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)**:**	Schinus terebinthifolius Raddi
Synonyms:	Schinus mucronulata, S. antiarthriticus
Common names:	Brazilian pepper tree, Christmas-berry tree, Christmasberry, Florida holly
Evaluation date (mm/dd/yy)**:**	5/16/05
Evaluator #1 Name/Title:	Elizabeth Brusati, project manager
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Evaluator #2 Name/Title:	Joseph M. DiTomaso
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Section below for list committee use—please leave blank

List committee members:	Jake Sigg, Peter Warner, Bob Case, John Knapp, Elizabeth Brusati
Committee review date:	7/8/05
List date:	enter text here
Re-evaluation date(s):	enter text here

General comments on this assessment:

Table 2. Criteria, Section, and Overall Scores

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

Impact

Enter four characters from Q1.1-1.4 below:

UCBD

Using matrix, determine score and enter below:

C

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

Invasiveness

Enter the sum total of all points for Q2.1-2.7 below:

13

Use matrix to determine score and enter below:

B

Plant Score

Using matrix, determine Overall Score and Alert Status from the three section scores and enter below:

Low

No Alert

3.1	Ecological amplitude/Range	B	Other Pub. Mat'l
3.2	Distribution/Peak frequency Wksht C	D	Other Pub. Mat'l

Distribution

Using matrix, determine score and enter below:

C

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes	U No Information back
Identify ecosystem processes impacted: unknown	
Rationale: enter text here	
Sources of information: enter text here	
Question 1.2 Impact on plant community composition, structure, and interactions	C Other Pub. Mat'l back
Identify type of impact or alteration: Dense monocultures form within a few years after Schinus invades an area. The dense canopy can shade out other vegetation. The tenacity of Brazilian pepper seedlings impairs competition by native vegetation and it may produce allelopathic chemicals. This species is locally invasive in certain riparian areas of Southern California and has aggressively colonized hundreds of thousands of acres in Florida. No common enough in Califonria to have an impact.	
Rationale: enter text here	
Sources of information: Randall, J. J. 2000. Schinus terebinthifolius. pp. 282-286 in Bossard, C.C., J. M. Randall, and M. Hochovsky. Invasive Plants of California's Wildlands. University of California Press. Berkeley. DiTomaso and Healy. 2006. Weeds of California. UC DANR Publ. #3488.	
Question 1.3 Impact on higher trophic levels	B Other Pub. Mat'l back
Identify type of impact or alteration: Seeds eaten by birds and mammals (1). Bark, leaves, and fruit contain chemical such as triterpene alcohols, ketones, acids, monoterpenes, and sesquiterpenes. Monoterpenes released by crushed fruit may cause respiratory problems. Persons sitting or playing beneath Brazilian pepper have experienced flu-like symptoms, including sneezing, sinus congestion, chest pains, and headaches. However, the pollen does not appear to be an allergen (2)	
Rationale: enter text here	
Sources of information: 1. Randall 2000 2. Ferriter, A. (ed). 1997. Brazilian pepper management plan for Florida. Florida Exotic Pest Plant Council, Brazilian Pepper Task Force. Available: http://aquat1.ifas.ufl.edu/schinus.html	
Question 1.4 Impact on genetic integrity	D Other Pub. Mat'l back
Identify impacts: None	
Rationale: No closely related native species.	
Sources of information: Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University	

of California Press. Berkeley, CA enter text here
Question 2.1 Role of anthropogenic and natural disturbance in establishment B Other Pub. Mat'l back
Describe role of disturbance: Is a pioneer species in disturbed habitats, but can also establish in undisturbed natural areas. In California, inhabits areas such as desert washes that receive natural disturbance (1).
Rationale: enter text here
Sources of information: Elfers, S.C. 1988. Element stewardship abstract for Schinus terebinthifolius. The Nature Conservancy, Arlington, VA. Available: http://tncweeds.ucdavis.edu/esadocs/schitere.html
Question 2.2 Local rate of spread with no management C Observational back
Describe rate of spread: While it has spread rapidly in Florida and Hawaii, it does not seem to be as invasive yet in California.
Rationale: enter text here
Sources of information: DiTomaso, observational
Question 2.3 Recent trend in total area infested within state C Observational back
Describe trend: Appears to be relatively static.
Rationale: enter text here
Sources of information: DiTomaso, observational
Question 2.4 Innate reproductive potential B Other Pub. Mat'l back
Describe key reproductive characteristics: Mostly dioecious with male and female flowers on separate trees. Reproduces by seed. Flowering begins in September, and by mid-October most trees are in flower. Most flowering ceases in November. Fruit ripening happens soon after flowering. Mature female trees are prolific seed producers, which, combined with viability rates of 30-60%, results in many seedlings. Ripe fruits are retained on the tree for up to eight months. Seeds lose viability approximately 5 months after dispersal. Most seed germination occurs in January and February. Survival of seedlings ranges from 66-100%. Begins reproducing within 3 years of germination. Can resprout from aboveground stems and root crowns following cutting, girdling, or fire. Its shallow root system allows for development of suckers that produce another plant.
Rationale: enter text here
Sources of information: Randall 2000 DiTomaso and Healy. 2006. Weeds of California. UC DANR Publ. #3488.

Question 2.5 Potential for human-caused dispersal B Other Pub. Mat'l back
Identify dispersal mechanisms: Popular as an ornamental, but not as popular in California as S. molle. The original route of introduction into California was through the nursery industry. Occasionally escapes cultivation from gardens.
Rationale: enter text here
Sources of information: Randall 2000
Question 2.6 Potential for natural long-distance dispersal A Other Pub. Mat'l back
Identify dispersal mechanisms: Ripe fruits transported by mammals and birds, especially robins. Raccoons and opossums deposit seeds with fecal material, providing nutrients for the germinating seed (1). Relies on frugivores for dispersal (2). Can also be dispersed by water (3).
Rationale:
Sources of information: 1. Randall 2000 2. Panetta, F. D., and J. McKee. 1997. Recruitment of the invasive ornamental, Schinus terebinthifolius, is dependent upon frugivores. Australian Journal of Ecology. 22:432-438 3. Elfers 1988
Question 2.7 Other regions invaded B Other Pub. Mat'l back
Identify other regions: Native to Argentina, Paraguay, and Brazil, where it is a sparsely distributed species on savannahs. Now invasive in Florida, Hawaii, Bermuda, and the Bahamas (1). Naturalized in more than 20 countries and its range forms two circumglobal belts (2). So invasive in Hawaii that gardeners are advised to grow male plants only because they do not produce berries (3).
Rationale: Widespread problem elsewhere but fairly limited distribution in California.
Sources of information: 1. Randall 2000 2. Elfers 1988 3. Brenzel, K. N. 2001. Sunset Western Garden Book. Sunset Publishing Company, Menlo Park, CA.
Question 3.1 Ecological amplitude/Range B Other Pub. Mat'l back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Problematic in southern California from Riverside to the coast, including Ventura and San Diego counties. Also found in Santa Clara County. Usually found below 200m elevation, especially in canyons and washes (1). Planted as an ornamental since the 1800's, and as of 1980 was not considered naturalized in California (2). Invades riparian areas and wetlands (3), including the San Diego River (4).

Rationale: enter text here
Sources of information: 1. Randall 2000 2. Nilsen, E. T., and W. H. Muller. 1980. A comparison of the relative naturalization ability of two Schinus species in southern California. I. Seed germination. Bulletin of the Torrey Botanical Club. 107:51-56 3. Martus, Carolyn. California Native Plant Society, San Diego. pers. comm. 5/18/05 4. Burkhartt, B. 2005. Which weeds dominate southern California urban riparian systems? Cal-IPC News. 13(1):4-5, 12. Available: http://groups.ucanr.org/ceppc/documents/newsletter310.htm
Question 3.2 Distribution/Peak frequency D Other Pub. Mat'l back
Describe distribution: No information on how widespread it is, but so far it is mostly limited to southern California. The fact that it grows in Santa Clara County seems to indicate that it could spread in more northern areas of the state as well (reviewer's assumption).
Rationale: enter text here
Sources of information: 1. Randall 2000

Worksheet A

back

Reaches reproductive maturity in 2 years or less	**No: 0 pt**
Dense infestations produce >1,000 viable seed per square meter	**Yes: 2 pts**
Populations of this species produce seeds every year.	**Yes: 1 pt**
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	**No: 0 pts**
Viable seed produced with *both* self-pollination and cross-pollination	**No: 0 pt**
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**

	4 pts	**Total Unknowns**
	B (4-5 pts)	

Note any related traits: enter text here

Worksheet C - California Ecological Types

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(*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	**D. presen**
Riparian and Bottomland	riparian forest	**score**
	riparian woodland	**score**
	riparian scrub (incl.desert washes)	**D. presen**
Woodland	cismontane woodland	**score**
	piñon and juniper woodland	**score**
	Sonoran thorn woodland	**score**
Forest	broadleaved upland forest	**score**
	North Coast coniferous forest	**score**
	closed cone coniferous forest	**score**
	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).