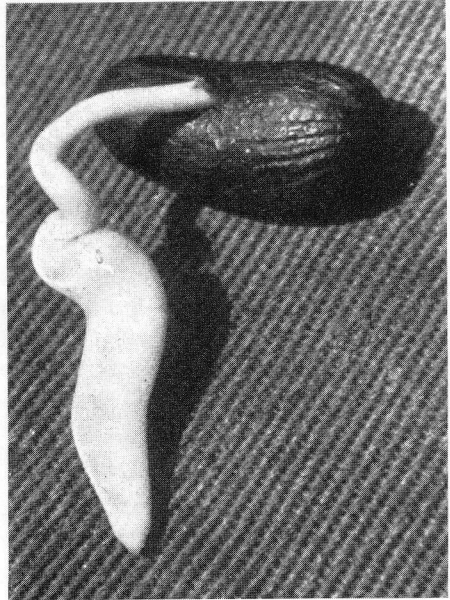


7. Germinating palmyra (*Borassus*) seed showing a stunted apocole.

apocole gets greater stability and greater scope for producing roots from the additional underground portion of stem. What would happen if the apocole is not allowed to penetrate into the soil was the question, the answer to which was obtained by raising *Borassus* and *Phoenix* seeds on a cemented floor. The seeds were just covered with sand and kept moist constantly. They germinated and the apocole struck the hard floor. With its expansion, the seeds were partially raised and even tilted. The apocole also developed twists at its upper region (Figs. 7, 8). The most striking formation resulting from the strong geotropic influence of the apocole was noticed in *Borassus*. The overall length of the apocole remained very short (less than 50 percent of the length of normal one) and the embryo also remained stunted, but developed unusual thickness as seen



8. Germinating seed of wild date (*Phoenix*).

in Fig. 7. The leaves that came out of these seedlings had very clear spiral formation at the petiole and at the lamina region. About 50 percent of the seedlings showed right-handed twist and the rest left-handed twist. The seedlings were maintained for three years under the same condition. They remained very stunted and produced a much thicker and stubbier bole than those sown in normal soil.

In *Phoenix*, although a similar development was noticed, the effect was not as spectacular as in *Borassus*. Even the apocole in this species is relatively longer and capable of growing at a slant.

*Principes*, 23(2), 1979, pp. 83-84

## PALM BRIEFS

### Palms in the National Register of Big Trees

The American Forestry Association has, since 1940, had a program to locate

and measure the largest specimen of American tree species. The first complete listing was published in *American Forests* in 1945, but contained no palms. The second complete listing appeared in 1951 and included a Cuban royal palm (*Roystonea regia*), which measured 95 feet in height. In subsequent complete

listings (1956, 1961, 1969, 1973) a few other palms were added and the Florida royal palm substituted for the Cuban species. Naturalized species were also admitted to the listing, which brought in the coconut palm in Hawaii.

The most recent complete listing was published in April 1978. Table 1 contains the seven palm species that are included. A comparison of the dimensions in Table 1 with those contained in the species descriptions in McCurrach (1960), shows that in all cases save one the "big tree" designation is appropriate. The exception is *Roystonea elata*, which reportedly reaches a maximum height of 100 feet.

Several other native American palms have never been reported in the National Register. *Acoelorrhaphe wrightii*, the paurotis palm; *Pseudophoenix sargentii*, the Florida cherry palm; and *Thrinax morrisii* and *T. radiata*, the thatch palms, all restricted to the southern portion of Florida, may reach heights of up to 30 feet and therefore qualify for admission. Even *Sabal louisiana*, the Louisiana palmetto, could be included since Bom-

hard (1950) states that it may reach 18 feet in height, well above the 12-foot minimum size required.

The American Forestry Association also maintains a register of Hawaiian trees, which contains numerous introduced palm species. The latest Hawaiian Big Tree list was published in the May 1974 issue of *American Forests*.

Palm society members who may wish to submit nominations of palms that have dimensions exceeding those on the National Register, or who wish to contribute new entries should consult the instructions for measuring a tree published with the April 1978 complete listing.

#### REFERENCES

- BOMHARD, MIRIAM L. 1950. Palm Trees in the United States. Agriculture Information Bulletin No. 22, U.S. Department of Agriculture, Washington, D.C.  
 MCCURRACH, JAMES C. 1960. Palms of the World, Harper & Brothers, New York.

DENNIS JOHNSON  
 University of Houston  
 Houston, Texas 77004

Table 1. Palms in the 1978 National Register of Big Trees

Species and Year of Most Recent Measurement	Circumference at 4½ feet	Height	Spread	Location of Tree
<i>Coccothrinax argentata</i> , Silver palm (1976)	1 ft 10 in	22 ft	6 ft	Bahia Honda State Park, Florida
<i>Cocos nucifera</i> ,* Coconut palm (1968)	4 ft 8 in	94 ft	28 ft	Hilo, Hawaii
<i>Roystonea elata</i> , Florida royal palm (1973)	6 ft 6 in	80 ft	32 ft	Homestead, Florida
<i>Sabal mexicana</i> ,§ Mexican palmetto (1972)	3 ft 5 in	49 ft	12 ft	Cameron City, Texas
<i>Sabal palmetto</i> , Palmetto palm (1972)	3 ft 9 in	90 ft	14 ft	Highlands Hammock State Park, Florida
<i>Serenoa repens</i> , Saw palmetto (1976)	1 ft 3 in	14 ft	6 ft	Micanopy, Florida
<i>Washingtonia filifera</i> , California fan palm (1971)	11 ft	55 ft	13 ft	Hollywood, California

\* Naturalized.

§ Probably refers to the Texas palmetto, *Sabal texana*.

Source: National Register of Big Trees, *American Forests*, Vol. 84 No. 4, April 1978, pp. 18-47.