THE CEREMONIAL USE OF THE THREATENED "*ESPADAÑA*" CYCAD (*DIOON MEROLAE*, ZAMIACEAE) BY A COMMUNITY OF THE CENTRAL DEPRESSION OF CHIAPAS, MEXICO

MIGUEL A. PÉREZ-FARRERA[1] AND ANDREW P. VOVIDES[2]

[1]Escuela de Biología, Universidad de Ciencias y Artes del Estado de Chiapas,
Libramiento Norte Poniente s/n, Col. Lajas-Maciel, C.P. 29039,
Tuxtla Gutiérrez, Chiapas, México.
[2]Departamento de Biología Evolutiva, Instituto de Ecología, A.C.,
km 2.5 Carretera Antigua a Coatepec No. 351, Congregación El Haya,
C.P. 91070, Xalapa, Veracruz, México.
[2]Author to whom reprints requests should be addressed; e-mail: vovidesa@ecologia.edu.mx

Abstract: *Dioon merolae* De Luca, Sabato et Vázq.Torres, a cycad species from Chiapas known locally as *espadaña*, plays a very important role during the Santa Cruz festival of May 3rd amongst the community of Suchiapa in the Central Depression of Chiapas. Its leaves are used to adorn altars during this religious Catholic festival every May. It appears to be a pre-Hispanic native Chiapanec tradition that has undergone syncretism into Catholic practice during colonial times. The cycads do not appear to be harmed by the annual pruning of leaves but the current threat to the plant populations and this ageless tradition comes from activists of other religious traditions who deliberately set fire to the cycad habitat during the dry season prior to leaf collecting.
Key words: cycads, Chiapanec culture, ethnobotany, Mesoamerica.

Resumen: *Dioon merolae* De Luca, Sabato et Vázq.Torres, una especie de cícada de Chiapas conocida localmente como espadaña, juega un papel importante durante la festividad de la Santa Cruz del 3 de mayo entre la comunidad de Suchiapa de la Depresión Central del estado de Chiapas. Aparentemente ésta es una tradición nativa chiapaneca de origen prehispánico que se sincretizó con la religión católica durante la época colonial. Sus hojas se usan para adornar altares cada mayo durante esta festividad religiosa Católica. Las cícadas no parecen sufrir daño alguno por la poda anual de las hojas, pero la amenaza actual a las poblaciones y a esta tradición milenaria viene de activistas de otras tradiciones religiosas que provocan incendios al hábitat de la cícada durante el período del estiaje antes de la cosecha de las hojas.
Palabras clave: cícadas, cultura Chiapaneca, etnobotánica, Mesoamérica.

Cycads have a long fossil history (Norstog and Nicholls, 1997) and they are presently restricted to the tropical and subtropical regions of the world. Mexico is one of the most species-rich areas in the world for cycads and rates as second worldwide for cycad diversity (Vovides, 2000). There currently exist approximately 300 described species of cycad worldwide (Hill *et al.*, 2004), and of these about 45 species have been recorded in Mexico, of which greater than 80% are endemic. Practically all cycads in Mexico are threatened or endangered due to habitat destruction and conversion (Vovides *et al.*, 1983; Vovides and Iglesias, 1994) and *Dioon merolae* De Luca, Sabato et Vázq.Torres is no exception. All native cycads of Mexico are protected by Federal law and are listed as threatened or endangered under the *Norma Oficial Mexicana* (Anonymous, 1994). *Dioon merolae* is found in the Central Depression and the Sierra Madre of Chiapas (De Luca *et al.*, 1981), and it has also been reported from Oaxaca (Chemnick *et al.*, 1997). It grows typically in seasonal tropical dry forests and transition areas between this and pine-oak woodlands (Vovides *et al.*, 2003).

Mexico is a very favourable region for ethnobotanical studies due to the wealth of cultural practices of both prehistoric and historic origin that are still performed, and the persistence of empirical knowledge of the relationship between man and certain plants during different periods of time (Hernández-X., 1982). The principal purpose of this paper is to describe the relation between the *Santa Cruz*

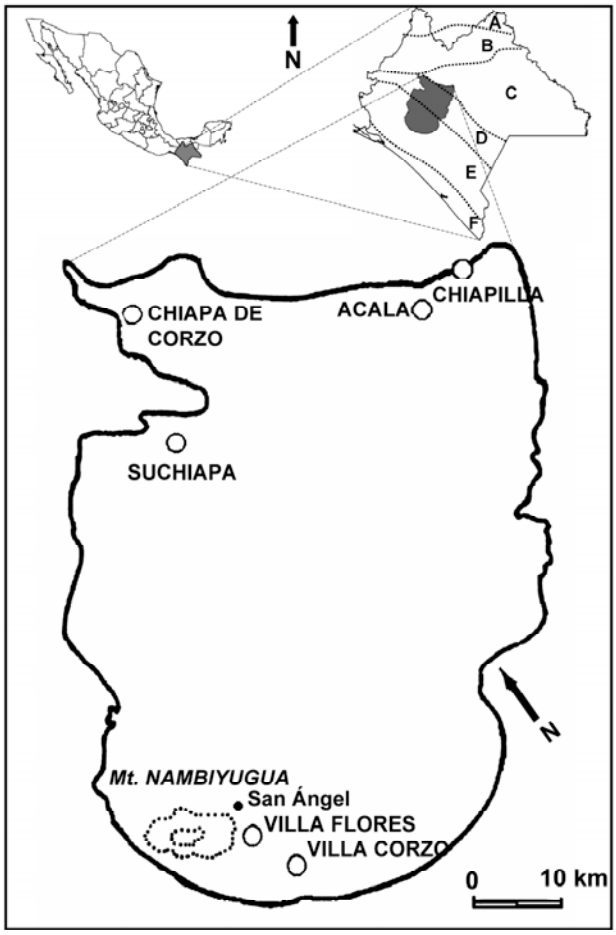

Figure 1. The state of Chiapas showing the location of Mount Nambiyugua, Villaflores, Suchiapa, and territorial limits of Chiapan culture in the Central Depression of Chiapas.
A = Coastal Plain of the Gulf of Mexico. **B** = Mountains of Northern Chiapas. **C** = Central Mesa. **D** = Central Depression. **E** = Sierra Madre. **F** = Pacific Coastal Plain.

(Holy Cross) festival and the *espadaña* cycad, *Dioon merolae*, as well as the handling and uses of the plant by the people of Suchiapa.

Locally the cycad is called *espadaña* (Spanish, pertaining to sword) or as *nimalari* (*nima*: leaf, *lari*: feather, in the native Chiapanec language) according to Becerra (1985) and Manguen and Montesinos (1991), and it is highly revered during the *Santa Cruz* religious festival of May 3rd. The festival starts during the last week of April with the collection of *espadaña* leaves by the inhabitants of Terán and Suchiapa, Chiapas. These people walk 42 miles from Suchiapa to Cerro Nambiyugua near Villaflores or from Terán to Cerro Estoraque in Jiquipilas municipality every year (figure 1).

Historical background and significance. Previous studies have been made on the Chiapanec culture (Becerra, 1937; Navarrete, 1966; Manguen and Montesinos, 1991). According to Navarrete (1966), the Chiapanec culture was practiced in the municipalities of Chiapa de Corzo, Acala, Suchiapa, Chiapilla, Villaflores and Villa Corzo (figure 1), but currently only fragments of this culture remain (Manguen and Montesinos, 1991). The Chiapanec language, that is considered extinct, does not have any affinity with the Mayan languages (López, 1960), and according to Carmack *et al.* (1996), Chiapanec is classified in the Oto-Manguean language family that includes Chinantecan, Mixtecan, Zapotecan and Popolucan that are extant in the neighbouring state of Oaxaca (Carmack *et al.*, 1996; Gordon, 2005).

There are no other known uses for this plant by the local people, other than that described here, as a religious symbol and ornament whose origin is rooted in the Chiapanec culture in the town of Suchiapa. Suchiapa was founded after the Spanish conquest; the conquerors after learning about the native religious use of this plant, banned the rite of the *espadaña*. Later evangelization resulted in syncretism of the native pagan religious symbol with the Christian symbol, the cross (Manguen and Montesinos, 1991). The rock and the plant were venerated symbols in the Chiapanec culture. They called the plant *yerba sagrada* (Spanish: sacred plant) and they associated it with health and other special qualities. The rock represented the "hardness" of evil and the plant, spontaneously growing on rocks, represented the "light of the righteous" (Manguen and Montesinos, 1991). *Dioon merolae* typically grows on exposed rock faces, often appearing to grow directly from the rock itself. Because of this and its association with the *Santa Cruz* festivity we hypothesize that the cycad is probably the *yerba sagrada*.

Díaz (1989) supposed that the Santa Cruz tradition was related to a solar cult and warfare ritual. This supposition is supported by historical references to the Chiapanec warriors (López, 1960). However, no historian has previously described the use of *D. merolae* in the Chiapanec culture. Miranda (1952) first reported the existence of the cycad on the sandstone cliffs south of Jiquipilas, Chiapas, but he mistakenly identified it as *Dioon spinulosum* Dyer, a species from southern Veracruz and northern Oaxaca.

Materials and methods

Hernández-X. (1982) indicated that direct observation facilitated by living with the people under study is often essential in ethnobotanical research. For this reason it was necessary to attend the Santa Cruz festivity and observe the collection, preparation and use of *D. merolae* leaves as well as to interview the participants of the ceremony. The study was carried out in the town of Suchiapa, located approximately 20 km south of Tuxtla Gutiérrez, Chiapas. Cerro Nambiyugua is located near the town of Villaflores in the

Central Depression of Chiapas (figure 1). We performed our analysis in four steps: (i) reconnaissance visits were made to the study zone; (ii) the people responsible for the ceremony and those who collect leaves (*espadañeros*) were interviewed; (iii) notes, tapes and photographs were taken from relevant phases of the festivity, with the assistance of one person in charge of the ceremony, and (iv) the actual collecting of the *espadaña* leaves took place on Cerro Nambiyugua, at a site called El Portillo.

Results

The festivity consists of three parts: the *Publicación*, the *Velación* and the *Topada de la flor*. The *Publicación* occurs on the first Sunday of April. It is an announcement that heralds the start of the festivity. The people begin preparing items that they will need on the pilgrimage in which only men participate. They make *ramilletes* (bouquets) with flowers of *flor de mayo* (*Plumeria rubra* L.), leaves of *tem - pisque* (*Sideroxylon tempisque* Pittier) and *mango* (*Mangifera indica* L.). During this process a flute and a drum are played at a rapid beat. When the *ramilletes* are completed, the leader of the festivity presents a bouquet to each of the other festivity officers as a gift for their efforts. The *Velación* (vigil) begins on April 26th and marks the beginning of the ritual. At about 6:00 p.m. the *espadañeros* meet in the *cofradía* house (*espadañeros* meeting place). During this process they also play a flute and a drum, and sing the following prayer next to the cross. Though the prayer is recited in the Chiapanec language, the participants do not know its meaning and not withstanding; its expression in the ceremony only constitutes a reminiscence of the extinct language.

[1]*First part of the prayer of Santa Cruz*

I
PE,PE,PE,PE,PE
*Sea bendito y alabado
El Santísimo Sacramento

II
Anamandini ya camo
Tula meja sig mimo

III
Loju meja londo mume
Musata namban dini yame
Yegu

IV
Bati chiliju y paja
Cupatala me tiche

V
Namandimiyire y luju
Pusa tangu
Pani memo

VI
Muju ililaco
Tiche mupatmo
Santisimo coruce

VII
Loju me tondo mume
Loju me londo mume
Musata cupango ume

VIII
Chassi julanacaji
Chassi julanacaji
NAMEN JESOSE

[1] No translation of the Chiapan language was made since this is believed to be extinct. *Blessed and praised be the most Holy Sacrament (Spanish).

Second part of the prayer of Santa Cruz

I
Bendito y alabado sea el
Santísimo Sacramento
(repeats)

II
Pozota coyumbo chememo
Navinan cleme
Navilla sigue reyna Santa Elena

III
Copo pa chememo
Munun indiosis
Ungata Jesus de Nazareno

IV
Andilu ta chinda
Gua tiliji y pame cojime
Techi no mallarilu

(The four verses are repeated. Informers: Francisco Indili (first part); Marcos Montejos Santos (second part).

This process continues through the night, during which time they dance near the cross and sing the prayer to the rhythm of the flute and drum and burn incense. Approximately 100 men, all of them farmers, participate in the festivity. Their ages range from 12 to 65 years, with the majority being young. Some children also participate.

At sunrise on April 27th, the men begin walking the 60-70 km to Cerro Nambiyugua in Villaflores. They carry with them a mesh net, a *pumpo* (a gourd canteen made from *Lagenaria leucantha* Rusby), food (eggs, beans, fruit, salted meat), and *pozol* (corn drink prepared with water, and sometimes with cocoa, chili or sugar). They arrive at San Ángel ranch, at the base of Cerro Nambiyugua, at about 9:00 p.m. at night. In the morning, on April 28th, they climb the 1,200 m to the top of the mountain to cut the *espadaña* leaves. They cut the leaves only with their fingers and they never use a sharp object. The average number of leaves cut by a young person is between 200 and 250, and children cut an average of 150 leaves. Only old leaves are cut, never young ones that are left on the plant. The cut leaves are tied in a bundle to make a *tercio de hoja* which varies between 50 to 120 leaves.

On April 28th at about 3:00 p.m., they start the return trip to Suchiapa and make a second vigil at San Ángel ranch. They repeat the dancing, prayer-singing, flute and drum playing near the cross. This process continues until the morning (April 29th) and during the return, they place *D. merolae* leaves beside crosses at ranches along the way.

The *espadañeros* approach Suchiapa on April 30th and the town people meet the pilgrims a mile from town by the river Suchiapa (figure 2). Here the civil and religious authorities help to unload the leaf packs. This process is called the *Topada de la flor*. At this time and place, they make a third vigil where they once again dance, to the flute and drum, and sing the prayer next to the altar with the cross (figure 3).

On May first, the *espadañeros* enter Suchiapa town and are met by the town people that announce their arrival by drumming. They all proceed to the *cofradia* house, where

Figure 2. The Suchiapa people meeting the pilgrims a mile from town by the river Suchiapa.

they again play the flute and drum, and pray.

On May 3rd eve, the people complete the festival by making the *enrrames* or *some*. This is a beam arranged with leaves of *Dioon merolae*, *zapote* (*Diospyros ebanaster* Retz.), *tempisque* and *jocotillo* (*Astronium graveolens* Jacq.). Some *espadañeros* place leaves beside the cross decorating the altar (figure 4).

Discussion and conclusions

Manguen and Montesinos (1991) hypothesized that upon arrival of the Catholic conquerors, the tradition unified two symbols; the pagan *espadaña* and the Christian cross. Alternatively, we believe that this was concealment of the true meaning of the pagan tradition by syncretism into the Catholic. Thus the native people were able to keep the original meaning of their custom (which is no longer precisely known) whilst outwardly showing a Catholic practice. Although among various Zapotec groups May 3rd is the time for appeals for rain to Cocijo, the god of lightning, May is the hottest and driest month of the year over most of Mexico and the ritual in Chiapas may probably also be rain-related. We also suspect this may be so since the Chiapanec language is related to the Western branch of the Oto-Manguean language family (Carmack *et al.*, 1996). Although the origin of the ritual is uncertain, we assume it originated in Chiapanec culture since the *Publicación* (herald) is presented in the Chiapanec language, and also because historians recorded that when the Christians arrived, the Chiapanec people adored a plant that "grew among the rocks". The original religious meaning of this practice has been lost because the Chiapanec language is thought to be extinct since it is no longer practiced (Díaz, 1989; Manguen and Montesinos, 1991). This has resulted in a disassociation of the ritual's historic meaning from the modern day practitioners of the tradition.

The people of Suchiapa only use the *espadaña* to decorate the cross and altar during the Santa Cruz festival. The *espadañeros* are very careful not to harm the plants upon leaf collecting. During harvesting the leaves are pulled, not cut, thus causing the petiole to sever at the abscission layer in the petiole base and the mucilage produced by the severed base seals off the wound and encourages the production of cambial phellogen, a natural process during leaf senescence (Bierhorst, 1971; Norstog and Nicholls, 1997) and prevents any infection to the plant. The collectors being conscious of the need for protecting the cycads have a ritual law or custom imposed by the *espadañero* leaders prohibiting the use of knives or cutters to cut leaves as well as the destruction or removal of plants. However, some *espadañeros* occasionally pull up some young plants to grow them in their patios as ornamentals and use the

Figure 3. Dancing and praying to the flute and drum during the *Topada de la flor* vigil.

Figure 4. *Espadaña* leaves placed beside the cross decorating the altar.

leaves of the cultivated plants as needed for other festivities; this is probably a sign of erosion of this timeless traditional ruling.

Díaz (1989) reported that 60 men from Terán and 50 men from Suchiapa collected *espadaña* leaves and that each person cut 100 to 350 leaves. Palacios (1989) estimated that adult *espadaña* plants bear an average of about 40 leaves. If we assume an average of 200 leaves cut by each of 105 men, we can estimate that about 525 plants of *D. merolae* are involved in this tradition annually. It is very likely that the cutting of the leaves is beneficial to the cycads. The cutting is done during the hottest and driest month (April) and this probably helps the plant to avoid water loss added to the fact that only older leaves are cut. In horticultural practice it is known that pruning is beneficial and often stimulates new leaf production and growth (Brown, 1972). The *espadañeros* tell us that this traditional handling of the cycad results in its sustainable use and we believe that the cycad populations have been conserved due to this activity. However, we noted recently that some *espadañeros* are removing young plants for cross-cultural purposes but we do not know if this is done consistently every year (figure 5). Persistent plant removal could be a survival risk to this population of *D. merolae*. We have initiated a practical conservation project to ameliorate plant removal by means of artificial propagation of the cycad from seed in peasant-run rustic nurseries as an alternative conservation strategy aimed at sustainable utilization since 1995 (Vovides *et al.*, 2002).

The most important threat to this tradition currently comes from other religious traditions who also live in the Central Depression. Many activists practicing religious intolerance are against native religious customs and illegally set forest fires on Cerro Nambiyugua during April in an attempt to destroy the cycads. The tradition is further threatened by leaf attack from the larvae of *Eumaeus* sp. (Lepidoptera). The *espadañeros* cut fewer cycad leaves in bad years of larvae infestation. All of this is threatening a tradition that has persisted for centuries and we therefore highly recommend that Cerro Nambiyugua be declared as a cycad sanctuary and be policed to prevent deliberate forest fires. Steps towards this has recently been confirmed by Sr. Nemesio Montejo Champo (*espadañero* leader) that some *espadañeros* have sown and re-introduced into habitat about 2,000 *D. merolae* seedlings produced in patio nurseries and that collaboration with PROFEPA (*Procuraduría Federal de Protección al Ambiente*, the Mexican environmental protection agency) has been achieved in order to police the habitat. This has been the

Figure 5. Young plant of *Dioon merolae* in leaf pack.

result of talks given to the *espadañeros* by the principal author on the importance of the cycad in 1998 when the study was initiated.

Other examples of cycads used in ritual in Mexico, is in the community of San Fernando, Chiapas, where the leaves of *Ceratozamia robusta* Miq. are used in the festivity *Día de la Candelaria* (Candlemas day, on February 2); their leaves are used to make *some* (Personal observation). In communities of Veracruz, Oaxaca and Sonora the leaves of *Dioon edule* Lindl., *Dioon spinulosum* Dyer and *Dioon tomasellii* De Luca, Sabato et Vázq.Torres, respectively, are used in different religious festivities (*Día de Muertos* and *Día de la Virgen*) to adorn altars (Vovides *et al*., 1983; Vázquez-Torres, 1990). Further examples of plant use have been pointed out by Flores-Guido (1992) in the Mayan rite of *Chac-Chac* in Yucatan, Mexico; by Kashanipour and McGee, (2004) with the Lacandon Mayas; by Lipp (1991) in the Mixe zone of Oaxaca; and Stewart (1987) on the use of the *peyote* cactus [*Lophophora williamsii* (Lem. ex Salm-Dyck) J.M.Coult.] by indigenous peoples of northern Mexico.

Cycads are also used in ritual in South Africa. The *mofaka* cycad (*Encephalartos transvenosus* Stapf et Burtt Davy) is revered by the Balobedu people of the Ga-Modjadji region in the Letaba Valley of the South African Province of Limpopo. Here the Rain Queen Modjadji presides over the annual rainmaking ceremony involving the ritual use of the cycad. The area declared by the South African Government as the Modjadji Nature Reserve and contains the greatest concentration of a single species of cycad in the world (Milner, 1989). The underground caudices of the cycad *Stangeria eriopus* (Kunze) Baill. are used by several ethnic groups in South Africa for magical purposes by making an infusion of the cycad caudex with other plants and the mixture scattered around the user's property to ward off evil spirits. It is also used as a traditional medicine as an emetic, but overexploitation is threatening the remaining populations of this species (Osborne *et al.*, 1994).

Religious ritual is a characteristic of human behavior. Any society, ancient or modern, is not known to have been without it and can be sometimes developed as something very complex within a society. Often the ancient ritual and society co-evolve, as proposed Joyce and Flannery (2004).

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