

# 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**

<b>Species name (Latin binomial):</b>	Emex spinosa (Campd.)
<b>Synonyms:</b>	Rumex spinosus
<b>Common names:</b>	spiny threecornerjack, devil's thorn
<b>Evaluation date (mm/dd/yy):</b>	4/5/05
<b>Evaluator #1 Name/Title:</b>	Elizabeth Brusati, project manager
<b>Affiliation:</b>	California Invasive Plant Council
<b>Phone numbers:</b>	510-843-3902
<b>Email address:</b>	edbrusati@cal-ipc.org
<b>Address:</b>	1442A Walnut St. #462, Berkeley, CA 94709
<b>Evaluator #2 Name/Title:</b>	Joseph M. DiTomaso
<b>Affiliation:</b>	University of California, Davis
<b>Phone numbers:</b>	530-754-8715
<b>Email address:</b>	jmditomaso@ucdavis.edu
<b>Address:</b>	Dept. Plant Sci., Mail Stop 4, Davis, CA 95616

Section below for list committee use—please leave blank

<b>List committee members:</b>	Jake Sigg, Peter Warner, Bob Case, John Knapp, Elizabeth Brusati <input type="checkbox"/>
<b>Committee review date:</b>	7/8/05
<b>List date:</b>	enter text here
<b>Re-evaluation date(s):</b>	enter text here

<p><b>General comments on this assessment:</b> enter text here</p>
--

**Table 2. Criteria, Section, and Overall Scores**

<a href="#">1.1</a>	Impact on abiotic ecosystem processes	<b>U</b>	<b>No Information</b>
<a href="#">1.2</a>	Impact on plant community	<b>B</b>	<b>Anecdotal</b>
<a href="#">1.3</a>	Impact on higher trophic levels	<b>A</b>	<b>Anecdotal</b>
<a href="#">1.4</a>	Impact on genetic integrity	<b>U</b>	<b>Other Pub. Mat'l</b>

**Impact**

*Enter four characters from Q1.1-1.4 below:*

**UBAU**

*Using matrix, determine score and enter below:*

**B**

<a href="#">2.1</a>	Role of anthropogenic and natural disturbance	<b>B (2 pts)</b>	<b>Anecdotal</b>
<a href="#">2.2</a>	Local rate of spread with no management	<b>A (3 pts)</b>	<b>Anecdotal</b>
<a href="#">2.3</a>	Recent trend in total area infested within state	<b>B (2 pts)</b>	<b>Observational</b>
<a href="#">2.4</a>	Innate reproductive potential <a href="#">Wksht A</a>	<b>C (1 pt)</b>	<b>Other Pub. Mat'l</b>
<a href="#">2.5</a>	Potential for human-caused dispersal	<b>B (2 pts)</b>	<b>Anecdotal</b>
<a href="#">2.6</a>	Potential for natural long-distance dispersal	<b>C (1 pt)</b>	<b>Observational</b>
<a href="#">2.7</a>	Other regions invaded	<b>U (0 pts)</b>	<b>No Information</b>

**Invasiveness**

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

**11**

*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**  
**Red Alert**

<a href="#">3.1</a>	Ecological amplitude/Range	<b>D</b>	<b>Other Pub. Mat'l</b>
<a href="#">3.2</a>	Distribution/Peak frequency <a href="#">Wksht C</a>	<b>D</b>	<b>Anecdotal</b>

**Distribution**

*Using matrix, determine score and enter below:*

**D**

**Table 3. Documentation**

<b>Question 1.1</b> Impact on abiotic ecosystem processes	U No Information <a href="#">back</a>
Identify ecosystem processes impacted:	
Rationale: enter text here	
Sources of information: enter text here	
<b>Question 1.2</b> Impact on plant community composition, structure, and interactions	B Anecdotal <a href="#">back</a>
Identify type of impact or alteration: It reduces populations of Lotus nuttallianus. This plant carpets areas if left unchecked, crowding out all other species. Prevalent at Lichty Mesa, in an area with endangered plants.	
Rationale:	
Sources of information: Cindy Burrascano, California Native Plant Society, pers. comm. E-mail 2/15/05 in Cal-IPC files	
<b>Question 1.3</b> Impact on higher trophic levels	A Anecdotal <a href="#">back</a>
Identify type of impact or alteration: At one point, dominated least tern nesting area on Mission Bay. (The California least tern is an endangered species) (1). It is the primary species they spend money on controlling at Mariner's Point for Least tern nesting purposes (2). Spines can injure the feet of humans and dogs (and possibly wildlife?) (3).	
Rationale: enter text here	
Sources of information: 1. Jim Peugh, California Native Plant Society, pers. comm. 2. Cindy Burrascano, California Native Plant Society, pers. comm. E-mail 2/15/05 in Cal-IPC files 3. Gregory Gieselmann, personal communication. Submission to Cal-IPC Pest Plant form, 1/27/05	
<b>Question 1.4</b> Impact on genetic integrity	D Other Pub. Mat'l <a href="#">back</a>
Identify impacts: None	
Rationale: No native Emex species in California, but there are native Rumex with the potential for hybridization.	
Sources of information: Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA	

<b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment	B Anecdotal <a href="#">back</a>
Describe role of disturbance: Spreads along trails, then moves into undisturbed areas.	
Rationale: Without more documentation, not sure whether it establishes in truly undisturbed natural habitats or if it needs at least an open area in order to colonize.	
Sources of information: Cindy Burrascano, California Native Plant Society, pers. comm. E-mail 2/15/05 in Cal-IPC files	
<b>Question 2.2</b> Local rate of spread with no management	A Anecdotal <a href="#">back</a>
Describe rate of spread: Has spread recently in Lichtig Mesa near the Mexican border. None in 2003, now prevalent in endangered plant habitat. May have been spread by border control equipment (1). Spreading rapidly in Mission Bay (2).	
Rationale: enter text here	
Sources of information: Cindy Burrascano, California Native Plant Society, pers. comm. E-mail 2/15/05 in Cal-IPC files 2. Gregory Gieselman, personal communication. Submission to Cal-IPC Pest Plant form, 1/27/05	
<b>Question 2.3</b> Recent trend in total area infested within state	B Observational <a href="#">back</a>
Describe trend: Based on entire state it is spreading but not quickly, except in some regions of southern California.	
Rationale: Primarily spreading in southern California.	
Sources of information: DiTomaso, observational.	
<b>Question 2.4</b> Innate reproductive potential	C Other Pub. Mat'l <a href="#">back</a>
Describe key reproductive characteristics: Monoecious annual (1).	
Rationale: enter text here	
Sources of information: Putievsky, E., P. W. Weiss, and D. R. Marshall. 1980. Interspecific hybridization between <i>Emex australis</i> and <i>E. spinosa</i> . Australian Journal of Botany. 28:323-328 Hickman. 1993. The Jepson Manual.	
<b>Question 2.5</b> Potential for human-caused dispersal	B Anecdotal <a href="#">back</a>
Identify dispersal mechanisms: May be spread by equipment used by border patrol for smoothing dirt. Spreads	

<p>along trails then moves into undisturbed areas (1). Spiny seed pod sticks to people and anything else it touches (2).</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: 1. Cindy Burrascano, California Native Plant Society, pers. comm. E-mail 2/15/05 in Cal-IPC files</p> <p>2. Gregory Gieselmann, personal communication. Submission to Cal-IPC Pest Plant form, 1/27/05</p>	
<p><b>Question 2.6</b> Potential for natural long-distance dispersal</p>	<p>C Observational <a href="#">back</a></p>
<p>Identify dispersal mechanisms: Spiny seed pods could stick to fur, feathers, or feet, but most seed fall at base of parent plant.</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: DiTomaso, observational.</p>	
<p><b>Question 2.7</b> Other regions invaded</p>	<p>U No Information <a href="#">back</a></p>
<p>Identify other regions: Native to the Mediterranean area. Invasive in Australia (1). Also present in Texas, Hawaii, New Jersey, and Massachusetts (2). In Hawaii, inhabits open, dry to mesic disturbed areas (3). Mostly in disturbed habitat in other areas.</p>	
<p>Rationale: Not enough information to score.</p>	
<p>Sources of information: 1. Fromm, G. 1996. Emex species in Australia. Plant Protection Quarterly. 11(4): 146-150</p> <p>2. USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (<a href="http://plants.usda.gov">http://plants.usda.gov</a>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.</p> <p>3. Hawaiian Ecosystems at Risk. Emex spinosa. Institute of Pacific Islands Forestry. Pacific Island Ecosystems at Risk. Available: <a href="http://www.hear.org/pier/species/emex_spinosa.htm">http://www.hear.org/pier/species/emex_spinosa.htm</a></p>	
<p><b>Question 3.1</b> Ecological amplitude/Range</p>	<p>D Other Pub. Mat'l <a href="#">back</a></p>
<p>Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Present in Orange and San Diego counties (1). A serious problem in San Diego coastal areas (2). Margins of sandy beaches, other coastal habitats?</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: 1. USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (<a href="http://plants.usda.gov">http://plants.usda.gov</a>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.</p>	

2. Cindy Burrascano, California Native Plant Society, personal communication.  
Hickman. 1993. The Jepson Manual.

**Question 3.2** Distribution/Peak frequency D Anecdotal [back](#)

Describe distribution: Seems to be present only in the far southern part of the state so far.

Rationale: enter text here

Sources of information: E-mails cited in questions above.

**Worksheet A**[back](#)

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

## Worksheet C - California Ecological Types

[back](#)

(*sensu* Holland 1986)

Major Ecological Types	Minor Ecological Types	Code*
<b>Marine Systems</b>	marine systems	score
<b>Freshwater and Estuarine Aquatic Systems</b>	lakes, ponds, reservoirs	score
	rivers, streams, canals	score
	estuaries	score
<b>Dunes</b>	coastal	<b>D. presen</b>
	desert	score
	interior	score
<b>Scrub and Chaparral</b>	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
<b>Grasslands, Vernal Pools, Meadows, and other Herb Communities</b>	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
<b>Bog and Marsh</b>	bog and fen	score
	marsh and swamp	score
<b>Riparian and Bottomland</b>	riparian forest	score
	riparian woodland	score
	riparian scrub (incl. desert washes)	score
<b>Woodland</b>	cismontane woodland	score
	piñon and juniper woodland	score
	Sonoran thorn woodland	score
<b>Forest</b>	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
<b>Alpine Habitats</b>	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).