

MAYA SITE OF COPÁN (HONDURAS)

STATE OF CONSERVATION



December 2020

INSTITUTO HONDUREÑO DE ANTROPOLOGÍA E HISTORIA



Identification

Name	Maya Site of Copan (Honduras) - C 129
Location	Near the village of Copan Ruinas Department of Copan, Honduras
Coordinates	E 269524.180507 N 1641547.93025
Inscription	September 2, 1980
Administrator	Instituto Hondureño de Antropología e Historia (IHAH)
Address	Barrio Buenos Aires, Villa Roy Tegucigalpa, M.D.C.
Telephones	(504) 2222 1468 / 2222 3470
Fax	(504) 2222 2552
E-mail	patrimonioihah@yahoo.com
Web address	www.ihah.hn

CONTENTS

Preface

Introduction

Decisions of the World Heritage Committee

Summary

Chapter 1: decision 5

Chapter 2: decision 6

Chapter 3: decision 7 a

Chapter 4: decision 7b

Chapter 4: decision 7c

Chapter 5: decision 7d

Conclusion

References

List of maps and figures

Maps

1. The Archaeological Park (Introduction)
2. The drainage of the Copan River (Chapter 1)

Figures

Introduction:

1. The archaeological park and its setting
2. The Great Plaza, with the shelter of the hieroglyphic stairway in the foreground

Chapter 3:

- 3: The waterproof geo-membrane above a layer of sand, gravel and lime

Chapter 4

4. The Hieroglyphic Stairway
5. The tarpaulin over the Hieroglyphic Stairway
6. Prototype of the “Cascading Sails” protective structure for the Hieroglyphic Stairway

Preface

This report has been prepared by a task force led by the General Manager of the IHAH (Abogado Hector Portillo) with contributions of all the Institutions involved in the archaeological research and the conservation of the site, and in consultation with all the stakeholders possible, especially the local people.

However the pandemic situation hindered the completion of a comprehensive state of conservation, especially the elaboration of a new management plan. On top of the pandemic, the rainy season has been particularly severe, with two hurricanes (Eta and Iota) that created havoc in the country.

It will be a slow and painful recovery but the IHAH is firmly decided to develop a revised Management Plan that will serve as a roadmap to that recovery.

Introduction

The Copan Archaeological Park (see Map 1 next page))

The World Heritage Property (Maya Site of Copan) is located within the Copan Archaeological Park which was originally an area of 45 ha delimited in 1874 in order to protect what is called now the Principal Group (World Heritage property) and its surroundings (El Bosque on the map).

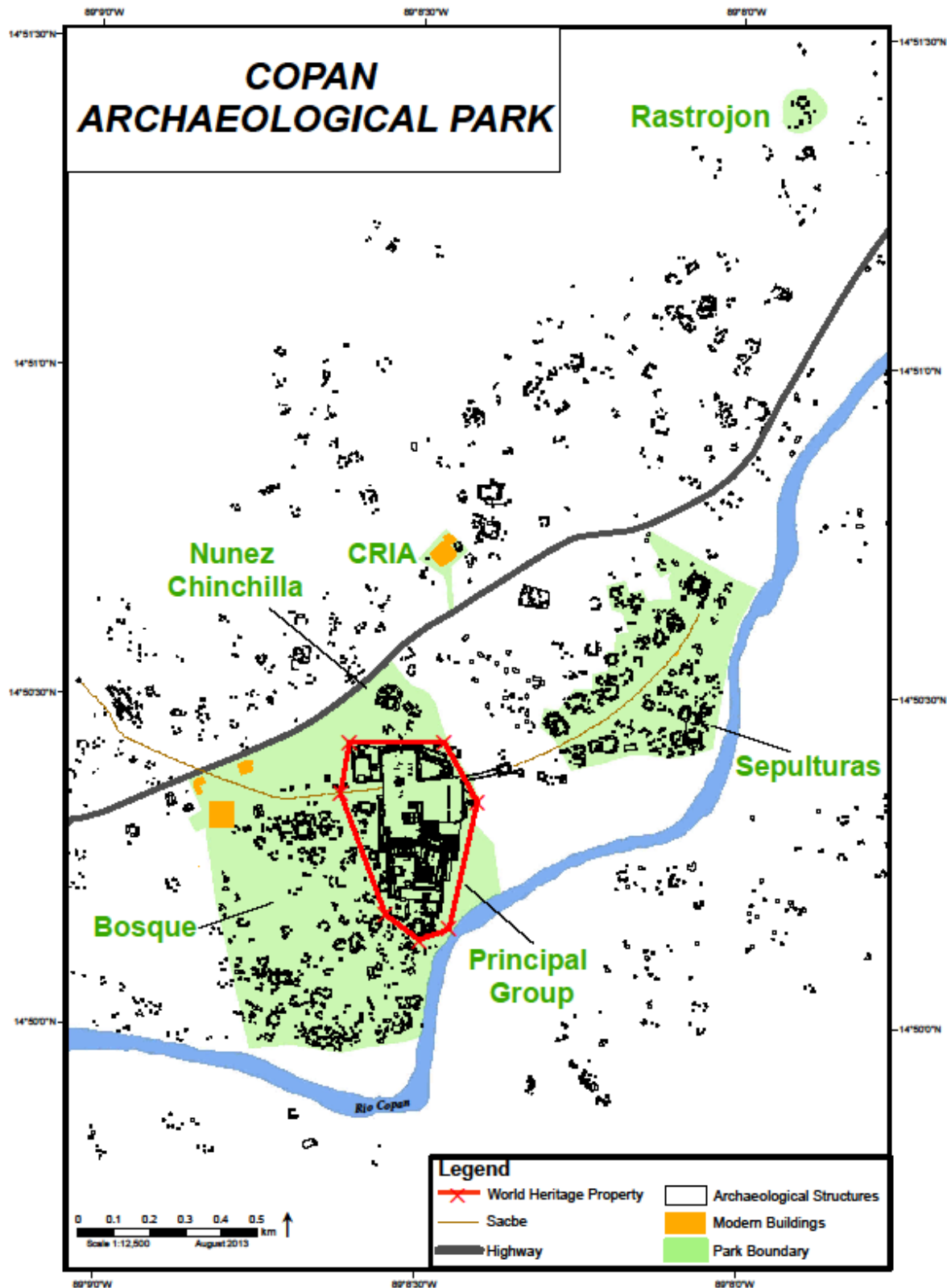
Note: The CRIA (Centro Regional de Investigaciones Arqueológicas) is part of the Archaeological Park. The area called Sepulturas is a private property under the administration of the IHAH.



Figure 1: The archaeological park and its setting



Figure 2: The Great Plaza, with the shelter of the hieroglyphic stairway in the foreground



Map 1: Copan Archaeological Park

Legal Framework

The legal protection of the ruins of Copan is guaranteed by the Constitution (1982: article 172), the Law for the Protection of Cultural Heritage (1997), and the Presidential Resolution 185 of 1982 declaring National Monument “all the archaeological vestiges of the geographical zone known as the Copan Valley..... , including the pre-Hispanic city of Copan.....”

Institutional Framework

Cultural heritage in Honduras, including the Maya Site of Copán, is under the custody and management of the Instituto Hondureño de Antropología e Historia (IHAH). This is a typical primary system of management; however the IHAH is intending to move towards a system agreeable to all stakeholders.

Management Plan / Carrying capacity

The first management plan was developed in 1984 (Barborak et al. 1984), updated in 2005 (IHAH 2005) and revised in 2013 (IHAH 2013). A study of the Park's carrying capacity was performed by the Universidad Complutense de Madrid (Hernandez et al. 2013) as part of the last management plan. A new Management Plan will be completed next year (2021).

Stakeholders

The main actors for administration, research and conservation include: (1) the Instituto Hondureño de Antropología e Historia (IHAH); (2) the Instituto Hondureño de Turismo (IHT); (3) the Instituto de Conservación Forestal (ICF) for the natural environment; (4) the Asociación Copan, an ONG involved with cultural and natural heritage; (5) academic institutions including Harvard University, National University of Honduras (UNAH), City University of New York, University of Kanazawa (Japan), Academy of Social Sciences of Beijing.

Local stakeholders include: (1) the Copan Municipality, (2) the Chamber of Commerce, Industry and Tourism of Copan, (3) Indigenous organizations (CONIMCHH and CONADIMCH), (4) educational institutions, (5) Local community.

Issues

The most relevant issues are: (1) the preservation of stone and stuccoes, (2) the efficiency of management (finances, visitors, disaster risk, impact evaluations), and the implementation of the plans (staff training), (3) the participation of local community (awareness and capacity building).

Decisions of the World Heritage Committee, Baku 2019

100. Maya Site of Copan (Honduras)(C 129)

Decision: 43 COM 7B.100

43 COM 7B.100

The World Heritage Committee,

1. Having examined Document WHC/19/43.COM/7B,
2. Recalling Decision **41 COM 7B.62**, adopted at its 41st session (Krakow, 2017),
3. Commends the State Party for the progress made in the implementation of its decisions and for addressing the factors affecting the property identified earlier;
4. Notes the State Party's submission of a Minor Boundary Modification for the property for examination by the World Heritage Committee;
5. Requests the State Party to provide detailed information on the wider 'Influence Zone';
6. Urges the State Party to continue the elaboration of the new Management Plan that will enter into force in 2021 and to secure the human, technical and financial resources required for its finalization and implementation, and to submit a final version of this new Management Plan as soon as it becomes available, for review by the World Heritage Centre and the Advisory Bodies;
7. Also requests the State Party to keep the World Heritage Centre informed of:
 - a) the development of the conservation plan for the tunnels,
 - b) the decisions on the implementation, maintenance and monitoring of the protective structure of the "Hieroglyphic Stairway",
 - c) the preparation of a sustainable tourism strategy,
 - d) any other development projects that may have an impact on the Outstanding Universal Value (OUV) of the property;
8. Finally requests the State Party to submit to the World Heritage Centre, by **1 December 2020**, an updated report on the state of conservation of the property and the implementation of the above for review by the Advisory Bodies.

SUMMARY

*** 1.** The Area of Influence has been cancelled. The concept was confusing and the Declaration of Copan as National Monument (1982) already provides an adequate protection of all the archaeological vestiges over the whole of the Copan Valley.

*** 2.** A workshop on the Management Plan, organized by the World Heritage Center and scheduled for the month of April 2020, has been delayed until April or May 2021. We present a work in progress report, which is like a guidance document for the preparation of the Management Plan with three components: (1) a compilation of all basic documentation, (2) the identification of important issues, (3) provisional scheme to organize the data and to coordinate the elaboration of sections.

Based on the World Heritage Center objectives known as the five Cs and the objectives of the regional programs known as PARALC and PAMAC, the most important issues the Management Plan must deal with are: (1) Conservation, including the preservation of sculptures, impact assessments, disaster risks preparation and sustainable tourism, (2) Capacity building for the administration of the site, especially in the monitoring of the implementation of the Management Plan, (3) the participation of communities in the process of decisions.

*** 3.** The Conservation Plan for tunnels comprises two facets: (1) Consolidation of tunnels, (2) the preservation of stuccoes in the tunnels. The IHAH has conducted a project to waterproof the Eastern Court of the Acropolis, preventing filtrations of rain in the tunnels. A 3D mapping of the tunnel network was also conducted by Kanazawa University.

The preservation of stuccoes is handled by Harvard University through the Santander Program. It includes a backfill strategy involving delicate reburial of stucco façades whenever it is necessary. In January 2020, a group of experts reviewed a Tunnel Conservation Study with Short-term Recommendations submitted to IHAH for implementation.

***4.** The Santander Program is also working on a new shelter for the Hieroglyphic Stairway. A prototype has been tested over the last eight years with success. The ongoing design modifications resulting from the prototype and ongoing discussion with engineers, which are being incorporated, are projected to be fabricated and installed in 2021-22

***5.** The sustainable tourism strategy is linked to the National Sustainable Tourism Strategy (ENTS) led by the Honduran Institute of Tourism. Its general objective is: Promote the visit of nationals and foreigners to the Maya Site of Copan through the sustainable use of it and others tourist resources in the area in which it is located, contributing to the improvement of the quality of life of the inhabitants, generating institutional sustainability and promoting the strengthening of national identity as well as a positive image of the country.

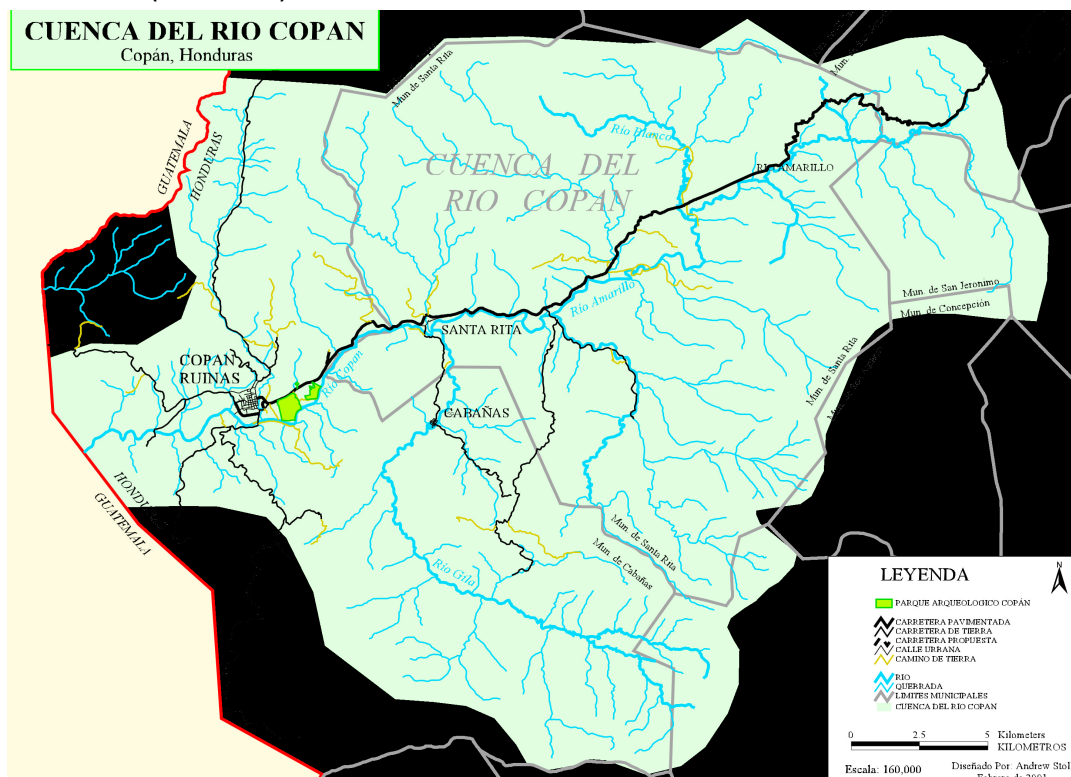
Chapter 1

Decision 5: provide detailed information on the wider 'Influence Zone'

The 2014-2020 Management Plan had considered the creation of an Area of Influence as another layer of protection around the buffer zone. This configuration actually proved to be confusing for the managers of the site and for the community at large: the necessity for such area was objected on the basis that the Law for the Protection of Cultural Heritage and the Declaration of Copan as National Monument already provide an adequate protection of all the archaeological vestiges over the whole of the Copan Valley, therefore making superfluous any kind of special area outside the Buffer Zone. **As a result, the Area of Influence has been cancelled.**

The Presidential Resolution No 185 of 24 June 1982 declares National Monument: *Todos los restos arqueológicos muebles e inmuebles del territorio que abarca la zona geográfica conocida como Valle del Río Copán y sus afluentes, desde el caserío de Los Ranchos, teniendo como punto de referencia las coordenadas 880520 de la hoja geográfica No 2460 IV Serie E752 "Dulce Nombre" de la Dirección General de Cartografía, hasta la frontera con Guatemala, comprendiendo las bolsas de Río Amarillo, El Jaral, Santa Rita de Copan.*

According to that resolution, the National Monument of Copan includes all the drainage of the Copan river within the Honduran territory, an area of approximately 35x15 kms (52500 ha).



Map 2: The drainage of the Copan River (highlighted in soft green color)

Chapter 2

Decision 6: to continue the elaboration of the new Management Plan that will enter into force in 2021 and to secure the human, technical and financial resources required for its finalization and implementation, and to submit a final version of this new Management Plan as soon as it becomes available, for review by the World Heritage Centre and the Advisory Bodies

A work in progress report

A workshop to prepare the revision and update of the Management Plan had been organized by the World Heritage Center and scheduled for the month of April 2020. Due to the pandemic the workshop has been delayed until April or May 2021. In the meantime we present a work in progress report, which is like a guidance document for the preparation of the Management Plan.

The preparation of the Management Plan has three components: (1) a compilation of all basic documentation, (2) the identification of important issues, (3) provisional scheme to organize the data and to coordinate the elaboration of sections.

1. The basic documentation

The basic documents are (1) the documents directly related with the Management Plan, (2) the documents exposing the politics of UNESCO and the World Heritage Centre, (3) the UNESCO documents related with the Maya Site of Copan, (4) the documents which explain the guidelines of UNESCO and other organizations about cultural heritage management. See references.

1.1. The documents directly related with the Management Plan

1.1.1. The 2014-2020 Management Plan

The 2014-2020 management plan and the previous management plans (Barborak et al. 1984; IHAH 2005) provide a basic platform for the elaboration of the 2021-2030 Management Plan

1.1.2. The comments on the 2014-2020 plan by ICOMOS

1.1.3. The zoning of the Maya Site of Copan

The limits of the World Heritage property have been confirmed by the World Heritage Committee in 2017. The limits of the Buffer Zone are in process of confirmation. These limits are important to define different levels of management.

1.1.4. The study of carrying capacity for the Maya Site of Copan (Garcia Hernandez et al. 2013)

1.2. The documents exposing the politics of UNESCO and the World Heritage Centre

1.2.1. The World Heritage Convention (1972)

The Convention establishes the obligations of the State Party

1.2.2. The Operational Guidelines for the Implementation of the World Heritage Convention. This is the reference to apply the World Heritage Convention

1.2.3. The general objectives of the World Heritage Centre

These objectives are known as the five Cs: Credibility, Conservation, Capacity building, Communication, Communities.

1.2.4. The PARALC priorities and objectives (Programa de Acción Regional para América Latina y el Caribe):

- *Priorities: education, communication and information, sustainable tourism,

- *Objectives: Improve the quality of life in Latin America, reduce poverty, promote gender equality, and promote cultural diversity

1.2.5. The PAMAC objectives (Programa de Acción para México y América Central):

- *Improve communication and coordination between public institutions, civil society and local communities for the management of World Heritage properties

- *Develop and implement participative policies and strategies of sustainable tourism

- *Revise and enforce the legal framework for Impact Assessments

- *Elaborate and implement disaster risks management plans for the World Heritage properties

1.3. The UNESCO documents related with the Maya Site of Copan

1.3.1 The State of Conservation of 2016 and 2018

1.3.2. The Decisions of the Committee in 2015, 2017 and 2019, and the comments that precede the decisions

1.3.3. The UNESCO missions of 2005 and 2011

1.4. The documents that explain the guidelines of UNESCO and other organizations about cultural heritage management

1.4.1. UNESCO Resource Manual for Managing Cultural World Heritage (2013)

1.4.2. UNESCO Resource Manual for Managing Disaster Risks for World Heritage (2010)

1.4.3. Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (ICOMOS-UNESCO 2011)

1.4.4. Managing Tourism at World Heritage Sites: A Practical Manual for World Heritage Site Managers (Petersen 2002, UNESCO World Heritage Centre))

1.4.5. Sustainable Tourism for Development Guidebook (UNWTO 2013)

1.4.6. ICOMOS charters: Charter for the Protection and Management of the Archaeological Heritage (Lausanne, 1990), International Cultural Tourism Charter: Managing Tourism at Places of Heritage Significance (1999), Charter for the Interpretation and Presentation of Cultural Heritage Sites (2008), The Paris Declaration on Heritage as a driver to development (2011)

2. Identification of important issues

Based on the preceding documents, the important issues for the revision of the Management Plan can be identified. The first step is to understand the objectives of

UNESCO. For UNESCO the priority is to preserve the Outstanding Universal Value (OUV), but beyond the cultural aspect, the economic and social aspects are also relevant. A World Heritage site is a potent economic impulse that may bring opportunities for the vulnerable social sectors (PARALC objectives). Nevertheless it is the cultural significance that produces economic and social significances; therefore the preservation of the cultural significance (OUV) is primordial. These concepts are at the roots of the general objectives of UNESCO which can be summed up in four (4) purposes: (1) Conservation of the Outstanding Universal Value of the site, (2) Public awareness, (3) Community involvement in the management of the site, (4) Training of personnel in charge of the site.

2.1. Credibility

The credibility of a World Heritage site proceeds from its Outstanding Universal Value (OUV) that must be maintained now and forever. Obviously this requires an awareness of the OUV and the attributes that sustain it, an indispensable condition in order to determine the means of protection and conservation, and also to program its presentation.

2.2. Conservation

The essential programs of protection and conservation are:

- (1) Conservation of attributes that sustain the OUV, especially the Hieroglyphic Stairway (Decision of the World Heritage Committee)
- (2) Conservation of tunnels (Decision of the World Heritage Committee)
- (3) Impact assessments (PAMAC objective)
- (4) Disaster risks (PAMAC objective)
- (5) Sustainable tourism (Decision of the World Heritage Committee, PAMAC objective, PARALC objective)

2.3. Capacity building

Training of personnel is an ineludible condition to carry out the strategies of a Management Plan. The administrators who are in charge of the implementation of the Management Plan and the monitoring of results through indicators must be trained to be effective and efficient.

2.4. Communication

Communication is a general objective of UNESCO, PARALC and PAMAC: establish and improve communication and coordination between public institutions, civil society and local communities through mechanisms to manage the World Heritage site. An effective communication must raise public awareness to preserve the attributes of the Outstanding Universal Value. The keys are information and education.

2.5. Communities

Participation of the communities in the management means to engage them in the process of decisions. A community that participates in the decisions is more propitious to comply with the regulations and enforce them. Such participation is ineluctable especially in sustainable tourism programs, in which the communities must get their fair share of economic and social benefits.

3. Provisional scheme

The provisional scheme is meant to organize the data by sections and coordinate the contributions to the sections. After the UNESCO technical mission (in March or April 2021), the scheme will be revised if necessary.

First part: Preliminaries

The purpose is to present the Maya Site of Copan: description, location, contexts, and identification of key issues.

1. Introduction

- 1.1. Purpose of the plan
- 1.2. Rationale
- 1.3. Legal status
- 1.4. Elaboration process

2. Documentation

- 2.1 Description of the site
- 2.2. Significance
- 2.3. Legal and institutional framework
- 2.4. Background

3. Identification of key issues

Second part: Master Plan

Vision, mission and general objectives

4. Objectives and strategies

- 4.1. Conservation and Maintenance
- 4.2. Environment and Zoning
- 4.3. Presentation and Public Use
- 4.4. Administration

5. Implementation

- 5.1. Action Plan
- 5.2. Monitoring (indicators) and revision
- 5.3. Mechanisms to implement the Plan
- 5.4. Resources: human, technical and financial

Third part: Additional documents

Limits of the World Heritage property and the Buffer Zone

Study of the carrying capacity

4. Elaboration process

The Plan will be elaborated in three (3) phases:

Phase 1: present until the UNESCO sponsored workshop (in March or April 2021)

Different sections of the plan have been assigned to several teams according to their experience under the coordination of the Honduran Institute of Anthropology and History. Each section will be presented and debated during the workshop.

Phase 2: After the workshop until June 2021

Each section will be reworked and a draft will be presented to the World Heritage Centre for revision and comments

Phase 3: From July until December 2021

Elaboration of a final version of the Management Plan to be submitted to the World Heritage Centre in December 2021

Chapter 3

Decision 7a: the development of the conservation plan for the tunnels

The conservation of the archaeological tunnels dug into the Acropolis by projects carried out in the 1930s, 1970s, and early 21st century has been a crucial issue for many years. The Conservation Plan for the tunnels comprises two facets: (1) the consolidation of the tunnel network and (2) the preservation of stuccoes in the tunnels.

1. Waterproofing and consolidation of tunnels

The IHAH carried out two programs: (1) Waterproofing of the Eastern Court of the Acropolis with funds from the State, (2) A 3D surveying of the Tunnel Network to prepare its consolidation with the collaboration of Kanazawa University of Japan.

1.1. The Eastern Court of the Acropolis, which stands above the tunnel network, has been made waterproof with a membrane that covers its entire surface and its southern alley. A waterproof geo-membrane was laid over an 8 cm thick stratum of sand, gravels and lime (figure 3). Above the geo-membrane was deposited a layer of silt recovered with grass. According to engineers this system should prevent water filtrations for at least 20 years.



Figure3: The waterproof geo-membrane above a layer of sand, gravel and lime.

1.2. The consolidation of tunnels is imperative; the first step obviously is to dispose of a reliable map of the tunnel network. Kanazawa University and Toppan Co. Ltd of Japan supplied all the experienced professionals necessary for this project.

It appeared that the SLAM technology (Simultaneous Localization And Mapping Technology) with a portable mobile terrestrial LiDAR produced the best results. For the stakeholders involved in the Tunnel Conservation Plan (IHAH, archaeologists, consultants, external experts, collaborators, international sponsors, etc.), it is essential to analyze, discuss and plan on the same scientific, neutral and objective basis, so they must have correct data based on reliable calculations. Therefore, the 3dimensional measurements made with the SLAM technology is a step in the right direction.

2. The preservation of stuccoes in the tunnels

The most important issue is the preservation of sculpture which is an essential attribute of the Outstanding Universal Value of the Maya Site of Copan.

2.1. Overview

The backbone of this action is the Santander Program for Research and Conservation of Maya Sculpture, a comprehensive program for the conservation of Maya sculpture, funded by Santander Bank of Spain. The Santander Program is directed by Barbara Fash and William Fash (Harvard University) who have been working on the sculpture of Copan for more than 40 years. The associated professionals include experts from numerous international institutions: ICCROM, ICOMOS, USA (Harvard University, University of Pennsylvania), Mexico (INAH and UNAM), Spain (*Instituto de Patrimonio Cultural de España*, and *Universidad de Granada*), Italy (*Università di Napoli Federico II*), Portugal (*Universidade do Minho*).

The program enabled the building of a strong regional network and interchanges of trainees and instructors with Guatemala, Honduras, Mexico, Spain, and the United States of America, which all parties will strive to continue. The main components of the program are: 3D scanning, conservation and training.

A flagship of the Santander program's achievements was the creation of the first regional field conservation center for the Maya region (Laboratorio para la Conservación de Escultura Maya/LACEM), developed at the archaeological site of Copán. Now fully operational, the laboratory has held four international conferences including: sculpture conservation; scientific methods for field diagnostics; conservation and preparation for exhibition of museum objects; testing of revolutionary biomineralization stone conservation treatments; and will continue to serve as the nexus for regional sculpture conservation projects in the Maya area. The training of local technicians in sculpture conservation and collection management is an essential component of the program to assure its sustainability. The Santander component in Copan, COEDMAC has benefited from interchanges of trainees with both Guatemala and Mexico. The program has expanded the training of 20 local Copanecos and four Guatemalans who are the core and the future for sustained conservation efforts in the region.

Observing how this model of collaboration can operate to the benefit of all, it is vital to find a permanent way to continue the international conference and workshops that have enabled the building of a regional network and interchanges of trainees and instructors with Guatemala and Mexico, Spain, Honduras, and the United States with the concerted help of prominent conservation experts from ICCROM, Mexico and Spain. Such a collaborative vision was first envisioned by scientists then at the Getty Conservation Institute during their work at Copan (1999–2006), though not realized. The Santander Program reunited some of those key scientists and cultural heritage specialists as board members, with the intent to carry this vision forward.

2.2. LACEM workshop, March 2019

A conservation workshop was carried out in March 2019 at the Laboratorio de Conservación para la Escultura Maya (LACEM). As in other previous workshops, the participants were involved in multiple activities that were organized and taught by experts on microbiology, conservation and biomineralization, including Dra. Nieves Valentín, Dr. Alberto de Tagle y Dr. Carlos Rodríguez Navarro.

Each training module had multiple conservation themes, including chemical solutions for field testing and others for combating biological growth on both stucco facades and stone sculpture.

Each session topic had laboratory instruction and field practicums that were developed to provide feedback for understanding the core principals of the theoretical instruction, which included:

- “Agentes biológicos ambientales como indicadores del riesgo de biodeterioro”
- “Avances tecnológicos en el biodeterioro”
- “Tipos de materiales inorgánicos en el contexto cultural del área mesoamericana”
- “La piedra de Copán: características mineralógicas y texturales”
- “La conservación bacteriana del patrimonio histórico artístico”
- “Métodos químicos de identificación de especies frecuentes en el medio arqueológico mesoamericano”

2.3. The conservation of stuccoes

In addition to architectural façades and features (including associated floors), there are numerous modelled stucco decorations that need careful monitoring. The plan initiated high resolution 3D scanning of the sculptures, followed up by topographic survey with a robotic Total Station to produce 3D models of the entire tunnel system.

Backfill strategy

The Harvard University team has been working with INAH conservator Alejandra Alonso on a backfill strategy – what material to use in the backfill and where to find it, and how to calculate the various risks in leaving each tunnel open so we can pinpoint the areas we should backfill first. Backfill involves delicate reburial too, whenever it

needs to be done near a stucco façade. Harvard has developed a reburial technique for preserving the delicate stucco facades that are contained within the tunnels and which can never be shown to the public, due to location and instability. This technique can be employed throughout the tunnel system to protect these monuments, which still retain high relief, polished stucco and their original polychrome painted surfaces.

In January 2020, the Harvard co-directors, Barbara Fash and William Fash, Architectural Conservator Laura Lacombe, with the three COEDMAC co-directors and the director of the Copan Archaeological Park, convened an international working group of specialists on the Harvard campus to discuss the Copan Tunnel Conservation Study and draft recommendations for the Short-term plan. Advising participants included:

- *Paulo B. Lourenco, Professor, Co-Head of the Institute for Sustainability and Innovation in Structural Engineering, Head of the Structural Group, University of Minho, Department of Civil Engineering, Portugal
- *Alessandro Flora, Dipartimento di Ingegneria Civile, Edile e Ambientale (DICEA) Università di Napoli Federico II, Italia
- *Alejandra Alonso, Conservator, INAH Mexico
- *Nieves Valentín, Microbiologist, Spain
- *Alberto de Tagle, Conservation chemist, Spain
- *Ricardo Agurcia Fasquelle, Archaeologist, Asociación Copan, Honduras (remotely)
- *Frank Matero, Architectural Conservation, University of Pennsylvania
- *Michael Henry, Architectural Conservation, University of Pennsylvania (remotely)
- *Eva Martinez, archaeologist (IAAH)

The final Tunnel Conservation Study and the Short-term Recommendations report (Lacombe, Fash, and Fash 2020) have been reviewed by the entire group and were submitted to IAH in November 2020. Many suggestions for immediate action were unfortunately unable to be implemented due to the pandemic and closure of the archaeological site. However, during the closure of the Copan Archaeological Park, the COEDMAC team was granted emergency access to the tunnel system to continue conservation measures, documentation, and monitoring of the stucco façades. Water filtration into the tunnels is a constant concern, and recently the severe hurricane activity has caused damage to the modeled stucco reliefs of the Papagayo structure beneath the Structure 10L-26 pyramid. The Papagayo stucco crocodile was scheduled to be reburied in March and April, in a similar fashion as the Ballcourt stucco bird had been successfully reburied last season. However, the pandemic put this activity on hold. Remedial measures were put in place to protect the fragile decoration in the meantime, including fresh sealant layers on the exterior of the pyramidal structures were reapplied on areas where filtration was detected as well as tarps. Alejandra Alonso advised on upgrading the method and materials best suited for long-term coverage.

Rosalila Temple Conservation

Following up on the conservation meetings' recommendations, the Harvard COEDMAC team has been working closely with Archaeologist Ricardo Agurcia and the Asociación Copan to prepare for a massive documentation effort of the Rosalila Temple in 2021. Currently, while unable to travel, Dra. Alonso is conducting virtual classes with new recruits to instruct them in the underlying theories and methods of conservation documentation. The COEDMAC team, which has been training with Dra. Alonso for the past 4 years, will assist her in supervising and organizing general field practices in 2021. This is the first step in a multi-stage process for a major conservation project of the Rosalila stucco facades that will be carried out in conjunction with monitoring and conservation of the overall tunnel system in which it resides.

Chapter 4

Decision 7b: the decisions on the implementation, maintenance and monitoring of the protective structure of the “Hieroglyphic Stairway”,

Hieroglyphic Stairway Shelter, Study and Conservation

History

Discovered in 1895 by Alfred Percival Maudslay, the Hieroglyphic Stairway was cleared by the Peabody Museum in 1893 and the lower section excavated. The reconstruction by the Carnegie Institution, started in 1937, was completed in 1942. Already in 1946, some deterioration was noticed, and when Copan was declared a World Heritage site in 1980 with the Hieroglyphic Stairway as the most significant feature of its Outstanding Universal Value, such deterioration became the most important issue of conservation.



Figure 4: The Hieroglyphic Stairway

In 1983, a meeting of experts on stone deterioration recommended sheltering tests among other proposals. A large canvas tarpaulin sustained by three main cables was then installed over the Stairway before the 1985 rainy season. The tarpaulin was replaced regularly every three years (the last time at the end of May 2020), each time with some improvements based on accumulated experience.

In 1999 the Getty Conservation Institute undertook a three year project to analyze conditions of the Stairway and to determine the actions to be taken for its conservation. The study recognized that the protective shelter had provided for stability of the stairway blocks, keeping the stone surfaces dry, reducing the daily environment variations, and drastically limiting microbiological growth. However, it was noted that heat was trapped at the top of the monument by the current design, and that aesthetically it would be preferable to create a shelter where the monument was visible beyond the protective device.



Figure 5: The tarpaulin over the Hieroglyphic Stairway

Among other proposals, the final report recommended to continue the use of a protective shelter, either a modified version of the current system with some improvements, or a new, permanent shelter. Four design concepts for a new protective shelter were proposed by architect Gionata Rizzi who has broad experience on shelters for monuments and sites around the world. Experts favored the so-called “Cascading Sails” design for its simplicity and its apparent efficiency.

The Cascading Sails design

At the start of the Santander Program in 2010 a committee of specialists decided a top priority would be to further the recommendations of the Getty report, to fund the research and design phase for the “Cascading Sails” design for the new shelter over the Copan Hieroglyphic Stairway. In 2011, a 1:5 scale prototype was set up by Gionata Rizzi’s team to be tested in the site’s subsidiary restored residential area known as “Las Sepulturas” in the Copan Valley. The location away from the Principal Group recreated similar conditions as those of the Hieroglyphic Stairway: facing west, close to the river, and surrounded by trees. The prototype tested 4 different materials (cotton, acrylic,

fiberglass and polyvinyl) of different thickness and different colors. After 8 years of field-testing experts have agreed on advancing with a modified design of the shelter's structure for manufacturing and installing the new protection design, which consists of a tensile structure system with 16 individual membranes each in a rhomboid shape, supported by steel cables. With observation, it can be seen that polymer and PVC fabrics are quite robust and stable 8 years later, but cotton (like today's canvas) and polyester fabrics degrade. A tensile stretch fabric similar to one of the durable fabrics is now available with pretreatment biocides.



Figure 6: Prototype of the “Cascading Sails” protective structure for the Hieroglyphic Stairway

The ongoing design modifications resulting from the prototype and ongoing discussion with engineers, which are being incorporated, are projected to be fabricated and installed in 2021-22. What remains to be done and was scheduled for March 2020 was to have the engineers from the U.S. and the architect and sails specialist from Italy visit the site to properly design and assess the placement of support structures in the ground that will anchor the sails, and the soil strengths. Careful consideration needs to be given to the impact any additional load and embedded objects will have on the underlying structures and stucco facades. Unfortunately due to the pandemic's virulence in Italy and the U.S., and closure of the Copan Archaeological Park, the trip was postponed and therefore the studies were unable to be completed this year.

Meanwhile, for greater precision in the design of the shelter, a three-dimensional scan of the monument was carried out in 2011, under the direction of engineer Massimo Brizzi. Since 2011, new technology has become available; therefore co-director Adolfo Canan is re-documenting the entire structure with the aid of a drone, to create an updated 3D model for helping with placement of the anchor points. The 3D mapping of the tunnel system which was completed in 2019, will also aid in the assessment of the best spots to embed cement blocks for the anchors without making contact with the sub-level ancient architecture. Also since 2015, some tensile structure engineers in New York have conducted additional studies, and together with the architects they have slightly modified the physical support and shape of the sails, which improve the function of the sails and especially the effects of the distribution of the rainwater that will run off of them.

In the interim a replacement tarp of the same style and material (canvas) was purchased and donated to the IHAH by Harvard because the former one was tearing. IHAH oversaw the installation just before the onset of the rainy season in May 2020.

Monitoring

Monitoring of the individual blocks that were selected by the Getty team continues in collaboration with IHAH. At Harvard's Peabody Museum, Barbara Fash has re-initiated the process of finalizing drawings and photo documentation of the entire inscription for publication in the *Corpus of Maya Hieroglyphic Inscriptions*.

Chapter 5

Decision 7c: the preparation of a sustainable tourism strategy

Introduction

The importance of developing a Sustainable Cultural Tourism Strategy for the Maya Site of Copán lies in recognizing the potential that Honduras has to offer the resident and visiting population the world cultural heritage that it possesses as a development resource and that it contributes to improving the quality of life of the communities and visitors, satisfying fundamental needs and contributing to the institutional strengthening of the IHAH as the governing entity of the Honduran Cultural Heritage. Understanding that, “Cultural Heritage cannot become a consumer product, nor the object of a superficial relationship with the visitor. To the extent that tourists come to identify with the heritage, they will be able to become aware of its value and the importance of its conservation... ”(Charter of Principles on Museums and Cultural Tourism. ICOMOS. Peru-Bolivia 2000).

Sustainable cultural tourism affects any groups of people, places and entities: tourists and local populations, museums, archaeological sites and landscapes, tourism companies and public authorities, so this strategy intends to implement actions that are based on that sustainable cultural tourism does not concern only tourists who visit from foreign countries but also the many national tourists such as students, groups of professionals, etc. whose visits also have an impact on the places they visit.

The strategy is designed in compliance with objective number 4 of the Plan of Action for World Heritage in Mexico and Central America PAMAC, which says “Develop and implement participatory policies and strategies for sustainable tourism in accordance with the preservation of the OUV of World Heritage properties, and promote them in national tourism management frameworks” and of course linked to the National Sustainable Tourism Strategy ENTS led by the Honduran Institute of Tourism.

Among the social objectives presented by the ENTS, the activities that can be carried out to promote sustainable tourism in the Maya Site of Copan are integrated.

1. Generate jobs especially local labor.
2. Integrate local communities and ethnic groups in the development of tourist activities.
3. Preservation and enhancement of cultural heritage, as a differentiating element of the tourist offer in Honduras.

Likewise, the objectives of an Economic-Tourist Nature concern the IHAH, in particular the Maya Site when referring to the increase in the total number of visitors and therefore the increase in income.

The Mayan zone of Copan is also identified as a specific Tourist Region of the ENTS, integrating the First Level zone in the hierarchy of zones, along with the Emerald Caribbean and the Bay Islands. The archaeological tourism product is considered a high priority and the Copan Archaeological Park identified as a pole of tourism development.

The IHAH will be integrated in the event that they exist or will develop when necessary coordinating actions of public, private and community initiatives in Copan Ruinas for the strengthening of sustainable cultural tourism that has the Copan Archaeological Park as its central axis.

The Copan Archaeological Park will be strengthened as a dynamic center of the municipality's economy, which will improve the populations standard of living and offer tourist the satisfaction of their demand.

Varieties of cultural tourism products that can revolve around the Park:

- Handicrafts
- Traditional gastronomy
- Popular festivals
- Religious tourism
- Tourism of living cultures
- Archaeological Tourism of neighboring sites
- Tourism scientific, academic and educational.
- Coffee tourism

The Honduras Institute of Anthropology and History, with this strategy, intends to initiate a series of sustainable cultural tourism projects using cultural heritage in all its manifestations, and in a comprehensive manner, as a resource for local development, with activities that respect the ways of life, religion, ideas, and social customs different from their own making tourism compatible with the environment.

Sustainable Cultural Tourism in several regions of Honduras, in this particular case in the Maya Site of Copan, will offer visitors the opportunity to learn about the contextualization of cultural development and the interrelation with the environment of places, their settlements patterns from the antiquity to the present, and the socio-political configurations of the region, as well as various options for fun and recreation to achieve satisfactory and pleasant visits.

The strategy takes into account that the behavior of purchasing products and services, after this period of impact by COVID-19, will be based on the hygiene and health regulations that tourist destinations have implemented.

Currently there are already certain rules and regulations that are in charge of regulating this in the different tourist establishments of the country, however, new

ones will have to be reinforced, modified and even created, for example, the “Clean Station” which will be a disinfection area in access to the site.

With the understanding that COVID-19 has come to change hygiene behaviors, although in a certain way that was already an important aspect, now it will be necessary to give it a unique role: hand washing at all times, use of alcohol gel, not touching your face with your hands, keeping distance between people, among other habits that will have to be repeated more times than usual.

Likewise, it will be necessary to take into account, as some experts on the subject have already predicted, that people will not want to make trips as they did before when making use of mass transport, planes, buses, cruises, among others, out of fear to a contagion, they will not want to travel to large cities where the highest numbers of infections and deaths from this disease have occurred, that is why this strategy will initially focus on the promotion of sustainable tourism for the generation of visits at the local level, areas with a lower population concentration in which the national and world heritage monuments and parks are located, and which have had less or no impact from the pandemic and whose mobilization of people is safer.

General purpose.

Promote the visit of nationals and foreigners to the Maya Site of Copan through the sustainable use of it and others tourist resources in the area in which it is located, contributing to the improvement of the quality of life of the inhabitants, generating institutional sustainability and promoting the strengthening of national identity as well as a positive image of the country.

Specific objectives.

- Gradually increase the number of national and foreign visitors to the Maya Site of Copan guaranteeing its protection.
- Optimize the conservation and sustainable use of cultural heritage as a resource for development through institutional strengthening.
- Guarantee visitors a safe and satisfactory health tourism experience after the COVID-19 crisis.
- Promote local cultural tourism visits, guided by specialists or experts on the site.
- Strengthen national identity through the promotion and dissemination of Honduras cultural heritage, using it in a sustainable way as a resource for national development through cultural tourism.
- Help visitors have a comprehensive perception of the Honduran Cultural Heritage.
- Contribute to the generation of added value, employment, foreign exchange and investments, at levels of increasing importance within the framework of the economic and social development of the country.

- Involve local entrepreneurs in the promotion and sustainable use of cultural heritage.

Activities to be carried out.

The activities to be developed with this initiative will be aimed at promoting the Maya Site of Copan as a sustainable tourist resource and, in the post-covid-19 time, to guarantee the safety of visitors and cultural heritage, using it in a sustainable way, and offering visitors satisfying and enjoyable tours.

It is proposed to carry out, among others, the following activities, some of them supported by the use of technology.

- Raise the inventory of existing tourism resources.
- Prepare the site for the visit.
- Create the Technical Unit for Community Relations.
- Signing of agreements for the establishment of alliances with public entities, municipalities, private companies, tourism chambers, universities.
- Visits for direct promotion in primary, basic, secondary and university educational centers.
- Creation, promotion and sale of cultural tourism packages Cultural Tours that are tours based on cultural attractions, archaeological sites, museums, traditional towns, living cultures, etc. In modalities of one-day, three-day and regional visits of the Central American area.
- Creation of promotional videos of the site that include hygiene standards currently implemented.
- Use of technology to promote cultural heritage, facilitate knowledge and provide information for visitors, etc.
- Online ticket sales.
- Strengthen the sale of ticket office in hotels.
- Creation of Cultural Tourism packages in modalities: family, corporate, institutional and academic.
- Active involvement of local entrepreneurs in patronage programs for the conservation and promotion of heritage.
- Inclusion of the Mayan Chortí population in the various activities.
- Sensitization to the community about the importance of Cultural Tourism for the conservation of heritage and the improvement of the quality of life of the population.
- Support job creation through cultural heritage (handicraft and souvenir shops, craft promotion events, workshops to safeguard intangible heritage, etc.).
- Development of Archeology Workshops for children as an activity to promote heritage and raise awareness about its protection.
- Promotion of academic tourism and promotion of the Center for Training and Conservation of Cultural Heritage.

- Realization of the Afternoons of Coffee.
- Hold Itinerant Exhibitions to promote the different sites.
- Renovation of museum exhibitions and museum rooms.

In relation to actions to receive post COVID 19 tourism

- Placing a "Clean Station" in the access area to each archaeological park, archaeological site, colonial fortress and museum.
- Placement of spacing fences to avoid crowds and guarantee the distance between people, especially in access areas.

POS usage and less cash handling

- Creation of more collection windows at the Maya Site of Copán.
- Hygiene stations for visitors in strategic sectors of the sites.
- Placement of automatic sensors to turn on lights in offices and restrooms.
- Bio security equipment for staff that maintains constant communication with the public.
- Permanent supply of disinfectants (chlorine, Lysol, glade), hand gel, soaps, etc. for staff and visitors.
- Location of signage in internal route circuits to avoid crowds.
- Speakers for guides.
- Placing of notices of norms of behavior in the accesses and more visible areas of the sites.
- Tents for the sale of tickets in areas of affluence of the public in neighboring cities

Each activity to be carried out implies a series of tasks that involve institutional staff and necessarily the establishment of alliances with communities, private companies, municipalities and local and national tourism chambers, among others.

At a global level, it has been documented how tourists increasingly demonstrate a greater sense of solidarity towards local communities and the different actors that make up the sector's value chain, as well as a greater awareness of the values of the businesses in which they invest their money and on the potential environmental impacts of the activities they do during their travels. This is reflected in the fact that an increasing number of travelers recognize that their decisions have the potential to influence the transformation of the sector and are willing to opt for more sustainable tourism products and travel options, even if these represent a higher cost.

Having a greater and better offer of tourist resources favors a greater visit and generates more stay of the tourist, which leads to a greater investment in the community.

Chapter 6

Decision 7d: any other development projects that may have an impact on the Outstanding Universal Value (OUV) of the property

There is no foreseen development project that would have an impact on the Outstanding Universal Value of the Maya Site of Copan.

Conclusion

The Conservation Programs, albeit slowed by the crisis situation, are on target, efficiently implemented and monitored. The Laboratory of Preservation of Sculptures and Plaster is now fully operational and fulfills its objectives. The last details for the protective structure of the Hieroglyphic Stairway will be defined during a meeting of experts to be scheduled some time in 2021. The conservation of the tunnels in the Acropolis is being tackled by a Steering Committee coordinating inputs of the IHAH, Harvard University and Kanazawa University.

While Conservation is adequate, the Management of the site still has deficiencies. The main reason is a lack of trained personal; a capacity building program, with a course on Management of Cultural Heritage, will be included in the revised Management Plan starting in 2021. The course will also focus on consensus building to promote the participation of the local community.

In spite of all the hindrances, the Maya Site of Copan is maintaining its Outstanding Universal Value, its integrity and its authenticity.

A new Management Plan will be presented at the end of 2021, integrating the objectives of the PARALC (Programa de Accion Regional para America Latina y el Caribe) and the PAMAC (Programa de Accion para Mexico y America Central).

References

Barborak, Jim, Craig Mc Farland y Roger Morales

1984 Plan de Manejo y Desarrollo del Monumento Nacional Ruinas de Copán . UNESCO, IHAH & CATIE. Turrialba, Costa Rica.

García Hernández, María, Manuel de la Calle Vaquero, Miguel Ángel Troitiño Vinuesa, Libertad Troitiño Virralba

2013 Estudio de Capacidad Turística del Parque Arqueológico de Copan (Honduras). Grupo de Investigación “Turismo, Patrimonio y Desarrollo”, Departamento de Geografía Humana, Universidad Complutense de Madrid

ICOMOS

1990 Charter for the Protection and Management of the Archaeological Heritage (Lausanne)
1999 International Cultural Tourism Charter: Managing Tourism at Places of Heritage Significance
2008 Charter for the Interpretation and Presentation of Cultural Heritage Sites
2010 The Lima Declaration for Disaster Risk Management of Cultural Heritage
2011 Guidance on Heritage Impact Assessments for Cultural World Heritage Properties
2011 The Paris Declaration on Heritage as a driver to development

IHAH (Instituto Hondureño de Antropología e Historia)

2005 Plan de Manejo Zona Arqueológica de Copán. IHAH, Tegucigalpa
2013 Sitio Maya de Copan: Plan de Manejo 2014-2020

Pedersen, Arthur

2012 Managing Tourism at World Heritage Sites: A Practical Manual for World Heritage Site Managers, UNESCO World Heritage Center.

The Getty Conservation Institute / IHAH

2006 The Hieroglyphic Stairway of Copan Honduras: Study Results and Conservation Proposals. The Getty Conservation Institute, Los Angeles & Instituto Hondureño de Antropología e Historia, Tegucigalpa. http://www.getty.edu/conservation/publications_resources/pdf_publications/copan_sp.pdf

UNESCO

2004 Monitoring World Heritage, World Heritage Paper 10
2006 Tourism, Culture and Sustainable Development
2010 Managing Disaster Risks for World Heritage
2011 Patrimonio Mundial y Desarrollo Sostenible. El papel de las comunidades locales.
2013 Managing Cultural World Heritage
2014 Engaging Local Communities in Stewardship of World Heritage
2017 Operational Guidelines for the Implementation of the World Heritage Convention

UNWTO

2013 Sustainable Tourism for Development Guidebook