

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Pteralyxia macrocarpa*

COMMON NAME: Kaulu

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: February 2003

STATUS/ACTION (Check all that apply):

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: \_\_\_\_

90-day positive - FR date: \_\_\_\_

12-month warranted but precluded - FR date: \_\_\_\_

Is the petition requesting a reclassification of a listed species?

Listing priority change

    Former LP: \_\_\_\_

    New LP: \_\_\_\_

Latest date species became a Candidate: \_\_\_\_\_

Candidate removal: Former LP: \_\_\_\_ (Check only one reason)

A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Plant, Apocynaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Hawaii, island of Oahu

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Hawaii, island of Oahu

LEAD REGION CONTACT (Name, phone number): Scott McCarthy, 503-231-6131

LEAD FIELD OFFICE CONTACT (Office, name, phone number): Pacific Islands (Ecological Services), Christa Russell, 808-541-3441

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, #individuals/population), etc.):

This species is known from 20 populations totaling <500 individuals. Typical habitat is diverse mesic forest. This species is found on the island of Oahu (Joel Lau, The Nature Conservancy, pers. comm., 1995, 1999).

**THREATS** (Describe threats in terms of the five factors in section 4 of the ESA providing specific, substantive information. If this is a removal of a species from candidate status or a change in listing priority, explain reasons for change):

A. The present or threatened destruction, modification, or curtailment of its habitat or range. This species is threatened by feral pigs that adversely modify habitat (J. Lau, pers. comm., 1995). As early as 1778, European explorers introduced livestock, which became feral, increased in number and range, and caused significant changes to the natural environment of Hawaii. Past and present activities of introduced alien mammals are the primary factor altering and degrading vegetation and habitats on Oahu. Feral ungulates trample and eat native vegetation and disturb and open areas. This causes erosion and allows the entry of alien plant species (Cuddihy and Stone 1990; Wagner *et al.* 1990).

The pig (*Sus scrofa*) is originally native to Europe, northern Africa, Asia Minor, and Asia. European pigs, introduced to Hawaii by Captain James Cook in 1778, became feral and invaded forested areas, especially wet and mesic forests and dry areas at high elevations. They are currently present on Oahu and four other islands, and inhabit rain forests and grasslands. Pig hunting is allowed on all islands either year-round or during certain months, depending on the area (Hawaii Department of Land and Natural Resources n.d.-a, n.d.-b, n.d.-c, 1990). While rooting in the ground in search of the invertebrates and plant material they eat, feral pigs disturb and destroy vegetative cover, trample plants and seedlings, and threaten forest regeneration by damaging seeds and seedlings. They disturb soil and cause erosion, especially on slopes. Alien plant seeds are dispersed on their hooves and coats as well as through their digestive tracts, and the disturbed soil is fertilized by their feces, helping these plants to establish. Pigs are a major vector in the spread of many introduced plant species (Cuddihy and Stone 1990; Medeiros *et al.* 1986; Scott *et al.* 1986; Smith 1985; Stone 1985; Tomich 1986; Wagner *et al.* 1990). Pigs are the major threat to *Pteralyxia macrocarpa* (J. Lau, pers. comm., 1995).

B. Overutilization for commercial, recreational, scientific, or educational purposes.

None known.

C. Disease or predation.

Rats eat seeds and other parts of this species (J. Lau, pers. comm., 1995). Of the four species of rodents that have been introduced to the Hawaiian Islands, the species with the greatest impact on the native flora and fauna is probably *Rattus rattus* (black or roof rat), that now occurs on all the main Hawaiian Islands around human habitations, cultivated fields, and forests. Black rats, and to a lesser extent *Mus musculus* (house mouse), *Rattus exulans* (Polynesian rat), and *R. norvegicus* (Norway rat), eat the fruits of some native plants, especially those with large, fleshy fruits. Many native Hawaiian plants produce fruit over an extended period of time, thus producing a prolonged food supply for rodent populations. Black rats strip bark from some native plants, and eat the fleshy stems and fruits of plants in the bellflower and African violet

families (Cuddihy and Stone 1990; Tomich 1986; (J. Lau, pers. comm., 1994).

*Sophonia rufofascia* (two-spotted leafhopper) is a recently introduced insect that causes feeding damage on leaves, typically in the form of stippling and yellowing (J. Lau, pers. comm., 1995). In addition to mechanical feeding damage, this insect may introduce a plant virus. Damage probably caused by the two-spotted leafhopper has been observed on some individuals of this species (J. Lau, pers. comm., 1995). It is suspected of causing severe dieback of the native fern *Dicranopteris linearis* (uluhe) and economic damage to crops and ornamental plants in Hawaii (Adam Asquith, Service, pers. comm., 1994).

D. The inadequacy of existing regulatory mechanisms.

The Departments of Army and Navy are developing and beginning to implement endangered species management plans that include these species. No additional Federal regulatory mechanisms currently protect this species. The State of Hawaii does not recognize this species as endangered until it is federally listed as endangered.

E. Other natural or manmade factors affecting its continued existence.

None known.

FOR RECYCLED PETITIONS:

- a. Is listing still warranted? \_\_\_
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? \_\_\_
- c. Is a proposal to list the species as threatened or endangered in preparation? \_\_\_
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded.

LAND OWNERSHIP (Estimate proportion Federal/state/local government/private, identify non-private owners): Federal and State of Hawaii.

PRELISTING (Describe status of conservation agreements or other conservation activities): The Departments of Army and Navy are developing and beginning to implement endangered species management plans that include these species.

REFERENCES (Identify primary sources of information (e.g., status reports, petitions, journal publications, unpublished data from species experts) using formal citation format):

The information in this form is based on the results of a meeting of 20 botanical experts held by the Center for Plant Conservation in December of 1995, and has been updated by personal communication with Joel Lau of The Nature Conservancy.

Cuddihy, L.W., and C.P. Stone. 1990. Alteration of native Hawaiian vegetation; effects of humans, their activities and introductions. Coop. Natl. Park Resources Stud. Unit, Hawaii. 138 pp.

Hawaii, Department of Land and Natural Resources. N.d.-a. Summary of Title 13, Chapter

- 123, Game mammal hunting rules, island of Oahu. Division of Forestry and Wildlife, Honolulu. 2 pp.
- Hawaii, Department of Land and Natural Resources. N.d.-b. Summary of Title 13, Chapter 123, Game mammal hunting rules, island of Molokai. Division of Forestry and Wildlife, Honolulu. 2 pp.
- Hawaii, Department of Land and Natural Resources. N.d.-c. Summary of Title 13, Chapter 123, Game mammal hunting rules, island of Maui. Division of Forestry and Wildlife, Honolulu. 2 pp.
- Medeiros, A.C., Jr., L.L. Loope, and R.A. Holt. 1986. Status of native flowering plant species on the south slope of Haleakala, East Maui, Hawaii. *Coop. Natl. Park Resources Stud. Unit, Hawaii, Techn. Rept.* 59:1-230.
- Scott, J.M., S. Mountainspring, F.L. Ramsey, and C.B. Kepler. 1986. Forest bird communities of the Hawaiian Islands: Their dynamics, ecology, and conservation. *Studies in Avian Biology* 9:1-429. Cooper Ornithological Society, Los Angeles.
- Smith, C.W. 1985. Impact of alien plants on Hawai`I's native biota: *in* Stone, C.P., and J.M. Scott (eds.), *Hawai`I's terrestrial ecosystems: preservation and management*. *Coop. Natl. Park Resources Stud. Unit, Univ. Hawaii, Honolulu*, pp. 180-250.
- Stone, C.P. 1985. Alien animals in Hawai`I's native ecosystems: toward controlling the adverse effects of introduced vertebrates: *in* Stone, C.P., and J.M. Scott (eds.), *Hawai`i's terrestrial ecosystems: preservation and management*. *Coop. Natl. Park Resources Stud. Unit, Univ. Hawaii, Honolulu*, pp. 251-197.
- Tomich, P.Q. 1986. *Mammals in Hawai`I; a synopsis and notational bibliography*. Bishop Museum Press, Honolulu. 375 pp.
- Wagner, W.L., D.R. Herbst, and S.H. Sohmer. 1990. *Manual of the flowering plants of Hawai`I*. University of Hawaii Press and Bishop Museum Press, Honolulu. *Bishop Mus. Spec. Publ.* 83:1-1853.

LISTING PRIORITY (\* after number)

THREAT
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Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5 *
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

**Rationale for listing priority number:**

*Magnitude:*

*Imminence:*

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Rowan Gould March 6, 2003  
Acting Regional Director, Fish and Wildlife Service Date

Concur: \_\_\_\_\_  
Director, Fish and Wildlife Service Date

Do not concur: \_\_\_\_\_  
Director, Fish and Wildlife Service Date

Director's Remarks:

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Date of annual review: 2/03

Conducted by: \_\_\_\_\_

Comments:

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