



Global Heritage Fund



Mirador Basin

2008-9 Progress Report Summary



**Conservation of the Mirador Archeological and Wildlife Area
in the Heart of the Maya Biosphere Reserve, Guatemala**

*In partnership with the Foundation for Anthropological Research
and Environmental Studies (FARES), the Fundación del
Patrimonio Cultural y Natural Maya (PACUNAM)
and the U.S. Department of the Interior*

September 2009

Project Summary

Mirador Archaeological and Wildlife Area is located in the heart of the Maya Biosphere in northern Guatemala. Mirador is home to the earliest and largest Preclassic Maya archeological sites in Mesoamerica, including the largest pyramid in the world- La Danta. Experts describe the Mirador as the *Cradle of Maya Civilization*.

Global Heritage Fund (GHF) is working with the Foundation for Anthropological Research and Environmental Studies (FARES), the Guatemalan government, community leaders, and the U.S. Department of the Interior (which includes the U.S. National Park Service), to create an economically sustainable archaeological and wildlife protected area in the heart of the Maya Biosphere.

GHF's primary conservation goals for Mirador are:

1. Aid the Guatemalan government in securing UNESCO World Heritage designation
2. Establish permanent protection for Mirador Basin
3. Become a sustainable protected area within 10 years

The Mirador Basin Project is a major multidisciplinary scientific research and conservation project of an area in the extreme northern department of Petén in Guatemala known as the Mirador Basin. The Mirador Basin forms a portion of a large conservation project known as the Cuatro Balam (Four Jaguars) recently designed by Guatemalan President Alvaro Colom.

The project started as the Regional Archaeological Research Project of Northern Peten, Guatemala (RAINPEG/PRIANPEG), upon request of the Guatemalan government in 1988 and currently consists of 52 universities and research institutions worldwide.

Dr. Richard Hansen is Project Director and over \$6 million has been funded by Global Heritage Fund to date, including \$1.6 million in 2008, and \$600,000 in 2009.

Partners and collaborators include the Ministry of Culture and Sports (MICUDE), the Institute of Anthropology and History (IDAEH), the Guatemalan Tourist Institute (INGUAT), and the National Council of Protected Areas (CONAP). The Project consists of a large team of scholars, technicians, specialists, managers and students to investigate the Mirador Basin and conserve the Mirador Basin from a multi-disciplinary effort.

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We appreciate the continued support of our major sponsors and donors for GHF Mirador Conservation and Community Development. Thank you for your support to make this all possible.

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Above: Dirk Kempthorne, Secretary of the U.S. Department of the Interior with members of Mirador delegation from Guatemala including Chief of Staff of the President of the Republic of Guatemala, the Ministry of Culture and leading business executives.

2008-9 Progress

In 2008-9, the Mirador Basin Project was one of the largest privately funded archaeological and environmental conservation project in history, focusing on El Mirador, the ancient causeway between El Mirador and Tintal, and sites in the La Gloria Forestry Concession and the Cruce a la Colorada Concession. The project provided employment to 318 workers, 40 specialists, and 22 Guatemalan and American students, while continuing with programs of tourism infrastructure, health, potable water systems, computer systems for schools in communities, schools for Tourism Guides including the first graduating class of 28 students from the first school of community guides, and the literacy and education programs for workers.

The Project also provided water filter systems for the villages surrounding the Mirador Basin, together with Eco-Filtros, a non-profit organization based in Antigua. A total of 108 filters were distributed and training provided for families in communities.

The project continued and initiated major multidisciplinary studies with entomological (insects) studies of the Mirador Basin by Dr. Jack Schuster (Del Valle), the study of the flora of Peten with Ing Cesar Castaneda (Trees), the geology of the Mirador Basin with Dr. Eric Force and Dr. John Force Dowhenrend, and the ornithology (birds) studies by a team from Cornell University.

Scientific work and conservation and development programs are conducted at the regional level to understand the origins, cultural and ecological dynamics, and the demographic collapse of complex society in the area of the Mirador Basin in the Maya Lowlands. The investigations include studies of the developmental process in the complex social, political, economic, ecological and environmental context of the early Maya, and the causes and consequences of the decline and collapse of Preclassic Maya civilization nearly 800 years earlier than the great Late Classic collapse. The dynamic factors of culture and environment are evident in the Mirador Basin and specific efforts are focused on the conservation and protection of the unique cultural and environmental contexts of the area.

The Mirador Basin contains the largest and earliest Maya sites in the Mesoamerica. The majority of sites date to the Middle and Late Preclassic periods, between 1000 BC and approximately A.D. 150. The Mirador Basin Project was among the first to identify the unusual concentration of sophisticated early cultural remains in the Maya Lowlands, and the first to note that the Basin is a natural and cultural area defined geographically circumscribed and distinct from other areas the Maya Lowlands. The Mirador Basin appears to have spawned the first state-level society in the Western Hemisphere and contains the first system of inter-connecting superhighways (freeways) in the world.

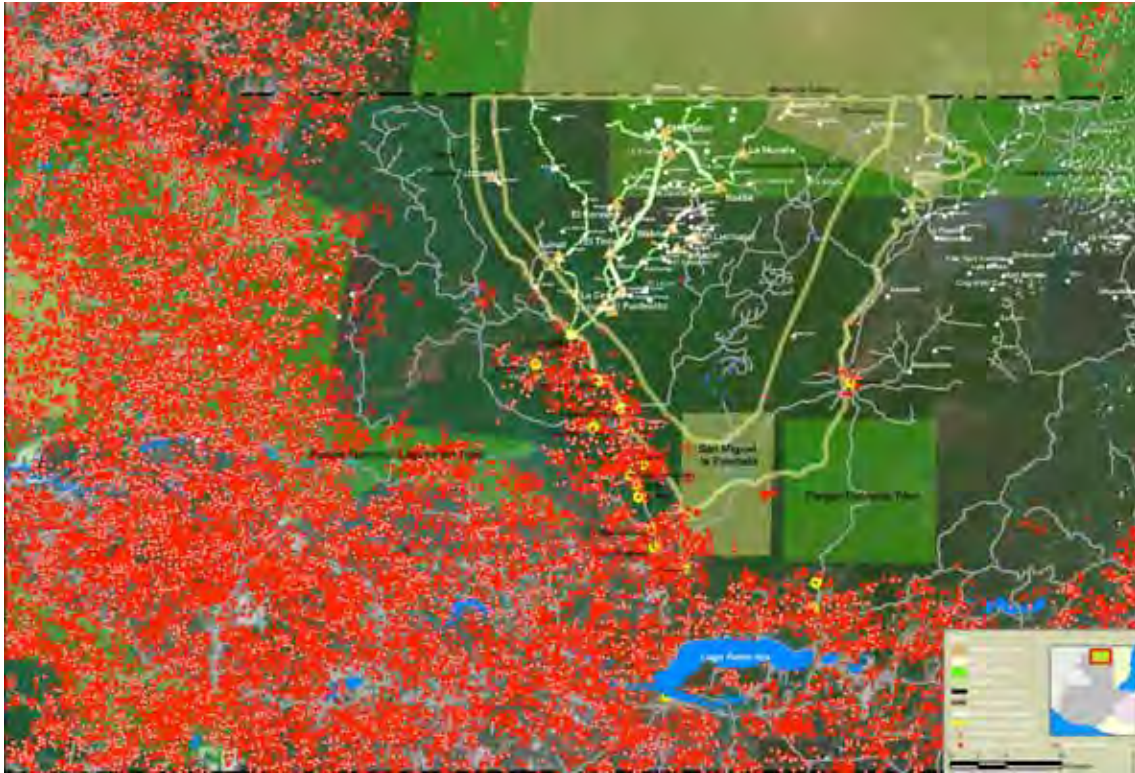
The project and its partners seek permanent protection for 810,000 acres of pristine rainforest, the last large area of tropical forest remaining in Latin America north of the Amazon. The resultant studies of the social, political, and economic sophistication of the Preclassic Maya in the northern Peten over a 30 year period have contributed to the definition of the Mirador Basin as the "Cradle of Maya Civilization. Studies have identified what is believed to be the names and accession dates of the first Maya kings in the Mirador Basin centuries before the birth of Christ, and have identified the complex nature of the settlement distribution of the ancient cities. The research of the political and social complexity in the area has contributed in changing the entire historical perspective of origins and cultural development of Maya civilization.

The project has taken an active role in combating looting, deforestation, poaching, and depredation of Maya cultural heritage and the natural environment through placement of numerous guards, implementing education programs and vocational training, as well as providing major employment opportunities for communities and towns in northern Guatemala. Public films, publications, and scientific documentaries have contributed to awakening international interest in the Mirador Basin, and the unusual cultural and natural heritage contained therein.

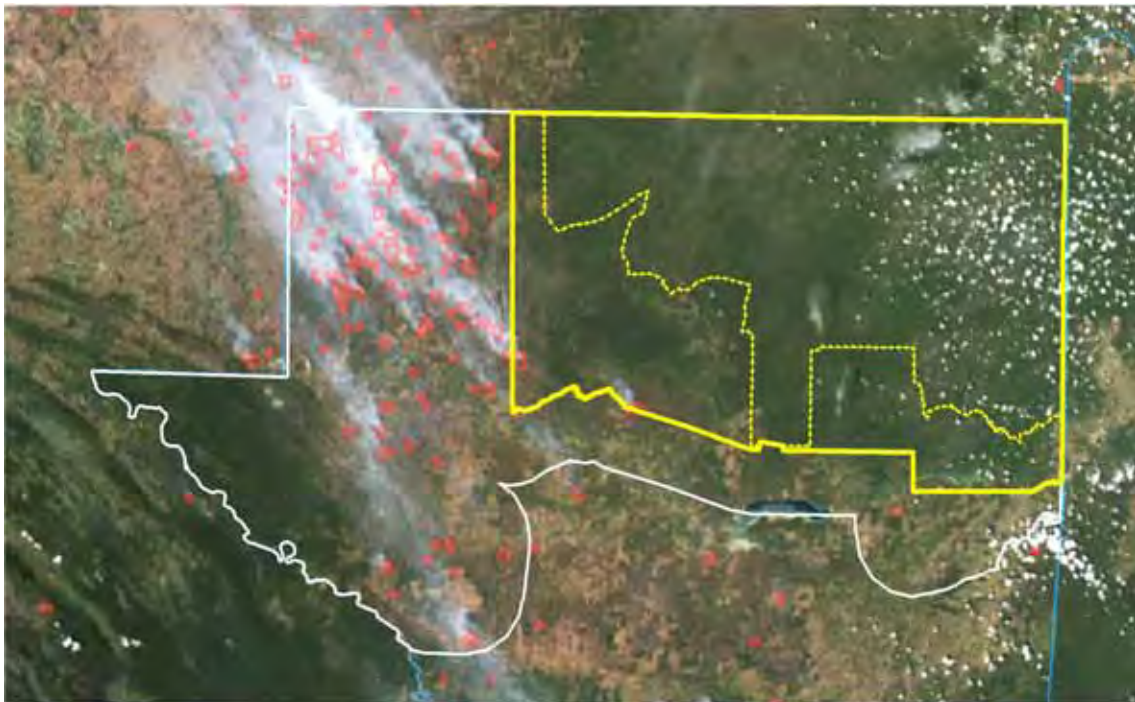
The primary field seasons of 2008 and 2009 were conducted from June to September, during which time conservation work and research was undertaken on the cultural and natural heritage of the Mirador Basin. Because the Mirador Basin project is conducting a regional study, there were three separate camps in three distinct areas of the Mirador Basin that facilitated the multidisciplinary research and conservation programs over a broader area, providing the scientific foundation that explains the need for protection and conservation of the entire cultural and natural system.



Above: El Mirador Site Map



Above: Map of the Mirador Basin and encroaching fires from forest clearing over the past 5 years.



Above: Map of the newly proposed Cuatro Balam National Park (in yellow) and the Mirador Basin with encroaching fires.



Above: President Alvaro Colom presenting the Mirador project to community stakeholders and government dignitaries.

Mirador 2008-9 Progress

The largest of the project camps was located in El Mirador where intensive work was carried out with the aim of expanding knowledge of human settlement and landscape ecology of the Maya Preclassic period, with the subsequent cultural and natural dynamics of the area. This also requires planning of special circuits to accommodate visitors as part of a macro plan, which allows scenic value to the sites to justify their conservation.

This implies maximum importance to the study and conservation of architectural and archaeological features and the preservation of tropical forests with the participation of seasoned experts. The architectural conservation work is coordinated by Enrique Monterroso Tun,. Lic. Enrique Monterroso Rosado, Licda. Lilian Zea, Licda. Carmen Ramos, Ms. Vanessa Rodens and Josué Guzmán. The archaeological excavations included continuity in the research which has been on- going for several years such as La Danta, Grand Central Acropolis, Cascabel, La Pava, the Faisanes Group, and El Tigre. Research also began in several new areas such as the Defensive Wall and the Preclassic residence excavations with potential for clarification of fundamental questions regarding Preclassic Maya society, or had important tourism value.

Mapping. The mapping and archaeological reconnaissance intensified with high-technology Total Station equipment to the north and west of the civic center. An important suburb of the city was discovered that has been dubbed the Zacalero Group with monumental architecture 15-25 m high, which was linked to civic center by a large causeway. This work carried out jointly between the company DEPIC team and mapping archaeologists Ms. Abel Morales

(Universidad Autónoma de Campeche, Mexico), Carlos Morales, Rafael Cambranes and Douglas Mauricio (U San Carlos). The work by Mauricio also included excavations in the causeway that joined the Faisanes Group to El Mirador, as well as work in the Faisanes Group in the northwest periphery of the site. GIS work for the entire Mirador Basin has been undertaken by Josephine Thompson, including careful coordination of mapped cultural features with aerial and satellite images. Thompson is responsible for the excellent maps being compiled by the project on a regional basis.

Excavations revealed that the entire “island” of uplifted area on the west side of the bajo was covered with Preclassic residence structures. A large number of monuments were also located with the primary residence structures, indicating a certain status or symbolic representation of monuments. The work on the causeway also revealed an exclusive construction in the early Late Preclassic period, which corroborates other information from El Mirador.

The Great Central Acropolis was under investigation on three fronts: Structure 313-315, Structure 304, and the Central Acropolis Water System. The extensive excavations in Structure 313 and the base of Structure 314 was supervised by Licda. Beatriz Balcarcel, who has managed to identify at least five construction stages in this building. The building has an interesting history in that the structure has demonstrated evidence of being a public-religious temple with spacious stairways, masks, and panels. However, the building was remodeled to include the narrowing of the stairs and intentional burial of the architectural art in what is being interpreted as the conversion of a public structure to a private residential building. The timing indicates complete phase of construction and occupation during the Late Preclassic period. The excavation of the 2008 season, extended along the base of the northeastern facades to observe the size and morphology of both the original construction and the remodeling phases. In addition, evidence was recovered from the last occupation of the structure with the presence of pottery, lithics, shell, and other objects as a witness of the last day of its Preclassic occupation.

Guatemalan archaeologist Paulino Morales and Kara Nichols of the University of California, San Diego /Idaho State University field school initiated excavations on the northern stairway access of the Great Central Acropolis, in order to expose the architectural features of what must have been one of the most important buildings in El Mirador, Structure 304. Although much of the work on this low platform structure had been conducted previously by Dr. Ray Matheny of Brigham Young University, the investigations conducted by Morales consisted of re- excavation of excavation backfill as well as horizontal exposure of the massive stones which appear to have been stelae which had been placed in rows along the edge of the platform structure. The location of this building, placed precisely at the summit of the principal stairway into the Central Acropolis indicated an important function for this structure, including a series of woven mat elements modeled in stucco along the edges of the building. Additional work on the primary stairway of the platform revealed two major phases of stairway construction, with the earlier stairway in near pristine condition.



Above: Structure 304- Exposure and stabilization of massive monuments inset in the wall overlooking the great plaza to the north and located in the center line axis of the Central Acropolis. Additional data from excavations suggests that the platform was likely a royal throne (Photo: R.D. Hansen).

Dr. Craig Argyle of Idaho State University continued excavations in the water collection and reservoir systems within the Great Central Acropolis. During the 2008 season, Argyle managed to expose the ornate stucco panels of profound cosmological significance. Swimming figures of modeled and painted plaster suggest rich cosmological themes related to Maya water collection as well as scenes that appear to be related to the Popol Vuh, with particular reference to the Hero Twins, the decapitated head of their father, and the Maya Corn God and frames of Cosmic Monsters which allow rich depictions of the mythological landscape in the Late Preclassic. The architecture associated with these images represent pools, waterfalls, drainage channels, and water collection mechanisms to capture and beautify water resources near the large reservoirs. The extraordinary preservation of the relief, and the detailed iconography are clear representations of the ideological and economic complexity of Late Preclassic society in the Mirador Basin.

During the 2008 field season, a large horizontal excavation was conducted by Idaho State University students Stephanie Schrodtt and Elizabeth Rosen on a small natural hill to the immediate west of the 30 m natural escarpment that borders the entire West Group at El Mirador. The excavation revealed an extensive Late Preclassic residence with low walls, perishable superstructure, but with extensive deposits of Late Preclassic pottery directly on the floor where it was originally left by the last inhabitants of El Mirador before it was abandoned about A.D. 150. This data was extremely important in helping understand the social, environmental, and economic conditions at the time that the great collapse occurred at the site of El Mirador. Numerous whole vessels had been smashed on the floor, and the data provide an unusual record of the last moments at El Mirador during its abandonment.



Above: Tigre Pyramid in Tikal's Main Plaza at same scale.

Excavations on the summit of the Tigre pyramid continued during the 2008 season with major work on the upper platform, façade of the principal structure, and continued stabilization and consolidation of the northern triadic building. Excavation of the south facade of northern building Structure 4D3-2 was supervised by Licda. Monica Pellecer. The façade of this building was heavily damaged and has proven to be a very difficult excavation, but due to its importance and prominence, it will remain under investigation until we identify the largest possible amount of architectural features and provide necessary stabilization and consolidation. A rail system was also placed up the north side of the structure to facilitate transport of stone and mortars to the summit of the structure.



Above: Stucco sculpture modeled on the Late Preclassic period, located in Grand Central Acropolis, related to the management and control of water collection systems.

Major excavations in the Cascabel Group located on the northern side of the massive Leon Complex at El Mirador resulted in the horizontal exposure of the facades of Structures 200 and 204. Structure 200 excavations were supervised by Landon Hansen and Richard Hansen and consisted of the exposure of a large portion of the south facade of the building. Excavations exposed the massive blocks of the original wall as well as the remains of two stairways, mainly at the base of the building. An architectural mask was exposed at the base of the building which had been cut in half and partially removed, which served as a for an intrusive tunnel which penetrated about 3 meters into the structure during the Early Classic period. The reasons for such an intrusion are unknown, but it is possible that the work was some sort of looting venture by inhabitants or visitors during the Early Classic period. A tunnel placed into the building on the west side of the central staircase revealed that the entire building was built in a single effort during the Middle Preclassic period (600 B.C.-400 B.C.), suggesting that the structures in the Cascabel group are among the earliest in the entire architectural corpus at El Mirador.

Structure 204 was extensively excavated during the 2008 field season, with a horizontal exposure of a majority of the south façade of the building. The work was supervised by Lic. Gustavo Martinez, with the assistance of Lic. Alvaro Jacobo and Guatemalan student Carlos Castellanos. The exposure of stairways in good condition, platforms, walls, and facades provided evidence of the sophistication of Preclassic architecture which had been utilized in the Late Preclassic and Protoclassic periods. However, ceramics recovered from intrusive looters' excavations within the structure suggest that it too, like Structure 200, dates to the Middle Preclassic period, which makes the presence of these buildings most curious in the overall settlement pattern of the site.



Above: Megalithic block steps and wall on Structure 204, Cascabel Group, typical of Middle Preclassic architecture (Photo: R.D. Hansen).



Above: Over 300 archaeologists, staff and crew are involved in the Mirador project. (Photo: R.D. Hansen).



Above: Stabilization and consolidation on the upper dominate structure of the triadic group on the summit of Danta. Visible is the west façade of the building 2A8-2, La Danta (Photo: R.D. Hansen).

The Danta Complex was again the center of greatest concentration of operational staff, mainly with regard to stabilization and conservation of the massive architecture with great efforts focused on the upper central structure of the Triadic arrangement, Structure 2A8-2. Efforts during the 2008 field season focused on the excavation and consolidation of the upper west façade of the summit structure as well as the stabilization and consolidation of the northern and southern facades of the upper building. Work on the lower first platform of

the Danta Complex consisted of extensive horizontal exposure of the primary stairway of the building, known as Operations 402R and 402S, which were supervised by Ana Arriola and Mónica Chavarría respectively. Excavations continued on the northern side of Operation 402K with the resultant discovery of heavily stuccoed steps which showed traces of red color, which reflects the style and decoration of the staircase at its peak function.

Excavations located at the base of the third platform of the Danta Complex located the finely preserved blocks of the lower staircase, as well as the Late Preclassic wall of the first level, with massive stones placed with the long axis into the building. The work was supervised by Francisco Lopez, Geovanni Gonzalez, and Sheryl Carcuz. The excavation also located the remains of a debris and garbage midden dating to the Late Classic and terminal Late Classic periods (A.D. 700-900) which provided a wealth of information including ceramics, figurines, bone, shell, stone tools, etc. in great abundance. The analyses of these materials will provide a broad view of the lives of people who resided in the area during the later history of the abandoned Danta.



Although the lower steps of the third level were remarkably preserved, the upper levels appear to have been removed during the Late Classic period, either for stone construction or lime burning activities. A cache offering was placed at the center base of the stairway, deposited during the Classic period, which consisted of two large ceramic plates placed with one directly on top of the other, rim to rim.

Excavations in the Pava Complex, located on the first platform of the Danta pyramid consisted of the horizontal exposure of the upper building of Pava pyramid located on the east side of the Danta platform. This building, known as Structure 2A6-3 was excavated along the entire north façade under the supervision of Ana Arriola and Edgar Suyuc to consolidate existing art and architecture and determine the architectural features of the building. Architectural elements included well-preserved features such as the central staircase, the remains of the upper chamber, the poorly preserved remains of the two large masks flanked the staircase, and the remains of the walls of the east and west facades, allowing more adequate interpretation of this Late Preclassic building, which dominates the first level of the Danta platforms.



Above: Pava structure on first platform after stabilization and consolidation (Photo: R.D. Hansen).

At Pava, excavations were conducted on the staircase from first to second platform of the Acropolis La Pava, which had previously explored by Wayne Howell in 1981 and 1982. The recent exposure of the art and architecture, directed by Lic. Edgar Suyuc, found that the first three steps were well preserved while the remainder of the steps extending toward the summit of the building appear to have had the massive stone blocks removed, and leaving the molded surface of the fill as indicators of where the original steps had been. The project took advantage of the previous excavation made by Howell on the staircase to place a tunnel through the base of the second platform. The result is promising with the fill consisting of a firm mud and clay base which will enable further tunnel excavations in the summit.

Mirador-Tintal Causeway. Also in 2009, major investigations continued on the causeway between El Mirador and Tintal, under the direction of Dr. Thomas Schreiner and Guatemalan archaeologist Enrique Hernandez. Scientific objectives included mapping, reconnaissance, and excavation of the ancient causeway system to determine chronology, the relationship with the seasonal swamps associated with the causeway, and to define the archaeological and natural features that correspond to the natural and cultural history of the area. A regional camp was built near a former chiclero stop known as Naranjita, where workmen cleared low bush and small trees on the causeway so that the causeway was more easily observed. Furthermore, the location of the tourist trail to the causeway provided a vastly improved trail where visitors were able to walk in a straight line and on an elevated platform. In addition, major settlements were located associated with the causeway which were mapped with geopositioning instruments and planimetric mapping tools.

Together with the Instituto de Antropología and the Departamento de Monumentos Prehispanicos, the Mirador Basin project carried out archaeological reconnaissance in the extreme southern sections of the Basin with mapping, excavations, and stabilization conducted at the sites of La Muñeca, Al Che, El Cedro, La Unión, La Pailona, La Reforma,

Los Torres, La Mazacuata, and El Pesquero. The collaboration and support of Ing. Carlos Barrios Quan is acknowledged for the permission to work in the logging concession. The work was directed by Lic. Hector Mejia with Guatemalan students Julio Cotom, Antonio Portillo, and Lic. Boris Aguilar and Juan Morales of IDAEH, and a team of experienced workmen. These previously unknown major sites are located within the forest concession area of La Gloria. At the site of El Pesquero, looters had penetrated into a Preclassic substructure which had a partially destroyed, roof comb decorated with a mask modeled in stucco and painted. The roof comb represents the oldest such known features on a pyramid to date in the Maya Lowlands, dating to the late Middle Preclassic period and the early Late Preclassic period. Emergency consolidation and stabilization measures were carried out on the roof comb and upper portions of the building, providing a previously unknown perspective of the architectural sophistication in the Preclassic periods.



Above: View of the mask and headdress panels of the internal structure at El Pesquero. The massive cornice is the first of its kind found dating to the Preclassic periods. (Photo: H. Mejia).



Above: Portion of the ear spool assemblage on the roof comb at the site of El Pesquero, dating to the Middle and Late Preclassic periods. (Photo: H. Mejia).



Above: Entomology Studies: Universidad del Valle, Dr. Jack Schuster

Environmental Studies

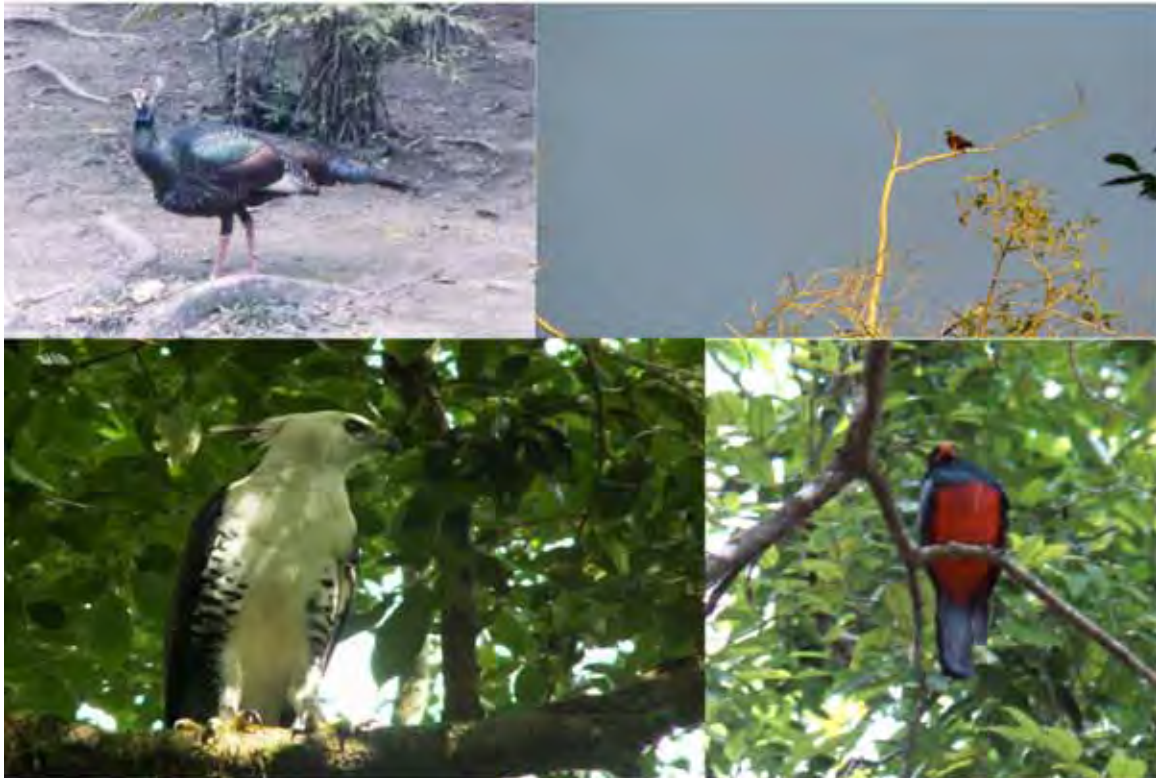
Flora. Among the multidisciplinary studies that are currently ongoing in the Mirador Basin, the outstanding forestry study by Ing Cesar Castaneda, director of the Agronomy and Forestry department at la Universidad del Valle, Guatemala has worked tirelessly to conduct a survey of the entire botanical inventory of the Basin. Castañeda has worked with the sequence of ecological succession and the identification of macro and micro flora in the forested area of Mirador Basin, with attention to the five types of tropical forest found within the natural borders of the area. His ground breaking study should be completed and published during the 2009 season.

Entomology. Biologist Dr. Jack Schuster, director of the Entomology laboratory at the Universidad del Valle, Guatemala, has initiated make an inventory of the entire insect populations in the Mirador Basin area. This study is expected to intensify over the next three year period, and even extend it to other fields of biology. One of the most significant discoveries of the 2008 season was the discovery of three new species of moths which appear to be unique only to the Mirador Basin. The work on the identification and naming of the species is currently underway in the laboratories of Del Valle University.

Mammalian Studies. Work conducted during 2008 by zoologist Hugo Enriquez Ortiz de la Museum of Natural History of the Universidad de San Carlos has begun a large scale investigation of a database and documentation of skeletal remains of fauna found during different archaeological excavations in the laboratory of the project. The work by Ortiz has identified the species and nature of species recovered from El Mirador, Nakbe, Tintal, La Florida, and Wakna, and will provide new insights into diet and animal health and husbandry during the Preclassic and Classic periods. A total of 111 animal individuals were analyzed

representing 17 species of vertebrates, with 14 species of mammals, 3 species of reptiles, and 14 taxonomic families. The study also provided new insights into the ancient landscape systems. For example, Ortiz discovered that the faunal remains recovered from La Florida indicated a closer relationship to the forest (*Agouti paca*) than the species recovered from deeper within the Basin (*Odocoileus virginianus*), suggesting that the geographical borders of the Basin served also as cultural borders. There are few sites to the west of the geographical borders of the Mirador Basin.

Avian Studies. The first of a series of studies conducted by the Ornithology Lab at Cornell University was conducted during the 2008 season in the Mirador Basin. The work, conducted by renowned ornithologists Gregory F. Budney, Marshall J. Iliff, Dr. Eduardo E. Iñigo-Elizas, Dr. Thomas S. Schulenberg, and Christopher L. Wood assisted by Josephine Thompson and Enrique Hernandez of the FARES foundation. The teams recorded 184 species in the Mirador Basin, with 156 species noted at El Mirador and 158 species recorded at Tintal. Of the 184 species, 135 were recorded at both sites, while 21 were noted only at El Mirador and 23 only at Tintal. It is estimated that 325 species will be observed at different times of the year. However, two bird species were discovered which had not been documented previously in Guatemala, the Caribbean Dove and the Hooded Oriole, suggesting the biological importance of the Basin as a major reservoir of bird species in Guatemala. Furthermore, research indicated that a major proportion of migratory birds from the eastern U.S. fly to the Mirador Basin annually, suggesting the intrinsic importance of the conservation of the Basin for the health of U.S. bird populations.



Above: Cornell Ornithology Rapid Assessment



Above: Botany Studies: Universidad del Valle, Prof. Cesar Castañeda

Geological Studies. Geological studies were conducted by Dr. Eric Force and Dr. John Dohrenwend of the University of Arizona and the U.S. Geological Survey and Wayne Howell and Richard Hansen. These important observations provided the geological and geomorphologic data for the area of the Mirador Basin, having obtained samples from the areas of Nakbe, El Mirador, Tintal, and the natural border that surrounds the Mirador Basin. According to Force and Dohrenwend, “the El Mirador region is indeed a structural and depositional basin in its Tertiary geology, although it is less apparent in its present physiography” (Force and Dohrenwend 2008). The geological study of the basin is an important contribution in understanding the geographical nature of the Basin and why it forms an integral cultural and natural unit that is worthy of conservation.

Jaguar Studies. Studies conducted by the Wildlife Conservation Society (WCS) in the vicinity of La Gloria and Carmelita, with funding provided by Jeff and Valerie Morgan, have found some astonishing data relevant to the jaguar populations in the Mirador Basin. Using camera traps where movement fires photo image, WCS found that in the area of the La Gloria Concession/Lechugal area in the southern part of the Mirador Basin, a relatively low density of jaguars was revealed with a concentration of $1.5 \pm .85$ jaguars per 100 km². The low numbers of cats in this area is most likely due to the presence of a logging road and the incursion of loggers, hunters and poachers into the area which not only reduces the numbers of cats, but the prey upon which they feed. This correlates to a marked decrease in fauna, particularly peccary, deer, agouti, monkeys, detected by the Mirador Basin Project crew in the La Gloria Concession area during the 2008 and 2009 field seasons

Work done with camera traps in the Carmelita concession area however revealed a jaguar concentration of 11.28 ± 3.51 jaguars per 100 km², making it the largest concentration of jaguars in the world, exceeding that of the Cockscomb Jaguar Preserve in Belize ($8.80 \pm$

2.25 per 100 km²). According to the WCS, this suggests that the logging concession “has permitted the conservation of an extraordinary population of jaguars” (Moreira et al. 2008: 10). However, the possible flaw in this observation is that the area has remained roadless until only recently, when the concession first began putting logging roads into the area. The relative isolation of this area, comparable with the Gallon Jug Area of northwest Belize, is one of the factors for the success of the jaguar populations in the Mirador area. It is also likely that the concentration of jaguars has been the result of the rampant deforestation to the west of the Mirador Basin, forcing a refuge for survivors of the onslaught of wholesale slash and burn deforestation and depredation in the western Peten. The northern part of the Mirador Basin has an abundance of the peccaries and white tailed deer, which can accommodate the high jaguar populations found within the area.



WCS Study Results:
Cockscomb: 8.80
jaguars/100km²
Mirador Basin:
11.28 jaguars/100 km²

Above: The highest concentration of jaguars in the world are located in the Mirador Basin. It is suggested that the relative isolation of the area, the settlement of refugees from the total destruction to the west, and the abundance of prey are key factors in the dense numbers of jaguars (Photo: R.D. Hansen).



Above: Some of the graduates of the CONALFA literacy program at El Mirador. {Photo: BBalcarcel}.



Above. Interpretive panels and visitor introduction to Carmelita (Photo: S. Lopez).



Above: New interpretation Panels at El Mirador. **Below:** New Welcome to Carmelita signage.





Above: New Investments in Infrastructure – Lodging. **Below:** New Investments in Infrastructure – Access stairways to pyramids and major structures.



Contact Information

For more information on GHF's conservation work in Mirador Basin or our other GHF projects- endangered archaeological and cultural heritage sites in developing countries, see our website under Where We Work at:

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About Global Heritage Fund

Global Heritage Fund is a non-profit, international conservancy formed to preserve and protect humankind's most important archaeological and cultural heritage sites in developing countries. Our timely investments, global network of experts, and advanced *Preservation by Design* methodology work together to create a 'cycle of success' for Global Heritage sites which have high potential for sustainable preservation, tourism and economic development.

Global Heritage sites in developing countries offer one of the most compelling foundations for national and regional economic growth. Angkor Wat, for example, now generates over 30% of Cambodia's GNP through tourism revenues. GHF has current projects this year in eight GHF Epicenters for planning, conservation and training. Our goal is to invest \$20 million over the next ten years into forty Global Heritage sites threatened by neglect, destruction, mass tourism, and urban sprawl.