

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):	Nicotiana glauca Graham
Synonyms:	enter text here
Common names:	Tree tobacco
Evaluation date (mm/dd/yy):	03/18/05
Evaluator #1 Name/Title:	Scott Oneto / Natural Resources Program Representative
Affiliation:	University of California Cooperative Extension
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Address:	12200B Airport Road, Jackson, CA 95642
Evaluator #2 Name/Title:	Joseph DiTomaso
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Section below for list committee use—please leave blank

List committee members:	Joe DiTomaso, Alison Stanton, Joanna Clines, Cynthia Roye, Doug Johnson
Committee review date:	7/8/05
List date:	enter text here
Re-evaluation date(s):	enter text here

General comments on this assessment:

A larger problem south of the Tehachapis.

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	U	No Information
1.2	Impact on plant community	B	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:

UBBD

Using matrix, determine score and enter below:

B

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

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:

Medium

No Alert

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

Distribution

Using matrix, determine score and enter below:

B

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes	U No Information back
Identify ecosystem processes impacted: enter text here	
Rationale: enter text here	
Sources of information: enter text here	
Question 1.2 Impact on plant community composition, structure, and interactions	B Other Pub. Mat'l back
Identify type of impact or alteration: Displaces native plants.	
Rationale: Prolific seed producer with seed set approaching 100% in manually self-pollinated flowers.	
Sources of information: Wilken D., Hannah L. 1998; Nicotiana glauca R. Graham (Solanaceae) Tree Tobacco. Santa Barbara Botanic Garden Publication	
Question 1.3 Impact on higher trophic levels	B Other Pub. Mat'l back
Identify type of impact or alteration: Affecting the habitat of the threatened cactus wren in California and the Blackburn sphinx moth in Hawaii.	
Rationale: In California, tree tobacco invades coastal prickly pear cactus stands. Hummingbirds pollinate this tree instead of the native shrubs, which the threatened cactus wren is dependent on. In Hawaii, the endangered sphinx moth has been found to feed and reproduce on the introduced species. Tree tobacco also contains a toxic alkaloid called anabasine which is poisonous to livestock and other foraging animals.	
Sources of information: Meyers-Rice, B., Randall J. Weed Report: Nicotiana glauca, Tree Tobacco. The Nature Conservancy Wildlands Weeds Management and Research 1998-99 Weed Survey. Giffen, J. Pu'u'wa'awa'a Biological Assessment. August 2003 Knight, A.P., Walter R.G. A Guide to Plant Poisoning of Animals in North America. Teton New Media: Jackson, Wyoming. Pgs. 247-249. 2001	
Question 1.4 Impact on genetic integrity	D Other Pub. Mat'l back
Identify impacts: There are four native species of Nicotiana in California, but no information on hybridization. Very unlikely since the other species are herbaceous and this is woody.	
Rationale: No information	
Sources of information: Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA	

Question 2.1 Role of anthropogenic and natural disturbance in establishment	B Other Pub. Mat'l back
Describe role of disturbance: Found primarily in disturbed areas, of both human and natural origin. Is capable of sprouting along runners.	
Rationale: First planted as a landscape ornamental, Tree Tobacco has escaped and can now be found widespread along roadsides, disturbed sites, waste areas, riparian areas, and recently burned sites.	
Sources of information: Wilken D., Hannah L. 1998; <i>Nicotiana glauca</i> R. Graham (Solanaceae) Tree Tobacco. Santa Barbara Botanic Garden Publication	
Question 2.2 Local rate of spread with no management	B Observational back
Describe rate of spread: High	
Rationale: Tree Tobacco seed set can reach nearly 100% in manually pollinated flowers. Trees grow rapidly and produce viable seed within a couple of years.	
Sources of information: Scott Oneto, personal observations	
Question 2.3 Recent trend in total area infested within state	B Other Pub. Mat'l back
Describe trend: Increasing, but less rapidly	
Rationale: Although it is not well documented across the state, tree tobacco occurs along much of the coast and into the valley floor. In its native habitat, tree tobacco can grow at altitudes of 3700 meters.	
Sources of information: USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	
Question 2.4 Innate reproductive potential	A Other Pub. Mat'l back
Describe key reproductive characteristics: Tree tobacco is a prolific seed producer with seed set close to 100%. Plants are self compatible and are fertilized by moths and hummingbirds. In warmer regions of California, plants can flower almost year round. Young trees can grow 3-4 feet a year and mature trees can also reproduce asexually through rhizome sprouting.	
Rationale: enter text here	
Sources of information: Wilken D., Hannah L. 1998; <i>Nicotiana glauca</i> R. Graham (Solanaceae) Tree Tobacco. Santa Barbara Botanic Garden Publication	

Question 2.5 Potential for human-caused dispersal	B Other Pub. Mat'l back
Identify dispersal mechanisms: First introduced as an ornamental, tree tobacco was widely planted for its beautiful yellow tubular flowers. Many infestations can be found downstream from old dwellings. Although it is not planted as widely, it can still be found for sale on the internet.	
Rationale: enter text here	
Sources of information: enter text here	
Question 2.6 Potential for natural long-distance dispersal	B Observational back
Identify dispersal mechanisms: Seeds are produced in large quantities in capsules. The seeds are minute and can be carried long distances either by falling on bypassing animals or by moving in watersheds.	
Rationale: Brushing up against trees will casue a large number of seeds to disperse which can then be lodged into the hair or coat of animals. Water can also move seeds downstream where new infestations will emerge.	
Sources of information: Wilken D., Hannah L. 1998; Nicotiana glauca R. Graham (Solanaceae) Tree Tobacco. Santa Barbara Botanic Garden Publication	
Question 2.7 Other regions invaded	C Observational back
Identify other regions: Weedy in other states including Hawaii, and most of the southern states.	
Rationale: Wherever it was planted as an ornamental, a source for new infestations exists.	
Sources of information: Observational and USDA NRCS Plants Database. http://plants.usda.gov/index.html	
Question 3.1 Ecological amplitude/Range	A Other Pub. Mat'l back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: First introduced into California as an ornamental in the 1800's. It invades several California types	
Rationale: Old home sites serve as a consistent seed source for down stream invasions. Once established, it produces numerouse seeds that can be further distributed.	
Sources of information: Wilken D., Hannah L. 1998; Nicotiana glauca R. Graham (Solanaceae) Tree Tobacco. Santa Barbara Botanic Garden Publication	
Meyers-Rice, B., Randall J. Weed Report: Nicotiana glauca, Tree Tobacco. The Nature Conservancy Wildlands Weeds Management and Research 1998-99 Weed Survey.	
Personal observations: Joe DiTomaso, UC Davis; Joanna Clines, Sierra National Forest; Alison Stanton, BMP Ecosciences; Cynthia Roye, California State Parks.	

Question 3.2 Distribution/Peak frequency	C Other Pub. Mat'l back
Describe distribution: Most noticeable along roadsides, disturbed sites, recently burned areas, and in stream corridors	
Rationale: enter text here	
Sources of information: Wilken D., Hannah L. 1998; <i>Nicotiana glauca</i> R. Graham (Solanaceae) Tree Tobacco. Santa Barbara Botanic Garden Publication	
Meyers-Rice, B., Randall J. Weed Report: <i>Nicotiana glauca</i> , Tree Tobacco. The Nature Conservancy Wildlands Weeds Management and Research 1998-99 Weed Survey.	
DiTomaso and Healy. 2006. Weeds of California. UC DANR Publ. #3488.	

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	Yes: 1 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	Yes: 1 pt
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	Yes: 1 pt
Fragments easily and fragments can become established elsewhere	No: 0 pts
Resprouts readily when cut, grazed, or burned	Yes: 1 pt
	7 pts 1 unknown
	A (6+ 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	C. 5-20%
	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	D. presen
	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	D. presen
	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	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).