast the present study with Caribbean studies that are focused on large regional overviews based on less intensive micro-regional data.

1.4.4 Archaeological site inventory

1.4.4.1 Introduction: site parameters

During the fieldwork, sites (concentrations of archaeological material fulfilling the requirements described above) were located and characterisations were provided to obtain a reliable archaeological site inventory for the study area. Site descriptions made during fieldwork consist of an administrative part, which is mainly useful for the DRAC site registration system as it has information on informants and the owner of the terrain. It also lists whether earlier research has been carried out and where resulting archaeological collections are stored. In addition, it provides data for the present study. These include site dimensions, a characterisation of the distribution of surface material, co-ordinates, degree of conservation, and, if possible, an estimated thickness of the archaeological deposits, terrain descriptions and the presence of and the distance to site location variables). Apart from site descriptions, samples of surface material were collected, and some sites were furnished with geological and archaeological information from test units. Data collected on all sites in the research area is presented in the site catalogues in appendices 2-4.

The inventory of archaeological sites in the research area provided by the fieldwork described above will include different types of sites that need to be distinguished in order to allow a presentation of diachronic site patterns in the research area. This may be done using site parameters providing general site characterisations. These include site location, site dimensions and site area, and site function, duration of use or occupation and chronological assignment.

The following descriptions only provide information on how site parameters have been defined for the present project. Section 5.3.1 describes the ways in which the site parameters have been used during this project.

1.4.4.2 Site location

Assuming that pre-Columbian Amerindians were not limited in the choice of suitable locations for activities of all kind and that they would select locations fulfilling practical and symbolic needs, the study of site locations provides information on possible site function and on use and perception of the landscape. Location variables that may have been important for pre-Columbian site selection were distinguished and recorded for each site. It should be remarked here that the location variables selected mainly include factors related to physical factors of the landscape. These are associated with subsistence, extraction or exploitation of natural resources and other environmental factors such as the presence of flat areas that may allow habitation, accessibility by sea through the presence of canoe landing spots, and viewpoints and strategic locations that may be considered important for defence and observation. In this sense the study of site location selection may be considered to be physically deterministic, while it is widely recognised that landscape perception and symbolism and social memory both play an additional but important role in choice of site location as well (Tilley 1994:1). It is hoped and expected that so-called 'illogical' site locations may provide information on social or political site location factors or on pre-Columbian perception of the landscape. Personally objective observations on site locations, such as 'impressiveness', 'accentuation' and 'special features' have been taken into account as well in the site descriptions, but they have not been listed in the location variables overview.

The presence or absence of location variables has been scored for the immediate surroundings of the sites of Pointe des Châteaux, La Désirade and Petite Terre. These include fresh water occurrences and flat terrain, large enough to house a small number of residential structures. In addition, the presence of accessible bays with canoe landing-spots, coastal reefs, soils suitable for small-scale horticulture, lithic raw materials, view points to other islands, parts of islands or possible sea routes, strategic elevated spots, salinas and mangrove areas has been investigated. The presence of clay sources has not been investigated. Decalcification clay deposits, however, are present within the complete study area, and it is deemed that access to these sources was not restricted. It is likely, that not all location variables were equally important for pre-Columbian inhabitants of the area, but as relative importance could not be quantified, so-called 'weighted' analyses could not be provided. It is simply assumed that the more site location variables present, the more attractive the site location.

The boundaries of the immediate surroundings of sites were artificially set at 250 m as this is an average distance between many of the sites and the coastal reefs in front of them, which are usually considered an important location variable for pre-Columbian settlement as they offer profitable subsistence situations. Most of the location variables, however, are in closer reach. For several sites, location variables are not present in the immediate surroundings of sites but they are still within reasonable reach as a result of the limited dimensions of the research area. Site location analyses, however, will focus specifically on features present in the immediate surroundings of the sites, in the hope that they will provide information on selection of the specific spot and possibly on site functions.

The absence of location variables, of course, merely indicates that the surveys did not demonstrate the presence of certain features. This does not necessarily imply that they did not exist in pre-Columbian times. This is particularly true for the presence of fresh water, salinas, mangrove areas and soils suitable for small-scale horticulture. The latter two, together with coastal reefs, are important as they foster attractive nutrient situations. As for the soils, it should be remarked here that pedological maps, and therefore detailed classifications of local soils, are not available for the research area. For the site location analyses, a rough distinction has been used that merely identifies soils suitable for small-scale horticulture or not suitable for cultivation at all. In general, the greatest part of the research area is rather fertile, except for the sandy beach areas. The overall dryness of the area appears to be a more important limiting factor. Very steep hills were considered less attractive as well.

The stability of the salinas in the research area is not known either. The site of Anse à la Gourde, for example, is not situated near a salina nowadays, but it may have been located south of one in the past (section 3.2.3). Even though many pre-Columbian sites in the Caribbean are located quite close to salinas, it is not quite clear what they were used for. In almost all salinas the salinity rate is too high for flora and fauna, although salinas, but in particular the surrounding vegetation, attract birds.

The presence of fresh water, one of the most limiting factors for human settlement, is difficult to investigate. Watters (1980:283) reported this for his Barbuda and Montserrat surveys as well. Many fresh water occurrences consist of fresh water lenses, presently invisible at the surface, that may have been exploited through digging, possibly using potstacks (section 3.2.5). Fresh water sources and streams are more easily detected.

Features such as flatness of terrains, offering favourable locations for habitation, accessible bays with canoe landing-spots, dependent on passages through the reefs, allowing easy transport and communication over sea, lithic raw materials for the manufacture of tools, viewpoints and strategic locations, are assumed to have remained more or less unaltered. Strategic locations consist of protruding elevations that may have an observational or defensive function in overlooking other islands, parts of islands or possible sea routes. It is also possible, however, that a strategically located site is very well hidden.

Occupation of sites may affect the attractiveness of a location positively and negatively. The creation of horticultural plots in dense vegetation, for example, may cause an increase in the presence of terrestrial fauna, although hunting over long periods of time will cause their depletion. The use of site locations, however, usually decreases the attractiveness for subsequent years, being related to gradual depletion and pollution of the immediate area (Dewar and McBride 1992:232).

Location variables were mapped during the fieldwork and distances between sites and features surrounding them were recorded on site description forms (appendix 1). These will be presented in a summarised form in chapter 5.

1.4.4.3 Site dimensions and site area

For all the sites, north-south and east-west dimensions are recorded in meters and their surface areas in m^2. This is done in order to indicate the largest distributions of surface material for the sites for the benefit of the DRAC administration. It will allow efficient site management and protection, but more importantly, it may provide an additional means to evaluate functional assignments and site hierarchies, as site areas are expected to depend on the longevity and intensity of use of the sites.

Site dimensions are estimated in the field by investigating the transitions in presence or absence of archaeological surface material, mapping maximum areas where archaeological material was found. It is expected that several sites appear to be larger on the surface than they actually were. Mapped areas may include activity areas or off-site material next to the site as well, as long as 'empty' areas do not separate them from the main site. In addition, it is possible that lateral ploughing has gradually dispersed surface material over larger surfaces. On the other hand, natural or cultural post-depositional processes may have destroyed parts of sites, diminishing their areas at the surface. For several sites it will remain uncertain how accurately the surface material reflects the sub-surface situation. One of the risks will be the effacing of different activity areas and different chronological components of sites discovered. These may go unnoticed when surface studies or small-scale sub-surface investigations are carried out.

1.4.4.4 Site type or site function

The most complicated aspect of the creation of the East-Guadeloupe site inventory relates to the functional assignment of the sites. This is usually the case in situations where most of the site data have been obtained through surveys, providing small samples of archaeological material and hardly any information on site structure. It is wondered to what extent the present study can benefit from information on pre-Columbian site types presented in other archaeological studies in the Caribbean where more extensive research had been carried out.

Boomert (1996:27; 2000:12-13) distinguished three major site categories on the basis of presumed function and general archaeological character. These include settlement sites, characterised by midden deposits and occasionally by burials, so-called ephemeral camp or bivouac sites, characterised by pottery deposits and possibly other artefacts but without reasonable numbers of food remains, and individual finds, sites that provided only very few ceramic fragments or lithic artefacts. The latter are thought to represent special activity sites. Apart from these major categories are petroglyph sites that Boomert linked to as yet unidentified ceremonial activities. Keegan (1985:196-218; 1992[a]:72) defined longest linear dimensions of sites and used size differences, viewed as reflecting the number of site occupants, in order to distinguish shelters (10-19 m) and three types of permanent settlement, including households (20-89 m), hamlets (90-199 m), and villages (>200 m). It is not right by nature, however, to determine site types on the basis of dimensions of surface distributions of archaeological material alone, without taking the composition of the specific archaeological assemblage into account (Fokkens 1991:23). In several cases, it may even be problematic to distinguish whether one or more assemblages may be represented at the surface**.** In addition, as the study of site dimensions is highly complicated as a result of differential depositional and post-depositional processes, functional assignments on the basis of site dimensions alone were considered inappropriate for the East-Guadeloupe surveys.

Information on contemporary settlement patterns on the South-American mainland indicate that patterns are more fluid than presented in traditional archaeological schemes in which permanent habitation sites, campsites and special activity sites are usually clearly distinguished and labelled. Inhabitants of villages, characterised by long stretching layouts, not only occupy household habitation structures, but several other structures as well, for example areas aimed

at the preparation of food. In addition, they usually appear to have garden houses that are situated at rather large distances from the village and that are used for stays of some days to several weeks (Duin personal communication 2000, for the Wayana in French Guyana). If recognised in archaeological patterns at all, it remains to be questioned whether valuable suggestions can be brought forward on use, intensity and duration of use of such sites and on the spatial and functional behaviour that is represented by these patterns. Moreover, it remains to be questioned whether it is possible at all to interpret archaeological sites by "direct analogy to the camps, stations and locations that are the components of ethnographically described subsistence/settlement systems" (Dewar and McBride 1992:229). According to Rossignol and Wandsnider (1992:61) "attempts to fit settlement systems into ideal or templated settlement types", as derived from ethnographic analogies, seriously hinder accurate archaeological interpretations of human activity in the past. Binford (1992:50), largely agreeing with this argument, however, warns that archaeologists should not just conclude that the archaeological record is distorted and claims that "it is our task to investigate this record and to understand it in all its variation". For the present study, an attempt was made not to force data into a scheme, in which they do not really fit, and not to impose unambiguous functional assignments on indistinct sites.

In spite of the fact that functional assignments for some of the sites may appear to be quite obvious during the fieldwork, it is expected they may be better evaluated after the fieldwork has been finished. Only then are relevant data on site function, including site location, composition of archaeological assemblage, site dimensions, and duration of occupation fully available. Definitions and conditions of the different site functions observed will be presented in section 5.3.

1.4.4.5 Duration of use or occupation

Estimates of duration of use or occupation are thought to be important in the assignment of site functions, in the understanding of site patterns and the analysis of local site hierarchies. Two aspects are important, namely the repetition of occupation phases and the duration of each of these phases. Of course, the most accurate way to create such estimates is the study of absolute dates on extended series of well-chosen, representative samples for each period of use or occupation of archaeological sites. As a result of the large number of sites discovered, this was impossible for this project and absolute dates were available for a few sites only.

Duration of use or occupation can also be estimated using evaluations of the thickness of archaeological layers found at sites for each occupation period, resulting, of course, in relative approximations at best. These can only be made when the complete fieldwork documentation is available as well as reports on the analyses of all archaeological material collected. It is thought, though, that the small scale of fieldwork that has been carried out on behalf of the present study will hinder such estimates significantly. But even for intensively excavated sites, this usually remains problematic. At Anse à la Gourde on Pointe des Châteaux, for example, it turned out to be impossible to discern short occupation phases within the large chronological units distinguished at this site, let alone to estimate the duration of each of these occupation phases (Hofman personal communication 2003). The problem is that what is actually dated are rough 'components', *i.e*. pre-ceramic, Early Ceramic or Late Ceramic phases, instead of distinct occupations. Rossignol and Wandsnider (1992:163) define components as "temporally discrete archaeological deposits" and occupations as "temporally discrete cultural episodes of deposition". Estimating duration of occupation using 'household vessel assemblages' (Espenshade 2000) was of course completely unfeasible for the present project as a result of sampling limitations.

Mixed deposits, for example in multi-component sites, may complicate chronological assignments and estimates of duration or use. Multi-component sites are represented by two or more of the phases mentioned above. Single-component sites are attributed to only one of those phases. Unfortunately, single-component cannot be used as a synonym for single occupation. It is accepted that this project cannot discern small and discrete occupation phases, and it should make do merely with rough chronological assignments largely based on pottery characteristics for the different components of the sites. It is simply not expected that the fieldwork allows more detailed distinctions related to different occupations within one of the phases.

It is deemed that it should be possible to discern temporary use or permanent use of sites based on thickness and characteristics of the archaeological layers and in particular on characteristics of faunal and ceramic assemblages. Temporary sites are expected to have a special, non-settlement, function that may be reflected by the composition of the archaeological assemblage. Seasonal specialisation may be recognised in faunal assemblages based on the presence of migratory birds, and the stages of development of animals caught. It is often assumed that temporary use of sites may also be reflected by a small variety of vessel shapes in ceramic assemblages, as limited use or limited duration of use does not require having all types of vessels around (Hofman personal communication 1998).

1.4.4.6 Chronological assignment and temporal resolution

As mentioned above, only a limited number of ^{14}C dates are available. Among these are dates that had been provided for some sites that had already been investigated before the start of the fieldwork. These include Anse à la Gourde on Pointe des Châteaux and Morne Cybèle-1 and Morne Cybèle-2 on La Désirade. Most of these dates have been obtained from *Cittarium pica* samples that were analysed at the Groningen Laboratory for Isotopic Research in the Netherlands (Hofman and Hoogland 1994; Hofman *et al.* 2001[b]). ^{14}C dates were also available for the site of Anse Petite Rivière on La Désirade (De Waal 1996[a-b]). These were also obtained from *Cittarium pica* samples that were analysed at the Groningen Laboratory for Isotopic Research and the resulting BP dates have been calibrated with the Groningen calibration program CAL 15 using the calibration curve for marine shell (Stuiver and Braziunas 1993).

As absolute dates are rare, general chronological assignments will have to be made, based on stylistic and technological aspects of the ceramics encountered. It should be remarked, however, that merely small samples are expected. This, of course, seriously limits the accuracy of the dates and possibilities for investigating site contemporaneity.

The traditional Caribbean archaeological approach aims at assigning archaeological assemblages to the regional cultural-chronological framework that is based on the distinction of so-called series and subseries based on morphology and decoration of ceramics (chapter 4). A growing number of Caribbean archaeologists is feeling confronted with problems related to a strict use of this framework (e.g. Keegan 1999, 2000; Knippenberg 2006; Petersen *et al.* 2004). They no longer consider classification of ceramic assemblages of the study area in series and subseries as an aim in itself. As Keegan (1999, 2000) points out, the attempt to classify pre-Columbian societies into well-separated cultures, leads to an emphasis on pottery designs while similarities and differences in other aspects of culture run the risk of getting less attention. In addition, he argues that for example Cedrosan Saladoid pottery can be viewed as a social phenomenon, occurring within regional alliances, instead of simply representing a 'people and culture'. Another comment is related to the static character of the framework, accepting only one culture in a region at a certain period in time, which does not cope very well, for example, with persisting or coexisting cultural traditions (Knippenberg 2006; Petersen *et al.* 2004).

In addition, it is possible that pottery samples collected during the East-Guadeloupe surveys cannot be assigned to different series or subseries as a result of the fact that for many sites only surface collections may be expected. These generally provide small samples of heavily weathered and fragmented ceramics, often without any diagnostic traits. It is hoped that sites can be at least roughly assigned to chronological periods. These include the pre-ceramic period (>500 BC), Early Ceramic early phase (400 BC - AD 400), Early Ceramic late phase (AD 400-600/850), Late Ceramic early phase (AD 600/850-1200/1300), and Late Ceramic late phase (AD 1200/1300-1493). In order to improve legibility, letters A and B have been used to replace early phase and late phase respectively. AD 1493 marks the discovery of Guadeloupe and its annexes by Columbus and therefore this date is taken to represent the end of the pre-Columbian period and the start of the colonial period, even though the actual colonisation of this area only occurred some 150 years later. The different pottery styles that have been distinguished within these chronological periods, and that form the backbone of Rouses regional cultural-chronological framework have been described in chapter 4.

It is possible that for some of the pottery collections, stylistic affiliations can be suggested on the basis of comparisons with ceramic assemblages from other sites in the region. These will be mentioned to complement the chronological assignment and to allow easier comparative affiliations to be made, that can be related to the regional cultural-chronological framework, with assemblages from other archaeological sites. However, it is equally possible that some of the sites do not provide pottery or diagnostic pottery and that therefore no chronological assignments can be provided at all.

It has already been mentioned that surface surveys provide data with a low chronological resolution and are therefore better suited to the detection of long-term processes. Dewar and McBride (1992:230), among others, pointed out that, although archaeologists are aware that distributions of archaeological materials across a landscape reflect use through many years and even generations, the duration and pace of processes to which artefacts collected from the surface testify usually remain poorly understood. Attema (1996[b]:8) has emphasised that this low chronological resolution results in a series of chronological distribution maps creating a static succession of restricted periods, instead of laterally sliding processes, with different duration and pace. Although it is obvious that settlements and settlement patterns are continually changing, through processes which may take place so slowly that they remain invisible even to their inhabitants (Tringham 1972:xxiv), insight into medium-term dynamics cannot be expected and at best a long-term time perspective can be achieved.

1.4.5 Eastern Guadeloupe pre-Columbian site patterns

The following phase in the research includes the construction of diachronic site patterns on the basis of the archaeological site inventory created, providing a long-term settlement history of the research area. It should be made clear at this point that many archaeologists and anthropologists use the term site pattern for what is described in this study as site structure, or they use both terms confusedly to indicate site layout (e.g. Bright 2003; Rivière 1995). In addition, as Rossignol and Wandsnider (1992:61) point out, site systems are sometimes confused with site patterns during analysis and interpretation. In order to avoid confusion, a clear distinction will be applied in this study. Site structure has been used as a synonym for the layout of individual sites, site pattern refers to the distribution of sites across the landscape within a given region and period and site systems describe sets of organisation and structuring principles that created and influenced these site patterns. Site systems thus provide information on organisation of the landscape in different aspects, namely socio-political, economic and ceremonial. Information on site structure must be completely based on the work done by other archaeologists, as the present project was not designed to obtain data of this kind.

Information on site patterns may be obtained by mapping all different types of sites in the research area in chronologically discrete units, focusing on a diachronic sketching of statuses, changes and developments in numbers, types, dimensions and locations of the sites and characteristics of their archaeological assemblages. Dewar and McBride (1992:231) define site distributions as joint products of human activity in the past and archaeological research activity through time, and characteristics of the physical environment affecting conservation and visibility of sites. Filtering biases related to research and environmental factors thus provides information on past human activity. It has already been outlined above that archaeological data in many cases do not allow direct analogies to functional components of ethnographically recorded site patterns. Rouse (1972), being well aware of the limitations of such analogies, stated that ethnographers and geographers study full settlement patterns, while archaeologists only study remnant settlement patterns. The archaeological site patterns are subjected to many other processes than the ethnographically recorded patterns that typically can be related to one specific moment in time. Archaeological site patterns are products of taphonomic processes, and processes causing inter-site and intra-assemblage variability in annual subsistence cycles, and causing year-to-year variability in positioning and content of archaeological assemblages of sites with different functions. It remains to be questioned whether these "medium-term processes affecting the temporal continuity and spatial congruence of occupation sequences" that are so obvious in ethnographic patterns can be sufficiently distinguished in archaeological studies, affecting the number and distribution of archaeological components in an area (Dewar and McBride 1992:230, 237).

No GIS (Geographical Information System) techniques were used during the project. Although the possibilities for predictive modelling in GIS, predicting site locations on the basis of environmental data gained from the data set from the survey-region, are considered to be too limited and questionable, other applications could have been of much use. The influences of site formation and deformation processes could have been successfully quantified using GIS, for example. Nevertheless, opportunities and personal abilities to do so were too limited in the course of this project. The data that are needed to construct valuable layers that can be used are too limited in quality and quantity. For example, no soil data are available. Moreover, the research area is rather small and homogeneous, which implies that differences in soils, geology and climate are rather insignificant and that data have to be very detailed in order to be able to elucidate small differences.

It should be remarked here as well that the study does not involve the identification of ideal site distributions that may be compared at a later stage with the actually observed distributions as has been suggested by Keegan (1985). It was felt that the lack of detailed micro-regional archaeological studies on the Lesser Antilles that existed at the start of the project did not allow a presentation of such ideal distributions.

1.4.6 Eastern Guadeloupe pre-Columbian social organisation and interaction

1.4.6.1 Introduction

The diachronic site patterns will provide an insight into dynamics of occupation and use of the landscape in pre-Columbian times and the different aspects of pre-Columbian social organisation will be investigated taking the site patterns and the individual site descriptions as a starting-point. Interaction, which is closely linked to these aspects of organisation, will be treated separately.

The central issue to be investigated comprises three aspects. In the first place, an attempt should be made to understand how the individual sites function in the landscape. Then, attention should be devoted to functions of the sites in relation to each other and their positions within a regional hierarchy. This leads inevitably to the question whether sites played a central role locally or maybe even regionally.

Statistical analyses of site data, such as multi-

variate analyses, hierarchical clustering, multi-dimensional scaling, cluster analyses, nearest neighbour analysis or k-means analysis, have often been used to identify clusters of more or less contemporaneous sites, and to make inter-site comparisons based on archaeological and environmental data. The small samples and the low quality of the survey data expected did not allow application of such methods. The methods used to obtain information on the different aspects of pre-Columbian social organisation will be described in the ensuing sections.

Last but not least, it should be remarked that an attempt has been made to consider the organising principles for the site patterns from two different views. One is a scientific geographical and archaeological view, based on the physical and practical characteristics of sites and site locations. The other examines which places 'feel' or 'look' special and therefore may have played an important role in the landscape in the past. This latter view has been referred to as "contextual and relativist" by Sherrat (1996:141).

1.4.6.2 Socio-political organisation

Central aspects in the study of socio-political organisation are mechanisms that structure social relations between individuals and settlements, including centralised political authority and institutional social status differentiation. Usually a scale of increasing complexity is presented, ranging from egalitarian tribal society, with village autonomy and consensual decision-making, to chieftaincy, which is defined as a situational hierarchy emerging from time to time in non-hierarchical tribal societies related to hierarchically differentiated decisions and actions of a temporary, achieved-status leader. The final level to be reached, when successors within a leader lineage hereditarily succeed to retain permanent regional hegemony, is that of chiefdom society, which is characterised by regional village centralisation (Redmond 1998). The internal organisation of groups or indications for complexity are usually investigated by studying site structure, individual burials reflecting status differences, collective works and communal actions, relationships with neighbours, evidence for intensification of food production, and existence of craft specialists. Most of these aspects cannot be studied during the present project, although information on site layout and burial areas could be deduced from other archaeological projects.[6] The description of social and political organisation focuses in the first place on site pattern dynamics. Habitation sites may provide data on different stages of settlement of the area, on functioning and growth of settlements, while other sites provide information on the use of the environment. In addition, it may be possible to discern so-called 'central' sites that appear to have played some role of local significance and their effects on more ephemeral sites within the research area and beyond.

The study of hierarchical positions of sites within the research area is based on inter-site comparisons regarding site function, site location, site dimensions, duration of use or occupation and the presence of high-status artefacts. As for site function, a decreasing scale of local or regional importance may be expected for the range from permanent settlement sites, via temporary habitation sites, to special activity sites. Ceremonial sites take a special position. These may be central in a socio-political sense but need not necessarily be so. Problematic in estimating the local importance of site functions is the lack of monuments, and great public central structures, which in other regions, such as the Greater Antilles, parts of Meso-America or prehistoric Europe, are easily recognisable indicators of regional stratification.

Analyses of centrality of site locations within the landscape, and possibilities offered by those locations provide information on site hierarchies as well. These run the risk, however, of overemphasising economic and environmental characteristics of the present physical environment, overshadowing less evident socio-political considerations that may have been important as well. The identification of 'optimum setting locations' (Petersen and Crock 1999) to explain the occurrence of high status artefacts in Anguillan site assemblages and the apparently related site hierarchy, may be seen in this light.[7] Their emphasis is on an economic use of the landscape while possible demands of protection or symbolic needs seem de-emphasised. The problem is that it is virtually impossible to identify which site locations were considered optimum at the time. Ideas of which locations are ideal may have changed throughout the different pre-Columbian periods, apart from the fact that locations themselves may have changed.

Site dimensions can be indicative of numbers of inhabitants and duration or intensity of use or occupation and thus reflect the relative socio-political importance of a site. Curet (1992:267) lists methods for estimating numbers of village inhabitants, including analyses of human skeletal remains, artefact assemblages, food remains, site area, house floor areas and household size calculations, and the use of ethnographic analogies from groups on the South American mainland. One could follow ethnographically based estimates by Myers (1973, cited in Boomert 2000), counting 1 person per 200 m^2, and by Roosevelt (1980), counting 75 persons per hectare.[8] Although analyses of house floor areas generally provide more reliable population estimates when compared to analyses of total site dimensions (Curet 1998:371), survey results, on which the present study is based, only allow population estimates based on site areas, and yet this is a problematic exercise. Apart from difficulties

related to estimating site areas on the basis of survey data (section 5.2.1), it should not be forgotten that population size is not the only factor influencing site area. Other factors, such as duration and intensity of occupation, intra-site mobility of households, spatial organisation of activities inside the settlement, architecture of residential structures, levels of culture and technology, and natural and cultural post-depositional processes influence site areas as well (Curet 1992:268, 1998:363; Hoogland 1996:214). As Curet (1992:269) correctly stresses, the information obtained refers to the maximum number of people that could have lived in the settlement, ignoring the possibility that sites may have been inhabited during several shorter, successive phases. In addition, post-depositional processes such as ploughing and erosion spread surface material over larger areas. Using site areas tends to result in an overestimation of settlement inhabitants. Curet (1992:270) attempted to correct this overestimation by arbitrarily subtracting 10% from the total site area. Finally, using ethnographic information is problematic as well, as a lot of variation appears to exist in population numbers of settlements that would be otherwise comparable. In addition, refuse areas and other activity areas are usually not included in diameters represented in ethnographical reports, while this information is strongly present archaeologically (Curet 1992), and data from multi-family roundhouses or smaller and more mobile residential structures related to nuclear family use tend to be lumped together (Curet 1998:366). Population density is hardly ever constant as it varies across sites of the same culture and even within a settlement (Curet 1998:362-363).

As for duration of use or occupation, which is difficult to estimate, the assumption is reflected that the longer a site has been used, the more stable and the more important it may have been.

Analysis of the site assemblages, and the presence of so-called high-status artefacts, may provide indications for the existence of hierarchical positions. The small-scale of the study, however, resulting in very small and differently sized samples of archaeological material, implies that absence of high-status artefacts does not automatically indicate that they cannot be found at a site. High-status artefacts might include rare objects, whether made from non-local materials or displaying rare decorations or even styles. The time and skill required to make the objects should be taken into account as well.

Site hierarchies may provide information on territories occupied by major sites.[9] As the project, however, does not provide detailed information on chronological assignment or on duration of occupation or use, there is a lack of information on contemporaneity of the sites. Only very rough temporal distinctions may be expected, blurring information on which sites were functioning more or less at the same time or which sites can be considered successors of others. Analysis is limited to what Davis (2000:81) called "the palimpsest of settlement represented by the site distributions".

Other relevant aspects that all merit attention, such as kinship, ethnicity, power, and aspects related to socio-political interaction, such as marriage ties, warfare and alliances, can be isolated, but these cannot be investigated on the basis of the archaeological information provided by the East-Guadeloupe project. These may only be deduced from ethnohistorical or ethnographical sources, although other archaeological studies in the Caribbean may be consulted as well (e.g. Boomert 2000; Curet 1998).

1.4.6.3 Economic organisation

The study of economic organisation focuses on use and exploitation of natural resources in the direct or more remote environs of the pre-Columbian sites in the research area. Information on subsistence was obtained through the study of faunal (Grouard 2001; Nokkert in appendix 5) and shell food remains, and subsistence related artefacts, such as griddles or grinding stones. For a limited number of sites isotope analyses are available as well (Stokes 1998). Archaeobotanical studies could not be undertaken. Samples of faunal remains were available for analysis for merely a very limited number of habitation sites. For several sites only surface collections had been made, in which faunal remains are usually absent. At some other sites faunal remains appear to have been hardly present at all, as not all habitation sites are characterised by midden areas, that provide unique conservation factors for delicate faunal remains (*cf*. Nokkert, in appendix 5). It should be remarked here as well that shellfish was not only used for human consumption, but as raw material for the production of shell artefacts or for other purposes as well. Shells may have been used as containers, hearth bases, net sinkers, ceremonial paraphernalia and curiosities (Antczak 1998:142-143) or as bait. In addition, shell remains may also belong to the natural sedimentary matrix and be intrusive as well, being transported by animals attracted to refuse heaps in settlements, including land hermit crabs, producing a typical shine inside the shell, or birds. It is deemed, however, that only very small amounts of these non-consumptive items will be found, hardly altering the image of pre-Columbian shellfish consumption. In addition, although small shell species are often regarded as marginal as they fulfil only a small part of the protein need in a diet, they can be valued for being especially tasty, or for having special properties, *i.e*. medicinal or aphrodisiac (Antczak 1998:182).

In the second place, information on the use of non-

subsistence resources may be provided by study of raw materials used for the manufacture of artefacts, including clay, temper materials, stone, shell, coral and bone. Perishable materials have not survived in the archaeological record but indirect information can sometimes be gained, such as basketry imprints on pottery. These have been found, for example, on the bases of some of the Anse à la Gourde griddles (Hofman 2001). In addition, it should be investigated which of these materials are non-local, providing evidence of interaction, and which were locally available in the immediate surroundings of habitation sites, using site location variables and a larger geographic or environmental overview. As the islands are small, site location variables are probably not exclusive. Inhabitants from sites all over the island may have exploited locally available sources provided that access was non-restricted.

1.4.6.4 Ceremonial organisation

One of the most complicated aspects of pre-Columbian Amerindian life to investigate involves the ceremonial organisation. What can be retraced are ceremonial places or artefacts, the archaeological remnants of the related actions, which are generally referred to as rituals (Bell 1992:19). Information on conceptual aspects such as ideology, symbols and myths cannot be expected.

Rituals have a communicative function and may be meant to structure contacts between world and supra world and to provide the profane daily world with meaning. The term ritual is not only used with reference to communal activities. Ritual activities relate to individual needs and aspirations as well. What counts is their effect on the spatial context of the landscape and on relations between humans and between humans and the landscape.

Information on ceremonial traditions and religious beliefs of the pre-Columbian inhabitants of the Caribbean (e.g. Rodríguez 1997) may be used to provide a general framework in which the data from the East-Guadeloupe project may be fitted. For a good understanding of pre-Columbian ideology on the Lesser Antilles, an insight into South American religious beliefs and practices is to be recommended.[10] Boomert (2000:445) refers to the present-day Amerindian belief system as animistic, entailing a strong belief in the existence of positive as well as destructive spirits of nature and spirits of the dead. It operates at the community level and village shamans, who may be considered ceremonial specialists, have a central role in ritual activities. Complex ordering principles structure the world and human society. Ethnohistoric and ethnographic evidence from the South-American mainland and the Caribbean demonstrates that the layout of houses and even complete villages often reflects cosmological ordering principles related to time, space and the organisation of the universe (Boomert 2000:446; Siegel 1997:108).

Many aspects of the South-American belief system, reflecting the conceptual world of the homeland area of Early Ceramic settlers on the islands, are thought to have been included in the iconography on Early Ceramic pottery, which was only slowly adapted to reflect the new insular environments. Use of symbols and decorative patterns reflecting elements from the South-American mainland over long periods of time are indicative for the existence of intense long-distance contacts and for continued worshipping of elements from the ancestral culture. Representations of anthropomorphic and zoomorphic creatures are characteristic, several being naturalistic in character, first depicting fauna from the mainland, while later, animals endemic to the islands became increasingly important. Roe (1997:124), for example, considers frogs, generally associated with water, fertility and the underworld (Boomert (2000:470), to be island substitutes for caimans from the mainland.

Many other representations appear to be fantastic human or animal beings, which, according to Rodríguez (1997:84) may be considered indicative for the existence of a complex supernatural and mythical world. Boomert (2000:461) points out that transformations between humans and animals are considered to be quite common and therefore combinations of anthropomorphic and zoomorphic elements may occur as well. The abundance of these *adornos* demonstrate according to Boomert (2000:462) "the high value placed by the Early Ceramic Indians on communication with the spirit world in order to ensure health, fertility, social order and group survival".

Another aspect that originated from the mainland is the use of hallucinogenic powders or leaves, or the burning of herbs, which enabled users, in most cases ritual specialists, to communicate with supernatural beings. Use of hallucinogens on the islands is indicated by the presence of incense burners, nostril bowls and snuff-inhalers in archaeological assemblages. Ritual specialists among the Taíno, called *behiques*, have been reported to use shell, bone or wooden *spatulae* in their religious activities to induce vomiting. Large idols of wood, cotton and stone, or associated stone, bone or shell inlays, and large three-pointer stones, intensively decorated by incised designs depicting animals or supra-natural beings, were used as well. Idols, crania or bones of ancestors as well as three-pointer stones were called *zemis* and they were visible symbols of political and religious power related to *caciques* and *behiques* (Rodríguez 1997:87; Siegel 1997:106). The basis for the cosmological system called *zemiism* can be found in the veneration of deified ancestors (Siegel 1997:106). According to Pané (1999[1496]:21) "all

the majority of the peoples of the Island of Hispaniola have many *zemis* of various sorts. Some contain the bones of their father and mother and relatives and ancestors; they are made of stone or wood. And they have many of both kinds, some that speak, and others that cause the things they eat to grow, and others that make it rain, and others that make the winds blow". Each *zemí* "fulfilled a special purpose, had its own name, myth of origin, personality, and supernatural competence" (Boomert 2000:451). In the Lesser Antilles, the worship and use of another type of *zemi* was common during the Early Ceramic Age. This type consists of small, generally between 3 to 7 cm long, usually undecorated, three-pointed objects, made from shell, stone or coral. Many of them have concave bases. These three-pointed *zemis* are thought to mediate between worldly people and the beings from the supra-natural world, *Yucahú(guamá)*, the manioc-spirit, in particular. In some cases, they appear to have been buried in fields to ensure good crops (McGinnis 1997:92). Bases of some *zemi* specimens show remains of resin-like materials, leading Boomert (2000:488-490) to suggest that they used to be attached to staffs of perishable material and possibly served as digging sticks. Walker (1997:90) suggested that three-pointer *zemis* represent spiritual links between *caciques* and their real and mythical ancestors. It is not known from what moment on three-pointer *zemis* came to be used. In addition, the first three-pointer *zemis* were apparently made of *Strombus gigas* shell, using the natural cone-shaped protuberances of the top of the shell, while stone and coral *zemis* occurred later in time (Boomert 2000:486).

Up till now, archaeological studies have provided limited information on Lesser Antillean pre-Columbian ceremonial life and related rituals, but the information available provides important clues to the understanding of the special meaning of areas, sites and artefacts discovered in the research area.

Regarding ceremonial use of areas or micro-regions, studies on, for example, the Basse-Terre petroglyph area on Guadeloupe should not be neglected. This area in southern Basse-Terre is considered a 'spirited' or 'ritual' landscape, containing large numbers of petroglyph sites, usually on large volcanic boulders close to fresh water sources or streams (Ruig 2001, 2003). It was long thought that petroglyph sites were restricted to this area but the recent discovery of an abri decorated with petroglyphs near Anse Patate on Grande-Terre (Stouvenot and Richard 2003) sheds a different light on this situation, although the site awaits further analysis. It is quite far from this bounded 'ritual' area on Basse-Terre and situated in a completely dissimilar, dry context. It is not clear what purpose the petroglyph sites, which vary from individual representations of human figures, faces and scroll-like motifs to tableau-like depictions with multiple rock carvings served, although ceremonial functions in communal ritual actions are usually suggested. Wild (2003) suggested that petroglyphs represent faces of dead ancestral deities and that the use of petroglyph sites was directly linked to ancestor veneration. Although petroglyph sites cannot be dated, excavations at some petroglyph sites in the southern Basse-Terre region have demonstrated that activities took place at the sites at least during the Early Ceramic B. Within the research area no petroglyph sites have been discovered up till now and it remains to be questioned whether the regional significance of the Basse-Terre petroglyph area extended to a larger region, not only including nearby communities but also local groups living in Eastern Guadeloupe.

At the site level, indications for ritual or non-daily life practices have been reported for cave sites. The significance that caves held in pre-Columbian ceremonial life has long been recognised. Ethnohistoric accounts tell of the special role of caves in Taíno mythology, being the place of origin of human beings and of the Sun and the Moon (Pané 1999[1496]:5, 17). Similar beliefs can be found on the South American mainland (Boomert 2000:457). Caves are often regarded as entries to the underworld and may therefore be important places in shamanic activities (Boomert 2000:446, 449). Paintings and petroglyphs often adorn ceremonial caves. Examples can be found in the caves of Morne Rita on Marie-Galante (Slozinski and Slozinski 1983) and Big Spring (Crock and Petersen 1999; Petersen *et al.* 2003) and Fountain Cavern (Watters 1991) on Anguilla. The latter site contains at least a dozen petroglyphs and a stalagmite, which has been carved and which depicts *Yucahú*, the manioc-spirit, close to a freshwater well. Two other, undecorated, cave sites in Anguilla, Airport Cave and Tangelwood Cave, yielded human skeletal remains (Crock and Petersen 1999, 2004). L'Abri Patate on Grande-Terre has been decorated with 14 anthropomorphic figures on calcareous stalagmites and stalactites but no ceremonial function has been suggested for this site (Stouvenot and Richard 2003).

In addition, ceremonial evidence can be found in the form of mortuary rituals and the existence of large burial areas at some habitation sites (e.g. Hofman and Hoogland 2004). Mortuary ritual, according to Roymans and Kortlang (1999:35), "is embedded in the wider system of ideas and values of a society. It is part of an all-embracing ritual cycle of life and death, in which groups give their view on the social order and the wider cosmos". As for the mortuary behaviour, a distinction should be made between funerary rituals, relating to rites of passage that structure the transition between life and death of an individual, and ancestor rituals, which "draw the symbolic presence of ancestors into the world of the living" (Barrett 1991:121). These two types

of mortuary ritual are mutually dependent. Ancestor rituals probably structured the living environment, in the sense of a social and ceremonial ordering but of a practical or physical ordering as well. Benes and Zvelebil (1999:86) suggest that cemeteries acted as territorial markers in a similar way as megalithic tombs are expected to have functioned in prehistoric landscapes in Europe. As such, they acted not only as burial sites for the ancestors, but also as "focal points and centres for ritual activities, places in which social memories became encoded" (Tilley 1993:50). Ancestor veneration can be indicative and sometimes may even be a condition for a certain level of social as well as territorial organisation. A prerequisite is that they must be recognisable as burial zones, being marked visually or attaining a reputation through oral tradition. Large cemeteries, reflecting ancestor burial places, with long periods of use and stable locations, reflect collective identities of local groups (Roymans and Kortlang 1999:40). Human burials provide evidence for the existence of intricate funeral rites that, according to Rodríguez 1997:82), reflect ancestor cult. Although burials containing the remains of only a few individuals have been found all over the Lesser Antilles, the occurrence of large burial areas is restricted to a very limited number of sites and very few intensive cemetery investigations have been carried out. It is not clear whether this is a result of typical Caribbean research biases, focusing on the investigation of small site areas. It seems most likely, however, that large burial areas are really rare on the Lesser Antilles, reflecting the special statuses of the settlements where they do occur.

Artefact assemblages of sites may provide clues for ceremonial or ritual activities as well. There is always a risk of overemphasising, in the sense that 'remarkable' or 'special' finds, in other words, those that in our view do not appear to have a strictly functional use related to daily life activities, will be readily and maybe automatically regarded as ceremonial. For several artefact types, however, including three-pointed *zemis*, *spatulae*, masks, incense burners or snuff-inhalers, a ceremonial use has been reported that has been affirmed by ethnohistorical accounts (Allaire 1990). Other artefacts that have been interpreted as ritual paraphernalia, associated with activities carried out by ritual specialists, include gourd rattles, figurines, and ceremonial axes (Boomert 2000:478). Body stamps, used to adorn the body with decorative patterns of vegetable pigments, are considered to belong to this group as well, as bodily decoration is thought to be associated with communal activities or rituals.

An attempt will be made to cover these three levels, relating to artefact assemblages and site and (micro)regional evidence during this project. Even though the small scale of the project hinders the acquirement of information on site layout and of sufficiently large samples of archaeological material, sites and objects with a special ceremonial significance can be identified. A distinction will be made between strictly ceremonial sites, such as ceremonial places, offerings or depositions, and habitation sites with ceremonial functions. Diachronic patterns of sites with strictly or partly ceremonial functions all over the research area may provide information on what can be called the ceremonial landscape. On a more abstract level, an attempt is made to understand why the sites had such special functions and how they functioned locally and in a wider region, *i.e.* what evidence do they provide of ceremonial organisation and ceremonial interaction. A complicated aspect of those patterns is related to their meaning, in other words, what information do they communicate and at to whom is the 'meaning' of ceremonial markers or of a ceremonial landscape conveyed? Are they exclusively recognisable and valuable to specially trained people, such as ceremonial or ritual specialists, and are they therefore structuring the upper world? Or are they understood by all members of a society and do they structure patterns of everyday life? In Allison's (1999:277) words "It is not difficult to sense that a link is missing between the archaeologists' perceived physical reality, their organising and explaining of a landscape of sites, and the significance of these places". The outsider's view may simply be too restricted and too different from the insider's view and the East-Guadeloupe project is therefore not expected to contribute to this level of analysis.

1.4.6.5 Micro-regional and regional interaction

Interaction, being defined as contacts between persons, inhabitants of different settlements or even different islands, may be linked to socio-political, economic or ceremonial activities. It may relate to alliances or the quest for marriage partners or to shared insights into how societies should be organised and even to warfare. Economic interaction is concerned with the procurement of locally unavailable raw materials or artefacts and shared technological insights and ceremonial exchange may relate to shared cosmological beliefs and the exchange of ritual objects. Interaction can merely be observed archaeologically when evidence of 'foreign' influences is present within the archaeological assemblages of sites. These may relate to 'ideas', style characteristics of artefacts discovered and the origin of raw materials used for subsistence, and for tools and ornaments. Categories of material that are best suited to such investigation include lithic artefacts and ceramics. Shell, coral and faunal remains are expected to be too widely available, even though the occurrence of non-local shell at the Hope Estate site on

St. Martin demonstrated interaction (Serrand 1999).

The limited time frame of the project precludes technological pottery analyses as a result of which no information on exchange of clays, tempering materials or complete pots is expected. Analysis of pottery styles, or of style characteristics of other artefacts, provides information on pre-Columbian inter-site interaction at a micro-regional or regional level. The occurrance of stylistic similarities in ceramic assemblages of different sites has been reported to reflect shared communal ideas on decoration, morphology, and the representation of cultural identities (Hofman 1993).[11] A problem, however, is that pottery decoration cannot be expected to adequately reflect meaningful social units intrinsically (Keegan 2000:138). Although Rouse's subseries and styles identify cultural units, it may be necessary to distinguish smaller socio-political units, such as local groups (Haviser 1991; Hofman 1993; Hoogland 1996; Keegan 2000).

Exchange or direct procurement of so-called exotic, *i.e*. non-local, lithic artefacts or raw materials used for the production of lithic tools or ornaments, is easier to demonstrate. Presence or absence of raw materials can usually be rather straightforwardly indicated, thus it is rather easy to establish whether materials are local or not. Local in this sense would mean available on the island. As the body of evidence on natural occurrences of raw materials is constantly growing (see Knippenberg 2006), it is expected that many possible source areas of the non-local materials collected during the project can be pinpointed. The fact that, according to Knippenberg (2006), lithic artefact production in the north-eastern Caribbean, and possibly beyond that, is based on relatively standard raw material choices for specific types of artefacts, even if alternatives are at hand, increases the possibilities for study of exchange of lithic artefacts. The lithic artefacts collected during this project have been analysed and included in a study on regional exchange by Knippenberg (2006), which yields information on the origins of the raw materials used.

It is hoped that through the present study three levels of interaction can be identified. The lowest level, which is the least visible archaeologically, includes relations between settlements in the Eastern Guadeloupe micro-region and special activity sites, situated relatively nearby, covering areas that can be easily travelled in one day, and aimed at daily exploitation of subsistence and non-subsistence resources. It is assumed that such sites would be within at most 10 km distance from the villages (*cf*. Jarman *et al*. 1972).

The second level consists of micro-regional networks that are formed between settlements in the Eastern Guadeloupe micro-region and that may involve socio-political, economic and ceremonial relationships. These contacts may exist between settlements situated rather close to each other (for example, between villages situated on La Désirade), but also between settlements that are further away (for example, between villages situated on La Désirade and Guadeloupe). It is thought that such contacts would have taken place on a more or less regular basis. Very strong similarities in pottery style are evidence of such close contacts. Although it is difficult to pinpoint the frequency of contact, it is thought that this level forms an intermediate contact level between the daily relations mentioned above and the incidental contacts of regional networks. This level also includes relations between villages and temporary campsites or special activity sites that are located further away, at more than 10 km distance from the settlements and that involve trips that require more than one day's travel. Use of these sites is aimed at the exploitation of non-subsistence resources such as lithic raw materials, which are not needed on a daily basis.

The highest level, then, concerns villages in the Eastern Guadeloupe micro-region forming extensive regional contact or exchange networks with other villages in the wider Eastern Caribbean region. These contacts take place incidentally and require a considerable effort in organising and sustaining long-distance trips and contacts. This is visible by the sharing of general style characteristics of the pottery, instead of sharing very strong stylistic similarities in ceramic assemblages. Within this larger region, non-subsistence resources are occasionally exploited and obtained through direct access or exchange. Regional networks involve socio-political, economic and ceremonial relationships as well.

As mentioned above, although the existence of interaction is relatively easily determined, it is far more difficult to understand the mechanisms behind it. Different forms of interaction relate to different types of organisation, ranging from direct access, via reciprocity and through down-the-line trade to central place redistribution or market exchange.

1.4.7 Ethnohistorical and ethnographical analogies

Without doubt, Caribbean archaeologists are fortunate to have numerous ethnohistorical and ethnographical sources. They often consult these to enliven the archaeological information, which is sometimes, but undeservedly, regarded as being rather static, with colourful accounts on pre-Columbian inhabitants of the Antilles or on more or less contemporaneous Amerindian inhabitants of the South-American mainland. On the other hand, this creates a delicate situation in the sense that they should well think about which sources to select and how to use them. It may

be clear that ethnohistorical and ethnographical information will not provide direct analogies, but it may be well worth investigating how they can be used as sources of inspiration for regions and periods for which no written accounts are available (see Hodder 1982).

As was made clear in the title, this work concentrates on archaeological information, trusting that this by itself may present a dynamic picture of pre-Columbian social organisation and interaction within the study area. The choice for an archaeological emphasis was strengthened by the limited timeframe of the study, not allowing extensive digressions into other disciplines that require proper instruction and training. However, as ethnohistorical as well as ethnographic documentary evidence does exist that may broaden the insights into the central research question of this project, it seems unwise to completely ignore it. Thus, although the collection of ethnographical and ethnohistorical information is not an aim in itself; it is merely used to complement archaeological information presented.

Ethnohistorical sources, consisting of colonial travel accounts, chronicles and scientific works, are less abundant for the Lesser Antilles when compared to the Greater Antilles, for which early sixteenth century ethnohistorical accounts do exist. Important ethnohistorical sources for the study area include seventeenth century French accounts, unfortunately dating from more than a century after the earliest contact period. Among these are the accounts of *Anonyme de Carpentras* (Moreau 1990[1618-1620]), Bouton (1640), Breton (1978[1647]; 1892[1665]; 1900[1666]), De la Borde (1674), De Rochefort (1665[1658]), Du Puis (1972[1652]), Du Tertre (1973[1667]) and Labat (1931[1742]).

Before using their information, however, several aspects should be regarded in order to be able to evaluate the reliability and value of the sources. An important aspect greatly influencing the types of descriptions provided and the attitude and value judgement towards the Amerindian inhabitants of the islands relates to the different personal backgrounds, intentions and motivations of the authors. Another aspect, that was already mentioned before, touches upon the fact that the sources were written well over a century after European domination within the region began (section 4.3), during which time a considerable number of socio-political and demographic changes had already taken place. This implies that the documents need to be carefully consulted and evaluated against the background of the document's context.

Comparing the different accounts, there is an apparent uniformity in descriptions of Amerindian culture and in their chapter divisions. This suggests that authors felt inspired by each other and that they even may have been copying descriptions. It is generally accepted that the accounts of Father Breton may be regarded as an important primary source while De Rochefort, Du Tertre, De la Borde and Labat based their works largely on Breton's information, often without mentioning his work. They also added some new information. Du Puis and De Rochefort based their descriptions mainly on the accounts of Breton and Du Tertre. Information from the accounts and dictionaries of Breton will be considered most reliable. Breton, writing reports that were meant to inform the congregation in Rome on the activities of Dominican clergymen on the Antilles, was the only one who lived on the Antilles for 20 years, mostly among the Amerindian inhabitants of the islands. In addition, he learned their language.

As for ethnography, it was decided to only include some of the suggestions that colleagues, who are better instructed in this field of study, have been bringing up. It should be noted that ethnographical information usually represents modern indigenous groups that may have changed significantly in comparison with their pre-Columbian ancestors as a result of European influence, depopulation, increased environmental stress and notable changes in socio-political organisation of the groups involved (Posey 1994:271). Ethnographical information in this study can mostly be found in the endnotes.

Last but not least, some attention should be paid to the very unfortunate fact that only little information is available on names of groups living in the Lesser Antilles in the region of interest, as a result of their swift extinction following European contact. Ethnohistorical accounts provide rather unreliable and highly confusing information on this subject, which makes the use of names such as Taíno, Carib or Igneri, for cultural or ethnic labelling highly doubtful (see Hofman 1993:217-232; Petersen *et al.* 2004). Archaeologists working in the area have often used names of large language families to indicate smaller social groups, referring for instance to 'the Arawak' of the Lesser Antilles. Names of pottery styles from Rouse's chronological and cultural classification scheme (chapter 4) have been used in a similar manner as well, resulting in names such as 'the Huecans' or the 'Saladoid people'.

As there is too little information on what the people living in the research area in pre-Columbian times called themselves, throughout this study they have generally been referred to as the pre-Columbian inhabitants of the research area. Indigenous Amerindian people, however, have negative associations with the term 'pre-Columbian', in the sense that it refers to Columbus and it severely obscures the diversity and richness inherent in cultural and social identities. It is well acknowledged that names are important for understanding ethnicity, self-recognition,

and cultural and social identity, which are factors that do not necessarily correlate with archaeological cultures. These are essential for the understanding of any society, as they relate to the communal memory. The term pre-Columbian is used in the absence of accurate names or terms of self-identification and it is certainly not intended to provoke or to trivialise problems related to this. The term is considered a chronological marker. The study focuses on the habitation of the research area up to AD 1493, which denotes the arrival of Columbus.

1.5 CONCLUSIONS AND EXPECTATIONS ON THE SUITABILITY OF THE DATA

The East-Guadeloupe project is expected to make a contribution to our understanding of social organisation and interaction of pre-Columbian Amerindians who once lived on Pointe des Châteaux, La Désirade and Petite Terre. This will be done through intensive archaeological fieldwork, which has been adapted to the research questions and to the local conditions. The study of the resulting archaeological data, focusing on the investigation of site distributions and site patterns and on the characterisation of the material culture assemblages from these sites, is expected to result in an analysis of pre-Columbian organisation and interaction in the research area. If relevant, the data may be supplemented with ethnohistorical and ethnographical information in order to provide information that is less visible archaeologically. To answer the questions related to the physical landscape a geological study has been formulated. In addition, the results of the investigations can be used to extract information on settlement systems for areas immediately outside the selected micro-region, such as Grande-Terre on Guadeloupe, where systematic and intensive surveys are lacking. Grande-Terre, which environmentally forms a rather homogenous region together with the research area, is known to harbour a number of regularly spaced coastal settlements (DRAC archives), but the more or less direct surroundings or the home ranges of the sites have not been investigated.[12] Information on the presence of different types of sites, with locations other than coastal, is thus absent, as is information on the use of the environments of the sites or on inter-site interaction. Data from the research area will be used to bring forward suggestions on how the incomplete view of the Grande-Terre settlement system can be improved.

Some problems can be expected, however, when using the site inventory and the archaeological material collected during the surveys for the study of pre-Columbian social organisation. The first problems encountered during the project are related to local environmental conditions and to the fieldwork conducted and the possible biases inherent to the survey methods and the additional small-scale test units (section 5.2.1). These may be enforced by the intensity and the method of surveying, the use and characteristics of archaeological surface material, survey capacities of individual survey crew participants, environmental factors and natural and cultural post-depositional processes. Section 5.2.1 describes causes and effects of those variables in detail, and more importantly, attention is focused on how their effects have been dealt with during the present project. It was thought that the effect of those variables on the accuracy of the recovery of archaeological sites can largely be predicted and their impact turned out to be rather small. The site inventory is deemed to be rather representative. One of the basic premises of the project is that central sites will not be missed while systematically and intensively surveying the region, on the basis of their dimensions and their surface material. The effect of biases on site characterisations as a result of methods of investigation is expected to be much larger, and more importantly, the impact cannot be quantified and thus it cannot be accurately corrected. Site characterisations had to be based on small samples of archaeological material and environmental situations, strategies and sample sizes are not comparable for all sites. For many sites, at which no test units could be excavated, only surface collections were available. These were kept rather small, so as not to destroy the appearance of the sites on the surface. For the surface collections a bias is expected towards a more intensive collection of decorated ceramics. Sub-surface testing had to be limited to small and randomly selected test units, providing severe constraints on the quantity of archaeological material excavated as well as problems in estimating how accurate the collected data reflect the actual situations at the site. Intra-site distributions cannot be studied and it is of course an easy criticism to remark that site characterisations can be improved to an important degree by extending the scale of research. Sampling problems such as those related to faunal material have been described by Nokkert (appendix 5). It is felt that these problems, related to site characterisation, could not be accurately solved.

It is, however, assumed that the survey data collected for the East-Guadeloupe project are compatible for the investigation of pre-Columbian socio-political, economic and ceremonial organisation and interaction, as they do provide information on rough diachronic patterns of distributions of archaeological material over the landscape. A very important problem that cannot be satisfactorily dealt with includes the impossibility of studying contemporaneity of the sites. It is obvious that, as Shennan (1985:105) once remarked, “it is only possible to work in terms of those

chronological distinctions which variation in the material collected allows us to make". It was clear from the outset that within the present project sites could be assigned to pre-ceramic, Early Ceramic and Late Ceramic Ages at best, without expecting information on finer time-frames. Evidence of short-term variation cannot be expected. This, of course, invokes restrictions in establishing the co-existence of individual sites. Another problem involves the study of site surface areas and their relationships to settlement hierarchies, especially in the case of multi-component sites.

The choice for studying some islands or parts of islands in so much detail obviously has strong implications for the scale of the project and gives rise to some problems in the applicability of the data that are inherent to regional survey projects. One can continue regarding the survey data with scepticism and decide not to use these for the construction of rough regional overviews. One may also take a more positive attitude by using the large body of data that has been brought forward by the project and which may provide valuable insights into archaeological site distributions. These will hopefully be refined, complemented and corrected by future research, involving larger-scale site-specific archaeological research.

1.6 OUTLINE OF THE PRESENT STUDY

The present study comprises six chapters. After having formulated the research problem and the methodological framework for this study in the present chapter, fieldwork procedures and artefact analysis methods have been presented in chapter 2. Chapter 3 outlines the actual physical setting of the study, complemented with information on the pre-Columbian situation where possible, necessary to understand local conditions for fieldwork and site survival as well as the conditions for pre-Columbian use and perception of the landscape. In order to improve the understanding of chronological assignments of sites in the research area, a short cultural background, focusing on pottery styles, is provided in chapter 4. Chapter 5 presents fieldwork results. Chapter 6 describes diachronic pre-Columbian site patterns, social organisation and interaction for the research area, based on the site catalogues that were created during the East-Guadeloupe project.

Appendix 1 provides an introduction to the site catalogues and presents the fieldwork forms used. Appendices 2-4 include extensive site catalogues that were made during the present project, providing detailed information on site location and preservation, test units and stratigraphy, archaeological materials excavated and chronological assignment for all pre-Columbian sites in the research area. Appendix 5, written by Mark Nokkert in 2001, reports his analyses of faunal remains excavated during the project.

The back-jacket, when folded out during reading, presents a general legend for the maps as well as the names of the sites in the Eastern Guadeloupe micro-region.

NOTES

1 After Hoopes, 1988, *The complex tribe in prehistory: sociopolitical organization in the archaeological record*. Paper presented at the 53rd Annual Meeting of the Society for American Archaeology.

2 See also Weiner (1988) for Papua New Guinea.

3 The Kula is a highly complex exchange system operating in a closed circuit consisting of local groups inhabiting a wide ring of islands, wherein red shell necklaces are moving in one direction and white shell bracelets in the opposite direction, invoking constant exchange of items (Malinowski 1953:81; see also Weiner 1988).

4 Crock (2000) and Hoogland (1996) selected large settlement sites for their studies on site hierarchy on Anguilla and Saba but they also provided detailed site inventories for these islands.

5 Ingold, T., 1993, The Temporality of the Landscape. In: *World Archaeology 25 (2)*:152-174.

6 See Bright (2003) for a comprehensive discussion of this subject.

7 "The 'optimum-settings' are defined as: (1) situated on sandy beach sediments, (2) close to salt ponds or other non-ocean water, (3) close in elevation to the sea, and (4) close to suitable farmland. In contrast, the 'non-optimum-settings' are: (1) situated on rocky and non-beach sediments, (2) not situated close to salt ponds, (3) not close to the sea in terms of elevation, and (4) more distant from farmland" (Petersen and Crock 1999:126).

8 Myers, T.P., 1973, Towards the reconstruction of prehistoric community patterns in the Amazon Basin. In: Lathrap, D. and J. Douglas (eds.), *Variation in anthropology*:233-252. Illinois Archaeological Survey, Urbana.

9 Following Jarman *et al.* (1972:62), territory is used "in an economic sense, to refer to the area exploitable from a particular site, and no reference is intended to the concept of territory as a defended entity. Territories exploited from archaeological

sites will vary according to a number of factors, among which the most obvious are the nature of the economy, the means of transport available, the population pressure, and the character of the terrain".

10 The reader is referred to Boomert (2000) for an overview of Early Ceramic cosmology and ritual.

11 The reader is referred to Hofman (1993:198-203) for an overview on the use of the concept of style in archaeology through time and on different meanings of style.

12 DRAC archives were last consulted July 29, 1999. A large number of sites in the DRAC inventory have only been listed as pre-Columbian, without indicating a more precise chronological assignment, and only few have been investigated in detail.