

# 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>	Mesembryanthemum crystallinum L.
<b>Synonyms:</b>	Cryophytum crystallinum
<b>Common names:</b>	crystalline iceplant, common iceplant
<b>Evaluation date (mm/dd/yy):</b>	12/21/04
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Section below for list committee use—please leave blank

<b>List committee members:</b>	Jake Sigg, Peter Warner, Bob Case, John Knapp, Elizabeth Brusati
<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>
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**Table 2. Criteria, Section, and Overall Scores**

<a href="#">1.1</a>	Impact on abiotic ecosystem processes	<b>B</b>	Rev'd, Sci. Pub'n
<a href="#">1.2</a>	Impact on plant community	<b>C</b>	Rev'd, Sci. Pub'n
<a href="#">1.3</a>	Impact on higher trophic levels	<b>B</b>	Rev'd, Sci. Pub'n
<a href="#">1.4</a>	Impact on genetic integrity	<b>D</b>	Rev'd, Sci. Pub'n

**Impact**

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

**BCBD**

*Using matrix, determine score and enter below:*

**B**

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

**Invasiveness**

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

**12**

*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>B</b>	Rev'd, Sci. Pub'n
<a href="#">3.2</a>	Distribution/Peak frequency <a href="#">Wksht C</a>	<b>D</b>	Observational

**Distribution**

*Using matrix, determine score and enter below:*

**C**

**Table 3. Documentation**

<b>Question 1.1</b> Impact on abiotic ecosystem processes	B Rev'd, Sci. Pub'n <a href="#">back</a>
Identify ecosystem processes impacted: increases soil salt content, blocks light	
Rationale: Iceplant accumulates salt in the soil, then releases it when the plant dies back (1, 2, 3). Salts remain in the soil for several years. Decomposes slowly, leaving biomass in place for several years (1). Not a problematic in California as Australia yet.	
Sources of information: 1. Vivrette, N. J.,and C. H. Muller. 1977. Mechanism of invasion and dominance of coastal grassland by Mesembryanthemum crystallinum. Ecological Monographs. 47: 301-318	
2. Kloot, P. M. 1983. The role of common iceplant (Mesembryanthemum crystallinum) in the deterioration of medic pastures. Australian Journal of Ecology. 8:301-306.	
3. El-Ghareeb, R. 1991. Vegetation and soil changes induced by Mesembryanthemum crystallinum L. in a Mediterranean desert ecosystem. Journal of Arid Environments. 20:321-330	
<b>Question 1.2</b> Impact on plant community composition, structure, and interactions	B Rev'd, Sci. Pub'n <a href="#">back</a>
Identify type of impact or alteration: Inhibits colonization by grassland species. Late in season, blocks light (1). Does not generally form such dense colonies though so the impacts are more moderate.	
Rationale: Salts released by iceplant favor germination of salt-tolerant species (like itself) while inhibiting grasses (1, 2). Few grass seedlings can establish under iceplant because of the high salt content of water washing through the plant (1). Decreases density and cover of annuals (3). However, does not create changes that are severe as Carpobrotus edulis (4).	
Sources of information: 1. Vivrette and Muller 1977	
2. Kloot 1983	
3. El-Ghareeb 1991	
4. Peter Warner, California State Parks, <a href="mailto:corylus@earthlink.net">corylus@earthlink.net</a> . Personal observations.	
<b>Question 1.3</b> Impact on higher trophic levels	B Rev'd, Sci. Pub'n <a href="#">back</a>
Identify type of impact or alteration: reduces habitat quality for grassland species	
Rationale: Rabbits and mice eat iceplant only after other forage is removed. Mice tunnel through it to reach grasses.	
Sources of information: Vivrette and Muller 1977	
<b>Question 1.4</b> Impact on genetic integrity	D Other <a href="#">back</a>
Identify impacts: none	

Rationale: no related native species	
Sources of information: Randall, J. J. 2000. Mesembryanthemum crystallinum. pp. 244-246 in Bossard, C. M., J. M. Randall, and M. C. Hoshovsky (ed.) Invasive plants of California's wildlands. University of California Press. Berkeley, CA.	
<b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment	B Rev'd, Sci. Pub'n <a href="#">back</a>
Describe role of disturbance: Needs open disturbed areas for establishment. Does not grow well in intact grassland.	
Rationale: enter text here	
Sources of information: Vivrette and Muller 1977	
<b>Question 2.2</b> Local rate of spread with no management	C Pers. Obs. <a href="#">back</a>
Describe rate of spread: Does not spread quickly.	
Rationale: enter text here	
Sources of information: Peter Warner, California State Parks, <a href="mailto:corylus@earthlink.net">corylus@earthlink.net</a> , personal observations	
<b>Question 2.3</b> Recent trend in total area infested within state	C Pers. Obs. <a href="#">back</a>
Describe trend: enter text here	
Rationale: enter text here	
Sources of information: Peter Warner, California State Parks, <a href="mailto:corylus@earthlink.net">corylus@earthlink.net</a> , personal observations	
<b>Question 2.4</b> Innate reproductive potential	A Rev'd, Sci. Pub'n <a href="#">back</a>
Describe key reproductive characteristics: Succulent, prostrate, annual herb. Flowers March to June but a few plants flowering at any time of year. Staggered germination of seeds throughout the year. Fruiting occurs June to August. Plants die in summer (1). Can rapidly take over an area once established (1,2) Need more specific information to fill out worksheet.	
Rationale: enter text here	
Sources of information: 1. Vivrette and Muller 1977 2. Abbott, I., N. Marchant, and R. Cranfield. 2000. Long-term change in the floristic composition and vegetation structure of Carnac Island, Western Australia. Journal of Biogeography. 27:333-346	

<b>Question 2.5</b> Potential for human-caused dispersal	A Rev'd, Sci. Pub'n <a href="#">back</a>
Identify dispersal mechanisms: Used for landscaping by Caltrans and by gardeners. Can invade areas disturbed by grazing.	
Rationale: Found in Cal-IPC nursery survey 2004. Scored as A because found in 7 of 23 nurseries surveyed.	
Sources of information: Randall 2000	
<b>Question 2.6</b> Potential for natural long-distance dispersal	C Rev'd, Sci. Pub'n <a href="#">back</a>
Identify dispersal mechanisms: Doesn't seem to have mechanisms for long-distance dispersal. Seeds dispersed by rabbits and mice	
Rationale: enter text here	
Sources of information: Randall 2000	
<b>Question 2.7</b> Other regions invaded	C Rev'd, Sci. Pub'n <a href="#">back</a>
Identify other regions: Australia (1, 2), Egypt (3), Mexico, Chile (4)	
Rationale: enter text here	
Sources of information: 1. Abbott et al. 2000 2. Kloot 1983 3. El-Ghareeb 1991 4. Vivrette and Muller 1977	
<b>Question 3.1</b> Ecological amplitude/Range	B Rev'd, Sci. Pub'n <a href="#">back</a>
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Mostly colonizes coastal bluffs (1). Can colonize grasslands up to 8 miles inland (2). May have been introduced in ship ballast as early as the 1500's. Occurs from San Francisco Bay to Mexico and on Channel Islands (2).	
Rationale: enter text here	
Sources of information: 1. Vivrette and Muller 1977 2. Randall 2000	

**Question 3.2** Distribution/Peak frequency

D Observational [back](#)

Describe distribution: enter text here

Rationale: enter text here

Sources of information: Warner, observational

**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>Yes: 1 pt</b>
Seeds remain viable in soil for three or more years	<b>No: 0 pts</b>
Viable seed produced with <i>both</i> self-pollination and cross-pollination	<b>Unknown: 0 pts</b>
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	<b>Yes: 1 pt</b>
Fragments easily and fragments can become established elsewhere	<u>Yes-2 pts</u>
Resprouts readily when cut, grazed, or burned	<b>Unknown: 0 pts</b>
	<b>6      1 unknowns</b>
	<b>A</b>

**Note any related traits:**

## Worksheet C - California Ecological Types

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(*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	score
	desert	score
	interior	score
<b>Scrub and Chaparral</b>	coastal bluff scrub	D. present
	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	D. present
	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).