The First Steps Towards Revitalizing El Pilar ~
BRASS/El Pilar Program
Field Report 1996

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INTRODUCTION

During the height of the Classic Period, the major center of El Pilar was the largest of the Belize River area (Figure 1), serving economic, administrative, and ceremonial functions at the local level and providing the area's link to political and economic interaction at the regional level. A decade of research on the dispersed communities that were once part of El Pilar's domain provides an important context for understanding evolution of the administrative functions at the center. Building upon this strong foundation of residential survey and excavation that characterize resources and community patterns in the Belize River area, the long-range research design of the BRASS/El Pilar Program is aimed at reconstructing the centralization process that underwrote the Classic Maya civilization.

The research at the center of El Pilar is being accomplished through the careful mapping of major and minor architecture, the detailed examination of the architectural features and their construction sequences, and the integration of these important data into a comprehensive interpretation of the development of the ancient Maya community. The design and sequencing of the research, conservation, interpretation, and development projects at El Pilar involves critical management planning. The 1996 field season strategy of low impact investigation provides an important step towards the greater goal to bring the importance of El Pilar into clearer focus. By understanding the chronological development of the residential community, the monumental buildings, burial patterns, and instances of caches at El Pilar, we will be able to determine the regional sphere of interaction, assess local control of labor, and evaluate ancient community participation in the function and maintenance of the center. These investigations provide the key to the conservation program at El Pilar and will make it one of the preeminent ecotourist sites and a model for resource management for the Mundo Maya.

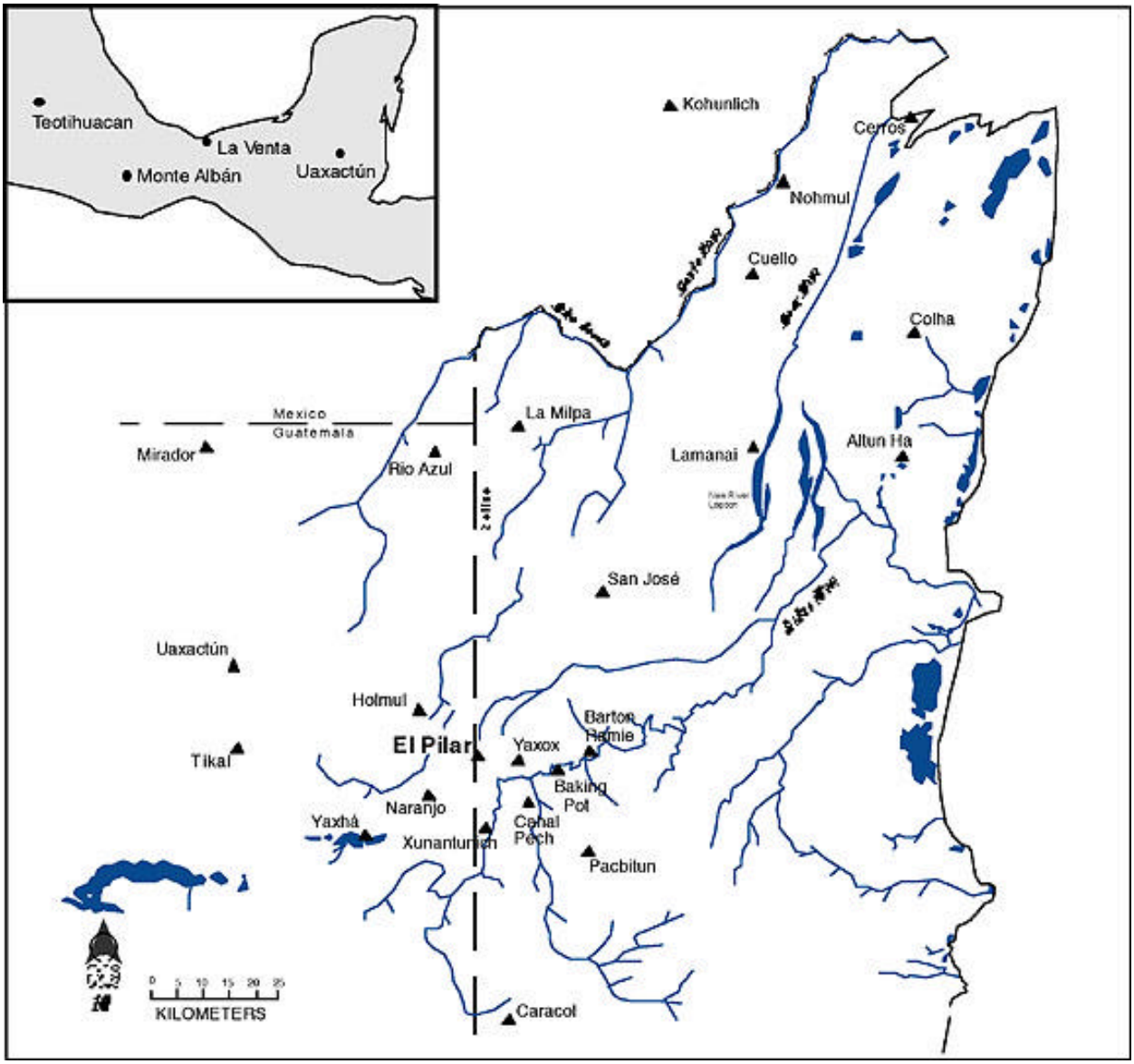

Figure 1: The Central Maya Lowlands with El Pilar and other Major Centers Indicated

In addition to the fundamental research and conservation initiatives promoted by the BRASS/El Pilar Program, the program is actively involved in conservation and development efforts aimed not only at the magnificent architecture of the center, but of its ecological context as well. The conservation management regime for El Pilar is necessarily focused in the local communities located adjacent to the reserve. The program, in collaboration with the Government of Belize, is working with the villagers, and in particular, *Amigos de El Pilar*, to vest the community as participants in and beneficiaries of the archaeological reserve. It is the philosophy of the project that, as with the ancient Maya predecessors, the Maya forest provides an important basis for sustainable development and it is part of our goal to help determine these bases and promote them within the community today.

Research and development goals of the 1996 season revolved around three principal field foci: the investigations of the Maya house, Tzunu'un, along the Lakin Trail; the architectural exposure of the entrance of the Zotz Na and Plaza Jobo of the H'mena acropolis area and the examination of accessways to Plaza Copal; and the development of the forest-garden around the Tzunu'un (Figure 2). Excavations in the monumental core area of the site revealed great complexity and ingenuity of the architects of El Pilar, a source of interest for the archaeologist and the visitor alike. Attention to the example Maya house outlines the nature of residential activities and patterns of construction of a representative residential compound at El Pilar. Work on the revitalization of forest-gardening is a collaborative endeavor with *consejeros* from the riverside communities who, with partners from the Department of Agriculture, are working to better understand sustainability of polyculture in the Maya forest.

The archaeology of El Pilar's monuments, Maya houses, and especially the experimental forest-garden is forging a connection between the El Pilar Program and contemporary villagers. This is being fostered by their direct participation in the assessment of the continuities they recognize from Classic Maya times to the present. Involvement in the exposure of the grand monuments along with the work at the model Maya house and forest-garden is proceeding with their guidance. This collaboration and cooperation will help to set a balanced course of conservation for the greater El Pilar area that is inclusive rather than exclusive.

In addition to these vital field efforts, the BRASS/El Pilar Program also worked at linkages with professionals in Guatemala with jurisdiction over the protection of that portion of El Pilar that falls within the Reserva de la Biosfera Maya of the Petén. These international activities were carried out in an effort to promote a protection plan for the entire site of El Pilar. Towards this aim, the program in collaboration with the Dept. of Agriculture of Belize is developing an international and multidisciplinary design of research and development that can serve as a model for conservation and development in the Maya forest and beyond.

EXCAVATION METHODOLOGY

The procedures of the BRASS/El Pilar Program have been consistently developed and standardized for comparability from year to year. Excavations were conducted by stratigraphic levels, using a modified version of the Harris Matrix adapted for the program. Collections were all screened through mesh to maintain volumetric standards for both contexts of fill and middens. Half-inch screen was routinely employed for collapse and general fill deposits. Activity areas and suspected midden areas were treated specifically with smaller mesh screens or completely collected for laboratory sorting and flotation. The exceptions were the special features. These were either collected *in toto* or screened using a quarter-inch mesh. All collections were processed in the field laboratory and cataloged in a lot number system by major artifact classes. These data were input and stored in computer files for analyses.

Field excavations followed natural stratigraphic levels and records were maintained by cultural strata. Excavations proceeded with hand tools (shovel, pick, pick-a-hoe, trowel, and scoops), except where areas demanded a finer touch. All ceramics and lithics larger than 2 cm were collected in the field from screens for later analysis. All bone, obsidian, and miscellaneous artifacts were kept as well as any organic samples in quantities sufficient for C14 dating. Strata were identified visually and described using Munsell colors and an inclusion guide from the Portland Cement Association (PCA) handbook. Strata were defined in terms of soil type (i.e., sandy, loam, etc. from the PCA Soil Primer), dry soil color (with a Munsell Soil Color Chart), and size, type, and percentage of inclusions (sizes range from boulders, cobbles, gravel and pebbles; type generally ranged from limestone to chert).

EXCAVATIONS IN THE MONUMENTAL SITE CORE

The 1996 excavations operated with a small crew to focus primarily on a representative residential sector of El Pilar. Four extensive excavations at the monumental core area of El Pilar were undertaken and revealed a wealth of well-preserved architecture. These exposures help us better understand how the structures and plazas of El Pilar work together as an integrated whole.

Two excavations were completed in the acropolis area; 1) a section of the Plaza Jobo complex, named EP22W below the pyramid EP20 and 2) further excavation in Plaza Subin in front of the Maya tunnel, Zotz Na (Figure 2). Another excavation opened the southwest room in EP3 CTR between Plazas Copal and Axcanan. The other two excavations examined the connection between Plaza Copal, Plaza Duende and a linear feature connected to the eastern ridge tentatively assessed as an accessway.

H'mena Acropolis

Plaza Jobo and EP 22 W

Surface indications suggested that structure EP22, delineating the north side of Plaza Jobo (Figure 3), was a three room-long range building, with a probable passage through it in the center. On the west, the structure appeared to be built against the center of an apron stairway to the top of pyramid EP20. Plaza Jobo is representative of the complexity of the H'mena outcrop. It is outlined by structure EP23 on the east and pyramid EP20 on the west and the pair of range buildings EP21 and EP22 on the south and north sides respectively. The westernmost third of

EP22, or EP22W, preserved visible surface remains of a corbel arched room and had been partially filled with rock during the 1993 field season for protection.

Our initial purpose at this excavation site was twofold. The first priority was to excavate the southwest room of EP22 and assess the viability of consolidating the structure so it could remain open to the public. Second, the crew was to determine how structure EP22 connected with the great pyramid, EP20.

Excavation began on March 21 and the rock fill was quickly removed revealing a rough, but nearly intact, corbel vault. Much of the center of the vault was missing but the two gable ends continued nearly to the capstones. In the following days it was noted that the structure was two-thirds filled with sandy loam and a few, obviously collapsed, corbel arch stones. This structure appears to have been purposely dismantled and then later filled over a period of time. Some of the larger collapsed corbel stones were standing on end and there were no signs of distinct strata. It is also noteworthy that there were almost no artifacts recovered from this excavation.

Our first discovery was the structure of the southern door (Figure 4). It is a door approximately one meter wide by 1.8 meters high which the project left filled due to the deteriorated state of its capstone. The truly interesting part was that it was lined with almost uniform brick-like stones giving it the outward appearance of a brick mortared arch. Another discovery was that the north wall had a communicating doorway that was subsequently plugged to restrict access. Lastly, as the excavations neared the floor, the crew encountered a perfectly preserved L-shaped plaster bench filling half of the room. This room configuration conforms to the palace benches of major centers in the region.

In order to assess the structural integrity of the room's south wall as well as pursue the examination of the relationship of EP22 to EP20, a one meter wide trench was excavated on the south side of the structure. It was quickly determined that the south exterior wall, with the exception of the doorway capstone, was in good condition. Continuing with the excavation, the crew also located the low but well-preserved remains of an east-west running wall [(WL)2213] in the southeast corner of the trench and a higher north-south running wall [(WL)2212] in the west end. The floor of Plaza Jobo proved to be unblemished plaster of superior quality. Moreover, both the exterior of EP22 and wall 2212 had a plaster basal molding. The basal molding on wall 2212 was larger than that of EP22 (23 cm vs. 12 cm) and showed traces of red paint.

The excavations were widened to determine the nature of walls 2212 and 2213 and in the course of these excavations it became clear that the west end of Plaza Jobo was enclosed, not by EP20, but by a two room structure with a raised inner room with a large bench. This structure was given the identification number EP53. A twin to wall 2213 [(WL)2216] was discovered, the two of which formed the front wall. A great number of collapsed corbel vault stones in both the outer and inner rooms indicate that they were vaulted. Another interesting discovery is the plugged area between wall 2212 and structure EP22, possibly originally a passageway (Figure 5).

Structure EP22W is relatively straightforward (Figure 6). The spine wall, built of finely chiseled 20 cm by 60 cm blocks, was constructed first. The other room walls, which abut the

spine wall and have continuous knit rounded corners in the southeast and southwest, were built in one later episode. These were evidently intended to be plastered judging from the relatively poor quality of the masonry work which is comprised of tabular blocks (5-10 cm by 20-60 cm) and chinking. The western portion of this wall continues west and north one meter from the spine wall forming a doorway, presumably to the northern room, in the northwest corner. This door was later filled in and blocked.

The southern door of EP22, on to what was presumed to be Plaza Jobo, also appears to have undergone a remodeling. A clean vertical seam is visible, both on the interior and exterior walls, which frame an
opening of two meters, later narrowed to the present doorway (with the brick-like stone, see Figure 4) one meter wide.

The new structure EP53 complicates the configuration of Plaza Jobo and its relationship to the EP20. Surface indications would lead one to believe that the pyramid EP20 was accessed by a stairway from the eastern side and it was with this expectation that we examined the interface of EP22W and EP20. Instead we found that there was a two room deep corbel arched structure at the west end of Plaza Jobo directly against the pyramid base. This structure has a large 2.33 meter front entrance that originally was supported by a perishable lintel. Today these walls exist to only about one meter in height. The first room has a plaster floor and the basal molding/step into the next room which is also plastered and shows traces of red paint. The back room is entered via the 23 cm step and through an inner door approximately 2 meters wide. In contrast to the front walls, the spine wall is preserved to approximately two meters. The spine wall is 1.34 meters thick, is built on top of [(FL) 2217] and has a 12 cm diameter ceramic framed cordholder offset in the jamb, 40 cm from the floor and 79 cm from the front edge.

The back room is mostly taken up by a well-preserved plaster bench. The bench is 65 cm high and 1.47 meters deep. It wraps around on the north side of the room (only the side that has been cleared) and has an inset kick with an overhang. The north wall of this room also frames a 1.7 meters high corbel arched doorway that is in very bad shape. The Program did not attempt to excavate further to the north due to the condition of the doorway. Many of the stones in the doorway's corbel, and possibly in the rest of the room, seem to be held near their original positions by collapse material from the structure and a careful excavation of this area in the future may enable us to piece it back together.

Structure EP53 is constructed with a finer masonry style than EP22W. The blocks are large (20 by 60 cm) with fine mortar joints as opposed to the tabular stone and chinking style in EP22W. The spine wall [(WL)2212] of EP53 adjoins the facade of EP22W and it appears that this section between the structures [(WL) 2223], 80 cm across, was filled in at some later time. The doorway in the inner room of EP53 is in line with the edge of this filled area.

The objective of the EP22/Plaza Jobo excavation was to determine the access of EP20. So far what is known of the relationship between EP53, EP22W, and the pyramid EP20 is mostly conjecture. We have found a small area of plaster above EP53 at what once may have been roof height (40 cm wide by 1 meter long). This plaster surface adjoins a two meter high vertical wall

which ends at the top surface of EP20. It is hypothesized that access for EP20 was gained from the roof surface of the buildings but it is still unknown where the roof area was accessed from.

At the close of the 1996 season, structures EP22W and EP53 were protected by placing a 20 cm layer of backdirt over all horizontal plaster surfaces, a rock and plywood brace for walls 2209/2204 and a tin and felt roof over the unit. This structure will protect the excavation from rain damage and allow quick access during the next season for a consolidation team. This area is a stunning representation of the labyrinth of the H'mena area. The complex of interconnected rooms and the shifts and changes in the construction history need to be carefully studied and the well-preserved rooms, doors, and benches need to be conserved for visitors viewing. The ultimate goal is to be able to leave these two rooms open to the public for education and enjoyment.

Zotz Na

Zotz Na (or "bat house" in Mayan) is a 10.3 meter corbel arched tunnel which once led from Plaza Ixim to Plaza Subin, bypassing the structures on the acropolis (Figure 7). The tunnel was sealed by the ancient Maya with rough stones and lime mortar and restricted movement west of Plaza Subin into Ixim. In the Terminal Classic to Postclassic periods the ancient inhabitants of El Pilar began to use the tunnel interior for disposal of materials, thus a series of broken vessel pieces have been recovered from its floor. The tunnel itself was first excavated during the Program's 1994 field season. The initial excavation, outside of the tunnel mouth and down to the floor of Plaza Subin, had been rather small and it was felt a larger excavation would make it more accessible for public viewing of this dramatic vaulted room.

It was immediately noted upon inspection that the previous excavation had stopped 10 cm short of a wall on the south side of the doorway. A part of this wall, running east-west and adjoining the western wall of Plaza Subin, had been exposed through fill and collapse erosion. A new excavation of the area in front of Zotz Na had two goals; first, to widen the entrance excavation to expose more of the tunnel door facade and facilitate the installation of a new access stairway and, second, to pursue the southern wall east to its conclusion. After clearing the 10 cm of soil from in front of the southern wall, [(WL)Z09], a one meter wide trench was dug three and a half meters to the east along the wall (see Figure 5). Wall Z09 is slightly inset (18 cm) and abutting [(WL) Z06]. It had been determined in 1994 that wall Z06, which is battered (75^{o}) and has a thick plaster layer on it, was a lower platform of pyramid EP19 to the south. Wall Z09 was a surprise because it was thought that EP19 had inset corners, as indicated by remnants of walls above wall Z09 in the southwest corner of Plaza Subin.

Wall Z09 is also battered (75^{o}) and has been heavily damaged by collapse from the pyramid above. The wall continues 4.5 meters to the east gradually decreasing in height from 1.7 meters to one course of limestone blocks due to damage. No definitive corner was reached but the floor of Plaza Subin began to fall off and a small parapet wall or foundation along Subin's eastern edge was uncovered. This wall [(WL)Z14] was one to two courses of limestone block high and approximately 1 meter wide and bears a great resemblance to the wall excavated along the northern edge of Plaza Manax in 1994. There was also a gap of 10 cm between walls Z14 and Z09.

An extension of the old excavation to the north brought the unit to 1.8 by 2.6 meters overall and exposed more of the facade of the Zotz Na. Upon completion of this excavation a new stairway was constructed making Zotz Na more accessible to the public.

With technical support from Mexico's Instituto Nacional de Antropologia y Historia (INAH), the front facade, parts of wall Z09 and a number of looter's holes just inside the doorway were consolidated. Each consolidated area was marked out by the use of small polished limestone tiles, or "rejuelos," manufactured on-site. This team (Archaeologist Alan Maciel Vallejo, Construction Technician Norberto BeKu and Santos Humberto Cavic Huchin) worked with members of the El Pilar staff. This experience was an on-site workshop designed to expose the El Pilar Program crew to the methodologies used in reconstruction as well as excavation of monumental structures so that, in future years, we will have an in-house capability for consolidation and stabilization.

Around Plaza Copal

EP3 CTR SW

Once again we returned to structure EP3, excavated previously in 1994 and 1995 (Figure 9). In 1994 the passage through the structure was located and a one meter wide trench along the eastern jambs was excavated through the structure. During the 1995 season this excavation was widened to include the entire area between the southern exterior room's jambs and the jambs of the spine wall. The northwest jamb was left unexcavated due to the presence of a large tree.

It was decided that, during the 1996 field season, the Program would excavate one half of one of the rooms at EP3 CTR and leave it open for public access. The southwest room was chosen for ease of excavation and the humus and collapse were quickly removed. This exposed a 1 by 2.5 meter room off the central passage filled primarily by a 1.67 meter plastered bench 62 cm high. Preservation of the walls was good, especially for the spine and partition walls which were standing to approximately three meters. The walls were of a masonry style similar to that of EP22W. They were fashioned of tabular blocks and chinking liberally covered with plaster. There are at least two layers of plaster on the walls totaling four centimeters in total. The plaster floor also proved to be characteristically fine and unblemished, as is that of the entire passageway.

The passageway in EP3 CTR shows some striking similarities to that in structure A13 at Xunantunich (see Jamison and Wolff, 1995).[1] In A13 the outer rooms contained benches along their back walls, inset from the passageway and against the spine wall, while the inner rooms opened directly on the passageway and were primarily taken up by large benches.

D WALL

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[1]Jamison, T.R. and G.A. Wolff
1995 Excavations In and Around Plaza A-I and Plaza A-II in The Xunantunich Archaeological Project: 1994 Field Season.

This excavation was planned to examine the access relationships between Plazas Copal, Duende and a linear feature on the east side of the site core (see Figure 2). The area is intriguing — Plaza Duende appears to wrap around Plaza Copal to the east and south in this corner. In addition, Plaza Copal itself has an unusually large open area on the eastern side of EP8 and a passage between EP8 and EP7. Also, the Plaza Copal platform wall, while elsewhere well-defined vertically, is considerably lower-sloped in this spot. In addition, there is a linear stone feature stretching from this point across a swale to the eastern ridge and a group of structures there (see Figure 2). This linear feature is thought to be an accessway into Plaza Copal from the east.

The initial unit was a simple 1 by 1 by 3 meter trench north-south across the linear feature at a point approximately 3.6 meters east of the edge of Plaza Copal. This excavation revealed finely chiseled stone with some plaster in an apparent wall. The strata on either side of the wall were dramatically different. That to the south was a brown sandy loam while to the north were several layers of a gray loam, possibly part of a ramp construction. The bedrock in this area was only a little over one meter down and had been heavily worked in the past in large step-like excavations. A connecting trench reaching from the edge of Plaza Copal to the initial excavation was started next. This excavation found yet another strata, a rough step-like configuration of limestone and consolidated lime reaching down to the bedrock in the first excavation.

The evidence seems to support our theory that there was egress in this area. The excavation could not tell us, however, if this access was just to Plaza Duende via this "backdoor" or whether it connected to something further east. Unfortunately, the upper reaches of the linear structure were not well enough preserved to determine whether this was a causeway or wall. It is hoped that future field seasons will be able to examine the wall more closely in several places, where it appears to be better preserved.

Summary

The 1996 excavations in the site core have added to our knowledge of the complexities of El Pilar. Although much is now known about Nohol (the southern section) Pilar, we are only beginning to reconstruct the ways that the complicated northern structures were related. The excavation of a large part of the Plaza Jobo complex, for example, suggests that the acropolis had even more restricted access than originally thought. Pyramid EP20, the highest point in the eastern section of the site core, was the most restricted access that may involve an elevated entrance or hidden stair. These obstacles to reaching the great pyramid of EP20 highlights its importance.

This season of field work also raised a number of questions. In the south, the excavations at DWALL underscores the importance of determining the nature of the linear feature and its relationship to the group of buildings on the ridge east of the site core. In the north, the excellent preservation of the Plaza Subin floor and western wall needs further attention. As there are no visible structures in Plaza Subin it is surmised that there are rooms off of the plaza extending under the upper western surfaces of the acropolis.

Our extensive excavations also bring us face-to-face with decisions of stabilization and consolidation. The BRASS/ El Pilar Program has charted a strategy for research with the ultimate aim of presenting El Pilar in its best light. The plan is for the research to inform the consolidation

efforts, and the consolidation efforts to spotlight the unique features of El Pilar. In considering the presentation of the monuments of El Pilar, we would leave open for public viewing only those areas that are representative examples, and can also be properly protected and maintained in the future. Since the BRASS/El Pilar Program is a partnership, the achievement of our objectives involves a balancing act between eco-tourism concerns and the resources of both the Program and the Government of Belize. We must determine not only what we can consolidate today but must also consider whether a current solution is maintained long after the Program has left Belize. It is with great enthusiasm that the Program greets the participation of technical experts from INAH (Mexico) and the introduction of consolidation at El Pilar in the 1996 season.

THE EXAMPLE MAYA HOUSE

Excavations in the Tzunu'un(272-025)

A major thrust of the 1996 field season was the survey and excavation of a large and presumed elite residential compound of El Pilar. The site 272-025, or Tzunu'un, was among the originally tested residential units of the survey phase of the BRASS (Belize River Archaeological Settlement Survey) project. The selection was based on the overall composition of the site as a representative example of the residential component at El Pilar. The residential group includes 5 major structures surrounding an open plaza area, with ancillary platforms and / or structures noted on the west side. In addition, its size, proximity to the site center, and location along an established reserve trail added to its potential.

Tzunu'un is located just east of the southern portion of the monumental site core of El Pilar (see Figure 2). In between the site core and the plazauela compound, lies a large ancient aguada and the modern Pilar - Yaloch road. Tzunu'un consists of five principal structures on a raised courtyard platform approximately 1 meter in height (Figure 10). The structures are arranged around a square open courtyard space. Two of the structures are large stone buildings defining the southern and eastern sides of the courtyard. The other three main structures are low mounds, each less than a meter in height. Two are positioned on the northern edge of the courtyard and one on the western edge. In addition, there are less defined construction features to the west, in association with the plaza courtyard. The excavations of Tzunu'un were conducted employing the same methods as used the intensive residential unit excavation phase of the BRASS project in order to facilitate comparison. There were three phases to the work at Tzunu'un: 1) mapping and survey, 2) activity area post-hole testing, and 3) structure excavations. The household courtyard compound was first mapped and tied into the El Pilar site grid. Then, the area around the household compound was investigated by post-hole testing to define activity areas. Activity areas tentatively identified outside the plazauela courtyard in the post-hole tests were further probed with 2x2 meter test units. The final phase of the season's excavations focused on the two principal stone structures. Large units, opened in 2x2 meter grids, were excavated at each of these structures within the compound. These excavations defined the perimeters of the two large structures on the Tzunu'un.

Survey and Mapping

During the 1995 field season, as part of the project to set the Reserve boundaries, the survey crew established a site grid. The 0 north, 0 east point is located at an Interamerican Geodetic point (E 10) in the center of the south parking lot. This point was used as the origin of a traverse to plot the site 272-025, Tzunu'un. The instrument used was a Topcon GTS 203 and the survey crew consisted of 3 people.

The survey was conducted following the Lakin Trail north, up to Tzunu'un. The residential unit was entered from the southwest corner of the courtyard platform and a benchmark was placed in the center of the plaza. The crew then surveyed west to the Pilar road. To close the traverse, two more points were shot, one further south and west down the Pilar road and the second from the Pilar road back to the geodetic point in the parking lot. In total 8 traverse points were used to link Tzunu'un to the El Pilar grid.

Topographic and structural survey was conducted within the Tzunu'un courtyard compound during the field season. At the initial phase, the residential unit was tied into the larger El Pilar map with a permanent concrete benchmark (TN5). This data point was placed within the courtyard of Tzunu'un. The next phase of mapping involved the placement of a second permanent benchmark just outside the plaza to the southeast (TN 8). Using these permanent benchmarks, mapping points were taken around Tzunu'un over the rest of the field season recording topographic aspects as well as excavation unit locations and structural components exposed in the excavations (Appendix I).

After the plazauela compound of Tzunu'un was mapped, a transit point N 162 E 29 was shot 12 meters from the northern edge of the plaza to establish a grid over the site. This grid is linked to the overall site grid used by the El Pilar map and was used to locate the post-hole tests investigated to identify activity areas. Stakes were placed every 4 meters on the grid using a tape and a Brunton compass. The metric grid coordinates were used to identify each of the units excavated around 272-025.

Activity Area Investigation: Post-hole Testing

In keeping with strategies developed in the intensive excavation phase of the BRASS project, post hole tests were investigated within a circumference of 12m surrounding Tzunu'un courtyard. Post-hole testings were conducted at Tzunu'un to identify areas of concentrated cultural activity, middens, and use zones.

During this phase of the field work, field crews varied from 3 to 6 people. The procedure was: the establishment of the grid; set the test areas with stakes; and then to proceed with the post-hole testing phase. Post-hole test units were placed every 4 meters within the 12 meter circumference of the Tzunu'un courtyard. As with all excavations, an effort was made to excavate until bedrock or, as in the case of post hole tests, where the unit became too deep to extract materials.

All excavated soil from the post hole tests was screened through 1/4" mesh and all artifacts were classified, itemized, and counted in the field. The depth of each post-hole was recorded and any unusual features were noted. Given the small nature of the units it was impossible to discern any but the most conspicuous changes in stratigraphy.

A preliminary examination of the artifact densities highlighted two areas for further investigation. The first area, off the southwestern corner of the courtyard platform, had a cluster of obsidian artifacts recovered in testing. The second, off the southeastern corner of the courtyard, revealed a high concentration of both ceramic and lithic artifacts. The results will be discussed below in the section on off-plaza excavations.

Further analysis of the artifact densities in the post-hole tests highlighted absences as well as presence. To the north of the plaza group, there were very few artifacts recovered within the 12 meter

use area surrounding the residential unit. The soil there is a rich mix of loam and clay, with the clay content increasing towards the western-most test units. It is posited that this area may have been utilized for the cultivation of a household garden and to provide separation from the plaza's nearest neighbors.

Off Plaza Excavations

Two units were excavated based on the data derived from the post-hole tests (see Figure 10). The first OPSE9, was excavated in the southwest corner where a cluster of obsidian artifacts was recovered. The second, OPSE47, was excavated in the southeastern corner where the post-hole tests indicated a high concentration of ceramic and lithic artifacts. This latter area had the greatest potential of revealing a midden area for study.

OP SE 9

This unit was located in the center of the obsidian artifact concentration, in the southwestern part of the test area near the corner of the plaza courtyard. The unit excavated had a post-hole test in the center of it, so the artifacts from the post-hole test were considered part of the findings from the unit as a whole.

There were 6 strata identified in the course of excavation. The first 2 strata were the humus [0-01] and a dark, loamy soil that showed an increasing amount of limestone rock inclusions [0-02]. A cultural feature covered nearly 75 percent of the 2x2 meter area. This feature was a shelf of compacted limestone cobbles in a very solid matrix of soil approximately 11 centimeters from the surface [stratum 0-04]. It was not present in the southwestern quadrant of the unit. Two more strata were excavated before hitting bedrock [strata 0-03 and 0-05]. The bedrock in the southwestern quadrant was deeply pitted and uneven and had clearly been altered by the ancient Maya (Figure 11). To further investigate the cobble shelf, part was removed from the southeastern quadrant to determine the artifact content and to determine what lay underneath. The entire stratum was only 7 centimeters thick and was directly overlying smooth, unworked limestone bedrock. It appears that the ancient Maya excavated into the bedrock to create the cultural features of the unit (Figure 12).

As expected from the post-hole tests, a concentration of obsidian artifacts was found. It was noted that more of the obsidian artifacts were located in the eastern half of the unit in strata 0-01 and 0-02, while in stratum 0-04, there were no artifacts at all. It was also noted that as the excavation neared the worked bedrock in the southwestern part of the unit, the artifact density decreased. The obsidian artifacts recovered from the unit were all pieces of broken prismatic blades. There were 17 pieces of obsidian recovered from this unit, including one from the post-hole test. There was no evidence of manufacturing of the obsidian artifacts in this activity area. The broken prismatic blades may have been dumped in that area because it was out of the way of normal foot traffic.

OP SE 47

The second 2x2 meter unit to be excavated at Tzunu'un was located on the southeastern side, just off the plaza area. The unit was located based on the high concentration of both ceramic and lithic artifacts (see Figure 10) recovered during the post-hole test phase.

In the 3 strata excavated above the bedrock, there were no discrete cultural features. The strata were so similar that after the humus was cleared, an arbitrary level determination of 15 centimeters was used for excavation.

Despite the uniformity of the soil matrix, a number of interesting artifacts were recovered during the excavation. There was a large volume of both ceramics and chert lithics. The ceramic assemblage includes mainly body sherds (large and small), but also some diagnostic forms (rims, bases and necks), and a variety of vessel pastes from Mars Orange (Middle Preclassic) to Ash Temper (Late Classic). Analysis of the diagnostic ceramics will help to place Tzunu'un within a chronological framework.

A number of obsidian artifacts were recovered, ranging from broken prismatic blades to a part of a core and pieces of debitage. One of the prismatic blades was made from Pachuca obsidian. The distinctive green colored volcanic glass is perceived to be an indicator of the Early Classic period, when the center of Teotihuacan purportedly controlled the source and traded it widely throughout Mesoamerica. Other exotic artifacts included, shell (aquatic, probably marine), hematite (part of a mirror?), and a small black unclassified stone that is mostly smooth with some small pitting on one side.

Excavation and preliminary analysis of the material from OPSE47 suggest that this area may have been a midden. The terrain slopes slightly away from the elevated plaza courtyard and so their trash would wash down hill. Furthermore, the presence of large ceramic sherds indicates that this area was not subject to heavy pedestrian traffic.

Excavation of Structure 1

Structure 1 of Tzunu'un is the largest structure in the compound. It consists of a large platform nearly 12 meters long, 5 meters wide, supporting a collapsed stone structure about 2 meters high. This north facing building defines the southern border of the plazauela courtyard compound. Near the southwestern corner of the building, there is a large looters' trench that exposed three floors and two walls of an interior room. The trench also revealed that part of the platform base was constructed of clean cobble fill. At the beginning of this season the looters' trench was cleaned and a detailed profile was prepared.

This important structure was investigated to determine the nature of the construction at Tzunu'un. This would help to define the form and function of Structure 1 to help place its part within the larger context of the plazauela compound. Investigations were confined to the last occupation of the building.

1 CTR

This excavation began as a 2x2 meter unit and extended to uncover most of the north, wall of Structure 1. The excavation covered an area of approximately 17 square meters and was accomplished in 22 levels. The original 2x2 meter unit was placed at the base of Structure 1, slightly east of the center of the structure. The purpose of the unit was to determine the number and condition of the plaza floors and the depth of bedrock. The unit subsequently grew in size in order to delineate the northern exterior of Structure 1.

During the initial excavation three plaza floors were uncovered, [(FL) 1-04], [(FL) 1-06], and [(FL) 1-07]. Floor 1-07 was the cleared surface that had been smoothed out by the Maya. This was the earliest plaza surface uncovered for Tzunu'un. Floors 1-04 and 1-06 were made of compressed cobble and soil matrices and had scant remains of plaster on them. Once the first floor was uncovered, [(FL) 1-04], it was followed south towards the center of Structure 1 in an attempt to identify the front wall of

the building. Almost immediately a fourth plaza surface [(FL) 1-09] was identified and subsequently followed south.

The unit was extended 7 meters to the south proceeding in an effort to define the north face of the structure. A small platform riser wall [(WL) 1-20] was uncovered approximately 2 meters from the north wall of Structure 1. The wall was a low platform and made of large, rough, chert cobbles. Eventually the northern wall of Structure 1 was identified, [(WL) 1-24] (see Figure 10). Excavations followed the wall down to the first floor [(FL) 1-26], which was in relatively good condition when compared with the plaza floors north of the structure. The floor [(FL) 1-26] and the wall [(WL) 1-24] were followed to the west to isolate the northwest corner of Structure 1. Floor 1-26 remained in good condition for most of the length of Structure 1. Fifty centimeters before the corner, the remains of yet another floor and fill complex were uncovered approximately 21 centimeters above floor 1-26. This complex [(FL) 1-28 and 1-29] is very small and in poor condition. The details of the northwestern corner will be discussed more fully in the section dealing with unit 1 BK W.

There were few interesting artifacts recovered in the 1 CTR excavations given its extent. As expected in any residential group, the majority of the ceramics and lithics recovered were (in the preliminary analysis) domestic in function; manos, parts of metates, ollas, and fragments of other basic ceramics vessels. There were a number of broken obsidian prismatic blades represented in the sample, marine shell and two pieces of jade (a fragment of a bead and 1 piece of debris) which is in keeping with the presumed elite status of the residents. Due to its rough texture and buff color, Late Classic ash tempered pottery is easily noted and a considerable amount of ash tempered pottery was recovered during excavation. Other ceramic temporal indicators, more difficult to identify in the field, will be determined in the laboratory analysis.

1 CTR E

This unit began as an extension of the 1 CTR excavation., and ultimately covered an area 10 square meters in extent. The crew used the same datum as that of 1 CTR and began the unit by following the northern exterior wall and floor of Structure 1 [(WL) 1-24, (FL) 1-26] to the east. They excavated to floor FL1-26 and followed it and [(WL) 1-24] to the northeastern corner of Structure 1. At this corner of Structure 1 floor FL1-26 disappears from evidence and all that is left is compressed cobble ballast. The poor state of preservation extended to the northeastern corner of Structure 1, where walls WL1-24 and WL1-30 intersect. These walls were not in good shape. Several large blocks from the structural collapse [1-10] seem to have pulled away portions of the corner and the exterior eastern wall [(WL) 1-30].

Excavations proceeded to follow the poorly preserved eastern wall [(WL) 1-30] south along Structure 1. There was no evidence of floor FL1-26 or any other floor found along the eastern side of Structure 1. By the end, the excavations exposed the easternmost wall of Structure 1 to the point where the eastern and southern walls joined.

There were very few artifacts found in this unit compared to other areas around the structure. Nonetheless there was one partial granite mano found that was in fairly good condition. The absence of artifacts may relate to the midden identified in the activity area tests off the plaza area nearby in OPSE47.

1 BK W

Unit 1 BK W was opened to expose the western exterior wall of Structure 1. A looter's trench in the south west corner of the mound had exposed a corner of the structure and what seemed to be the exterior wall [(WL) 1-18].

There was very little humus visible over this part of the mound probably due to looter activity. It was decided to remove the humus [1-01] and collapse [1-10] as one level. The excavations followed wall WL1-18 and floor FL1-11, both originally identified in the looter's trench, to the north and west. This exposed a concentration of human bones on the floor [(FL) 1-11]. Excavation was halted and the top layer of the collapse was removed so that the bones would not be disturbed. Once the area of the possible interment was defined, and the extent of the deposit was considered of a manageable size, we proceeded to document and remove the bones.

The remains were collected as Burial 1, [(BU)1-23]. The location of this interment was in a 85 cm x 60 cm oval pit cut into floor FL1-11. Immediately over the top of the burial was the fill [1-22] between two floors, [(FL) 1-11 and (FL) 1-21]. Floor FL1-21 was identified after the burial was discovered and lies approximately 31 cm above the burial. It is postulated that the floor was a cap placed over the burial.

The excavation of Burial 1 took three days. The bones were removed from the deposit in three distinct layers using a trowel and soft brush. The fill was very fine and friable which made it easy to delineate the bones. All of the soil directly associated with the burial was kept for fine screening and flotation. There were very few fragments of ceramic and lithic artifacts associated with the remains and none were reconstructable. Prior to removal, the bones were photographed and mapped. Each of the fragments were collected after the assignment of a location number for identification purposes, as the associations of the bones were mixed.

A preliminary laboratory analysis of the bones suggest that the remains represent one adult individual, age and sex as of yet undetermined. The material consisted primarily of paired long bone shafts with no epiphyses, or unfused bones present. There was no evidence of teeth, phalanges, ribs, vertebrae, mandible or maxilla. In this preliminary analysis, it is difficult to determine any signs of pathologies, intentional damage, or post-mortem trauma due to the deteriorated state of the bones.

As the recovery of small bones, such as teeth and phalanges, usually suggests a primary burial, the absence of this material suggests a secondary inhumation. Further evidence of a secondary interment is that the placement of the bones were not in a pattern associated with an articulated skeleton. The bones were scattered in an small area within the pit (roughly 50 cm square), close to wall WL1-18. The bones closest to the wall were in better condition than those further away from the wall. This suggests that the wall acted as a protective force in some point in the interment process. Finally, the burial pit is a small area, and an articulated adult skeleton, even in the most flexed position would take up a larger amount of space.

After the burial was recorded and removed for analysis, the excavation of the structure continued. The crew followed wall WL1-18 and floor FL1-21 approximately 30 centimeters more until they hit a wall that runs east-west [(WL) 1-25]. As excavation moved further north, the condition of the floor FL1-21 improves dramatically in preservation. Wall WL1-25 extends for 1.85 meters east-west. It was at this point that it became clear the wall [(WL) 1-18] was not an exterior one. Wall WL1-25 is in good

condition and is made of cut limestone block. There was no plaster remaining on the surface of this wall. In the northeast corner of the wall WL1-25/1-18 interface, there is a narrow doorway that has been purposely sealed with well-cut stone. Adjacent to wall WL1-25 on the west side is wall WL1-27, the actual exterior wall of Structure 1. This wall was followed along the outside of the structure and along the length its condition deteriorated. The faced blocks had been placed three courses wide and were cemented together with limestone mortar. Over time, and with collapse of the upper portions of the building, the outer layers of blocks had started to peel away from the side of the structure. The remains of the wall [(WL) 1-27] were followed north until they reached the northwestern corner. The corner had been partially destroyed by the collapse of the structure, however, enough remained to determine its dimensions.

This area of the excavations, like those on the east side, yielded few artifacts. It appears that the exterior rear and sides of the structure, particularly the upper portions, included few artifacts of note. There was some obsidian, but only a few small fragments of ceramics and lithics. It is likely that the majority of the artifacts washed down to the lower elevations towards the plaza floor.

1 BK S

This unit was begun as an extension of unit 1 BK W. Following the interpretations from the profile of the looter's trench, which indicated where floor FL1-11 contacted the southern most exterior wall [(WL) 1-31], we continued the task of delineating Structure 1. We followed wall WL1-31 and floor FL1-11 to the east. First, the humus layer was removed across the 1x6 meter trench. Identifying wall WL1-31 in the process. This wall was followed down approximately 1 meter to the floor [(FL)1-11]. The wall [(WL) 1-31] was cleared all the way to the southeastern corner of Structure 1 where it joins with wall WL1-30. The south structure wall is generally in good condition along the excavation length. The exception is in the last 3 meters near the southeastern corner which has slumped out southward due to the collapse of the upper portion of the structure.

During the excavation few artifacts were recovered in the collapse [1-10]. However, near the surface of the floor the number of artifacts increased slightly. Artifacts recovered include fragments of tools and utilitarian ceramics, as well as some of the finer wares associated with the elite.

Excavations at Structure 2

Structure 2 is located on the eastern side of the plaza and defines that side of the residential unit. The excavations at Structure 2 were begun to define the corners of the structure. This structure is roughly square, limestone building; 7 meters long, 6 meters wide and 1.19 meters in height situated on a foundation platform. To the south and west is Structure 1 and to the north and west is Structure 3 and Structure 4 (see Figure 10). There appears to be a low mound-feature that connects the southern end of Structure 2 with the northeastern end of Structure 1. It is possible that this feature represents a wall that restricts access to the plaza platform from the east side.

Excavations at Structure 2 were modest in extent. There were four 2x2 meters units, one on each of the corner areas of this squared structure. Efforts were made to define the perimeter of the structure in order to plan for more in-depth excavations. Data from these units will help define future investigations and consolidations of Structure 2.

The northern units exposed corners that were in poor condition. Three walls were identified in these units. Two that run north-south, wall [(WL) 2-03] on the west side, and wall [(WL) 2-08] on the east. The third wall extends between the latter two walls and runs east-west [(WL) 2-05]. The two north-south walls appear to have been constructed using the same technique as in wall WL1-27 of Structure 1. The walls are two courses wide and bound together with a limestone mortar. As in Structure 1, this mortar is allowing the stones to peel away from the side of the structure.

On the other side of Structure 2, the southeast corner is better defined. In this corner it is evident that the back of the structure was raised on a platform on the east side to make it level with the western face in the courtyard plaza. There was a high concentration of artifacts in the southwestern side of this unit, suggesting another possible midden location.

The fourth unit did not uncover the southwestern corner of Structure 2. Wall WL2-03, first encountered in the northwestern unit, also ran through this unit. However, the 2x2 meter unit was not placed in such a position to easily encounter the corner. Another complicating aspect was the presence of possible human bone in the northwestern portion of the unit wall. The bone was encountered in the area suggested as the doorway to the structure. Given the time constraints faced at the end of a season and the unknown extent of the bone, the feature was covered *in situ*, to be investigated sometime in the future.

Artifacts recovered from Structure 2 were similar to those of Structure 1. Overall, there was a high proportion of utilitarian vessel sherds and stone tool fragments. There was also obsidian present as well as a piece of coral. These findings were expected and consistent with the materials from the rest of the group.

Investigating the possible Chultun: CHT-ONE

One of the more unusual units excavated this season was CHT-ONE (Figure 10). It was investigated because there was a possibility that it had been a chultun ancient Maya storage unit although it was in a state of poor preservation. Since one of the goals of excavating this domestic group was to determine activity areas, it was important to know if this was indeed a chultun.

The mouth of the aperture was cleaned of debris, and was smoked-out to prevent ambush from creatures from within. Then a 1x2 meter unit was staked around the opening and the fill to the south was removed to obtain a clear view of the opening. As the opening seemed to continue, both down and to the north, the excavation was continued.

There were 4 strata identified and very few artifacts recovered from the unit. Strata [ch-01] and [ch-02] were defined as humus and a layer of soil and limestone rocks (cobbles, pebbles and gravel). Stratum [ch-03] was defined as a hard matrix of chunky limestone (possibly decomposing bedrock). This stratum was first identified as a shelf approximately 1 meter in length taking up the southern half of the unit (Figure 13). This stratum was later found to continue in the northern part of the unit, where it extends northeast beyond the parameters of the unit (under a tree). However, the continuity of [ch-03] is interrupted by stratum [ch-04]. Ch-04 is an area nearly 80 centimeters in length and 70 centimeters in width of very fine sandy loam (10 YR 6/2). Stratum [ch-04] continued for at least 1.10 meters with few artifacts at the top of the strata but almost none towards the bottom. In the absence of cultural features or a significant amount of artifacts, the unit was closed.

A preliminary analysis of the findings from CHT-ONE suggest that the opening was a fissure in bedrock and the presence of artifacts are explained by the natural processes of the tree growth, animal activity and weathering over the millennia. It is a possibility that the fissure was enhanced by the ancient Maya, although there is little evidence that it was a chultun. Either possibility would explain the scant presence of artifacts.

Summary
The work conducted at Tzunu'un during the 1996 field season presents several preliminary findings. The post-hole tests and the 2x2 meter test units have illuminated three distinct use areas. The first, to the north of the plaza, is an area of very few artifacts and may have been used for a forest garden. The second area, to the southwest, was defined by the deposition of broken obsidian blades. This expanse was limited by the aguada to the west and the household group to the east. The third, and final, area identified was a scattered midden to the southeast of the compound. The southeast open area off the plaza represented a dramatic density in artifact fragments with a wide variety, size and amount of artifacts recovered.

The excavations on Structure 1 defined the extent of the building, identified four plaza floors, six structural floors and one room with one secondary burial. The excavations on Structure 2 served to identif the corners, and to define a better plan for future excavations. The excavations and artifacts recovered from both Structures 1 and 2 have helped to document the hypothesis that zunu'un served a primarily as a domestic compound and the diversity of status goods, such as obsidian, marine shell, jade pieces, and vase substantiate the elite aspect of the residential unit. Future excavations may reveal other functions at the compound.

Data from the 1996 field season will help direct future work planned for Tzunu'un. Further excavation is necessary to define the form and function of the remaining three structures as well as the interiors of Structures 1 and 2. Soundings within the structures will help to develop the construction chronology of the group and to relate it to the community and center. Finally, further excavations both within and outside the plazauela courtyard compound will help define the activity areas in an ancient May elite household and also define the planned reconstruction of these excavated structure will demonstrate to visitors the many facets of the ancient Maya community of El Pilar

PLANTING THE SEEDS OF A MAYA FOREST GARDEN

The idea of a forest garden encompasses a variety of disciplines including archaeology, agroforestry, agriculture, ethnobotany, and community development. The El Pilar Program is in the preliminary steps of recreating the Maya forest garden and the Tzunu'un residential group. This forest garden will reproduce an aspect of ancient Maya life with the hope of incorporating this system into practical use today.

Contemporary forest gardens are found scattered throughout the Maya world providing an important source of traditional botanical knowledge. The El Pilar program has decided to take advantage of this remaining knowledge to recreate a forest garden in the El Pilar Archaeological Reserve for Maya Flora and Fauna. The forest garden project has been constructed with collaborative efforts from the El Pilar Program and the Amigos de El Pilar, under the auspices of the Dept. of Agriculture.

The program has envisioned a forest garden based on extensive archaeological research of household and settlement data in the Maya region. This data suggests a continuum of resource management strategies from intensive polycultural systems within densely settled communities such as El Pilar to scattered extensive fields within forest settings in sparsely settled areas. In an

effort to explore the relationship between humans and nature and understand the effects of this interaction as part of indigenous concepts and conservation strategies, a team headed by Constanza Ocampo and Sharon Watson began the project of developing a Maya forest-garden.

The first step to create a forest garden was to develop a relationship with the adjacent community. The village community Bullet Tree Falls is located at the riverside south of El Pilar. The program has had extensive contact with this village over the years. In the area there are still several well kept forest gardens, which we recognized as an important information source. These are beginning to be carefully documented with a focus given to their structure and composition.

The contacts with the village were developed through the Amigos de El Pilar (AdEP) community based organization. AdEP is a volunteer organization supporting the El Pilar Archaeological Reserve For Maya Flora and Fauna. Among those in the group, two members have been of invaluable help, guiding us with their knowledge through the process of reviving the Maya forest garden: Carmen Cruz (currently a caretaker at El Pilar), a life-long *milpero* and *chiclero*, and, Heriberto Cocom, also a milpero and a respected Maya elder. Heriberto Cocom has an immense knowledge of plants and maintains a forest garden of his own .

The first part of the season was spent exploring the El Pilar Archaeological Reserve and learning about the plants and uses in the area. Much time was spent walking around the different trails with Carmen Cruz collecting seeds and tagging trees and plants that were encountered. Trees were identified by their botanical name and labeled with aluminum tags in the start of the long and continuing process of identifying the flora of the site. The tags contained Maya, Spanish, Creole, English, and botanical names of the plants along with, when space permitted, a brief description of its use, and finally the botanical family to which they belong. This task was not completed and will be an ongoing task for the project.

This time we briefly had a botanical illustrator, Carlin Moyer, working together with us. She drew plant species we believe were particularly important, interesting, and beautiful, such as Jackass Bitters (Figure 14). She collected samples and photographed examples from the surrounding area. This helped by focusing at the microscopic level on the botanical structure of plants thereby aiding the future classification and recognition of important families and species.

During this time, Ernie Bury, a retired contractor interested in lime production using the corozo palm and local limestone quarries began his investigations. Through interviews with Carmen Cruz, Bury hoped to reproduce the lime-production process and obtain information on lime-kiln efficiency. This knowledge was supported by Bury's experiments. The experiments yielded useful insights into lime production processes as well as valuable time to discuss with Carmen Cruz the nature of the forest, building a vital resource of information.

While acquainting ourselves with the flora of the area, we had the opportunity to tour the Lakin trail with Feliz Tzul, head of the Department of Agriculture, Cayo Extension; Gumercindo Mai, extension officer for the Department of Agriculture; and Francisco Tzul, from the Belize College of Agriculture. Their experience provided information beyond the scope of medicinal usage. The information collected with Carmen Cruz, Heriberto Cocoom, the Tzul brothers and other members of the community has produced a list of over 200 species (Appendix II).

The plants which were documented were those of economic value relevant to *all* aspects of human use. As a result, an initial household inventory of forest products with associated uses has been compiled. The uses cover a range including construction, toys, food, spices, medicine and fibers. Due to the current worldwide interest on natural medicinal materials, it was initially difficult to obtain information on other useful plants. However, as the study progressed the informants began to understand the concept we were trying to recreate and little by little we have recorded the natural supermarket not just the pharmacopoeia found in the flora and fauna of the Maya forest. The forest garden project of the El Pilar Archaeological Reserve is designed to awaken interest in the community and reincorporate this knowledge into their everyday life. This garden can provide a direct food source, and if well developed in the future, has the potential of being exploited economically. Thus, while conducting ethnobotanical research, the project started the community development aspect of the forest garden. We believe that people today are slowly forgetting their knowledge of plants, consequently abandoning such traditional practices as forest gardening. In Bullet Tree Falls, only a few families are currently practicing the polycultural system of a forest garden.

During each AdEP meeting (every Sunday at 3 PM) the group attentively discussed the concept and importance of the forest garden. Since AdEP has participated in several workshops. These included presentations by the El Pilar Program on relevant themes of biodiversity and the benefits of retaining and using traditional knowledge. The first workshop was followed by another on flora and fauna given by the Director of the Belize Zoo, Sharon Matola. Through these workshops we began the process of education focusing on the necessity of resource management.

The immediate plan for the forest garden experiment is to create three separate forest gardens. These separate gardens would represent the variety found within the Maya forest today. One garden would be located at *Be Pukte*, the AdEP community lot in Bullet Tree Falls. This garden would be entirely a creation of the organization and will grow to fill the lot as a part of the village ecotourism strategy. The Tzunu'un of El Pilar is strictly planned to contain only traditional indigenous species as a demonstration of the heritage of the ancient Maya. The third garden is that around the caretaker house at El Pilar, which will reflect the needs of the caretakers and house the nursery for the gardens.

Be Pukte Forest Garden

The forest garden at Be Pukte, the meeting site of AdEP, has a strong component of community involvement. Together, the plan is to construct a garden that will be representative of the potential of forest gardens for the future. Consequently, the garden will contain all the plants and trees found useful to villagers, including introduced and endemic species of the area. It will serve as a model for villagers, something that could be adopted in their homes. Also, once the garden matures, it will serve as a plant bank for AdEP members, a resource of seeds and cuttings for their own use. The garden will also aid in landscaping the area since, at the moment Be Pukte is barren, containing the modern *galeria* and ancient Maya mound as the only attractions.

The landscaping is important, as this area is proposed to be a tourist stop as a gateway to El Pilar. AdEP wants to be able to sell tropical fruit products obtained from the garden along

with local arts and crafts to visitors. The Be Pukte *galeria* garden could also serve in providing local information about the area and the archaeological sites.

Tzunu'un Forest Garden

The forest garden at Tzunu'un is the most traditional of the garden sites as it will have only endemic flora; therefore recreating a view of an ancient Maya forest garden. This forest garden is being revived to surround an ancient elite household compound Tzunu'un, a total combined area of 3215 m^2 . Tzunu'un is a residential compound covering an area of approximately 1440m^2. The area designated for the forest garden has been Carmen Cruz's milpa in the recent past, including an area that has a patch of old secondary growth forest, estimated at about 25 years old. Don Carmen has explained that he did not cut it down because he found the area charming and full of useful trees. This has been confirmed by other informants, including members of the Dept. of Agriculture.

The first step in creating this example of a traditional garden was to remove all the trees smaller than 5 cm diameter at breast height (DBH). This process of thinning has been traditionally used and is documented for gardens in the Yucatan peninsula. During the thinning we learned much from our Belizean co-workers about plants and the milpa system. After thinning was completed, the area was divided into sections (30 total) and within the sections each tree was given a number, tagged, described, identified (when possible), given an x and y coordinate and DBH. This provides the basis of a floral inventory that will serve as basis to a monitor succession in this portion of forest through time.

After the floral inventory was completed, a nursery was established near the caretaker's house at El Pilar. The nursery, which consists of a Corozo champita, took several days to construct and provides the shade needed for the seedlings and plants. Also it provides a place to prepare good soil for the new plants. To prepare planting soil, starter soil was gathered from the nearby areas and mixed with cow manure from the Santa Familia Monastery to create enough fertile planting mix for all the transplanting bags as well as the seeding bed.

Plants were collected for the El Pilar nursery. First, the team searched the reserve for specific plants to include in the garden. New plants were tagged for later collection, then transferred to bags, and taken to the nursery. Several saplings were collected of each species in order to have enough for the gardens as well as compensate for those plants that did not survive. Second, Heriberto Cocoom would bring bundles of plants from his own forest garden near Bullet Tree Falls and we would place them in bags to include in the nursery. Seeds and cuttings were also obtained from duPoolys, a local resort with extensive gardens. Together these provided our first resource base for the new forest gardens.

Caretakers Forest Garden

The forest garden around the caretakers' house is part of a developing garden that the caretakers have started. This garden will take longer to achieve maturity as, at present, it is planted in an area that was recently completely cleared. The composition of the garden, however, will be similar to that at Be Pukte in the sense that it will contain a mixture of endemic and exotic species aimed to meet local needs and palate. The caretakers' garden will contain a variety of introduced species that are currently heavily used in the area such as mangos, citrus, bananas, and star apple.

Selected plants and trees will have the important role of providing shade for young seedlings, species such as papaya and banana would be excellent choices due to the recent clearing.

The process of recreating a Maya forest garden has had the help of a variety of people from a wide range of disciplines. Jan Meerman and Tinika Boomsman, both ecologists living in Belize, have contributed valued knowledge and helped with plant and animal identification. They have also been an invaluable source of information and expertise. They will continue in collaboration with the natural aspects of El Pilar. Carlin Moyer, a botanical illustrator, devoted time to the drawing of plants from the garden and Paul Bailly, an architect from California, spent a week obtaining photos of plants and drawings for his schematic representation of the Maya forest garden. Ken duPlooy shared his experiences of building a garden and explained the processes of grafting, cutting, and germinating, as well as general care for the plants in our nursery. We have also been greatly helped by Brother Benedict from the Santa Familia Monastery who has contributed with countless seeds and has collected saplings from the Monastery's garden which he donated for the project.

The Natural Side of El Pilar

The plan for planting the rooted plants and sprouted seeds follows basic permacultural concepts obtained from books by Bill Mollison adapted to a tropical forest ecosystem. We also had the expertise of permaculturalist Bill Roley, of the Permaculture Institute of California, who aided in the landscape design. As the seedlings are planted, *consejeros* will continue to monitor the progress of the forest garden in El Pilar. They will keep a log on fauna observed in the garden, prevent attacks from the ferocious leaf cutter ants, and undertake of the overall maintenance of the area. Efforts such as the El Pilar forest-garden will prove valuable since a forest garden not only provides food but also serves as a refuge for animals and plants. The El Pilar forest garden represents an opportunity to directly unify traditional knowledge, adequate land management, and practical use.

Part of the goal for the El Pilar Program is to present a unique approach to archaeology, incorporating different disciplines to produce results relevant to today's problems. The forest garden brings this goal one step closer by integrating the importance of humans in an environmental context.

IMPLICATIONS OF THE MAYA FOREST GARDEN

Many tropical areas are relics of human habitats and nowhere is this more obvious than that of the Maya forest. The integrated relationship between environment and culture that lasted more than four millennia is etched in ancient Maya settlement patterns and is well documented at El Pilar. These ancient patterns take on significant implications when we consider the future of this area and the people. Clearly the Maya forest provided rich, diverse resources that nurtured the Maya civilization, with the same potential waiting for contemporary villagers.

Traditional resource management and conservation in the Maya forest supported the elaborate ancient civilization and provides a template for the demonstration Maya forest-garden that spotlights biodiversity as part of a sustainable polycultural model. No reserve exists within a vacuum and, in order to survive and thrive, the local population must assume a stewardship role. Towards this goal, strong collaborative ties are being forged between the El Pilar Program

and the adjacent community, through Amigos de El Pilar, to develop innovative resource management strategies that revive the ancient Maya model.

The ecological research at El Pilar is multi-disciplinary, addressing the interplay between the natural and cultural domains. Efforts are underway evaluating the flora and fauna of El Pilar as the foundation for land use models that represent an alliance with nature. An extended growth botanical study is monitoring a test plot of undisturbed forest to gain insight into local biodiversity. Agricultural studies are beginning with the help of local farmers. In all aspects of the research, the program is encouraging the villagers to participate and stand as partners and beneficiaries of future developments of El Pilar.

The plans for El Pilar are to develop a strategy that will provide short-term benefits for the villagers as well as bring long-term solutions to the environmental and economic concerns of the area. Through an ecotourism approach, the Maya center of El Pilar will feature the daily life of the Maya and their methods of coexisting with the environment by developing the polycultural model. This model is based on an eclectic mix of crops that depend on available labor, rather than scarce capital. The scheme includes nitrogen fixing legumes such as acacia and beans, and phosphate generating palms such as the corozo or cohune, that together regenerate soils that are depleted by grains such as maize.

At El Pilar, the innovative polycultural design is based on a small-scale household plan and includes indigenous and introduced annuals and perennials interspersed with tree crops. By considering the appropriate combination of cultigens and native economic plants, the polycultural planting system will be a model that is adaptable to a variety of local conditions: forest cover, soil fertility, and proximity to population. As a demonstration of an effective strategy for survival, the Maya forest garden at El Pilar will be an ongoing source of innovation for the community, fostering resource conservation and community development that allies with the environment.

Biological corridors aimed at promoting biodiversity are only as effective as the intervening links, and those links are the local populations. The forest garden design at El Pilar recognizes the contribution of traditional village communities towards strategic management of their own resources. Experiments within the reserve will document failures and underscore successes and, with community involvement, will provide a vehicle for transmitting the successes within the reserve to beyond its boundaries, converting extensive monoculture into biologically diverse polyculture. This will simultaneously promote biodiversity and demonstrate a sustainable mixed-management approach to the contemporary economic landscape of the Maya forest. As a model conservation program, El Pilar will be a monument to the past and convincing evidence for the future.

THE DESIGN FOR EL PILAR

The Belize River Archaeological Settlement Survey (BRASS) has compiled regional settlement data, identified local community patterns and investigated aspects of household organization evident in the archaeological record of the central Maya lowlands. The ancient Maya economic landscape reflects a continuum of land use strategies from densely settled, intensively used uplands, dispersed and extensively used transitional zones, to unsettled swamps. City centers,

such as El Pilar, were surrounded with an average of 1 structure per hectare or 2 per acre, clustered around courtyard patios. These data elucidate the subsistence patterns that imply social interactions at the residential and community levels but do not include the civic realms. Directing attention to the civic components is critical for understanding the social and political integration of Maya civilization. As a representative major civic center, the monuments of El Pilar cover more than 100 acres or 40 hectares. The construction histories of El Pilar's temples, plazas, and palaces reveal clues to the development of Maya civilization, and the examination of surrounding residential components will help to elucidate the nature of the ancient economic landscape. The reconstruction of example Maya houses in their forest gardens along with the conservation of the major monuments will be a novel attraction for the ecotourist. The reconstruction of the ancient traditions of El Pilar will provide the context for a new perception of Maya prehistory, one that takes into account the complexity and continuities of the Maya forest and its peoples.

The BRASS/El Pilar Program is rooted in the anthropological study of the human/ environment relationship. It draws on the foundation of cultural ecology, interpreting evolutionary changes in strategies for survival. The composition of the Maya forest today exhibits the imprint of ancient human habitation and resource management. This resource relationship is characterized in the Mayan language among contemporary farmers and underscores the subtleties and ranges of their economic and cultural alliance with the forest. For example, the Mayan word for climax forest, *K'ax*, is used in significant combinations which suggest complex adaptations and interactions with the environment. *Kanan K'ax* describes a "well cared for" forest, evoking a concept of stewardship; *K'ax il kab* refers to a forest with beehives; and *Ka'kab K'ax* indicates a forest with good agricultural soil quality. These linguistic terms describe a continuum of economic qualities of the forest and denote long-term human coexistence with the environment. The goal of the El Pilar Program is to evaluate continuities and shifts in the evolution of this relationship through time and across space.

CONCLUSION

Today, the ancient Maya center of El Pilar stretches over the political boundary of Belize and Guatemala, and a protected core area for the site is now in the process of legislation. In addition, collaborative efforts between the El Pilar Program in Belize and Mexico's Instituto Nacional de Antropología e Historia (INAH) seek to introduce a new conservation standard for El Pilar. Endeavoring to build on the wealth of archaeological experience in Mexico and Guatemala, combined with the growing regional ecotourism agenda of Mundo Maya, Belize has spearheaded the move to bring El Pilar under governmental protection as a new tour destination. This is being followed by Guatemala. The goal of the BRASS/El Pilar Program is to build a collaborative consensus strategy for research and development at El Pilar that has ramifications for the Maya area as a whole.

Working towards a consensus that takes the unique vision of the El Pilar Program, the Belize Department of Archaeology can bring this vision into a clear resolution. The goal for El Pilar is to craft the theoretical, technical, structural and institutional basis for charting the research and development program for the whole of El Pilar that can create a community basis for natural and cultural resource management and conservation. El Pilar is destined to be a novel ecotourist destination that features ancient community life of the Maya and provides adjacent villagers with

sustainable alternatives and opportunities that conserve cultural and natural resources of our world heritage.