

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):	Gleditsia triacanthos L.
Synonyms:	
Common names:	honey locust tree, sweet locust
Evaluation date (mm/dd/yy):	1/19/05
Evaluator #1 Name/Title:	Elizabeth Brusati, project manager
Affiliation:	California Invasive Plant Council
Phone numbers:	510-843-3902
Email address:	edbrusati@cal-ipc.org
Address:	1442A Walnut St. #462, Berkeley, CA 94709
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, Carla Bossard
Committee review date:	3/11/05 (Revised 9/13/05)
List date:	enter text here
Re-evaluation date(s):	enter text here

<p>General comments on this assessment: This species rarely escapes in California.</p>

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	D	Rev'd, Sci. Pub'n
1.2	Impact on plant community	D	Rev'd, Sci. Pub'n
1.3	Impact on higher trophic levels	U	Rev'd, Sci. Pub'n
1.4	Impact on genetic integrity	D	Rev'd, Sci. Pub'n

Impact

Enter four characters from Q1.1-1.4 below:

DDUD

Using matrix, determine score and enter below:

D

2.1	Role of anthropogenic and natural disturbance	3 (2 pts)	Rev'd, Sci. Pub'n
2.2	Local rate of spread with no management	1 (0 pts)	No Information
2.3	Recent trend in total area infested within state	C	Observational
2.4	Innate reproductive potential Wksht A	3 (3 pts)	Rev'd, Sci. Pub'n
2.5	Potential for human-caused dispersal	3 (2 pts)	Other Pub. Mat'l
2.6	Potential for natural long-distance dispersal	B	Rev'd, Sci. Pub'n
2.7	Other regions invaded	3 (3 pts)	Rev'd, Sci. Pub'n

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:

Not listed

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

Distribution

Using matrix, determine score and enter below:

C

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes	D Other Pub. back
Identify ecosystem processes impacted: Reduces erosion (1). However, rarely escapes in California and creates little impact.	
Rationale: Casts a light shade that permits shade-tolerant turfgrass and partial-shade perennials to grow underneath (2).	
Sources of information: 1. Allen O.N., and E.K. Allen E.K. 1981. The Leguminosae: A Source Book of Characteristics, Uses, and Nodulation. The University of Wisconsin Press: Madison, Wi. Pg. 298-300. 2. Nesom, G. 2003. Plant guide: Honey-locust. USDA, NRCS, National Plant Data Center, Baton Rouge, LA.	
Question 1.2 Impact on plant community composition, structure, and interactions	D Other Pub. Mat'l back
Identify type of impact or alteration:	
Rationale: Casts a light shade that permits shade-tolerant turfgrass and partial-shade perennials to grow underneath (1).	
Sources of information: 1. Nesom, G. 2003. Plant Guide: Honey-locust. USDA. NRCS, National Plant Data Center, Baton Rouge, LA.	
Question 1.3 Impact on higher trophic levels	U Unknown back
Identify type of impact or alteration: No documented impacts.	
Rationale:	
Sources of information:	
Question 1.4 Impact on genetic integrity	D Rev'd, Sci. Pub'n back
Identify impacts: No native species of Gleditsia.	
Rationale: enter text here	
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 Rev'd, Sci. Pub'n back
Describe role of disturbance: Based on other sites of invasions and the habitats it uses in its native range (see question 3.1), seems to need some level of disturbance that creates gaps in forest.	

<p>Rationale: In Argentina, invades agricultural fields but did not successfully invade cropped fields that were not tilled (1). Invades gaps maintained for cattle grazing but occurrence is negligible in mature forest (2). One modeling study predicted that absence of disturbance and the consequent closing of the canopy could stop population growth because seedlings would not grow and replace adults (3). (Of course, this is a long-lived tree, so once it is established, it could be decades before the initial invaders died.). Invaded intact forest at Cosumnes River Preserve, CA (naturally disturbed by floods).</p>	
<p>Sources of information: 1. Ghera, C. M., E. de la Fuente, S. Suarez, and R. J. C. Leon. 2002. Woody species invasion in the Rolling Pampa grasslands, Argentina. <i>Agriculture Ecosystems & Environment</i> 88(3): 271-278</p> <p>2. Speroni, F. C. and M. L. De Viana 2001. Community characteristics in a mountain forest invaded by <i>Gleditsia triacanthos</i>. Brundu, Giuseppe, Brock, J., Camarda, I., Child, L., and Wade, M. (Eds.) <i>Plant invasions: Species ecology and ecosystem management 2001</i>. 75-82., Backhuys Publishers, Leiden, Netherlands.</p> <p>3. Marco, D. E., and S. A. Paez 2002. Species invasiveness in biological invasions: A modelling approach. <i>Biological Invasions</i> 4(1-2): 193-205.</p> <p>4. John Randall, The Nature Conservancy, Invasive Species Initiative, Pers. Obs.</p>	
<p>Question 2.2 Local rate of spread with no management</p>	<p>U No Information back</p>
<p>Describe rate of spread: no information</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: enter text here</p>	
<p>Question 2.3 Recent trend in total area infested within state</p>	<p>C Observational back</p>
<p>Describe trend: Only area of invasion in California is Cosumnes River Preserve, where <i>Gleditsia</i> spread downstream from plantings. Not known to have escaped elsewhere.</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: enter text here</p>	
<p>Question 2.4 Innate reproductive potential</p>	<p>A Rev'd, Sci. Pub'n back</p>
<p>Describe key reproductive characteristics: Grows up to 25m height. Subdioecious: a small number of hermaphroditic individuals may occur within a population of dioecious individuals. Male trees flower yearly, but flower and fruit production in females is highly variable from year to year. Long pods may produce up to 39 seeds, once the plant is 3-5 yrs old. Older trees can produce 500kg seeds/tree (1).</p> <p>Seed production begins at 10 years and continues until age 100. Some seed produced every year, with large crops every other year. A thick, impermeable seed coat allows seeds to remain viable for long periods. Germination enhanced by passage through animals' digestive tracts. Can reproduce from stump and root sprouts, as well as after top-kill by fire. (2).</p>	
<p>Rationale: enter text here</p>	

Sources of information: 1. Csurhes, S. M. and D. Kriticos 1994. <i>Gleditsia triacanthos</i> L. (Caesalpinaceae), another thorny, exotic fodder tree gone wild. <i>Plant Protection Quarterly</i> 9(3): 101-105.	
2. Nesom 2003	
Question 2.5 Potential for human-caused dispersal	B Other Pub. Mat'l back
Identify dispersal mechanisms: Ornamental planted in parking-lot islands and sidewalk tree squares. Also used in hayfields and pastures to provide high protein mast in other parts of the U.S. (1). Limited use as ornamental because of pod litter and thorns (2).	
Rationale: Scoring as B because it seems to be less common and less desirable as an ornamental than many other species.	
Sources of information: 1. Nesom 2003	
2. Allen and Allen 1981	
Question 2.6 Potential for natural long-distance dispersal	A Rev'd, Sci. Pub'n back
Identify dispersal mechanisms: Pods eaten by deer, opossum, squirrels, rabbits, quail, crows, and starlings (1). Seed pods float, so floodwaters are also a dispersal mechanism (2).	
Rationale: enter text here	
Sources of information: 1. Nesom 2003	
2. Csurhes and Kriticos. 1994	
Question 2.7 Other regions invaded	A Rev'd, Sci. Pub'n back
Identify other regions: Native to east-central US, but naturalized east of Appalachians, Nova Scotia, India, New Zealand, and South Africa. Invades rocky glades and abandoned farm fields (1). Argentina pampas grasslands and agricultural fields (3), and montane forests (4). Naturalized in South Africa (4, 5) and Europe (4).	
Rationale: Scoring as A because its distribution in California is limited so far.	
Sources of information: 1. Nesom 2003	
2. Ghera et al. 2002.	
3. Speroni and de Viana 2001	
4. Marco and Paez 2002	
5. Wells M.J., A. Balsinhas, H. Joffe, V.M. Engelbrecht, G. Hardin, and C. H. Stirton. 1986 <i>A Catalogue of Problem Plants in Southern Africa</i> . (Memoirs of the Botanical Survey of South Africa) No 53. Publisher unknown. Pg. 264.	
Question 3.1 Ecological amplitude/Range	C Other Pub. Mat'l back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: In California, limited to Sacramento County, generally in moist canyons and valleys (1, 4). In other parts of the US, is most commonly found on moist, fertile soils near streams and lakes. Tolerant of flooding, drought-resistant, somewhat tolerant of salinity. Generally below 760m but can range to 1500m. Occurs on well-drained sites, upland woodlands and borders, rocky hillsides, old fields, fence rows, river floodplains, and bottomlands. Well-adapted to microclimates with high soil temperature (3).	

Rationale:	
Sources of information: 1. DiTomaso, J. D., and E. Healy. in prep. Weeds of California and other Western States. as yet unpublished.	
2. Nesom 2003	
3. Graves W.R., R. J. Joly, and M.N. Dana M.N. 1991. Water Use and Growth of Honey Locust and Tree-of-Heaven at High Root-zone Temperatures. Hortscience 26(10): 1309-1312.	
4. John Randall, The Nature Conservancy, Invasive Species Initiative. Pers. Obs.	
Question 3.2 Distribution/Peak frequency	D Observational back
Describe distribution: enter text here	
Rationale: enter text here	
Sources of information: John Randall, TNC	

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.	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	Yes: 2 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
	6 pts 1 unknown
	A (6+ pts)
Note any related traits: Self-pollination is rare, but it can occur.	

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	D
	riparian woodland	D
	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).