

# Zone 1: Central America

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The paper consists of two different sections. The first part has a descriptive character and gives a general impression of Central American rock art. The second part collects all detailed information in tables and registers.

I. The first section is organized as follows:

1. Profile of the Zone: environments, culture areas and chronologies
2. Known Sites: modes of iconographic representation and geographic context
3. Chronological sequences and stylistic analyses
4. Documentation and Known Sites: national inventories, systematic documentation and most prominent rock art sites
5. Legislation and institutional frameworks
6. Rock art and indigenous groups
7. Active site management
8. Conclusion

II. The second section includes:

table 1	Archaeological chronologies
table 2	Periods, wares, horizons and traditions
table 3	Legislation and National Archaeological Commissions
table 4	Rock art sites, National Parks and National Monuments
table 5	World Heritage Sites
table 6	World Heritage Tentative List (2005)
table 7	Indigenous territories including rock art sites

appendix:	Archaeological regions and rock art
	Recommended literature
	References
	Illustrations

## ***1 Profile of the Zone: environments, culture areas and chronologies:***

Central America, as treated in this report, runs from Guatemala and Belize in the north-west to Panama in the south-east (the northern Bridge of Tehuantepec and the Yucatan peninsula are described by Mr William Breen Murray in Zone 1: Mexico (including Baja California)). The whole region is characterized by common geomorphologic features, constituting three different natural environments. In the Atlantic east predominates extensive lowlands cut by a multitude of branched rivers. They cover a karstic underground formed by unfolded limestone. Embedded are extensive cave systems offering a lot of subterranean water resources. The central zones are characterized by volcanic mountain ranges comprising little highlands, numerous crater lakes and deep valleys. In contrast to the western plains the Pacific coastlands form a long, narrow strip. They comprise a great variety of bays, islands and peninsulas.

The diversity of natural geography is completed by a great diversity of climates, flora and fauna. They include the tropical rainforests of the lowlands as well as the sub-alpine vegetation of the central regions high mountains. Alone Costa Rica has twelve distinctive ecosystems offering highly diversified natural resources. They provoked different strategies of adaptation since the earliest presence of man in Central America that probably dates back to 12,000 B.C. (Piperno et al. 1990: 108-16; Snarskis 1979: 125-38, 1984: 198). Whereas the first human groups were constituted by hunters of megafauna (El Bosque) their subsistence patterns were followed by maritime or fluvial modes of nutrition (Orange Walk), by gathering fruit trees and wild plants (Casita de Piedra), by mixed economies (La Esperanza) and by agricultural systems of production (El Cerén). All subsistence patterns left different landscapes and archaeological contexts.

They divide Central America in two cultural zones with different structures of spatial and chronological organization (Kirchhoff 1943: 92-107; Lange 2001a: 357-65). In the further text I refer to Belize, Guatemala, western El Salvador and the west of Honduras as Eastern Mesoamerica. All territories south of the Uluá and Lempira river systems are called Lower Central America (fig. 1). The chronology of the former region is part of the Mesoamerican culture sequence comprising the Postclassic (1530-900 A.D.), Classic (900-250 A.D.), Formative (250 A.D. – 1600 B.C.), Archaic (1600-8000 B.C.) and Paleoindian (8000 - ? B.C.) periods. The culture sequence of Lower Central America (Lange 1984: 277-81) is oriented toward the northern regions of South America. It is constituted by six different periods without any descriptive denomination. Nevertheless, periods VI, V and IV (1520 A.D. – 1000 B.C.) correspond with the Mesoamerican Late, Middle and Early Formative according to their characteristics. Periods III and II (1000-8000 B.C.) are linked with the Archaic. The earliest period I (8000-? B.C.) can be understood as Paleoindian (table 1).

At the arrival of European conquerors Eastern Mesoamerica was dominated by speakers of Mayan and Nahuatl languages. Their complex archaeological cultures show all diagnostic traits of highly diversified societies, such as site hierarchy, monumental architecture, specialized sectors of utilization, elaborated iconographies as well as writing and calendar systems, pecked in steles and public buildings. In contrast Lower Central America was mainly settled by Misumalpan- (in the north) and Chibchan- (in the south) speaking populations during the early 16<sup>th</sup> century. Their archaeological cultures mostly lack hierarchic divisions, indicating in this way horizontal social segments without rigid vertical stratification. Early historic sources (Oviedo 1851-55 [1534, 1547]; Vázquez de Coronado 1908 [1563-65]) prove that the indigenous populations of the contact period (1600-1520 A.D.) were organized in chiefdoms and interaction spheres. They never constituted competing urban states as in Eastern Mesoamerica.

Whereas both regions exhibit differences in political organization, settlement patterns and material culture they also have commonalities such as shared modes of subsistence, similar stone tool industries or polychrome ceramic traditions. Mesoamerican jade and obsidian artefacts are also found in Lower Central America. On the other hand metal objects from Lower Central America appeared in Eastern Mesoamerica too. The mutual occurrence of imported raw materials, techniques and goods suggest stable trade networks facilitating cross cultural contact and exchange. In fact, the western and central regions of Honduras (Uluá-Chamelecon-Sula and Comayagua river systems), the east of El Salvador, the whole Pacific Nicaragua and the Nicoya peninsula of north-west Costa Rica (Guanacaste province) are often

understood in terms of direct cultural transition and mutual overlapping. For the purpose of this paper I will call this region Contact Zone.

## ***2 Known Sites: modes of iconographic representation and geographic context:***

Central American rock art consists of decorated but not completely sculptured stones, rocks and lithic formations (rock shelters, grottos, caves). Their representations can be divided according to the applied techniques of manufacture into three different categories: rock engravings (petroglyphs), rock paintings (pictographs) and painted rock engravings. Petroglyphs may be scratched, incised, cut, pecked, punched or abraded into stony surfaces. They all are product of stone tools application. Pictographs were painted or drawn utilizing mineral colours or charcoal. The painted representations can be dotted, blown or stamped. Coloured petroglyphs combine additive and subtractive techniques of decoration. Although most rock art shows geometric motifs there are also elaborated zoomorphic and anthropomorphic representations. Even architectonic structures (pyramids), archaeological objects (bowls), dresses (hipcloths, belts, head bands) and adornments (ear spools) are sometimes shown. In contrast phytomorph motifs (San Miguel Cave) are seldom. A particular mode of decoration is formed by positive and negative handprints (Cueva Los Sanchez). The rock art of Central America comprises abstract, stylized and naturalistic images. Sometimes the represented forms combine different perspectives within one single motif (Pedregal). Several engravings or paintings may be grouped together. They can form friezes (Los Fierros), scenes (Oropoli), narrative registers (Naj Tunich Cave), illustrations (Naj Tunich Cave) or hieroglyphic inscriptions (Las Pinturas Cave). Whereas Postclassic and Classic Mayan cave pictographs often have narrative character the geometric petroglyphs of Lower Central America seem mainly static in nature.

Rock art can also be found as semi-sculptured stones and little mobile objects. They may be understood as marginal categories of rock art analyses according to their different contexts, decorations and weights. Semi-sculptured stones are known from El Salvador (Sta. Leticia) and Guatemala (Escuintla) as well as from Pacific Nicaragua (Sonzapote) and Panama (Nancito). In the former two countries they may show hieroglyphic inscriptions. In the latter ones the shape of semi-sculptured stones is often varied by zoomorphic reliefs (fig. 9). Brady et al. (1997b: 725-50) and Helmke et al. (2003: 108-11) documented semi-modified speleothems in the caves of Belize (Actun Chapat Cave) and Guatemala (Juteria Cave). Gigantic stone spheres, decorated with abstract engravings (fig. 4, table 6), are reported from southern Pacific Costa Rica (Künne 2003b: 215, fig. 82). Some stone cist graves, documented in the highlands of Costa Rica and Panama, contain offerings that include little engraved stones (Fonseca and Watters 2001: 142; Harte 1952-59). Another particular category of rock art is represented by cuplike depressions. They are widely distributed throughout all geographic regions (Piedra Sellada, Petroglyph Cave) and may have served as iconographic decoration as well as a container for liquids, foodstuffs or minerals.

The spatial divulgation of Central American rock art corresponds to the cultural division of the region. Even though the volcanic mountain ranges of Lower Central America possess extensive cave systems as Eastern Mesoamerican karsts, they only have a few decorated caves, known until today. Among them are the Cueva El Tigre, the Gruta de Montelimar (both in Nicaragua) and the Gruta del Espíritu Santo (El Salvador). No or almost no cave art was documented in Panama and Costa Rica. Besides, no pictographs are reported from the former country. In comparison to Lower Central America alone the limestone formations surrounding the Maya Mountains have approximately a dozen caves and grottos decorated by rock art,

such as Robertos Cave and Actun Dzib in Belize or Naj Tunich (fig. 10), Santo Domingo and San Miguel in Guatemala. Probably some of them are linked to the Chiquibul cave system that is partially flooded during every rain season. However, none of the known rock art caves is affected by floodwaters. Almost all regions of Central America possess open air rock art that is often associated with water resources, outstanding natural formations, cemeteries or settlements. Only in Belize no open air sites were found, reflecting probably more the initial state of rock art investigation than a diagnostic cultural trait. Despite of its broad divulgation most Central American rock art seems to be concentrated within zones with extensive subsistence patterns. They comprise Eastern Mesoamerica as a whole, completed by the Pacific and central regions of Lower Central America. Further documentations have to prove if the vast Atlantic plains of Lower Central America are as scarce in rock art as they seem to be. In contrast to the latter zone the lowlands of Eastern Mesoamerica were densely populated throughout the whole Classic Period (900-250 A.D.). Several important archaeological sites are situated in the near vicinity of caves (Dos Pilas) and subterranean water resources (cenotes), that may be decorated (Cahal Uitz Na). Some caves (Copan) have been used already before the construction of monumental architecture began. However, in the highlands of Guatemala there are only two rock art caves (Bombil Pec and Cueva del Venado), known until today. A. Stone estimates that the whole "Maya-region" (including the peninsula of Yucatan and the highlands of Guatemala and Chiapas) has around 40 decorated caves that possess circa 2000 images (1995: 45). Nevertheless, they constitute only a minimal portion of all utilized subterranean places.

### ***3 Chronological sequences and stylistic analyses:***

Central America served as the only continental bridge for migrations to and from South America. Anyway, there is no proven evidence of hunter and gatherer rock art, manufactured in Archaic (1600-8000 B.C.) or Paleoindian (8000-? B.C.) periods. All existing claims for Archaic and Paleoindian sites are not well substantiated. The El Gigante rock shelter (Honduras) is decorated by red handprints and a zoomorph painting. The sites early archaeological features were dated by radiocarbon analyses around 12,000 B.C. (Haseman 1996: 65-66; Scheffler 2001: 115-23). Unfortunately there is no direct association between the dated material and the documented rock art. Haberland (1972: 286-91) suggests that the pictographs (fig. 2) of the Gruta del Espíritu Santo (east El Salvador) might be Late Archaic (2000-1000 B.C.). He believes that the images are contemporary with some obsidian artefacts of a pre-ceramic stratigraphic layer. However, this has been called into question by Coladan (1995: 40-42) because of the presence of later cultural material. Even early ceramic sites often have no direct connection to rock art representations. The cave drawings of the Cueva del Río Talgua and of the Cueva de las Arañas (near Catacamas, Honduras) seem to be associated with an Early-Middle-Formative (300-600 B.D.) ossuary and with Middle Formative (300-900 B.D.) ceramics (Brady et al. 1995: 36-40; Brady et al. 2000: 111-18). But also in this case a definitive age cannot be given until the charcoal pigments of the images have been dated directly.

In the present state of investigation Central American rock art is commonly thought to be a product of agricultural societies. It might be connected with the development of sedentary village life and the manufacture of ceramics that serve as an important chronological marker throughout the whole region. Nevertheless, absolute radiocarbon dates (AMS), direct archaeological associations and iconographic superimpositions are rare. Most Central American rock art is dated by nearby archaeological deposits or stylistic comparisons. Some

sites of Eastern Mesoamerica can be classified by the represented themes, motifs and hieroglyphic inscriptions too.

The oldest datable rock art is situated in the highlands of Guatemala and in the west of El Salvador. It belongs to the Olmec-Horizon (300-1200 B.D.) that can be analyzed from its iconographic characteristics. The pictographs of the El Diablo Rojo site, situated in the vicinity of the Amatitlan Lake (Guatemala), show two opposed anthropomorphic figures linked to the Middle Formative Period (300-900 B.D.). Olmec-Horizon motifs are also represented at the Las Victorias (El Salvador) and Abaj Takalik (Guatemala) sites. At Sta. Leticia-Ahuachapan (El Salvador) and Abaja Takalik (Guatemala) semi-sculptured rocks probably form part of the Late Formative (250 A.D. -300 B.D.). The oldest datable rock art of Central American lowlands was found in the northern Petén Department of Guatemala. It is constituted by the San Diego Cliff Carvings, which resemble a Late Formative stela. However, the abstract open air petroglyphs found in the bedrock at the classic urban centres of Piedras Negras (table 6) and Yaxha may date even earlier (A. Stone 2003: 134). Some rock drawings of the Naj Tunich and the Las Pintadas caves are associated with inscriptions. The Naj Tunich texts (fig. 10) include emblem glyphs and calendar dates. In this way the cave and its drawings can be linked to ancient urban centres and ruling dynasties. The two deciphered short count dates of Naj Tunich correspond to the Late Classic (800-600 A.D.), citing the years 692 A.D. and 771 A.D. (MacLeod and A. Stone 1995). Though most of Central American rock art consists of deeply engraved and regularly redrawn petroglyphs, superimpositions (that might serve for relative dates) are unusual throughout the whole region. Even patination can't be understood as a diagnostic trait of rock arts age. The tropical climate and the regular burning of fields prevent differences in the patination of open air representations. The colour of pecked and hammered grooves is often indistinguishable from the shade of the surrounding surfaces. This reaction may be a characteristic trait of basalt, diorite and andesite materials under the prevailing climatic conditions.

On the other hand, the first multispectral analyses of Eastern Mesoamerican pictographs (Brady et al. 1997a: 91-96; Robinson 2001; Ware and Brady 2001: 1017-21) revealed not only hidden layers of paintings (Cueva Casa de las Golondrinas) and inscriptions (Cueva Las Pinturas) but also identified superimpositions (Naj Tunich). Besides, the same technique is able to show identical paint recipes which are not obvious to the naked eye. Direct rock art dates, based on pigment samples, are only available from Eastern Mesoamerica too. They were produced by Marvin Rowe and his colleagues at Texas A & M University. The first samples came from an inscription in the Naj Tunich cave, placing it within the 8<sup>th</sup> century (Armitage et al. 2001: 471-80; MacLeod and Stone 1995: 155-84). A further AMS dating was intended for one of the three painted rock shelters of the Chiquimula site (900-300 A.D.).

Whereas rock art documentation and cave investigation constitute a specialized field of research in Eastern Mesoamerica, most systematic rock art investigation of Lower Central America is included in archaeological surveys and research excavations. In this way several radiocarbon dates are available for associated contexts. The geometric petroglyphs of the Guayabo de Turrialba (UCR-46) and the Rivas (RV-148-SJ) sites (Costa Rica) are directly integrated in mounds, causeways or house rings (Fonseca and Acuña 1986: 236-54; Lange and D. Stone 1984: 385-91; Quilter 2004: table A1, chart A2). The dates prove a principal utilization of both sites that spans 1400-1000 A.D.

There are no historic sources referring to the manufacture of petroglyphs or pictographs in Central America. However, it can be supposed that the execution of rock paintings and

engravings continued during the Early Colonial period (1600-1520). A. Stone (1995: 81, 86) documented in the caves of Dzibichen and Miramar (Mexican parts of the Yucatan peninsula) rock drawings that resemble the Madrid-Codex-Style, executed during the Late Postclassic (1530-1200 A.D.) and during the Early Colonial (1600-1520 A.-D.) periods. Besides, both caves also contain crude drawings of the Habsburg Eagle, proving the manufacture of rock art in colonial times. Some modern indigenous populations of Lower Central America draw traditional motifs and images that also can be found in rock engravings. The bribri and cabécar shamans of southern Costa Rica decorate their healing stuffs with lizard-like figures that have identical counterparts in the regions petroglyphs (Künne 2003a: 124-26, 300, 303). Nevertheless, it cannot be said if the engravings were made by historic populations.

Most of ancient Central American rock art seems to be connected with the prevailing styles of ceramics and stone sculptures (table 2). However, there is no reliable scheme that treats the rock art of Central America as a closed iconographic corpus. D. Stone (1948: 170, 191) assumes that Central American rock art would express a joint formative horizon of development, that underlies as well the urban societies of Eastern Mesoamerica as the horizontal interaction spheres of Lower Central America. Krickeberg (1949: 74-80) divided the rock art corpus of Lower Central America in six different style groups, connecting them with linguistic, historic and ethnographic populations. However, both authors don't give any archaeological evidence that could prove their hypothesis. In Nicaragua, Matillo Vila (1965) distinguished five different rock art zones (Pacific, North, Chontales, Islands of the Lake of Nicaragua and Atlantic Coast). Unfortunately his classification is not based on systematic iconographic investigation.

The present state of rock art research only allows local and regional stylistic analyses. The most exhaustive modern study of Eastern Mesoamerican cave art was published by A. Stone (1995). It concentrated on the iconographic representations of the Naj Tunich Cave (Guatemala). The same author (University of Wisconsin) also prepared a comprehensive, but unpublished documentation (1995) of the Lake Guijas petroglyphs (El Salvador). The caves of the Lake Petexbatún, the Lake Itza and the Poptún region (all: Guatemala, northern lowlands) were intensively investigated by Brady (University of California) and his team. Since 1996 the Department of Archaeology of Belize has supported systematic studies of ancient caves in the Maya Mountains (Awe, Griffith and Helmke). In Lower Central American Navarro (1996) edited a systematic iconographic comparison between the rock art of the Sierra de Managua and the petroglyphs of the Lake of Nicaragua (excluding the Ometepe island). His analysis includes 110 motifs classified into 14 iconographic categories. Since 1995 Baker (actual: Witwatersrand University) guides a running documentation project of the petroglyphs scattered throughout the Ometepe island (Nicaragua). Between 1989-1993, Hardy and Vázquez (1993) prepared a systematic documentation of the Pedregal site (Costa Rica). The complete documentation is kept by the Rock Art Archive of the Fowler Institute at the University of California (UCLA). A copy may be found in the Casona de Sta. Rosa research station (Area de Conservación Guanacaste). Further systematic surveys were carried out in the highlands of Guatemala (A. Stone 1997; Batres et al. since 1995), in the north-eastern highlands of El Salvador (Coladán 1997), in Honduras (Haseman and Kittrick 1993-95), in Costa Rica (Kennedy 1964-68; Künne 1998-2000; Sol Castillo 2000; Zilberg 1983) and in Panama (Brizuela 2004; Holmberg since 2003; Künne 2000-02; Quintero 1994-95). Zilberg (1986) investigated in particular the archaeological contexts of petroglyph sites. Besides, he published a systematic iconographic analysis of the Diquís (Gran Chiriquí) rock art.

However, much more rock art sites have to be documented completely, before any broad iconographic comparison could be started in the future. Provisionally, only motifs with a broad divulgation can be separated from those with a limited occurrence. In Eastern Mesoamerica the Mixteca-Puebla-Tradition (1520- 1200 A.D.), the Classic-Maya-Horizon (900-300 A.D.) and the Olmec-Horizon (300-1200 B.C.) are also reflected in rock art representations. Besides, there is an overwhelming majority of local and regional styles that may or may not have been integrated into the more general “horizons” and “traditions.” Most motifs of Lower Central American petroglyphs carry universal character (spirals, circles, wavy lines, crosses, points) requiring additional information for their iconographic interpretation. However, the fine lined engravings (fig. 7) of the Pedregal site (Costa Rica) show complex Mesoamerican motifs that can be linked with the ceramic groups that pertain to the horizon of creme slipped polychrom wares (1520-800 B.C.). Other rock art styles characterize more likely the qualities of the decorated materials. Interestingly, the extensive and complex geometric patterns of the Chiriquí region petroglyphs (figs. 4 and 5) aren’t repeated in the simultaneous ceramics of the same zone. Leaving the cultural perspective of analyses, the social dimension of rock art styles cannot be neglected. Regarding that only a small minority of Central American rock art consists of elaborate figurative representations, A. Stone (1995: 45) distinguishes elite images from non elite iconographies. The former ones were probably manufactured by specialized full time craftsmen. Their figurative and codified motifs can be identified with the prevailing traditions and horizons of Eastern Mesoamerica. The so-called non elite rock art might be constituted in contrast by all schematic and geometric representations without detailed attributes.

Although Central American rock art probably doesn’t open an additional window into the earliest prehistory of mankind, it may complete the present knowledge toward the self perception of formative and early state societies. Besides, the hieroglyphic inscriptions of Classic Maya cave considerably increased the known prehistoric text fragments. Their analyses may support the decipherment of the whole corpus of Maya hieroglyphic signs. The figurative petroglyphs and pictographs of Gran Nicoya allude to the topics of the disappeared codices of the region. Moreover, in Central America open air rock art constitutes the most accessible testimony of prehistory. In Lower Central America it figures commonly among the most popular archaeological monuments too. Considering these sympathies, rock art documentation could constitute a key position in more general education campaigns.

#### ***4 Documentation & Known Sites: national inventories, systematic documentation and most prominent rock art sites:***

Most Central American countries don’t have a national archaeological register or any particular register of rock art sites. The only exception is Costa Rica that possesses a central digital database of all reported archaeological sites, including all known rock art sites. In all other countries exist various archaeological inventories, handled by Ministries of Culture, National Museums or National Universities. In some cases anthropological associations or archaeological enterprises have their own registers. The existing inventories as well include documented rock art sites as places that are only reported by historic literature. Many of the latter ones cannot be revisited because of the lack of exact geographic details. Often there are no particular data sheets that could guide rock art documentation in the field. Regarding the initial state of archaeological investigation, even the most complete register could only provide a preliminary impression of the real number of all existing rock art sites.

## Belize

The archaeological research reports are gathered by the Department of Anthropology, subordinated to the Ministry of Culture (Belmopan). Helmke et al. (2003: 97-117) mention 19 rock art sites, concentrated in the western Cayo District. All sites are in caves, 5 of them have pictographs (Actun Dzib, Roberto's Cave, Bladen 2, Actun Uayazba Kab, Actun Chapat). No single open air site was mentioned until today. The most prominent rock art site is the Actun Dzib Cave in the Toledo District (Helmke et al. 2003: 100, 114; Stone 1995: 91-94). It contains more than 75 drawings with black and brown outlines. The motifs are probably linked to the Late Postclassic (1530-1200 A.D.) and the Late Classic (900-600 A.D.) periods. The most important petroglyph sites are represented by the Petroglyph Cave and the Actun Uayazba Kab cave. Both are situated in the Cayo District. Alone the major panel of the latter site comprises more than 20 motifs. A particular category of analyses is formed by semi-modified speleothems and footprints, that were documented in the Actun Chapat cave (speleothems) and in the Actun Chek cave (footprints). Although some rock art sites of Belize belong to the Chiquibul National Park and to the Caracol Archaeological Reserve, none of the country's major rock art concentrations is included into these two areas.

## Costa Rica

Künne (2003a: 59-63, 331-40; 2003b: 202) reports 171 rock art sites that are registered in a digital database at the National Museum of Costa Rica. They constitute 7% of all 2383 registered archaeological sites. 74 rock art sites are situated in the Central Highlands and in the Atlantic Watershed, 58 sites belong to the southern Diquís zone (figs. 4 and 5) and 39 sites form part of the north-west Gran Nicoya region. All together 81 sites are associated with datable archaeological deposits, mostly consisting of ceramics. 55 rock art sites (67,90%) are linked with the period between 1550-300 A.D. Hammett (1967) describes 71 sites from edited literature and oral information. According to her unpublished manuscript, only 4 sites had pictographs or painted petroglyphs. All rock paintings were located in the Gran Nicoya region (Stirling 1977: 47, 113-15). None of these representations survived natural destruction. A photographic documentation of the Diquís rock art (Gran Chiriquí) is kept by Künne. The most important sites in the country are Guayabo de Turrialba in the Central Highlands (table 6) and Pedregal on the slopes of the Orosí volcano (Gran Nicoya). In the southern Diquís region can be found some exceptional rocks with engraved scenic representations such as the rock of San Pedro (SJ-362/ SP-6), that was described by Richards et al. (1964: 139-45) and Künne (2003b: 210). The petroglyphs of Guayabo de Turrialba (UCR-43) are directly associated with monumental architecture, such as mounds, causeways and irrigation systems (Fonseca and Acuña 1986: 236-54). 90% of the 36 documented stones are linked to period VI (1450-1000 A.D.). A lot of unregistered petroglyphs can be found in the surroundings of Guayabo. The site represents the only archaeological monument of Costa Rica that is accessible to the public. The outstanding Pedregal site (G-540 Pd) comprises 465 engraved rocks. 90 boulders were documented by colour photos. The pictures are part of a report that was prepared for the National Museum of Costa Rica. The detailed, fine lined motifs of the Pedregal site show Mesoamerican images, such as the fire serpent, that are obviously connected to the Mixteca-Puebla-Horizon (1520-1200 A.D.). Similar topics appear also on the polychrome ceramics (1520-800 A.D.) of the Gran Nicoya region. The Pedregal site may constitute the most southern archaeological place that can be linked to the monumental iconography of Mexican Mesoamerica. Nevertheless, no settlement structures were found on the slopes of the Orosí volcano. The whole territory is part of the Area de Conservación Guanacaste that has constituted a World Heritage site since 1999. Yet erosion and weathering affect the almost invisible petroglyphs (fig. 7).

### El Salvador

Archaeological research reports are kept in the National Museum David J. Guzmán in San Salvador. Coladan and Amaroli (2003: 143) believe there are approximately 100 rock art sites scattered throughout the whole country. In fact, they discuss 13 different places that can be completed by 3 additional sites published by Haberland (1954, 1956, 1959). All together 6 known sites have pictographs: the Gruta del Espíritu Santo, the Cueva del Toro, the Cueva de las Figuras (a rocky cliff), the Cueva de los Fierros (a rock shelter) and the Cueva de la Koquinca. They are all situated in the north-east Departments of Morazan and La Unión. In comparison, the Cueva del Ermitaño, that contains painted petroglyphs, can be found in the north-western mountains of the Chalatenango Department. A historic photographic documentation of 8 rock art sites, consisting of slides and black/white photos, is kept by Haberland. As well as Guatemala (Dos Pilas, Piedras Negras, Tikal, Yaxhá) and Honduras (Copán) El Salvador (Igualepeque, Tehuacán), has rock art sites that are associated with datable ancient urban centres. The most prominent rock art sites in the country are the Igualepeque peninsula (Department of Santa Ana) and the cave site Gruta del Espíritu Santo (Department Morazan). The stylized and geometric petroglyphs of Igualepeque (Lake Guija) were documented (but not published) by A. Stone in 1997. They are concentrated in the south-east portion of the peninsula that comprises around 250 decorated basaltic stones. The pecked boulders may be associated with an unexcavated archaeological site that is situated at the central summit of the peninsula. The cultural importance of the site is linked to the nearby Ixtepeque obsidian sources and its position puts it at the south-east frontier of Maya culture influence. The style of the deeply engraved petroglyphs indicates the Postclassic (1530-900 A.D.), Epiclassic (900-800 A.D.) or Late Classic (900-600 A.D.) periods. In comparison to the former site, the Gruta del Espíritu Santo represents a rock shelter that was decorated by petroglyphs and pictographs (paintings, positive and negative handprints). The represented motifs show anthropomorphic (fig. 2), zoomorphic and anthrozoomorphic figures. They appear as single representations or as iconographic groups. The paintings were executed in red, ochre, black and cream colours. Coladan and Amaroli (2003: 147) believe that the cream figures represent a younger iconographic layer. The particular importance of the site is linked to its unique style. Besides, Haberland claimed paleoindian obsidian artefacts. Nevertheless, Coladan also documented postclassic (1520-900 A.D.) and formative (250 A.D. – 1600 B.C.) ceramics. What kind of archaeological material is really connected with the rock art on the sites we do not know.

### Guatemala

A. Stone (2003: 134) reports 60 rock art sites from Guatemala. 24 sites are scattered throughout the central highlands (Stone and Ericastilla 1999: 775-90), the other sites are situated in the northern lowlands. The highlands of Guatemala have only two painted caves (Bombil Pek and Cueva del Venado). In comparison the lowlands possess 19 decorated cave sites. The most prominent lowland sites are the eastern caves of the Poptún region. They comprise the Naj Tunich cave, the San Miguel cave, the Santo Domingo cave, Jobonche, Púsila, Jovelte, Jutería, Corosal and Poxte. Another important rock art region is the Cobanerita cave system that is situated in the south-west of Lake Itza. The zone includes the Cueva de las Pinturas, the Cueva Tecolote, the Cueva los Sapos and the Cueva los Monos (A. Stone 2003: 119-41). The extended cave system of the western Petexbatún region is under current investigation. Only the Naj Tunich cave has a direct AMS-date. Nevertheless, the documented archaeological deposits and paintings of the other caves also seem to indicate a Classic period (900-250 A.D.) site use. Three caves have hieroglyphic inscriptions. The corpus of Naj Tunich alone consists of 40 inscriptions (fig. 10), comprising circa 800 glyphs. The longest text is constituted by 64 hieroglyphs. Probably the analyzed inscriptions reflect

the Chol and Yucatec languages (A. Stone 1995: 99-233). The Cueva las Pinturas (Cobanerita cave system) has three polychrome hieroglyphic inscriptions (Brady 1997; Brady et al. 1997; Stone 2003: 126), the longest text includes 30 signs. Additional inscriptions were found in the Santo Domingo cave (Brady and Fahsen 1991: 52-55). Naj Tunich represents the most famous rock art site of Eastern Mesoamerica. The cave was discovered in 1979 and also includes rock art ceramics, fireplaces, graves and artificial terraces. Unfortunately, no part of the archaeological context is directly associated with rock art. The iconographic corpus of Naj Tunich comprises 94 panels, including 85 painted complexes. All motifs are constituted by black coloured outlines. The images represent ritual and mythic themes. They can be linked with the Late Classic (900-600 A.D.) period on the base of two calendar dates. Besides, 37 pictographs and 12 positive handprints were found. The represented emblem glyphs are connected with the urban centres of Sacul (fig. 10), Ixkun, Ixtutz and the site Q (Caracol?). Most of the detailed documentation was done by A. Stone (1995: 99-233) and Brady (1989, 1993: 141-49). A particular category of the rock art of Guatemala is formed by semi-modified speleothems. Similar representations were documented by Helmke et al. (2003: 97-117) in Belize. Brady (1999: 57-68), Siffre (1979: 163-65) and A. Stone (2003: 125) report speleothems from Pusilá, Jovelte, Jutería, Corosal and Poxte. All sites constitute petroglyph caves. The Bombil Pec cave (Alta Verpaz Department) is situated in the highlands of Guatemala. Its black-lined drawings show five animals that allude to the two hero twins of the Popol Vuh (A. Stone 1995: 96). One of the most numerous concentrations of Central American pictographs is situated at the Casa de las Golondrinas site in the western highlands (Valley of Antigua). The rocky cliff harbours more than 100 red painted, but heavily weathered motifs (Robinson and Ware 2001). One sign shows an Aztec calendar glyph (Robinson 1997: 59-70) indicating thus the use of the site during the Late Postclassic (1530-1200 A.D.) period. Minor rock art sites are spread around the shores of the Amatitlan and Atitlan Lakes. They include the El Diablo Rojo site, Monte Sión and Los Mejicanos. Another prominent rock art site is formed by the three painted Chiquimula rock shelters in the eastern highlands (Batres et al. (1997: 2-23, 1998: 499-511, 1999: 791-805). Their most complex panel shows 35 motifs, executed in red, black and green. Until today the site cannot be linked to a particular horizon, tradition or culture. The painted rock of Ayarza (Santa Rosa Department) represents at least 13 motifs that correspond to the Late Mixteca-Puebla-Horizon (A. Stone 2003: 131; Navarrete 1996: 322). The most important petroglyph site of the eastern highlands is Los Fierros, situated in the south-west of Comapa (Jutiapa Department). Its principal panels are extended along a rocky cliff, that follows the banks of the La Paz river. The almost inaccessible site possesses abstract petroglyphs that stylistically cannot be connected with other rock art representations in Guatemala (Walters 1982).

### Honduras

All archaeological information is kept by the Department of Archaeology that forms part of the Honduran Institute of Anthropology and History (IHAH). Between 1993 and 1995 the Department of Archaeology realized the first systematic rock art documentation in the history of Honduras. The visited 21 rock art sites were documented by photos, drawings and sketches. Until 1995 all together 49 rock art sites have been registered. They are scattered throughout the whole country, only the rock art of the western Ocotepeque Department is unknown. 37 rock art sites have petroglyphs, 12 possess pictographs and an unknown number has painted petroglyphs (McKittrick 2003: 166; Murray and Valencia 1996: 186). Although the former project coordinator, McKittrick, published 13 sites (2003: 163-81), only 5 places were discussed more in detail. In 1994 and 1996 Brady et al. (1995, 2000) investigated a series of limestone caves surrounding the Río Talgua river (Olancho Department). The Talgua cave and the Cueva de las Arañas contain simple black and red line drawings. Besides, the Talgua

cave shows two frontal faces (Stone and Künne 2003: 203, fig. 9). The documented rock art may be exceptionally old because of the associated deposits. A preliminary evaluation of 5 Honduranian rock art sites was realized by Podestá in 2004 (Podestá 2005, pers. comm.). Considering that probably a lot of Honduranian rock art is still undiscovered, the most prominent sites in the country may be the Ayasta, Cueva Pintada, Sta. Rosa de Tenampua and Yaguacire sites. The Ayasta and Yaguacire rock shelters are situated near Tegucigalpa. The former site has mainly petroglyphs associated with some singular and heavily eroded pictographs. The engravings represent anthropomorphic and zoomorphic figures that may be superimposed in limited areas (McKittrick 2003: 166). The Yaguacire site consists of three different rock shelters decorated with white, red and orange paintings. They show zoomorphic and anthropomorphic motifs that may be grouped together. Other paintings represent handprints and genitals. Two test pits were made, but the documented material is not analyzed yet. The Cueva Pintada (La Paz Department) seems to be the most complex rock art site of Honduras. Its exceptional paintings and engravings are organized in 7 different panels (McKittrick 2003: 170-73) that may be divided into additional subgroups. Most pictographs were executed in white or ochre, others are coloured in red, blue and black. The iconographic corpus includes anthropomorphic, zoomorphic and geometric motifs. The geometric images comprise U- and V-motifs and ladder-like representations. The anthropomorphic and zoomorphic figures may be realistic or stylized. Some paintings combine different perspectives. Besides, negative handprints and genitals were represented. The superimposition of many figures and the broad variety of styles and colours suggest a continuous use during different periods. McKittrick observed that the style of the Cueva Pintada is similar to other rock art sites of the central region (Picila site). She believes that the Misumalpan-speaking populations (Lenca) of the colonial sources might have manufactured the documented paintings (2003: 173). Also the petroglyphs of Santa Rosa de Tenampua (Comayagua Department) show zoomorphic, anthropomorphic and geometric motifs. One representation is clearly a plumed serpent that alludes to the horizon of white slipped polychrome ceramics (1520-800 A.D.). Reyes Mazzoni compares this motif with a similar rock painting at the rock shelters of Sta. Elena de Azaculpa. Besides, the same theme can be found as a relief in Copan (altar O) and in Chichen Itza (Reyes Mazzoni 1976a, b). Two additional important rock art sites are represented by the El Gigante rock shelter (La Paz Department) and by the Oropoli petroglyphs (El Paraiso Department). The looted El Gigante rock shelter represents one of the scarce paleoindian and archaic sites in Central America. Although under current investigation by Scheffler, there is no direct AMS date of its positive and negative handprints. The Oropoli site consists of different volcanic cliffs, situated on both banks of the Oropoli river. Its anthropomorphic and zoomorphic petroglyphs are organized in various dense panels that are separated by natural fractures and cracks. Although only some figures were executed in fine line technique, all motifs represent the same style. McKittrick believes that the whole corpus was executed by one group of artists (2003: 174). The petroglyphs of the northern region are discussed by Reyes Mazzoni (1976c: 293-94) and by McKittrick (2003: 175-76). The former author mentions engraved rocks at the Río Plátano river that are included in the World Heritage in Danger List with the same name.

### Nicaragua

The archaeological register of Nicaragua consists of data sheets and research reports that are kept by the National Museum. The whole inventory describes around 400 archaeological sites including 104 rock art places. Most sites have deeply engraved geometric or stylized petroglyphs. Only 6 rock art sites are decorated with pictographs: the El Tigre Cave (Bosawas), the Icalupe rock shelter (Somoto), the Montelimar cave (San Andrés), the Los Sanchez cave (Los Duendes), the Los Negros cave and the Laguna Asososca (Lago Nejapa).

The Montelimar cave, the Los Sanches cave and the Icalupe rock shelter also have painted petroglyphs. The polychrome representations of the Icalupe and the El Tigre sites are well preserved. In comparison the rock paintings of the Laguna Asososca (Squier 1851-52) have almost disappeared. In 1996 Navarro published the data sheets of 12 rock art sites that are scattered throughout the Pacific Managua, Masaya and Carazo Departments. Besides, his documentation includes 15 rock art sites of the Zapatera and El Muerto islands. However, the best investigated rock art of Nicaragua is situated at Ometepe. The island belongs as well as Zapatera and El Muerto to the Lake of Nicaragua (Lago Cocibolca, table 6). Its fertile soils probably attracted early agricultural populations in the past. Actually, the oldest ceramics of Central America, north of the Monagrillo site (Panama), were found in Los Angeles (Om-9). Since 1995 Baker mapped and documented 73 different rock art sites (fig. 8), that are scattered throughout the Maderas peninsula. Her detailed materials consist in digitized photos and drawings that include 1400 boulders with more than 1700 iconographic panels (Baker 1995-2002, 1996, 1997, 2000). The complete documentation is kept by the National Museum of Nicaragua. A historic collection of photos is owned by Haberland and by the Anthropological Museum of Hamburg. An additional photographic documentation, including some petroglyph sites of the Zapatera and El Muerto islands was established by Künne and Lettow. The El Muerto island (Navarro 1996: 89-90; Thornquist 1981) has probably the densest concentration of Lower Central American petroglyphs. They comprise at least 127 single motifs (fig. 11) that are located at a tremendous volcanic rock platform (IV-Z-10), from which the whole island can be seen. The culture sequence of El Muerto dates back to 500 B.C. Whereas the rock art of Ometepe is under systematic investigation, the petroglyphs of Zapatera (Navarro 1996: 81-88) are almost un-documented (fig. 9). The Sonzapote (IV-Z-1-3) and the Punta Las Figuras (IV-Z-1-2) sites consist in ancient cemeteries that are constituted by several burial mounds. Their monumental stone sculpture was already described by Squier (1851-52) and by Bovallius (1886). Some figurative motifs (figs. 8 and 10) of the Gran Nicoya region can be dated by style to the Late (1520-1350 A.D.) and Middle Polychrome (1350-800 A.D.) periods. They may be linked to the Mangue-, Nahua- and Maribio-speaking populations of the early historic sources. Laurencich Minelli et al. investigated 23 rock art sites of the Solentiname Archipelago that is situated in the eastern parts of the Nicaragua Lake (Lago Cocibolca). The reported sites belong to the Mancarrón, Mancarroncito, La Venada, Atravesada, Elvis Chaverría, and El Plato islands. All sites have petroglyphs, no pictographs are mentioned (Laurencich Minelli et al. 1996, 2000). Unfortunately, the historic photos of Matillo Vila (1965, 1968, 1973) have completely disappeared. He describes 26 rock art sites, concentrated in the Pacific and northern regions of Nicaragua. Since 2001 the SINSLANI archaeological project documented 57 boulders (with 211 panels) of the northern Estelí Department. The rocks and stones are scattered throughout the valleys of the Estelí, La Trinidad, Los Quesos and Pueblo Nuevo rivers. However, some of the documented stones were relocated in the past. The published documentation consists of sketches and photos (Gámez Montenegro y Cruz Cruz 2004). At the La Trinidad site a systematic excavation was established in 2006 (Koschmieder 2006, pers. comm.). The almost unknown Icalupe site is situated in the Madriz Department (Baker 2003: 189, fig. 71; Espinoza 2005, pers. comm.). Its motifs show anthropomorphic and zoomorphic paintings that were executed in red and blue colours. Some images are covered by a second layer of petroglyphs. Also the Atlantic El Tigre cave has two different iconographic layers. They show positive and negative handprints as well as geometric motifs (Kaufman 2005, pers. comm.). The site forms part of the Bosawas Biosphere Reserve (Región Autónoma del Atlántico Norte), that constitutes the largest remaining forest in Central America (table 6).

## Panama

There is no national archaeological register in Panama. The two existing private archaeological enterprises have their own sites inventories. In the past most archaeological research was realized by Linares (Western Region) and Cooke (Central Region). The former anthropologist was affiliated with the University of Panama, the latter one with the Smithsonian Tropical Research Institute. Künne (2003b: 224) reports 63 rock art sites, that are scattered throughout the whole country: 31 sites are situated in the Western Region (Grand Chiriquí), 27 sites belong to the Central Region (Grand Coclé) and 5 sites are mentioned from the almost unknown East Region (Grand Darién). Many sites have deeply engraved petroglyphs that represent abstract or stylized forms. Neither pictographs nor decorated caves are reported. In the late 50' Harte (1960, 1961) documented 48 rock art sites that belong to the Western and Central Regions. Besides, he wrote 155 site index cards that contain rudimentary archaeological information (Harte 1952-59). Now his photographic documentation is deposited in the archive of the Fundación Gallegos in David. Künne (2003a) established a digital database that contains information about 10 revisited rock art sites of the Western Region (Gran Chiriquí). However, most Panamanian rock art lacks any documentation. Although the registered petroglyphs seem to belong to the Chiriquí (1520-800 A.D.) period, nearly nothing is known about their contexts. The earliest published (Seemann 1853) petroglyphs are located in Caldera (Western Region). The Piedra Pintada constitutes a grown basaltic rock with a length of 11m, a width of 6m and a height of 2,80m. Whereas its upper surface is covered with geometric motifs, the south-west side of the same rock exclusively shows figurative images. They represent zoomorphic masks, an anthropomorphic face and some lizards. The unique style of the petroglyphs was only repeated in Sta. Cruz (Diquís) and Palo Verde (Central Region). The Piedra Pintada is associated with the banks of the Caldera river and the nearby hot springs (Harte 1960; Holmberg 2005: 190-211; Künne 2003c: 226). The Remedios, Bongo de Cuchillas, Gualaca and Barriles petroglyphs form part of burial grounds. Whereas the Barriles, Gualaca and Remedios sites have been looted in part, the mounds of Bongo de Cuchillas are almost undisturbed. The Barriles petroglyphs pertain to an early political centre that comprised settlement mounds and monumental sculpture. Two AMS dates indicate the sites use during the Chiriquí (1550-1000 A.D.) and the Bugaba (600-200 A.D.) phases (Künne et al. 2005). Unpublished AMS dates exist for an ancient burial ground (Kotowa site) in the Boquete area, that is associated with 25 engraved boulders (Holmberg 2005, pers. comm.; 2005: 190-211). A dozen additional petroglyph sites are concentrated in the upper Chiriquí valley that formed a prehistoric migration route. Although Linares and Ranere (1980) realized systematic surveys and stratigraphic excavations, the investigation of rock art never took place. Other petroglyphs were documented in Quebrada de Piedras (Western Region), Soná, Ocu, Calobre, La Pintada and Bejuco (Central Region). The engravings of Quebrada de Piedra (Base Naval) show realistic zoomorphic and anthropomorphic figures, that cover three flat rocks. The rock art sites of the Azuero peninsula have to be revisited completely.

## ***5 Legislation and institutional frameworks:***

### Legislation

In Central America rock art documentation is understood as part of archaeology. Nevertheless, only Costa Rica (University of Costa Rica) and Nicaragua (National University of Nicaragua) offer particular archaeological careers at universities. Often archaeology is included in anthropological formation. In order to prevent the uncontrolled destruction of the national cultural heritage every kind of archaeological activity is arranged by political constitutions and legislation. Generally spoken, Central American laws pronounce the state's monopoly in

decision making about all subterranean, terrestrial and marine resources that might be of national interest. The adequate legislations are commonly cited as Laws of the Protection of National Cultural Heritage (table 3). Nevertheless, often there is no particular legislation referring to rock art sites. In most countries rock art has to be declared a National Monument in order to get public attention and formal protection. However, the funding is often minimal. Panama is the only Central American nation that passed a particular law (Law no. 17, passed at 10<sup>th</sup> April in 2002), protecting all rock art sites (Künne 2000: 15-16). Its article 2 proclaims: “All images that our ancestors engraved in stone during the pre-Columbian era, are declared a Historic National Monument, in every part of the nation’s territory.” Nevertheless, the destruction of rock art usually does not have any consequences, in spite of the best intended legislative efforts. Some rock art sites are protected by their inclusion within natural reserves, National Parks (table 4) or World Heritage Sites (table 5). The protection and administration of National Monuments and National Parks is arranged by detailed regulations, decrees and laws (URL: <http://www.ccad.ws:9010/legislacion/>). Some National Parks may be World Heritage Sites as well (Archaeological Park of the Ruins of Copan, Tikal National Park). In Nicaragua, Costa Rica and Panama there are also indigenous territories including rock art sites (table 7). All indigenous territories have limited rights referring to political self-administration and resource management. Their application is arranged by the “Indigenous Law” of the appropriate Central American nation and by the “Convention No. 169 concerning Indigenous and Tribal Peoples in Independent Countries.”

#### *Institutional frameworks*

Every systematic rock art documentation should be announced to the competent national institutions. Often they are represented by the National Archaeological Commissions (table 3), that commonly belong to the National Museums. The latter ones are subordinated to the Departments of National Cultural Heritage that form part of the Ministries of Culture. Applications for rock art documentation should include a detailed task and time schedule, a short description of the applied methodology, information about the documentation team and the extent of funding. Often there are ready blanks that have to be filled in. Because most rock art sites are private properties, some countries (Nicaragua) expect a written agreement of the sites owner with the intended project. Others ignore the owners’ will, pronouncing the state’s sole claim to archaeological monuments and subterranean resources. Commonly foreign funding and the participation of at least one national archaeologist in the requested project are expected. In some countries (Costa Rica) the project leader has to join the national register of archaeologists. Registration may be gratis (Costa Rica) or subjected to fees (Guatemala). When the project is finished a preliminary report is expected within one month. A second more elaborate report should be prepared within half a year. The whole documentation (photos, drawings, sketches) remains the property of the project leader. All excavated materials have to stay in Central America, preserved by Ministries of Culture, National Museums or National Universities. In some countries (Guatemala) a second, often less complicate but not less legal way of projects request is accepted. The team leader has to enter the National University, Department of Anthropology. Commonly the fees of inscription are lower than national registration rates. Besides, an inscription in the registers of archaeologists is not obligatory. If the project leader is accepted by the university, the request for documentation or excavation projects has to be addressed to the director of the National University. This way of application is commonly preferred, if a long-term investigation is planned. Every activity in National Parks has also to be announced to the park administration. Park management may be handled by governmental or non-governmental agencies, authorized by state Ministries of Environment and Natural Resources: Instituto Nacional de Recursos Naturales Renovables (INRENARE) in Panama, Ministerio de Ambiente y

Recursos Nacionales (MARENA) in Nicaragua or Comisión Nacional del Medio Ambiente (CONAMA) in Guatemala (table 4). Research programs in indigenous territories should be coordinated with the accepted representatives of the ethnic group. Often there is a double political structure: non governmental associations compete with corporative organizations that are more linked with the central states “National Commissions for Indigenous Affairs” than with the represented populations.

In Central America anthropology and archaeology are often seen in political terms. Contrary to Western Europe, the underlying ideology of nation building is not citizenship but culture. In this way most social questions are discussed in cultural terms. Also rock art documentation might appear within this frame. The only exception to this pattern may be Costa Rica because of its different traditions of constructing identity. In the whole of Central America, rock art is not only understood as heritage of “our indigenous ancestors”, but also as spectacular phenomenon of landscape. During the last 15 years an extensive and very differentiated system of natural parks was established. They may comprise Areas, Reserves, Regional Parks, National Parks or World Heritage Parks. Often a core area, an area of limited access and an area of sustainable utilization are known. Sometimes private areas are included within the park system (Area de Conservación Guanacaste). Most National Parks work with limited state funding and international support. Often regular evaluations are intended. Unfortunately, neither the Cobanerita cave system nor the caves in the surroundings of Poptún (Guatemala) are included in the National Parks system. Some Central American parks offer laboratories for systematic research. Others are reserved for scientific investigation only (Bladen National Reserve). Besides, six of seven Central American countries have national ICOMOS committees, linked with ICOMOS international and UNESCO. Only Belize is missing. Whereas the Panamanian committee is more oriented toward the restoration of mediaeval town centres and fortresses, the Committee of Honduras was very engaged in prehistoric archaeology too.

### Threats

Existing laws and institutional frames are often ignored in reality. In most cases also, rock art protection remains a problem on executive, educational and practical levels. Many rock art sites are legally protected in name only. One of the most tragic cases was the destruction of 23 exquisite Classic Maya paintings (fig. 10) from the Naj Tunich cave (Guatemala) in 1989 (Brady 1990: 4-5; Stone 1995: 111, fig. 5-20). Although the government had provided guards in order to protect the cave, they were poorly trained and supervised. Additionally, many site guards are not well paid (Nancito in Panama). Although Guatemala has a lot of attractive rock art sites, neither caves nor open air places are protected in particular. Probably the management of the famous urban centres of the “Maya” cultures appears much more important for tourism industry. Considering that Guatemala has only two archaeological sites (Tikal and Quirigua), administrated by professional archaeologists, one might think that many monuments are exploited without securing the sites continuity by the investment of even minimal funds. Other rock art places are endangered by the construction of hydroelectric dams that are planned within the Plan Puebla-Panama. The Boruca dam (Costa Rica), that constitutes the major Central American hydroelectric project, will alone inundate at least 11 rock art sites in the General Valley (Blanco and Küne 2000: 20-24).

Many open air sites are affected by natural erosion and weathering as well as by destructive social practices. Intensive urbanization, deforestation and the extension of agricultural zones threaten not only biodiversity but also rock art. During the last 50 years most of Central American forests were replaced by extensive pastures or fields. In result erosion and

weathering are one of the most destructive factors in the present. Most open air rock art is no longer covered with soil or vegetation. The lack of shadow allows extreme climatic differences that provoke fractures, cracks, fissures, exfoliation or bleaching. Often petroglyphs and pictographs that outlived several centuries seem to disappear within a dozen years. On the other hand, many “Maya” cave paintings are well preserved by nature. The selected caves are not affected by floodwaters. All decorated places consist in dry limestone walls that are covered by a thin layer of silt. Often coarse surfaces, that allow a good adherence of colour, were preferred by “Maya” artists. Besides, most caves of Yucatan (Belize) benefit from the semi-arid climate in the peninsula. Nevertheless, slash and burn agriculture as practiced in the Maya Mountains (Belize and Guatemala) may completely denude the landscape of vegetation in the future. Its loss would provoke the disappearance of the thin layer of soil that covers the karstic underground. In effect much more water could penetrate the caves roof, dissolving in this way the limestone silt on the wall and washing the rock paintings away. Lighting of the caves could produce the growth of algae as is the case in commercially used caves. Nevertheless, human generated carbon dioxide and bacterial damage should not be a problem. The size of most caves would preclude visitation in numbers that could cause an adverse impact (A. Stone 1995: 243-52).

Traditionally there is no strong consciousness of preserving history in Central America. Natural catastrophes (Hurricane Mitch), long periods of civil war (Guatemala, El Salvador, Nicaragua) and very limited financial resources (Nicaragua) prevented an active and effective management of historic and archaeological sites in the past. In this way the complex Oropoli site (Honduras) was heavily damaged by Hurrican Mitch (McKittrick, pers. comm. 2004). The Gruta del Espíritu Santo (El Salvador) probably served as camp for militaries or guerrillas during the Civil War period (Coladan, 2002, pers. comm.). On an individual level the exploitation of archaeological objects is often understood as part of sustenance. Rock art is affected by these attitudes in a direct and indirect manner. Looting rock art sites (El Gigante Cave) is very common because most people believe in hidden treasures. Movable petroglyphs are often sold (Costa Rica) or transported toward town halls, central parks (Estelí, Nicaragua) or museums (Lake Guija petroglyphs). Additionally, rock engravings are commonly scratched, chalked or painted (Caldera). Even well intended school teachers or state representatives painted petroglyphs in the recent past (Panama). Some sites (Ayasta site, Yaguacire site) serve for depositing treasure (Podestá 2004, pers. comm.). Often private landowners are afraid of expropriation, if their rock art should get additional attention (San Pedro, Costa Rica). The inhabitants of Nancito (Panama) eliminated all the engraved rocks of their territories when they learnt that anthropologists intended to establish a local Rock Art Park (figs. 3 and 6). Besides, communal or private rock art museums often tell fantastic stories about a completely imagined prehistory. Commonly there are no lectures about rock art at schools or universities. The lectures of Whitley (2004 at the San Carlos University) and Künne (2001 at the Autonomous National University of Chiriquí) are notable exceptions.

### ***6 Rock art and indigenous groups:***

Central American rock art is the product of its indigenous populations. In Eastern Mesoamerica they represent a considerable part of the present nations’ citizens (40% in Guatemala, 11% in Belize, 10% in El Salvador, 7% Honduras). In contrast, the native groups of Lower Central America constitute not only a social but also a numerical weak minority (3% in Nicaragua, 2% in Costa Rica, but 8% in Panama). Nevertheless, rock art cannot be linked directly to the present ethnic groups. The social organisation of ancient indigenous populations changed completely in the past. Not a single identity group survived European

conquest. Otherwise there are a lot of native language groups that might be connected directly with rock art. Sometimes their members preserve particular concepts of symbolic or functional interpretation. The bribri- and cabécar-speaking groups of southern Costa Rica integrate stone sculptures, semi-sculptured rocks and characteristic natural formations within the same category of classification. Besides, they don't distinguish between natural marks and culturally produced ones. For them, the iconographic potential of the modified rocks seems to be more important than the origin of the decoration. Often the mobile or immobile character of the images doesn't make a significant difference of definition (Künne 2003a: 6f., 106-16). Most probably rock art is understood as a complex icon combining natural and cultural features. The Q'eqchi' of Guatemala interpret decorated (Naj Tunich) as well as undecorated (Qawa Xucaneb) caves as entries to mythic underworlds. Rocky formations play an important role within their "sacred" geography. Some caves are included in an elaborate system of pilgrimages, ritual ceremonies and offerings. The activities exercised are oriented towards the traditional agricultural calendar or the individual life cycle (Adams and Brady 2005: 301-27; Brady 2000: 296-307). In this way many indigenous communities handle rock art as an integral part of their present social relations that are constructed by means of given natural characteristics. Although in Central America no vivid tradition of rock art manufacture continues, there is a tremendous treasure of syncretistic beliefs and popular legends that refer to ancient rock paintings and engravings.

### ***7 Active site management:***

During the past 15 years, a new, engaged and well trained generation of Central American anthropologists and archaeologists overtook responsible positions within the administration of Cultural Heritage. In the present there exist more national research, conservation and management projects than ever before. Nevertheless, most systematic investigation continues to be done by foreign scientists. In some cases their activities, sustained by national administrations of culture, stimulated the creation of rock art parks at a communal level. Funding is often minimal or non existent. Often rock art is seen as a tourist magnet. The consequences are diverse:

- The Nancito site (Panama) was in part destroyed by the relocation of many engraved rocks. Nevertheless, anthropologist activity provoked the creation of a scientific Rock Art Museum in 2002 (figs. 3 and 6). It should form part of a national network of communal museums. However, the community does not participate in the benefits except of two low-paid half time jobs.

- The "Foundation Barú" (Panama), a non-governmental and non-profit organization, offers rock art tours of petroglyph sites in the Chiriquí province. The program is sustained by the "Chamber of Commerce" and "Piedras Vivas." In consequence of the rock art lecture, held by Künne at the UNACHI University in 2001, the "Foundation Peterson" offered the payment of one complete archaeological course in the United States. However, the best student was a woman who was not allowed to leave Panama by her family.

- The archaeologist Brizuela (Arqueología S.A.) got some funding from SENACYT (Secretaría Nacional de Ciencia y Tecnología) to realize a pilot project about rock art conservation in the western highlands of the Chiriquí province (Panama). The project included the cooperation with local schools and the recording of sites in a database. Another fund was given by PRONAT (Programa Nacional de Adjudicación de Tierras) for the identification of archaeological sites (and rock art sites) within territorial studies.

- At the beginning of the 90' the Colleges of the Midwest (USA) realized various rock art surveys in the General Valley (Costa Rica). All projects were supervised by a national archaeologist (Aida Blanco). In effect, limited site management was established at Finca Sonador (fig. 5). Traditional forms of protection are used. The community benefits directly from the interest tourists, offering guides and bed and breakfast. Nevertheless, the establishment of a visitor circuit failed.

- The Guayabo site (Costa Rica) has an active management practiced by professional archaeologists. The site constitutes the main archaeological attraction of Costa Rica and is visited by many tourists every year. Although most petroglyphs of the core sectors were removed from their original position, there are undisturbed petroglyph concentrations in the surroundings. Only a small part of the museum benefits are reinvested to the site.

- In 1993 the establishment of a Rock Art Park at the Pedregal site (Costa Rica) failed. The pre-study was done by Hardy and Vázquez (1993). All rocks (fig. 7) were registered and marked by little red labels located in their vicinity. Since 1999, the complete zone has been included in the World Heritage Site "Area de Conservación Guanacaste." Research possibilities are offered at the Casona de Sta. Rosa (central administration) and at the Maritza station. The zone has a very active management and multiple research programs.

- The Sonzapote site (Nicaragua) is situated within the National Park of Zapatera Island. Nevertheless, there is almost no funding. Petroglyphs (fig. 9) are included in a pre-Columbian cemetery that is well known for the famous stone sculptures exhibited in Granada (Squier 1851-52). The archaeological core area was settled and in part destroyed by civil war refugees who have no other place to stay. There is no drinking water on the island. The rights of property are unclear. Nevertheless, a local tourist program is offered in Granada. Site protection and monitoring are wished for by the inhabitants and their organization (Unión Agua y Tierra). Monitoring has to be realized urgently before the site will disappear.

- The "Finca Magdalena" (Cooperativa Carlos Díaz Cajina) offers allocation, nutrition and guides to the petroglyphs of the Ometepe island (Nicaragua). It represents an agrarian tourist project with site management (fig. 8). There is no state funding. Additional assistance is wished for and necessary. Nowadays, Ometepe represents the main tourist attraction of Nicaragua. The island archaeological resources have been heavily looted.

- The Chaqüttillo site (Department of Matagalpa, Nicaragua) is included in a program of communal development. Almost all petroglyphs were chalked to heighten their visibility.

In the past, rock art documentation, registration or analyses was promoted by:

- Colleges of the Midwest:

General Valley in Costa Rica

- Commission des Fouilles du Ministère des Affaires Étrangères:

Gruta de Espíritu Santo in El Salvador, Rock art site El Encanto in Costa Rica

- Deutscher Akademischer Austauschdienst (DAAD):

Chiriquí Province in Panama, General Valley in Costa Rica

- Deutsche Forschungsgemeinschaft (DFG):

Ometepe in Nicaragua

- Foundation for the Advancement of Mesoamerican Studies (FAMSI):
  - Lago Guija in El Salvador
  - Casa de las Golondrinas in Guatemala
- National Geographic Society:
  - Petexbatún region in Guatemala
- Swedish International Development Agency (SIDA):
  - Guayabo de Turrialba in Costa Rica
- Smithsonian Institution:
  - Province Guanacaste in Costa Rica
- Viking Fund:
  - no example available

Most rock art study was carried out in Eastern Mesoamerica. Nevertheless, in comparison with the European cave art corpus (275 painted caves according to Bahn and Vertut 1988: 191) “Maya cave art” is characterized by its rare occurrence. The rock art of Lower Central America was less documented. However, there is a great potential of rock art investigation. Lacking archaeological sites with monumental architecture, most countries offer undisturbed natural refuges with a high tourist potential that may be completed by rock art museums.

## ***8 Conclusions***

Although Central America is characterized by strong social contrasts, there are small but prosperous elites that might participate in funding rock art projects.

Potential of rock art protection:

- offering an endogen perspective of Central American prehistory
- assistance in decipherment of the hieroglyphic corpus of Maya inscriptions
- strengthening national and communal identities
- promotion of agrarian and sustainable tourism on national and international levels
- argument for the sustainable use of natural resources (restricting in this way the effects of an aggressive dehydration of the landscape)

Main risks to rock art protection:

- destruction of rock art sites by mass tourism (cave sites) and failing management concepts
- short and middle term funding may produce destructive effects after the end of funding (more recommendation, more funding, more publicity, more destruction)

The main obstacles to rock art protection are:

- the fragility of rock art
- the ongoing deforestation and traditional agriculture
- the poverty and illiteracy of a high percentage of national population
- a limited consciousness of rock art preservation
- the scarcity of national financial resources
- no payment of duties (that could be attributed to Cultural Heritage) and the uncontrolled enrichment in the low national financial resources (Nicaragua)
- the limited profit margin of agrarian rock art tourism

- the strong centralization of Central American states threatens the communal participation in the benefits of rock art parks
- the lack in systematic documentation and comparative analyses
- the scarcity or non existence of management plans

In order to prevent further destruction of rock art one might suggest the following measures:

- application of existing laws and decrees
- regular monitoring of rock art sites, that are protected by law
- establishment of long term documentation, preservation and funding programs
- involvement of local communities in the benefits of rock art protection
- establishment of at least one rock art park in every Central American country
- divulgation of management experiences from the United States of America
- regular education programs at schools and universities
- establishment of digital rock art registers at National Museums
- closing of public entries to decorated caves and grottos
- cleaning of vandalized rock art sites
- establishment of well trained and well paid guards at important rock art sites
- application of cheap, traditional and sustainable strategies of open air site protection
- establishment of circuits and information boards
- inclusion of important rock art sites in the natural park system
- development of alternative economic strategies (sustainable tourism) as a compensation for the end to slash and burn agriculture.

*See illustrations Annexe IV: page 217*

**Table 1: Archaeological chronologies**

<b>Eastern Mesoamerica</b>	<b>Main archaeological (and historical) sites</b>	<b>Lower Central America</b>	<b>Main archaeological (and historical) sites</b>
Late Postclassic (1530-1200 A.D.)	Mixco Viejo, Iximché, Utatlán, Zaculeu, Tayasal, (Naco)	Period VI (1520-1000 A.D.)	(Tecoatega, Couto, Parita)
Early Postclassic (1200-900 A.D.)	Cihuatán	Period V (1000-500 A.D.)	Quelepa, Tenampua Conte site, Guayabo Barriles
Epiclassic (900-800 A.D.)	Tikal, Quirigua		
Late Classic (800-600 A.D.)	Tikal, Dos Pilas, Copán, Quirigua, Tazumal (Chalchuapa)		
Early Classic (600-250 A.D.)	Tikal, Copan, Cara Sucia, Cerén	Period IV (500 A.D. -1000 B.C.)	Cerro Zapote (1000 A.D. - 300 B.C.)  Playa de los Muertos (300-600 B.C.)
Late Formative (250 A.D. - 300 B.C.)	Kaminaljuyú, Abaj Takalik, El Baúl (Cotzumalhuapa), Sta. Leticia, Nakbe	Period III (1000-4000 B.C.)	La Rama (1500 B.C.?)  Monagrillo (2800 B.C.?)  Boquete, Esperanza (4000 B.C.?)
Middle Formative (300-900 B.C.)	El Trapiche (Chalchuapa), Yarumela		
Early Formative (900-1600 B.C.)	Cuello (1200 B.C.?)  [Chiapas]: Altamira and Ocos (1600 B.C.)		
Late Archaic (1600-2000 B.C.)	Quiché Valley [Chiapas]: Sta. Marta Cave	Período II (4000-8000 B.C.)	Achualinca (4000 B.C.?)  Cerro Mangote (4858 B.C.)
Middle Archaic (2000-5000 B.C.)	Los Tapiales (app. 5000 a.C.?)		
Early Archaic (5000-8000 B.C.)	San Rafael (app. 5000 a.C.?)  Orange Walk (8000 B.C.?)		
Paleoindian (8000- ? B.C.)	Los Grifos [Chiapas] (11.000 B.C.?)	Período I (8000- ? B.C.)	Espíritu Santo Cave (?)  El Gigante rock shelter (11.000 B.C.?)  Guardiria and Isla Macapala (11.000 a.C.?)

**Table 2: Periods, wares, horizons and traditions**

<b>Eastern Mesoamerica</b>	<b>Wares, horizons and traditions</b>	<b>Lower Central America</b>	<b>Wares and horizons</b>
Late Postclassic (1530-1200 A.D.)	Mixteca-Puebla-Tradition Fine Orange Ware	Period VI (1520-1000 A.D.)	Creme Sliped Polychrome Horizon (1520-800 A.D.)
Early Postclassic (1200-900 A.D.)	Plumbat Ware	Period V (1000-500 A.D.)	
Epiclassic (900-800 A.D.)	Cotzumalhuapa-Tradition (900-500 A.D.)		
Late Classic (800-600 A.D.)	Ulua-Yojoa-Polichrome Wares (800-500 A.D.),		
Early Classic (600-250 A.D.)	Classic-Maya-Horizon	Período IV (500 A.D. -1000 B.C.)	Zoned Bichrome Horizon (500 A.D. – 500 B.C.)
Late Formative (250 A.D. -300 B.C.)	Usulután Wares (300 A.D. - 900 B.C.) Izapa-Tradition (200 A.D. - 400 B.C.)		
Middle Formative (300-900 B.C.)	Olmec-Horizon (300-1200 B.C.)		
Early Formative (900-1600 B.C.)	Monochrome Wares: Swasey and Xe Complex (600-1000 B.C.)	Período III (1000-4000 B.C.)	Monochrome Wares: Monagrillo Complex (1000-2800 B.C.)
	Monochrome Wares: Ocos Complex (1200-1500 B.C.)		
Late Archaic (1600-2000 B.C.)			
Middle Archaic (2000-5000 B.C.)			