

PORTRAIT OF A SPECIES

CERATOZAMIA HILDAE

the  
Bamboo Cycad

BY

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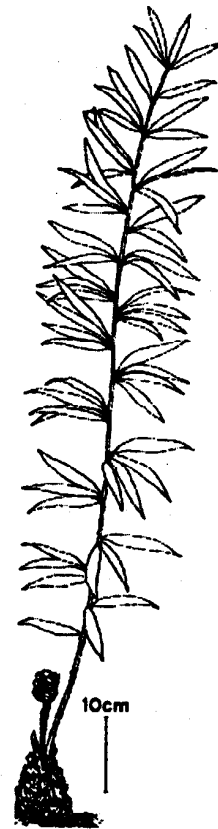
INTRODUCTION

Ceratozamia hildae is a classic example of a species of cycad which was well known for many years in the nursery trade and to cycad enthusiast but somehow had escaped the attention of the scientific community. It was commonly referred to as either Ceratozamia "Hilda" or the Bamboo Cycad.

Apparently this plant was first collected by Luciano E. Guerra, a commercial plant collector from Mission, Texas, probably as early as 1960. Guerra had been an avid collector of Mexican cycads for many years and recognized that this species of Ceratozamia was unlike any he had previously seen. Over the span of many years, this new species was imported by the thousands into the United States from central Mexico. So common was it in cultivation that by the late 1960's it was known from coast to coast by its best trade name C. "hilda." This unusual name was dubbed by Guerra after his daughter, now Hilda Guerra Walker.

DESCRIPTION

This species of Ceratozamia differs from all others in the genus and is unlike any other cycad. Its leaves are its most striking feature. The leaflets are clustered at the nodes along the rachis (3-12 per node) giving this cycad a bamboo like appearance. The leaves may be up to 1.5 meters in length. Additionally the leaflets are thin and



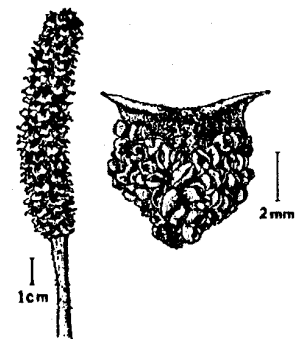
papery rather than thick and leathery, like other *Ceratozamia*s.

*Ceratozamia hildae* forms a short above ground stem, as do most *Ceratozamia*s. The stem may eventually reach a height and diameter of 12+ inches. These stems are covered with persistent, hard, armored leaf bases. *Ceratozamia hildae* grows quickly, and often develops a branched underground stem for several years before the stem attains any size above ground. These lateral, underground stems will eventually surface. In very old specimens with several stems of similar size, it is often impossible to determine which was the original stem.

Both pollen and seed cones are produced singly from February to April. Pollen cones average from 18-25 cm in length, seed cones range from 6-20 cm in length. Pollination can occur from mid-April to early June. Seed cone maturation requires approximately nine months. Each year, cones which have been pollinated in April and May disintegrate with ripened seeds in November and December.



The seeds are covered with a light yellow pulp. This rots quickly rather than drying hard, once seeds have been released from the cone, allowing the seeds to be easily cleaned. Fresh seeds germinate within 90 days after planting. The first through third seedling leaves of *C. hildae* generally have from one to three pairs of opposite leaflets resembling other species of *Ceratozamia*. It is not until the third leaf is produced that clustered leaflets appear along the rachis distinguishing the plants as *C. hildae*. Occasionally some specimens retain opposite leaflet arrangement. I have a few plants of *C. hildae* in which only an occasional set of leaflets exhibited the clustering, the remaining ones were opposite. The identification of these unusual plants has been questioned by some authorities. Indeed the regularity with which it occurs in *C. hildae* plants may have some taxonomic significance on this species. Nevertheless, the papyraceous texture and occasional clustering of the leaflets of these abnormal plants confirms their identification as *C. hildae*, at least for the time being.



## DISTRIBUTION

Ceratozamia hildae is restricted to moist Oak forest in the states of Queretaro and San Luis Potosi at an altitude of about 900 meters. Often it occurs with other cycads such as Zamia fischeri and Dioon edule. Due to over collecting, it has completely disappeared from some localities and it is all but extirpated throughout most of its known range. Certainly it should be considered an endangered species in its native habitat.

## NAMING AND HISTORY

I first became acquainted with this species in 1972 while in graduate school at the Department of Botany at LSU in Baton Rouge, Louisiana. The founder of the Cycad Society, Professor Walter J. Harman, then chairman of the Louisiana State University Department of Zoology, had several specimen plants growing outdoors at his home. With the support and encouragement of Dr. Harman and our good friend, the late Marcia C. Wilson of Brownsville, Texas, I began a search for the "true" name of C. "hilda." After an extensive literature and herbarium specimen search, I came to the realization that this was an undescribed species. Dr. Harman, Dr. Lowell Urbatsch, my major Professor and friends at Fairchild Tropical Garden in Miami, Florida, encouraged me to officially describe the plant as a new species. In collaboration with Marcia Wilson the task was accomplished .

We decided to honor the horticultural trade name, and to latinized it. Ceratozamia "hilda" became C. hildae Landry & Wilson. This seemed appropriate since the majority of the people who were familiar with this plant knew it only by the name C. "hilda." Why complicate the issue by introducing a new specific name? We felt recognizing common names of plants and their application to botanical nomenclature was important. Often these name are either of descriptive significance or historical significance.

It is interesting to note that two other names were considered before adopting the common name "hilda" as the official specific name. These names were, C. "bambusifolia" suggested after its bamboo like foliage, and C. "fasciculata" in reference to its clustered (fasciculate) leaflets. The latter is the case for C. hildae. Another Ceratozamia which was subsequently described but who's name took a different route, was C. "plumosa", as it was know to horticulturist for many years. It is now officially C. norstogii, named after Dr. Knut Norstog, a leading cycad researcher.

Marcia Wilson was instrumental in the naming of this new plant. She had also traveled extensively with her parents who were cycad enthusiasts throughout Mexico where the many species of *Ceratozamia* grew. She knew Guerra personally. Marcia was able to obtain valuable historical information about the discovery of this new species.

## CULTIVATION

Certainly no other *Ceratozamia* received as much attention by the nursery trade as *Ceratozamia hildae*. It is one of the most easily grown and adaptable cycads in cultivation. *C. hildae* is tolerant of virtually any growing regime. It thrives in either shade or full sun. The amount of light only seems to affect the overall leaf length. *Ceratozamia hildae* is remarkably cold tolerant. Plants which I have had planted out of doors have survived freezing conditions as low as 15°F for short periods of time, regularly enduring temperature well below 30°F each winter. In most cases the foliage is completely undamaged by such freezes but occasional leaf burning may occur. Small plants appear to be more tolerant of severe cold than large, old specimens. In a recent winter storm of record cold temperatures (11°F for 60 consecutive hours), many large specimens of *C. hildae* lost all above ground stems, while smaller specimens were not affected at all.

Observations on plants in cultivation suggest that both types of cones are produced yearly. Seed production can be increased with hand pollination. Individual cones which I pollinated yielded as many as 140 seeds per cone. Female plants in which seed production has occurred have generally produce new seed cones within a short period (2-3 months) following the disintegration of the previous cone. Apparently at least some individuals do not skip years as is reported in many other cycad species.

## CONSERVATION

The status of *Ceratozamia hildae* in the wild is uncertain. It was heavily collected in the 60's and 70's. Thousands of plants were exported to the U.S. and elsewhere. The collecting was so extensive that some large populations are now completely gone. Other populations which escaped total collection, today contain such low numbers of plants that rejuvenation of these localities is highly unlikely. Certainly any noticeable increase in the population size would require many decades. *Ceratozamia hildae* appears

to be well established in cultivation both in the U.S. and abroad. Although no figures are available, many private people and some botanical gardens are producing seeds annually. While its future in cultivation seems secure, its fate in nature may already be sealed. Owners of collected plants of C. hildae should realize the impact that even a single mature specimen has on a wild population. Certainly every effort should be made to propagate the species in cultivation.□

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## FLOTATION OF CYCAD SEEDS AS A TEST FOR VIABILITY

Many of our readers are familiar with the flotation test which is often used as an indicator of the viability of cycad seeds. Seeds which float when placed in a container of water generally are not considered viable and should be discarded. Seeds which sink to the container bottom have a higher probability of germinating. The flotation test is based on the assumption that seeds which have undergone any detectable desiccation will float and are no longer viable. In contrast, fresh, potentially viable seeds are heavier and sink.

The test does have a measurable degree of accuracy. Certainly the majority of cycad seeds which float are less likely to germinate than those which sink. The assumptions made above however, are not true for all cycads. The flotation test does not consider other factors which might affect the buoyancy of cycad seeds in water.

The fact that a seed sinks is not a measure of its viability, but rather an indicator that the contents have not desiccated. It is common in certain species of cycads, to produce large quantities of full size seeds which pass the flotation test, but in actuality are not fertile and contain no embryos. This is frequently encountered in seeds of Dioon edule and various species of Zamia and Encephalartos. Seed production without pollination is not uncommon. A follow up examination should be made of the contents after the flotation test to confirm fertilization. Sacrifice one or more seeds and dissect it to determine if indeed an embryo is present. This can be very enlightening when working with large quantities of seeds.

In a recent issue of the Journal of the Cycad Society of Southern Africa, it was shown that the flotation method is not accurate for some species of