Roystonea regia (Kunth) O.F. Cook

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ARECACEAE (PALM FAMILY)

Oreodoxa regia (HBK); *Roystonea elata* (Bartr.) F. Harper [Florida royal palm]1; *Roystonea jenmanii* (C.H. Wright) Burret; *Roystonea ventricosa* (C.H. Wright) Burret

Cuban royal palm, konnings palm, palma de yagua cubana, palma de yaguas, palma real, palma real cubana, royalpalm

Species of the genus *Roystonea* grow in the subtropical moist and subtropical wet life zones (Holdridge 1967). *Roystonea regia* is a native of Cuba, now naturalized in Hawaii (Neal 1965) and in Collier, Dade, and Monroe counties in Florida (Little 1979, West and Arnold 1952), where it grows on moist, rich hammocks.

Roystonea regia can reach 15 to 34.5 m in height and 61 cm in diameter (Bailey and Bailey 1976, Neal 1965, West and Arnold 1952). The stout, smooth trunk is not always straight, and many short air roots are attached at the base. The upper trunk is encased in a green column of leaf sheaths 1 to 3 m long. The pinnate leaves have short petioles and a sheath and blade 2.4 to 3.7 m long. Pinnae grow in several planes along the rachis of each *R. regia* leaf, while in *R. borinquena* O.F. Cook, pinnae grow from the rachis in two planes (Bailey and Bailey 1978). Growth is rapid if the tree is placed in fertile soil with adequate water and full sun (Braun 1983).

Roystonea regia is primarily valued as an ornamental. The seeds contain oil that is sold commercially (Moscoso 1945) or used for livestock feed (Little and others 1974). The leaves are used for thatching, and the wood can be used for construction.

Flowers develop from buds formed on the trunk below the leaves. In Florida, trees flower in the spring and fruits mature in the fall (West and Arnold 1952). The fragrant flowers are borne on a many-branched panicle. Both the male and the female flowers form on the same panicle, with male flowers of each tree opening and falling before the female flowers to prevent self-fertilization. Generally, each female flower forms between two male flowers on the panicle (Francis 1992). The male flowers have three minute, broad sepals, three blunt-pointed petals measuring 6.4 mm long, six to nine stamens with purple anthers, and a rudimentary pistil (Little and others 1974). The smaller female flowers have three small, broad sepals and a tubular corolla. They also bear six sterile stamens and a pistil with three styles. Bailey and Bailey (1976) observed trees with dull red to purple flowers, while West and Arnold (1952) and Little and others (1974) describe trees bearing white flowers. The violet-purple fruits are smooth, ovate, and measure 13 mm in length. Each fruit bears a single light brown, thin seed embedded in brown fibrous flesh (Neal 1965, West and Arnold 1952).

In Puerto Rico, birds or bats often feed on the oily pericarp; if seeds are shed with pericarp intact, detritis-eating animals clean the seed when rotting is well advanced, leaving only a papery shell that is easily removed (Francis 1998). Thus, large quantities of cleaned seeds can be collected from the ground under seed-bearing trees.

The best method for long-term seed storage involves the following steps: select clean, half-ripe to ripe seeds; air dry seeds at 80 to 90 percent relative humidity; treat with a fungicide; and seal tightly in polyethylene containers held at room temperature (23 °C). The seeds of *Roystonea* may be intermediate in their storage behavior, neither orthodox nor recalcitrant (Ellis and others 1991a). Drying the seeds to a low moisture content or storing them below 0 °C may result in damage.

Under natural conditions, the first seeds may not germinate for 50 to 60 days, with others delayed for an additional 100 days (Braun 1983). Presoaking *R. regia* seeds in 1,000 ppm GA_3 solution for 48 hours slightly increases the rate of germination but also results in abnormally elongated seedlings (Broschat and Donselman 1988). Clean seeds germinated at 30 to 35 °C provide the best results.

ADDITIONAL INFORMATION

Although *R. regia* is noted for its stature and symmetry, there is some variation in reported height growth. Neal (1965) lists heights reaching only 15 to 21 m in Hawaii, while West and Arnold (1952) report heights of 24 to 34.5 m and up to 61 cm in diameter in Florida. Bailey and Bailey (1978) note maximum heights of 23 m.

Little and Wadsworth (1964) contend that a characteristic distinguishing *R. regia* from *R. borinquena* is that the former lacks the swollen trunk of the latter; however, West and Arnold (1952) and Neal (1965) report the swollen base, and Neal (1965) and Braun (1983) the swollen middle trunk in *R. regia*. According to Bailey and Bailey (1978) and Braun (1983), one feature that distinguishes *R. regia* from *R. borinquena* is the absence of scales on the axes bearing the flowers (rachillae) of *R. regia*. The length of the inflorescence also seems to differ, with that of *R. borinquena* reaching up to 1 m (Little and Wadsworth 1964), but that of *R. regia* reaching only 0.6 to 0.8 m (Braun 1983, West and Arnold 1952).


1cm
1cm