

Archontophoenix alexandrae

Alexander palm

Arecaceae

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OVERVIEW

Archontophoenix alexandrae, native to Queensland, Australia, is a tall palm that is widely cultivated in tropical and subtropical regions of the world. In Hawai'i, *A. alexandrae* is escaping from plantings and is naturalized in low elevation mesic to wet valleys, especially on the island of Hawai'i from Hilo to the Hamakua coast area (Wagner et al. 1999). In this area, *A. alexandrae* was densely planted along the road and has readily naturalized in adjacent areas along roadsides, gulches, and stream beds where it competes aggressively with other disturbed wet weeds in the area, including *Miconia calvescens*. On Maui, *A. alexandrae* is also widely planted, though most cultivated plants in drier climates do not appear to have naturalized yet. In a few moist to wet situations where *A. alexandrae* is planted, including Ha'iku, Hana, and near the Keanae Arboretum, plants are beginning to spread. In these areas, *A. alexandrae* is sparingly naturalized and has not yet reached infestation sizes anywhere near the extensive Hilo and Hamakua coast infestation. *A. alexandrae* is widely planted on Maui, and while eradication on an island wide level is probably not feasible, it may be possible to control discrete populations that are beginning to show signs of spread in vulnerable disturbed wet habitat. Discouraging people from planting *A. alexandrae* in moist to wet areas may help to slow the invasion.

TAXONOMY

Family: Arecaceae (Palm family) (Wagner et al. 1999).

Latin name: *Archontophoenix alexandrae* (F. v. Muell.) H. A. Wendl. & Drude (Wagner et al. 1999).

Synonyms: *Ptychosperma alexandrae* F. v. Muell. (Wagner et al. 1999).

Common names: Alexandra palm, Alexander palm, Northern bangalow palm, King palm, King Alexander palm (Neal 1965, Brickell and Zuk 1997, Riffle 1998, Wagner et al. 1999)

Taxonomic notes: A genus of 2 to 6 species of rain forest palms of tropical and subtropical eastern Australia. The two most commonly cultivated *Archontophoenix* palms are *A. alexandrae* and *A. cunninghamiana*. Other species in the genus, most of which were recently described, include *A. maxima*, *A. myolensis*, *A. purpurea*, and *A. tuckeri* (Jones 1995). Members of this genus readily hybridize with each-other (Jones 1995).

Nomenclature: The genus name is derived from the Greek *archon*, chieftain or ruler, and *Phoenix*, the date palm, in allusion to the majestic appearance of these palms (Wagner et al 1999). The species is named after Princess Alexandra (Jones 1995).

Related species in Hawai'i: *A. cunninghamiana* (bangalow palm, piccabeen palm) is similar in appearance to *A. alexandrae*, but differs by being smaller in stature, slightly more cold hardy, lacking a bulging base, and having green rather than silver-gray undersides to the fronds, a rusty scurf coating the crownshaft, and longer, vertically pendulous panicles of pale lilac flowers (Turner and Wasson 1997). *A. cunninghamiana* is more commonly planted than *A. alexandrae*, at least on the mainland United States (Brenzel 1995). The opposite is true in Hawai'i. There are at least two, naturally occurring varieties of *A. alexandrae*. *A. a. var. beatricae* has a more bulging base than the type, the rings near the base are enlarged, resembling steps, and the leaves are also slightly more erect from the apex of the trunk. *A. a. var. kuranda* has a thicker trunk, and a longer, taller crownshaft than the type (Riffle 1998).

DESCRIPTION

"Trunk gray, up to ca. 30 m tall. Leaves ca. 10, up to 2.5 m long, pinnae ca. 80 on each side, up to 80 cm long and 5 cm wide, whitish or ash-colored on lower surface, sheath green. Inflorescences up to 70 cm long, with pendulous rachillae to the fourth order; staminate flowers white or cream, 5-6 mm long, stamens 9-16. Fruit red, 1-1.4 cm long, 0.8-1.1 cm in diameter." (Wagner et al. 1999).

BIOLOGY & ECOLOGY

Cultivation: *A. alexandrae* is a stately garden palm widely grown in tropical and subtropical countries and valued for their graceful ornamental appearance, quick growth, and ease of culture (Jones 1995). *A. alexandrae* are tall, elegant, fast growing, water loving palms. They tolerate both boggy conditions and dry spells, but prefer moist, fertile soil (Turner and Wasson 1997). *A. alexandrae* grows best in partial shade when young and full sun once the crown reaches full height (Turner and Wasson 1997). Young *Archontophoenix* trees will not tolerate frost, but adult plants may stand 28 F (-2 C) (Brenzel 1995). *A. cunninghamiana* is a bit more frost and shade tolerant than *A. alexandrae* (Turner and Wasson 1997).

Invasiveness: *A. alexandrae* occurs from Hilo to the Hamakua coast on the island of Hawai'i, spreading away from initial plantings in dense, tall thickets along the road, in gulches, and lining streams. *A. alexandrae* is one of the fastest growing cultivated palms (Bailey and Bailey 1976). It is also a prolific seeder, with numerous red fruits that are possibly dispersed by birds. Seeds can be seen littering the margins of the road under large groves of adult plants, germinating wherever they fall. Gulch and stream sides are densely covered with *A. alexandrae*.

Pollination: Single plants are capable of producing fertile seeds (Jones 1995).

Propagation: Seeds germinate quickly and easily (Bailey and Bailey 1976). Seeds apparently do not last long, losing viability within months. Fresh fruit germinates one to three months from sowing (Jones 1995). Sow seed in spring at 75-81 F (24-27 C) (Brickell & Zuk 1997). *A. alexandrae* germinates readily in summer (Turner and Wasson 1997).

Dispersal: This palm, with relatively small fruit, could presumably be dispersed by birds, water, pigs, and humans.

Pests and diseases: *Archontophoenix* palms may be damaged by spider mites, *Helminthosporium* leaf spot in young plants, *Phytophthora* root rot, and aerial blight (Brickell & Zuk 1997).

DISTRIBUTION

Native range: *A. alexandrae* are native to coastal rainforests of north Queensland, eastern Australia, where it is distributed between Gladstone and the Melville Range near Bathurst Bay on the Cape York Peninsula (Jones 1995, Turner and Wasson 1997). *A. alexandrae* commonly grows in lowland swamp forests, but is also found up to 600 m (1,968 ft) elevation in the ranges (Jones 1995). Average annual rainfall in this part of Australia ranges from 60 to over 80 in (150 to over 200 cm) and average temperature ranges from over 68 F (20-30 C) in July to over 86 F (over 30 C) in January (Hammond 1986).

Global distribution: *A. alexandrae* palms are widely cultivated as ornamentals in tropical and subtropical countries of the world. *A. alexandrae* thrives in wet tropical climates but adapts well to warm-temperate climates as well (Turner and Wasson 1997). No other references of *A. alexandrae* being invasive in other parts of the world were found.

State of Hawai'i distribution: *A. alexandrae* is widely cultivated and densely naturalized on the island of Hawai'i at least from Hilo to the Hamakua coast (Wagner et al. 1999). Apparently, *A. alexandrae* fruit were distributed by aircraft in this area in an attempt to reforest the area after a large fire, though this story is unconfirmed. The area is disturbed wet lowland forest with average annual rainfall of approximately 120 in (305 cm) (Juvik and Juvik 1998). Here, *A. alexandrae* forms dense tall thickets along roads, in gulches, and streams. The coastline just north of Hilo is infested with thick patches of *A. alexandrae* palms which seems to be aggressively competing with other disturbed wet forest weeds, such as *Miconia calvescens*. On Maui, *A. alexandrae* is sparingly naturalized in a few moist lowland sites.

Island of Maui distribution: On Maui, *A. alexandrae* is widely cultivated in urban and residential areas from sea level up to about 2,500 ft (762 m). Trees are often planted along driveways, as specimen trees in gardens, and as parking lot or street trees. In drier urban areas and higher elevations, there is no sign of spread yet. There are currently only a few areas on Maui where *A. alexandrae* is showing signs of spread including Ha'iku, Hana, and the Keanae Arboretum. Current spread is limited, with a few seedlings spreading nearby initial cultivated parent trees. These areas are relatively moist receiving annual rainfall amounts ranging from 60-100 in (152-254 cm) (Juvik and Juvik 1998). The windward disturbed wet forest up to at least 2,000 ft (610 m) from Ha'iku to Hana

and on to Kipahulu which receives rainfall greater than 100 in (254 cm) annually seems vulnerable to invasion by *A. alexandrae*.

CONTROL METHODS

Physical control: Unwanted young palms could probably be pulled up by hand, or dug out with picks and shovels. Larger trees could be killed by cutting the top off below the crownshaft, or digging up the root ball.

Chemical control: Unknown. It may be possible to control with basal bark applications of herbicide.

Biological control: Any biological control efforts may be complicated by the presence of endemic *Pritchardia* palms and other ornamental palms in Hawai'i.

Cultural control: The public could be made aware that growing this palm in dry, urban areas of Maui will probably present less potential for invasion than plantings in wet, semi-wild areas. The public could also be informed of other palms that can be cultivated that pose less threat to natural areas.

Noxious weed acts: Not on the Hawai'i State Noxious Weed List.

MANAGEMENT RECOMMENDATIONS

The *A. alexandrae* infestation on the island of Hawai'i is quite impressive. In this preferred wet disturbed lowland climate, *A. alexandrae*, with prolific seed production, is aggressively filling gulches and lining streams and roadsides in dense tall thickets. On Maui, this species is widely cultivated and sparingly naturalized in a few moist to wet habitats. If feasible, these sites could be controlled before they become major infestations. The potential for this palm to infest large areas of lowland wet forests of Maui currently free of *A. alexandrae* seems high. The public could be informed of the invasive nature of this palm and asked not to plant them in moist habitats. The distribution on Maui should be periodically updated and monitored.

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