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## Parajubaea—An Unsurpassed Palm for Cool, Mild Areas

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In the San Francisco area our winters are sufficiently mild that we can have plants as tender as bananas and flowering gingers permanently in the ground where they normally suffer no cold damage, so that an interest in other tropics and subtropics naturally develops in the adventurous gardener. But our summer temperatures generally remain below 80° F. (below 70° F near the coast!) and nights are nearly always below 60° F. This can be a challenge to much of the plant life our winter mildness allows. The slowly emerging answers to our quests for adaptable plant material other than some very good native species seem to lie in the tropical highlands. There is no other area of our planet at sea level outside of a few islands or similar coastal strips such as areas of New Zealand, Chile, or South Africa where winters are so mild and summers so cool. Although tropical highland regions often do not have our dry summer season, temperatures throughout the year in such locations as the lower Himalayas, the mountains of New Guinea, or the northern Andes are very much like those of coastal central and northern California. Perhaps a few other areas such as Darjeeling, Kandy, Kenya, Tasmania, and highland areas in New Zealand also have similar climates.

What good fortune for us that these regions provide the habitat for some of the most beautiful and spectacular palm species known! Because most of the palm growing regions of the earth are warm to hot, at least in summer, most of these highland species have either not been tried or have

failed to survive outside their habitat. But now with a growing number of palm enthusiasts in our cool climate a concerted effort has been made to establish highland species with notable successes. Several species of *Ceroxylon* have been cultivated for nearly a decade now in the San Francisco area and all have shown an excellent response to our climate in the form of vigorous and healthy growth into extremely attractive young palms. This is wonderful for large areas such as parks, but who besides the palm collector wants a 300 ft tall palm next to his house? Without question the one highland palm which answers the home gardener's need for a long-lived, elegant, vigorous, and tough palm in our cool climate is *Parajubaea cocoides*. I first fell for this beautiful species upon seeing the photograph in *Palms of the World* simply labelled as *Parajubaea* sp. This was years ago when the biology library of my graduate school obtained its copy of the book. In 1976 I saw the actual trees in the photo in one of the city squares in Quito, and the love was not lessened. Warren Dolby was at that time cultivating a young specimen of *P. cocoides* in his Oakland garden with good result. With this encouragement the first large collection of seeds for Northern California was made there in Quito in 1976.

The results of this collection of seed will be discussed shortly, but first some description of the palm is in order. Among the terms used in *Hortus Third* to describe *Parajubaea cocoides* are the following: solitary, unarmed, monoecious, leaves pin-



1. The crown of Warren Dolby's *Parajubaea cocoides* emerging from his Oakland garden. Photo by G. Fullington.

nate, no crownshaft, leaves long petioled, pinnae regularly arranged. A mention is made of 20 ft height, but many trees in Quito are closer to 30–40 ft. These terms depict a palm filling a gap in our material for northern California. Other than *Syagrus romanzoffiana* we have no slender-trunked pinnate palms which perform well in the cool areas. Even *Arecastrum* looks best only in areas with some summer heat, and although *Archontophoenix* specimens are occasionally seen in good form, they must be protected from wind in the coastal regions and from frost further inland. Our experience to date with *Parajubaea* is that it tolerates these conditions admirably, but that story will now be told from its beginning.

The first *Parajubaea* to be grown in our area, that belonging to Warren Dolby, was grown from a seed of the old tree at the Gillespie estate in Santa Barbara. The

Santa Barbara tree is quite old and has been producing some seed for many years. It has survived years at a time with no water other than winter rains, and although sickly looking through these times of stress it survived. Another notable specimen is in Ed Moore's garden in San Diego. Both of these palms are in areas a little too warm for their best development, but they fruit and continue to grow. But when Warren Dolby's palm is examined, the true beauty and vigor of *Parajubaea cocoides* in a cool climate begins to be appreciated. Warren's plant after only fourteen years from seed has now almost ten feet of trunk topped by a magnificent crown of perhaps thirty healthy fronds covering a spread of over fifteen feet! It is now already in full flower and seed production.

The seeds from the 1976 collecting trip were gathered mostly along the streets in Quito. It was necessary to do this early in

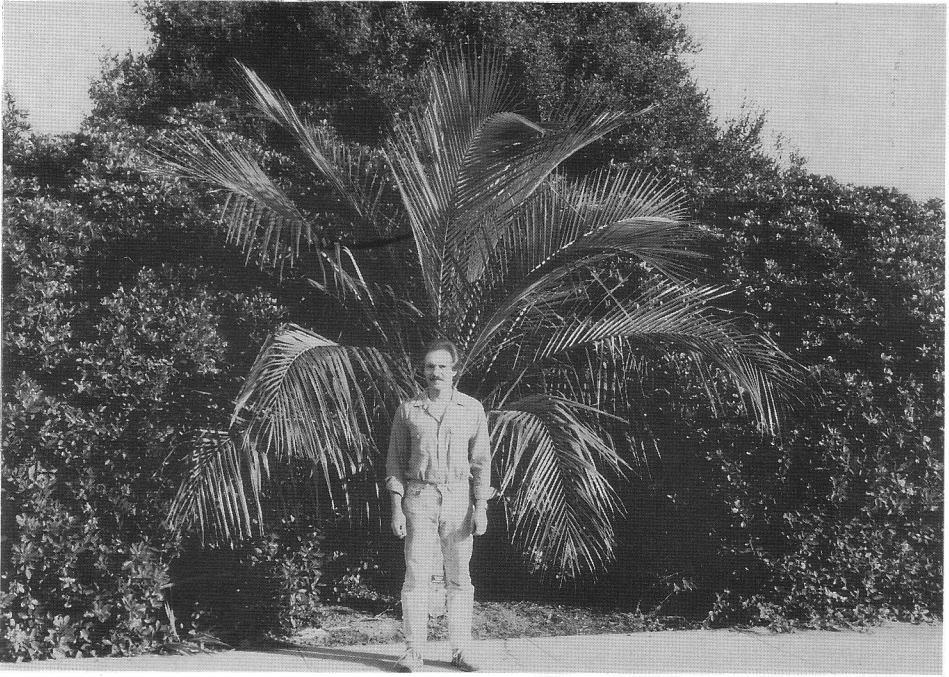


2. *Parajubaea cocoides* in Oakland's Lakeside Palmetum. Photo by G. Fullington.

the morning before the local people got to them to crack and eat the coconut-like seed kernels. Some seeds were gathered on private properties (with permission). One notable source was the grounds of the Hotel Quito Intercontinental which the locals seem to avoid. The seeds need to be thoroughly dried before germination is attempted. The Ecuadoreans gave instruction to leave them in the fruit in a dry warm place for two months. Germination was carried out in a loose, airy planting mix with the seeds resting on the surface of the mix beneath a thin layer of damp sphagnum moss. They were placed in an area with warm days (80° F) and cool nights (55–60° F) Sprouts began to appear within two months and continued sporadically for several years from the same batch of seeds. About 90% of them grew within the first several months, but one seed germinated after lying on the ground in leaf litter under a plum tree for eight years!

Upon germination the seed puts out a long root before any top growth commences. When a sprout appears (sometimes two come from one seed) the seed should be lifted and placed in the surface soil of a container at least one gallon in capacity. The first leaf will emerge within about two months.

*Parajubaea cocoides* is not a palm for container growing. Even in a 15 gallon container growth soon stops at which time a three foot plant will decide to remain that size for years or until put into the open ground. One reason for this is that *Parajubaea* roots tend to grow straight down unless stopped by rock or hardpan, and they are even fairly good at penetrating that. Once the bottom of the container is reached the roots make a circle or two, then stop. This also means that you do not transplant this palm once it is in the ground. Small specimens have been lost in moves even by professional tree



3. *Parajubaea cocoides* at the USDA Western Regional Research Center in Albany, CA, with the author for scale. Photo by E. Adalsteins.

movers with large equipment. Ideally a one to five gallon size plant should be put into its permanent site in the ground and never again disturbed. With ample water and *cool nights* growth will soon be rapid and vigorous. Cool night requirement for this palm cannot be over-emphasized. In its habitat 10,000 feet high in the Andes nights are in the range of 40–50° F. In areas where nights are consistently over 55–60° F *Parajubaea cocoides* loses its vigor and health and even if it survives it will not look as good as more suitable species. Temperatures of 25° F have been experienced where *P. cocoides* grows in Ecuador. Small specimens have had some leaf damage at about that temperature in our inland areas of California, but cold tolerance seems quite adequate for most of the San Francisco region. Plants from the 1976 seed collection which went into the ground as small specimens and have been well

watered are now almost fifteen feet in height. Some which have remained in containers are still eighteen inches tall! There are specimens at all sizes in between in the San Francisco area from this batch of seeds, depending on how long they have been in the ground and the exposure to sun. This is a sun loving palm and should always be planted in full sun. Its habitat does have a short (one or two month) drier season, but the palm seems to thrive on ample water.

Notable specimens can now be seen in the Palm Society chapter's Lakeside Palmetum in Oakland, at the University of California Berkeley botanic garden, at the USDA Western Regional Research Center in Albany, CA, and in many of our members' own gardens. And don't miss the outstanding *Parajubaea cocoides* in Warren Dolby's garden—it looks far better even than similar size plants in their native

Ecuadorean Andes. Another large collection of *Parajubaea* seeds was made by your author along with Dale and Cindy Motiska in 1983. Plants from this second collection are now almost ready for permanent planting. And now with the first local tree to begin fruiting we are well on the way to establishing *Parajubaea cocoides* as a new landscape feature in

Northern and Central California. We cannot grow coconuts, but we can grow a palm remarkably similar which has no hope of ever growing outside our cool summer climate zones. Thus we shall forever be blessed with a unique and beautiful palm which collectors throughout the rest of the world will have to see in the Andes or in coastal California.

### Garden Club of America and World Wildlife Fund Scholarships in Tropical Botany

The tropics contain roughly 60 percent of the world's plant species, yet we have relatively little information on the biology and ecology of many of these plants. Since 1982 the Garden Club of America and World Wildlife Fund-U.S. have awarded at least two, \$5,000 scholarships each year for work in tropical botany. The purpose of the scholarships is to encourage students to work on the systematics, reproductive biology, ecology and ultimately, the conservation of tropical plants and ecosystems. Available to all students enrolled in a U.S. university and working on their doctoral dissertation, the scholarship is intended to fund field research expenses. An indication of a long-term commitment by the student to conservation of tropical ecosystems is a deciding factor in awarding the scholarship.

Three of the thirteen recipients have been working on questions of palm taxonomy, ecology and conservation. In 1983, Andrew Henderson of the New York Botanical Garden received an award for his work on the systematic relationships and reproductive biology of three Iriarteoid genera, *Iriartea*, *Socratea* and *Diclyocaryum*. The grant enabled him to conduct collecting trips to Costa Rica, Panama and Colombia. In 1986, Bill Hahn of Cornell University was awarded a scholarship for his study of the Asian genus *Caryota*,

which allowed him collecting trips in south-east Asia. In 1987, the Garden Club of America awarded a special third scholarship to Stephen Siebert of Cornell University for his work on the ecology and ethnobotany of wild rattans in forest preserves of Sumatra, Indonesia.

These scholarships will be offered again this year and it is hoped that they will become a permanent program of the Garden Club of America and World Wildlife Fund.

To apply for the scholarships students should submit the following information: 1) a curriculum vitae, including graduate and undergraduate transcripts; 2) evidence of foreign language capability; 3) a two-page outline of the proposed research; 4) a letter stating his or her plans for the future, with a statement on their commitment to conservation; and 5) a letter of recommendation from the advisor, which should include an evaluation of the student's progress to date. U.S. citizenship is not a requirement, however, students must be enrolled in a U.S. university. The awards will be made on a one-time basis, and applications are due by December 31, 1987. Recipients will be announced by March 15, 1988. Please mail applications to:

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