

Part IV. Plant Assessment Form

For use with “Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands”
by the California Exotic Pest Plant Council and the Southwest Vegetation Management Association

Electronic version, February 28, 2003

Table 1. Species and Evaluator Information

Species name (Latin binomial):	Cordyline australis (G. Forst.) Hook. f.
Synonyms:	Cordyline australis (G. Forst.) Endl.; Cordyline australis Endl.; Dracaena australis
Common names:	Ti Kouka, New Zealand cabbage tree, cabbage tree, giant dracaena [dracena], dracaena palm
Evaluation date (mm/dd/yy):	12/14/05
Evaluator #1 Name/Title:	Peter J. Warner
Affiliation:	California Department of Parks and Recreation; CNPS; Cal-IPC
Phone numbers:	(707) 937-9172 (w); (707) 937-278 (h)
Email address:	pwarn@parks.ca.gov ; corylus@earthlink.net
Address:	P. O. Box 603, Little River, CA 95456
Evaluator #2 Name/Title:	enter text here
Affiliation:	enter text here
Phone numbers:	enter text here
Email address:	enter text here
Address:	enter text here

Section below for list committee use—please leave blank

List committee members:	Joe DiTomaso, John Randall, Peter Warner, Jake Sigg
Committee review date:	1/10/06
List date:	enter text here
Re-evaluation date(s):	enter text here

General comments on this assessment:

Based on very limited information, including only 2 reported wildland observations.

Other: Horticultural.

This plant appears best suited to moist, cool climates, perhaps augmented by summer fog and improved by overstory shading of coniferous trees, and is cold-hardy to about -10 degrees Celsius. Thus, it is unlikely that it would pose a threat to habitats in southern or inland California. However, it has not been widely reported from wildlands, despite the presence of extensive habitats for which it appears well suited, from the San Francisco Bay Area north to the Oregon state line, especially closer to the coast.

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	U	No Information
1.2	Impact on plant community	C	Observational
1.3	Impact on higher trophic levels	U	No Information
1.4	Impact on genetic integrity	D	Other Pub. Mat'l

“Impact”
 Enter four characters from Q1.1-1.4 below:
UCUD
 Use matrix determine the score; enter below:
C

2.1	Role of anthropogenic and natural disturbance	A 3	Observational
2.2	Local rate of spread with no management	B 2	Observational
2.3	Recent trend in total area infested within state	U pts	Observational
2.4	Innate reproductive potential Wksht A	U pts	Other Pub. Mat'l
2.5	Potential for human-caused dispersal	B 2	Observational
2.6	Potential for natural long-distance dispersal	B 2	Other Pub. Mat'l
2.7	Other regions invaded	C 1	Other Pub. Mat'l

“Invasiveness”
 For questions at left, recall that an A gets 3 points, a B gets 2, a C gets 1, and a D or U gets=0. Enter the sum total of all points for Q2.1-2.7 below:
10
 Use matrix to determine score and enter below:
C

“Plant Score”
 Using matrix, determine the Overall Score and Alert Status from the three section scores and enter them below:
Low
No Alert

3.1	Ecological amplitude/Range	C	Observational
3.2	Distribution/Peak frequency Wksht C	D	Observational

“Distribution”
 Use matrix determine the score; enter below:
C

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes	U No Information back
Identify ecosystem processes impacted: No information available.	
Rationale: enter text here	
Sources of information: enter text here	
Question 1.2 Impact on plant community composition, structure, and interactions	C Observational back
Identify type of impact or alteration: Observed to establish as very minor component of north coast coniferous forests in Sonoma County in and adjacent to Salt Pt. State Park (1); does not appear to alter native composition of forest.	
Invading disturbed and undisturbed uplifted river terrace/mixed-conifer/serpentine grassland complex, in dappled shade, Redwood National Park (Del Norte or Humboldt County) (2)	
Rationale: Observations do not indicate any major alteration of community composition, but potential to add a new layer (sub-canopy) in small stands, or to alter riparian zone composition.	
Sources of information: 1. Warner, Peter. 2002-2005. Observations at Salt Pt. State Park and Kruse Rhododendron Preserve, Sonoma Co. 707/937-9176; pwarn@parks.ca.gov	
2. Williams, Andrea. 2005. Observations at Redwood National Park. 707/464-6101 x 5281; andrea_williams@nps.gov	
Question 1.3 Impact on higher trophic levels	U No Information back
Identify type of impact or alteration: No information on impacts; small, globose, blue or bluish-white berries in dense panicles (1) (similar in appearance to those of Ligustrum spp. but lighter in color) are bird-dispersed (2).	
Rationale: No empirical or observational evidence on higher trophic impacts.	
Sources of information: 1. McMinn, H. E., and E. Maino. 1963. An Illustrated Manual of Pacific Coast Trees. University of California Press, Berkeley. p. 121-122.	
2. World Wildlife Fund Australia. 2005. National list of naturalized invasive and potentially invasive garden plants. http://www.wwf.org.au/News_and_Information/Publications/PDF/Conservation_guide/ListInvasivePlants.pdf	
Question 1.4 Impact on genetic integrity	D Other Pub. Mat'l back
Identify impacts: Extremely unlikely since no congeneric species are native to North America; genus is native to tropical regions (1).	
Rationale: Inferential.	

Sources of information: 1. McMin, H. E., and E. Maino. 1963. An Illustrated Manual of Pacific Coast Trees. University of California Press, Berkeley. p. 121-122.	
Question 2.1 Role of anthropogenic and natural disturbance in establishment	A Observational back
Describe role of disturbance: Disturbance does not appear to be a prerequisite site condition for germination of seeds and plant growth and development (1).	
Rationale: Plants of many sizes (ages?) observed growing in mature forests and riparian zones (1) that do not appear to be recently disturbed (although logging may have contributed disturbance in some areas in the past). Habitat types invaded as noted in Redwood National Park (2) suggest that disturbance may facilitate germination and growth, but my observations suggest that disturbance post-digestion is not necessary for germination.	
Sources of information: 1. Warner, Peter. 2002-2005. Observations at Salt Pt. State Park and Kruse Rhododendron Preserve, Sonoma Co. 707/937-9176; pwarn@parks.ca.gov 2. Williams, Andrea. 2005. Observations at Redwood National Park. 707/464-6101 x 5281; andrea_williams@nps.gov	
Question 2.2 Local rate of spread with no management	B Observational back
Describe rate of spread: Not monitored or directly observed. However, species is not native, and I estimate that the population at Salt Pt. SP numbers in the hundreds of plants, so some increase in population has occurred over an indefinite period of time. Plants probably originate from ornamental plantings, perhaps at least several decades old, at surrounding homes (ranger residences, Plantation farm, et al.) (1)	
Rationale: Inferential.	
Sources of information: 1. Warner, Peter. 2002-2005. Observations at Salt Pt. State Park and Kruse Rhododendron Preserve, Sonoma Co. 707/937-9176; pwarn@parks.ca.gov	
Question 2.3 Recent trend in total area infested within state	U Observational back
Describe trend: Conservatively, not changing substantially; reports are limited to two that I know about. However, many forested areas between two known wildland populations could support populations that remain undetected or unreported (1).	
Rationale: Two reports and no monitoring data are insufficient to assess area infested, especially considering the widespread planting of this taxon and the large area of potentially suitable habitat for invasion that exists between northern Sonoma County and Del Norte County. (1)	
Sources of information: 1. Warner, Peter. 2002-2005. Observations at Salt Pt. State Park and Kruse Rhododendron Preserve, Sonoma Co. 707/937-9176; pwarn@parks.ca.gov	

Question 2.4 Innate reproductive potential	U Other Pub. Mat'l back
Describe key reproductive characteristics: Produces large numbers of small berries, with several ovules in each of 3 locules, in dense panicles (1), but otherwise, not much information found on reproductive mechanisms, structures, or success. Plants can stump-sprout following removal of stem close to base (2).	
Rationale: Insufficient documentation upon which to base an assessment (4 unknown responses on Worksheet A).	
Sources of information: 1. McMinn, H. E., and E. Maino. 1963. An Illustrated Manual of Pacific Coast Trees. University of California Press, Berkeley. p. 121-122. 2. Warner, Peter. 2002-2005. Observations at Salt Pt. State Park and Kruse Rhododendron Preserve, Sonoma Co. 707/937-9176; pwarn@parks.ca.gov	
Question 2.5 Potential for human-caused dispersal	B Observational back
Identify dispersal mechanisms: Commonly sold and planted as an ornamental (1) and has been in trade for perhaps a century or more. See www.cordylines.org/ for horticultural information. No information on date of introduction into California.	
Rationale: Continues to be planted and maintained in landscapes, increasing potential for bird dispersal of fruits into suitable wildland habitats; especially relevant along northern Calif. coast.	
Sources of information: 1. Warner, Peter. 2001-2005. Observations, northern California. 707/937-9176; pwarn@parks.ca.gov International Cordyline Society, Queensland, Australia. www.cordylines.org	
Question 2.6 Potential for natural long-distance dispersal	B Other Pub. Mat'l back
Identify dispersal mechanisms: Bird-dispersed (1) after digestion of small, globose, blue to bluish-white berries; young plants found >1km from ornamental plantings bearing flowers and fruit, but not known is distance to possible fruit-bearing trees in the wild (2). Unknown if fruits or seeds, or mature inflorescences, might float; plants can be found in riparian zones (2).	
Rationale: enter text here	
Sources of information: 1. World Wildlife Fund Australia. 2005. National list of naturalized invasive and potentially invasive garden plants. http://www.wwf.org.au/News_and_Information/Publications/PDF/Conservation_guide/ListInvasivePlants.pdf 2. Warner, Peter. 2002-2005. Observations at Salt Pt. State Park and Kruse Rhododendron Preserve, Sonoma Co. 707/937-9176; pwarn@parks.ca.gov	

Question 2.7 Other regions invaded	C Other Pub. Mat'l back
Identify other regions: Native to New Zealand (1). Mildly to moderately invasive in undescribed habitats in Victoria, Australia (2, 3). Invasiveness in north coastal coniferous forests in California suggest that Cordyline could invade similar types or additional stands of the same type (grand fir-, Douglas-fir-, Bishop pine-dominated forests)	
Rationale: Conservatively, this species has invaded the only types likely, considering that it has been planted in landscapes for decades. However, observations are limited.	
Sources of information: 1. Desert-Tropicals.com. 2005. Cordyline australis. http://www.desert-tropicals.com/Plants/Agavaceae/Cordyline_australis.html 2. World Wildlife Fund Australia. 2005. National list of naturalized invasive and potentially invasive garden plants. http://www.wwf.org.au/News_and_Information/Publications/PDF/Conservation_guide/ListInvasivePlants.pdf 3. The Nature Conservancy. 2005. The Global Invasive Species Initiative. Rod Randall's Big Weed List. http://tncweeds.ucdavis.edu/global/australia/aca.html	
Question 3.1 Ecological amplitude/Range	C Observational back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Observed only in forest dominated by Douglas-fir, grand fir, Bishop pine, or non-native Eucalyptus globulus (1) in or adjacent to Salt Pt. State Park, Sonoma County. Ecological types noted by Williams (2) are not sufficiently described to categorize here. Grows in riparian zones, but only within forest type noted above (1).	
Rationale: Based on very limited observations and 2 reports.	
Sources of information: 1. Warner, Peter. 2002-2005. Observations at Salt Pt. State Park and Kruse Rhododendron Preserve, Sonoma Co. 707/937-9176; pwarn@parks.ca.gov text here 2. Williams, Andrea. 2005. Observations at Redwood National Park. 707/464-6101 x 5281; andrea_williams@nps.gov	
Question 3.2 Distribution/Peak frequency	D Observational back
Describe distribution: Population distributed over several square miles in and adjacent to Salt Pt. State Park, Sonoma Co. (1), and of unknown extent at Redwood National Park (2), Del Norte or Humboldt County; not reported from other wildland areas, nor from the extensive range of similar forest types between 2 reported locations.	
Rationale: Based on limited reports, a very low proportion of stands of this type forest have been invaded.	
Sources of information: 1. Warner, Peter. 2002-2005. Observations at Salt Pt. State Park and Kruse Rhododendron Preserve, Sonoma Co. 707/937-9176; pwarn@parks.ca.gov text here 2. Williams, Andrea. 2005. Observations at Redwood National Park. 707/464-6101 x 5281;	

andrea_williams@nps.gov

Worksheet A

[back](#)

Reaches reproductive maturity in 2 years or less	No: 0 pt
Dense infestations produce >1,000 viable seed per square meter	Unknown: 0 pts
Populations of this species produce seeds every year.	Unknown: 0 pts
Seed production sustained over 3 or more months within a population annually	No: 0 pt
Seeds remain viable in soil for three or more years	Unknown: 0 pts
Viable seed produced with <i>both</i> self-pollination and cross-pollination	Unknown: 0 pts
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	No: 0 pt
Fragments easily and fragments can become established elsewhere	No: 0 pts
Resprouts readily when cut, grazed, or burned	Yes: 1 pt
	1 pt 4 unknowns
	U (3+ unknowns)

Note any related traits: Seeds may require digestion or other means of treatment for germination, based on inferences from observations. Large amount of seed production possible, but viability and fecundity are unknown.

Worksheet C - California Ecological Types

[back](#)

(*sensu* Holland 1986)

Major Ecological Types	Minor Ecological Types	Code*
Marine Systems	marine systems	score
Freshwater and Estuarine Aquatic Systems	lakes, ponds, reservoirs	score
	rivers, streams, canals	score
	estuaries	score
Dunes	coastal	score
	desert	score
	interior	score
Scrub and Chaparral	coastal bluff scrub	score
	coastal scrub	score
	Sonoran desert scrub	score
	Mojavean desert scrub (incl. Joshua tree woodland)	score
	Great Basin scrub	score
	chenopod scrub	score
	montane dwarf scrub	score
	Upper Sonoran subshrub scrub	score
	chaparral	score
Grasslands, Vernal Pools, Meadows, and other Herb Communities	coastal prairie	score
	valley and foothill grassland	score
	Great Basin grassland	score
	vernal pool	score
	meadow and seep	score
	alkali playa	score
	pebble plain	score
Bog and Marsh	bog and fen	score
	marsh and swamp	score
Riparian and Bottomland	riparian forest	score
	riparian woodland	score
	riparian scrub (incl. desert washes)	score
Woodland	cismontane woodland	score
	piñon and juniper woodland	score
	Sonoran thorn woodland	score
Forest	broadleaved upland forest	score
	North Coast coniferous forest	D. present
	closed cone coniferous forest	D. present
	lower montane coniferous forest	score
	upper montane coniferous forest	score
	subalpine coniferous forest	score
Alpine Habitats	alpine boulder and rock field	score
	alpine dwarf scrub	score

* A. means >50% of type occurrences are invaded; B means >20% to 50%; C. means >5% to 20%; D. means present but ≤5%; U. means unknown (unable to estimate percentage of occurrences invaded).