



Pritchardia munroi Rock

Status: US Federally Listed as Endangered (E); (CR)

Common name

Loulu.

Natural range

Molokai, Hawaii, USA.

Recognition characteristics

Pritchardia munroi is a small palm 4 or 5 m in height, with a smooth, gray-brown stem 20 cm in diameter. The open crown may have 15–25 leaves. The upper surfaces of these small leaves are pale green and smooth; underside of leaf surfaces are glabrous, pale green. The underside of the leaf blade surface has scattered, small lepidia; the leaf segments are deeply divided into long acuminate drooping tips. The petioles have sparse silvery tomentum, which becomes smooth on the upper surface; the lower surface has pale brown scales. The inflorescences are shorter than the petioles, and they branch into 1 to 2 panicles; rachillae bear a dense, villous, grayish brown tomentum. The small sub-globose fruits ripen to black and are ca. 22 mm x 23 mm.

Natural history

Pritchardia munroi was discovered in 1920 by Joseph F. Rock on the island of Molokai and named it after James Munro, manager of Molokai Ranch. It is known from only two individuals in a mesic gulch above Kamalo, Molokai at 610 m elevation. It is among the most endangered palm known in the wild. Like all of the Hawaiian *Pritchardia*, seed viability is high (90–100%), but *in situ* reproduction is not successful. Introduced honey bees (*Apis mellifera*) have been observed visiting cultivated *P. munroi* flowers, and wind may also contribute to the success of pollination.

Threats to survival

Predation of *P. munroi* seeds occurs from introduced rats (*Rattus rattus*, *R. exulans*, and *R. norvegicus*). Habitat destruction from introduced vertebrates such as deer (*Odocoileus hemionus columbianus*), goats (*Capra hircus*), and pigs (*Sus scrofa*) limits recruitment of *P. munroi* seedlings. Fire and stochastic events present threats. Invasive weeds such as grasses (*Paspalum conjugatum*) and guava (*Psidium guajava*, *P. cattleianum*) can form weed mats and out-compete young palm seedlings. Pests and disease are a constant threat. Existing threats include the two-spotted leaf hopper (*Sophonia rufofascia*), and *Phytophthora*, as well as serious potential threats if introduced, such as the West Indian sugarcane borer (*Metamasius hemipterus*) or Lethal Yellowing disease and its known vector the palm cixiid (*Myndus crudus*).

Current Conservation Measures

One individual of *P. munroi* has the protection of an enclosure provided by the Nature Conservancy of Hawaii (TNCH) to prevent grazing animals and pigs from access. The individual within the enclosure

has had its seeds collected and propagated within private collections as well as over 30 botanic gardens internationally. Strategies for successful tissue culturing and preservation of samples have been developed by the University of Hawaii, Lyon Arboretum, USA. The United States Fish and Wildlife Service (USFWS) have produced in detailed researched recovery plans for *P. munroi*, and the species is recognized by the Center for Plant Conservation (CPC), which provides educational awareness.

Additional Necessary Conservation Actions

Recommended management strategies include: protection of *in situ* populations, an additional enclosure around the second individual, add rat baiting, invasive weed management, and long-term monitoring; establishment of new wild populations; establishment of effective *ex situ* populations; collaboration to accomplish conservation biology research; adherence to invasive weed, pest management, and quarantine procedures. There is a need to establish reliable protocols for seed storage, including effective seed banking as a conservation tool.

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One of two remaining specimens of *Pritchardia munroi*. Photo by S. Perlman.