LATIN AMERICA / CARIBBEAN

ANCIENT MAYA CITY AND PROTECTED FORESTS OF CALAKMUL, CAMPECHE
(Extension and renomination of the “Ancient Maya City of Calakmul, Campeche”)

MEXICO

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

ANCIENT MAYA CITY AND PROTECTED TROPICAL FORESTS OF CALAKMUL, CAMPECHE (MEXICO) – ID 1061 Bis

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the nomination.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property has the potential to meet World Heritage criteria.
Paragraph 78: Nominated property does not meet integrity or protection and management requirements.

Background note: The *Ancient Maya City of Calakmul, Campeche* was inscribed under cultural criteria (i), (ii), (iii), and (iv) in 2002. The cultural property is 3,000 hectares (ha) in size with a buffer zone of 147,195 ha. This is a renomination and extension of the existing Ancient Maya City as a mixed site.

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1. DOCUMENTATION

a) Date nomination received by IUCN: 20 March 2013

b) Additional information officially requested from and provided by the State Party: No supplementary information was formally requested by IUCN, however the State Party submitted additional information on 26 February 2014 following dialogue between the State Party, ICOMOS and IUCN. Additional information was provided on boundaries; arguments in support of Outstanding Universal Value; and a number of additional articles on the natural values of the nominated property.

c) Additional literature consulted: Various sources, including: Badman, Tim et al (2008). **Natural World Heritage Nominations; A Resource Manual for Practitioners**. IUCN World Heritage Studies, Number 4. (2008). **Outstanding Universal Value; Compendium on Standards for Inscriptions of Natural Properties on the World Heritage List**. IUCN World Heritage Studies, Number 1. Bath, Paquita and Allen Putney (2010). **Final, Independent Evaluation of SINAP II**. Report to the Mexican Fund for the Conservation of Nature. Colette, Angustin, et al, editors (2007). **Climate Change and World Heritage ; Report on predicting and managing impacts of climate change on World Heritage, and State to assist State Parties to implement appropriate management responses**. World Heritage reports 22. UNESCO, Paris. CONANP (2012). Sistema General de Programas Operativas Anuales, **Resultados de la Evaluación Anual 2012**, Región Península de Yucatán y Caribe Mexicano. Diario Oficial de México (7 de abril, 2007). **Programa de Manejo del Área Natural Protegida con el carácter de Reserva de la Biosfera la región conocida como Calakmul, ubicada en los municipios de Champotón y Hopelchén (hoy Municipio Calakmul), en el Estado de Campeche**. Fundación Desarrollo Sustentable A.C. (May, 2011). **Cuarto Reporte del Proyecto Programa de Monitoreo Adaptativo de la Reserva de la Biosfera de Calakmul**. Contrato CONAP A-P-VO2-RBCA-FDS-11. Gobierno de México (May, 1989). **DECRETO por el que se declara la Reserva de la biosfera Calakmul, ubicada en los Municipios de Champotón y Hopelchem**, Camp. Parks Watch Mexico (Undated). **Profile: Calakmul Biosphere Reserve**. Ramón Pérez Gil Salcido, et al (2003). Evaluación Independiente SINAP I. **Report to the Mexican Fund for the Conservation of Nature.** Sánchez-Cordero, Víctor et al (Nov. 2008). **Diagnostico de la efectividad de las Áreas Naturales Protegidas (ANP) Federales para prevenir el cambio en el uso del suelo y la vegetación**. CONANP. Schmook, Birgit et al (2005). **Línea de Base para el Programa COMPACT en Calakmul**. Sprajc, Ivan, editor (2008). **Reconocimiento arqueológico en el sureste del estado de Campeche, México, 1996-2005.** Paris Monographs in American Archaeology 19. BAR International Series 1742. UNESCO, México (Nov., 2009). **Estudio de la Contribución de los Sitios Patrimonio Mundial al Desarrollo**; Williams, Paul (June, 2008). Yam Camacho, Marco Antonio et al (Abril de 2013). **Calakmul, Linda Tierra Campechana, Antología para el Maestro**. D. R. Secretaria de Educación, Gobierno del Estado de Campeche.

d) Consultations: 6 desk reviews received. The mission also met with the Federal Secretary of the Environment; the Governor of Campeche State; the Director of INAH; the Director of CONANP; the Mayor of the Calakmul Municipality; protected area personnel; community leaders in the Buffer Zone; researchers from local universities; Head Archaeologist and Chief of Restoration of the Calakmul Archaeological Site; Members of the Calakmul Biosphere Reserve Advisory Committee and several other stakeholders.

e) Field Visit: Allen Putney with Barbara Arroyo (ICOMOS), 30 September - 4 October 2013

f) Date of IUCN approval of this report: March 2014

2. SUMMARY OF NATURAL VALUES

The nominated property, Ancient Maya City and Protected Tropical Forests of Calakmul, Campeche, Mexico, is a re-nomination and extension of the existing 3,000 ha cultural World Heritage property, Ancient Maya City of Calakmul, Campeche. The nominated property is located in the central/southern portion of the Yucatan Peninsula, in southern Mexico. The total area of the re-nominated property is 331,397 ha, which is superimposed on the south-central portions (the "core zone"), of the 723,185 ha Calakmul Biosphere Reserve, Mexico's largest protected area. The surrounding Biosphere Reserve zones are therefore considered as a buffer zone of 391,788 ha for the re-nominated property, which is not included within the nominated property. The nominated property has an unusual configuration with the nominated area adjoining the border with Guatemala, and the Mirador-Rio Azul National Park. Tikal National Park, inscribed in 1979 as a mixed site under criterion (i), (iii), (iv), (ix) and (x) lies to the south of the property. The buffer zone of the nominated property extends northwards through a relatively narrow corridor expanding to a larger area.

The main geomorphological unit of the re-nominated property is of karstic origin. This karstic system is composed of both carbonaceous rocks (limestone, dolomites, marble), which make up 72% of the area, and evaporites (gypsum, anhydrites, rock salt or hyalites), which make up the remaining 28%. Rainfall in this sub-humid tropical rainforest is concentrated in the wet season. The carbonaceous rocks are highly porous and do not retain surface water, except for a short period after drenching rains. The evaporites, on the other hand, retain water for long periods in depressions called aguadas. It is these aguadas that provide surface water during much of the dry season and make possible human habitation and are crucial for wildlife. However, as temperatures increase and rainfall becomes erratic due to climate change, many aguadas have, in recent years, become dry at the end of the dry season.

The humid and sub-humid tropical forests of the Yucatan Peninsula in Mesoamerica are the second most extensive tropical forest region, after the Amazon, in the Americas. Mature forests cover the re-nominated property, and represent the northern limit of distribution of tropical Central American Forests. They are subject to seasonally dry conditions, karst soils, frequent fires and hurricanes, and thus have developed a number of adaptations to these conditions. In addition, these forests are the result of ancient agricultural and forestry practices of one of the great cultures of the world, the Mayans. The renominated property has been exploited and managed by Mayan cultures for thousands of years. The nomination is submitted as a mixed property and a wide range of cultural sites exist within the proposed extension. These will be evaluated by ICOMOS in relation to cultural criteria. Given the particular nature of the proposal as an extension and renomination of an existing cultural property, IUCN has also sought to the greatest extent possible, to harmonise its recommendations with those of ICOMOS.

The nominated property is located at a crossroads of connectivity with corridors that provide ecological continuity to the extensive forests of the region in Mexico, Guatemala, and Belize. The Calakmul Biosphere Reserve certainly is known for its great abundance of wildlife in the Selva Maya Forest Region. This has served to maintain the dynamic, ecological and evolutionary processes of native species, especially those with wide ranging habitat requirements.

The nominated property falls within the Mesoamerica biodiversity hotspot. This hotspot is the third largest in the world and encompasses all subtropical and tropical ecosystems from central Mexico to the Panama Canal. It hosts several endemic species including Quetzals, Howler Monkeys, and 17,000 plant species. It is also an important corridor for many Neotropical migrant bird species; the montane forests are important for amphibians, especially as several endemic amphibian species are in decline due to habitat loss, fungal disease and climate change. The biodiversity of Mesoamerica is at the confluence of two biogeographic regions (Nearctic and Neotropical) and is very rich as a consequence of this interaction. The nominated property displays rich biodiversity with species complements comprising 1,569 plant, 107 mammal, 398 bird, 84 reptile, 19 amphibian and 48 fresh water fish species. The nominated property also exhibits high levels of endemism within the Mesoamerican hotspot. According to the nomination dossier, almost a quarter of all mammals found in the hotspot are present within the nominated area, as well as 35% of bird species. The nominated property does not belong to any Terrestrial or Global Freshwater 200 priority ecoregion, Endemic Bird Area (EBA), or Centre of Plant Diversity (CPD).

3. COMPARISONS WITH OTHER AREAS

IUCN has fundamental concerns regarding how this nomination has been constructed and presented which make it challenging to evaluate in terms of comparative analysis. The current dossier focuses substantially on natural values in the area surrounding an existing cultural property when in reality the intertwining of natural and cultural values is present throughout the property. This approach is reinforced within the nomination dossier itself which acknowledges that "*the property is nominated because it incorporates mature tropical forests, extraordinary evidence of the long interaction between man and nature, reflected in their current structure and floristic composition, and largely the result of Maya agricultural and forestry practices".*

The nomination dossier includes a comparative analysis which, for natural values, assesses the property against 24 existing World Heritage properties inscribed for similar criteria and characteristics. The analysis concludes that the closest comparator is Tikal National

Park (Guatemala), which is c.10% of the size of the nominated property. IUCN emphasizes that the ecosystems of the nominated property are the product of evolution and adaptation under the prevailing environmental influences that in turn were significantly modified by the management practices of the Mayan cultures that inhabited the region continually for over 2,000 years (1,200 B.C. to 950 A.D.). Indeed, some 90% of the site's flora is today used in one way or another by people, a clear sign of human interaction with the property's ecosystems. The nomination dossier demonstrates that the property has significant biodiversity; however, the case for global significance is not well backed up by the information provided in the comparative analysis, and the case regarding endemic and endangered species only refers to its regional significance.

Additional comparative analysis has been undertaken by IUCN and the UNEP World Conservation Monitoring Centre (UNEP-WCMC) along with a review of the additional scientific references provided by the State Party in its information of February 2014. This analysis notes that Mexico has five existing natural World Heritage sites, including one biodiversity site on the Yucatan peninsula, Sian Ka'an, and it confirms that the closest existing natural World Heritage site to the nominated property, also a biodiversity site, is indeed Tikal National Park in Guatemala. UNEP-WCMC, when comparing the nominated property with other sites within the Mesoamerica hotspot, concludes that the nominated property appears to have an almost identical species richness profile as Tikal National Park in Guatemala. Species data is limited; however, numbers of mammals, birds, reptiles and amphibians are comparable, as are the numbers of threatened species.

Regarding criterion (ix), the nominated property is part of a biogeographical province, biome and ecoregion which is already well represented on the World Heritage List. Furthermore, the Mesoamerican hotspot is also well represented, again notably by the Tikal National Park. For criterion (x) it notes that the nominated property supports a similar number of species as many existing natural World Heritage properties found in the same region; however, it hosts almost a quarter of the mammal and over a third of the bird species found in the Mesoamerica hotspot. The property indeed has a very diverse vertebrate fauna, including mammal species such as the Jaguar, Puma, Ocelot, Howler Monkey, Spider Monkey, Armadillo and Tapir, some of which are threatened of extinction. Whilst the importance of Campechean rainforest in the Udvardy Neotropical Realm is noted at a broad scale, the nominated property is not explicitly mentioned within a number of relevant IUCN Thematic Studies such as studies on biodiversity gaps, irreplaceability and forests.

Thus there are a range of further reviews of the biodiversity values required to support the nomination. IUCN considers that it is clear that the nominated property has notable biodiversity values. The nominated property is the second largest forest in Mesoamerica after the forest of Petén in Guatemala. In terms of biodiversity Calakmul is considered the richest Mayan forest on the Yucatan Peninsula, not only due to the way these forests were managed by the Mayans but also because it is located in an area with greater availability of freshwater; both from rain and from existing aquifers.

In summary, IUCN is concerned on both the overall approach to defining the basis of the proposed renomination and extension, as well as the need for further global and regional studies on comparative biodiversity values. IUCN also considers it essential that the approach to demonstration that the natural criteria are met in the renomination, needs to be harmonised with the proposed extension of the existing cultural World Heritage property. The nominated property, with significant revisions, has potential to meet both criteria (ix) and (x).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The legal and institutional framework for the protection of the natural resources of the renominated property is adequate and secure. The buffer zone of the property aligns with the Calakmul Biosphere Reserve.

Some 88.5% of the property is in Federal Government ownership. The remaining 11.5% is in community lands that have been abandoned, and are in the process of reverting back to Federal Government ownership. The lands in the buffer zone are community owned, and are expected to remain so. Human populations in these areas, which are within the Biosphere Reserve, are increasing, and resource use is intensifying. Management programmes are in place to work with these communities to ensure that development activities are sustainable and do not present a threat to the core zone of the Biosphere Reserve, which coincides with the area of the renominated property. These Biosphere Reserve management programmes are actively guided by an Advisory Committee made up of representatives of relevant Federal, State, and Municipal governments, local universities, and local communities.

IUCN consider that the protection status of the nominated property in relation to natural values meets the requirements of the Operational Guidelines.

4.2 Boundaries

The logic of the boundaries of the nominated property and the configuration of the proposed buffer zone are not clear with respect to how they protect and buffer the natural values of the nominated property; particularly the buffer zone area to the north of the property.

The forest characteristics of the nominated property are the product of intense human manipulation over a period

of centuries, especially the practice of slash and burn agriculture with long fallow periods, and thinning of secondary forest to favour species of particular use to humans. However, the property was abandoned around 950 A.D. and since has only been logged on a highly selective basis. There is currently no human occupation and none is contemplated for the future. Thus, over a very considerable time, the forest ecosystems of the property have recovered from human modification through natural regeneration. In order to recognise the natural values of the property but also interactions that could be relevant to its potential status as a mixed property, the boundary configuration of the nominated property would need to be adjusted. It may thus be appropriate to include areas of the current buffer zone within the nominated area.

IUCN considers that the boundaries of the nominated property do not meet the requirements of the Operational Guidelines.

4.3 Management

The nominated property's cultural and natural assets are managed independently by different agencies. The Comisión Nacional de Areas Naturales Protegidas (CONANP) assume responsibility for natural heritage whilst the National Institute for Anthropology and History (INAH) is responsible for management of the existing 3,000 ha Ancient Maya City of Calakmul cultural World Heritage property.

CONANP's existing on-the-ground management capacity for the Calakmul Biosphere Reserve appears to be adequate for natural resource protection. This is partially demonstrated by a CONANP report on the implementation of the 2012 Annual Work Program for the Reserve which indicated that 97% of the 187 activities planned for the year were executed successfully. Thus, CONANP should have adequate capacity to contribute effectively to an integrated approach to management of the re-nominated property. Whilst the management of cultural aspects will be considered by ICOMOS, it is unclear to IUCN how INAH's current management capacity would be enhanced to effectively support an integrated management approach over a significantly larger area.

There is no integrated management plan for the proposed renominated mixed property. Rather CONANP has a management plan in place for the existing Biosphere Reserve, which was revised in 2010 and is currently undergoing further revision. A biological monitoring system is in place for the Biosphere Reserve, which is contracted out to local universities. There is no system in place for tracking and improvement of management effectiveness, though some relevant indicators, such as changes in indicator species populations and dynamics and land use change are being tracked. There is a management plan in place for the Calakmul cultural World Heritage property, but there is no system in place to track and improve its management effectiveness.

The current budget for the Biosphere Reserve is about 700,000USD p.a. and the level of funding over the past 7 years has been relatively stable, though sources of funding have changed considerably. Since the biological indicators and land use change indicators have not varied much over the same period, it would seem that the level of funding is adequate, at least for basic protection and management.

Memoranda of Understanding are in effect between the governments of Mexico and Guatemala to facilitate transboundary management relating to the Calakmul Biosphere Reserve in Mexico and the Mirador-Rio Azul National Park in Guatemala. From 2007 to 2010 an Inter-American Development Bank (IDB) Project facilitated management of the Tri-National Ecosystem of the Maya Tropical Forest (Mexico-Belize-Guatemala) through improved negotiation, coordination, and cooperation capacities, especially with respect to the control of illegal trade of plants and animals, development of biological corridors, establishment of a biodiversity monitoring and information management system, and strengthened institutional framework for joint management of the Maya Tropical Forest. Since termination of the IDB Project, tri-national activities have significantly reduced, but a new project, supported by the German Agency for Technical and Scientific Cooperation (GIZ) and the German Development Bank (KfW), aims at developing a new tri-national program for the Protection and Sustainable Use of the Tropical Maya Forest.

IUCN considers that the management of the nominated property, as a mixed nomination, does not meet the requirements of the Operational Guidelines.

4.4 Community

It is noted that local communities have migrated from rural areas to existing villages and key cites, mainly Mérida. This is positively contributing to the conservation of Calakmul because impacts from local people are minimal when compared to other areas in Mexico.

While governance arrangements for the existing Biosphere Reserve and cultural World Heritage Property are adequate, there are inadequate mechanisms in place for integrated management of the natural and cultural resources of the re-nominated mixed World Heritage Property. Stakeholder involvement in the management of the existing Biosphere Reserve is facilitated through the Reserve's Advisory Committee and through field projects with local communities. This Committee would also serve the renominated extended World Heritage Property should it be approved.

There are no local communities living within the nominated property. An in-depth process of local consultation took place when the lands within the property were transferred to the Government in 2004 with the agreement of those communities. Subsequently, detailed information about, and consultation on, management of the Property has taken place through the Reserve Management Advisory Committee which includes representatives of all 31 communities in the buffer zone. The tenure rights of the communities that had land within the re-nominated property were acquired by purchase by the Government, a process fully supported by these communities.

Livelihood development and benefit-sharing in the buffer zone of the nominated property are facilitated by diverse programmes sponsored by the Biosphere Reserve. These include economic activities related to the development and management of beehives and subsequent development and marketing of honey derived products; improved farming and forestry, the development and marketing of artisan crafts, and tourism activities.

4.5 Threats

During the 2,000 year period of intense occupation by the Mayan culture, up to 1000 years ago, much of the area was converted to agriculture and intense forestry. However, during the last c.1,000 years, the nominated property has been free of human occupation and has only been subject to occasional past selective logging of high value trees. Thus the forests can be regarded as substantially natural, evolving ecosystems given the period that has elapsed to allow natural values to be reestablished. However, one question for management is the degree to which archaeological sites may be cleared of vegetation in order to facilitate research, preservation and interpretation of the nominated property's cultural values.

The most significant threat to natural values stems from climate change which is already manifest in a reported 3.0 ºC increase in average temperature over the last decade, and decreased rainfall. Since there is little altitudinal variation in the property, and increasing drying up of aguadas during the seasonally dry period, it can be expected that many species of flora and fauna will simply be lost.

Another threat is tourism, which is reportedly increasing at about 9% per year. However, the current overall levels of visitation are low. In 2011, for example, the last year for which complete statistics are available, there were close to 25,000 visitors. The area of the City of Calakmul itself is already a World Heritage property, so it is not expected that the renomination will have much effect on stimulating even greater increases in tourism. Calakmul is relatively isolated, and many other Mayan archaeological sites that have been restored and are open to tourism are in more accessible places. Thus, it is expected that the increases that do occur can be managed without major problems.

Human populations in the buffer zone of the property, currently 2,625 inhabitants in 31 communities, are increasing. Thus, even though management programs for the existing Biosphere Reserve seek to assure that all resource use within the Reserve is sustainable, pressure from increasing populations could at some point threaten sustainability.

Concerns exist related to the boundaries and integrated management requirements of the re-nominated and extended property; IUCN therefore considers that the nominated property does not meet the requirements of the Operational Guidelines.

5. ADDITIONAL COMMENTS

None.

6. APPLICATION OF CRITERIA

The **Ancient Maya City and Protected Tropical Forests of Calakmul, Campeche** has been nominated under natural criteria (ix) and (x).

Criterion (ix): Ecosystems/communities and ecological/biological processes
For over 2,000 years, the Mayan civilization made intensive use of the resources of the nominated property. The tropical forest that exists today grows on top of the archaeological remains of that great civilization, and the interaction of natural and cultural values is manifest throughout the re-nominated and extended property. However, the nomination as currently presented has not yet made a compelling case under this criterion with respect to a mixed site. The ecosystems of the site are the product of evolution and adaptation under the prevailing environmental influences that in turn were significantly modified by the management practices of the Mayan cultures over many centuries. Nevertheless the diversity of ecosystems, large size and relatively intactness of this area of Mayan Forest, together with its significance within the Mesoamerican Hotspot suggests the potential to meet criterion (ix).

IUCN considers that the site has potential to meet this criterion but that further consideration is needed, including the interaction of natural and cultural values within the existing property and the proposed extension.

Criterion (x): Biodiversity and threatened species
The re-nominated and extended property is located in the second largest forest in Mesoamerica after the forest of Petén in Guatemala and in terms of biodiversity the area has levels of species richness, endemicity and threatened species which compare or may even surpass those of other Mayan tropical forest sites in the region.

As with criterion (ix), the consideration of the nominated property's values under criterion (x) requires further consideration by the State Party, both in relation to the comparisons with other sites in the region, and also regarding the configuration of the proposed extension and renomination, in relation to the much smaller existing cultural property of Calakmul and the reality that the forested areas are an essential part of this cultural context of Calakmul.

IUCN considers that the site has potential to meet this criterion, but that further consideration is needed, including the interaction of natural and cultural values within the existing property and the proposed extension.

In addition, IUCN notes that issues of boundaries of the nominated property, and its buffer zone in relation to both protection of natural values, and relationship to a possible mixed site need to be addressed, together with improvements to effectiveness of integrated management.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-14/38.COM/8B and WHC-14/38.COM/INF.8B2;

2. Defers the nomination of the **Ancient Maya City and Protected Tropical Forests of Calakmul, Campeche (Mexico)** under natural criteria.

3. Recommends the State Party, with the support of IUCN, ICOMOS and the World Heritage Centre, to reconsider the approach to the proposed extension and renomination of the property based firstly on considering how the extension would relate to the existing listing as a cultural property as well as the associated cultural values of the surrounding forest areas, and secondly to consider how a renomination and extension could be configured to meet both cultural and natural criteria.

4. In relation to the proposed renomination and extension under natural criteria, recommends the State Party to consider:

a) revising and improving the interpretation of the property's natural values cognizant of the longstanding history of human modification of the landscape;
b) revising and improving the comparative analysis of the property in relation to natural criteria, to demonstrate how the biodiversity values of the property relate to other protected forest sites in the region, taking note of the history of human interaction with nature, and the potential for a nomination to meet criteria (ix) and (x);
c) refining the boundaries of the property to assure the integrity of the property, include in the property all areas of significant natural values, and ensure that the buffer zone is configured in a rational way designed to protect the nominated property;
d) addressing the need to strengthen integrated protection and management of natural and cultural values across the property including improved interagency coordination, governance, resourcing and capacity development; and
e) preparing a single property wide management plan to guide integrated natural and cultural heritage protection and management.

Map 1: Nominated property location

Map 2: Nominated property and buffer zone