

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):	Spartina patens (Aiton) Muhlenb.
Synonyms:	Spartina versicolor (Spain)
Common names:	Salt marsh hay
Evaluation date (mm/dd/yy):	09/09/04
Evaluator #1 Name/Title:	Dr. Debra Ayres
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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:	Carla Bossard, John Randall, Cynthia Roye, Jake Sigg, Peter Warner
Committee review date:	2/11/05
List date:	enter text here
Re-evaluation date(s):	enter text here

Table 2. Criteria, Section, and Overall Scores

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

“Impact”

Enter four characters from Q1.1-1.4 below:

DAUD

Use matrix determine the score; enter below:

C

2.1	Role of anthropogenic and natural disturbance	B 2	Rev'd, Sci. Pub'n
2.2	Local rate of spread with no management	B 2	Rev'd, Sci. Pub'n
2.3	Recent trend in total area infested within state	C 1	Rev'd, Sci. Pub'n
2.4	Innate reproductive potential	U 0	Doc'n level
2.5	Potential for human-caused dispersal	U 0	No information
2.6	Potential for natural long-distance dispersal	C 1	Rev'd, Sci. Pub'n
2.7	Other regions invaded	C 1	Rev'd, Sci. Pub'n

“Invasiveness”

For questions at left, recall that an A gets 3 points, a B gets 2, a C gets 1, and a D or U gets=0. Enter the sum total of all points for Q2.1-2.7 below:

7

Use matrix to determine score and enter below:

C

“Plant Score”

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

Low
No Alert

3.1	Ecological amplitude	D	Rev'd, Sci. Pub'n
3.2	Distribution	D	Rev'd, Sci. Pub'n

“Distribution”

Use matrix determine the score; enter below:

D

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes
Identify ecosystem processes impacted: None
Rationale: In its native range, ecosystem modifications have not been noted.
Sources of information: Work by Mark Bertness in and referenced in: Bertness MD, Ellison AM. 1987. Determinants of pattern in a New England salt marsh plant community. Ecological Monographs 57: 129-147.
Question 1.2 Impact on plant community composition, structure, and interactions
Identify type of impact or alteration: <i>S. patens</i> overgrows the mid-marsh (<i>Salicornia virginica</i> in CA) communities where it occurs.
Rationale: The primary effect of this invasion is the threat it poses to one of the few remaining populations of <i>Cordylanthus mollis mollis</i> , a Federally listed species.
Sources of information: In CA: Ayres DR, et al. 2004. Spread of exotic cordgrasses and hybrids (<i>Spartina</i> sp.) in the tidal marshes of San Francisco Bay, California, USA. Biological Invasions 6: 221-231. In Oregon: Frenkel RE and Boss TR. 1988. Introduction, establishment and spread of <i>Spartina patens</i> on Cox Island, Suislaw estuary, Oregon. Wetlands 8: 33-49
Question 1.3 Impact on higher trophic levels
Identify type of impact or alteration: None known in CA or reported its native range Note from reviewing committee: possible effects on endangered salt marsh harvest mouse?
Rationale: enter text here
Sources of information: enter text here

Question 1.4 Impact on genetic integrity
Identify impacts: No known hybridization with other <i>Spartina</i> sp. and phylogenetically distant from <i>S. foliosa</i>
Rationale: enter text here
Sources of information: Baumel A, et al. 2002. Molecular phylogeny of the hybridizing species from the genus <i>Spartina</i> . <i>Molecular Phylogenetics and Evolution</i> 22: 303-314.
Question 2.1 Role of anthropogenic and natural disturbance in establishment
Describe role of disturbance: Wrack-generated bare patches are covered by rhizome growth on the Eastern US coast. Open patches are also where seed recruitment may occur. We expect the species behaves similarly here with a dependence on naturally occurring disturbance patches.
Rationale: enter text here
Sources of information: Bertness and Ellison. 1987
Question 2.2 Local rate of spread with no management
Describe rate of spread: In OR, exponential. In CA, 2 plants in 1970 have expanded to 42 plants.
Rationale: enter text here
Sources of information: Frenkel and Boss; Ayres et al 2004
Question 2.3 Recent trend in total area infested within state
Describe trend: One site in Southampton Marsh near Benecia in 1970, still just 1 site. Repeat monitoring will allow an estimate of growth rate of this single population.
Rationale: enter text here
Sources of information: Ayres et al; www.spartina.org
Question 2.4 Innate reproductive potential
Describe key reproductive characteristics: Too many unknowns to score.
Rationale: enter text here
Sources of information: enter text here

Question 2.5 Potential for human-caused dispersal
Identify dispersal mechanisms: no information
Rationale: enter text here
Sources of information: enter text here
Question 2.6 Potential for natural long-distance dispersal
Identify dispersal mechanisms: Seedlings occur close to established plants on the Eastern US coast, but it is not known how far seed will travel.
Rationale: enter text here
Sources of information: Rand TA. 2000. Seed dispersal, habitat suitability, and the distribution of halophytes across a salt marsh tidal gradient. <i>Journal of Ecology</i> 88: 608-621
Question 2.7 Other regions invaded
Identify other regions: Cox Island, OR; Hood Canal, WA; Tasmania, Australia; China
Rationale: enter text here
Sources of information: Grossinger, R., J. Anderson, A. Cohen, and J. Collins. 1998. Introduced Tidal Marsh Plants in the San Francisco Estuary. San Francisco Estuary Institute. Richmond, CA. Accessed on-line: www.sfei.org/ecoatlas/Plants/docs/images/intrtmar.pdf
Question 3.1 Ecological amplitude
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Occurs in the Salicornia zone in San Francisco Bay (Ayres et al 2004); above the <i>Spartina alterniflora</i> zone on the East coast (Bertness and Ellison, 1987), from which we infer that it is not as tolerant to inundation as taller cordgrasses, but can form dense turfs that exclude <i>S. alterniflora</i> at higher tidal elevation. Waa first noticed in 1970.
Rationale: enter text here
Sources of information: see above
Question 3.2 Distribution
Describe distribution: Single population in Southhampton marsh, Benecia (although P. Baye has reported an additional occurrence in the North Bay).

Rationale: enter text here

Sources of information: Ayres et al, 2004

Worksheet A

Complete this worksheet to answer Question 2.4.

Reaches reproductive maturity in 2 years or less	Unknown: 0 pts
Dense infestations produce >1,000 viable seed per square meter	Unknown: 0 pts
Populations of this species produce seeds every year.	Unknown: 0 pts
Seed production sustained over 3 or more months within a population annually	Unknown: 0 pts
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	Unknown: 0 pts
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	Yes: 1 pt
Fragments easily and fragments can become established elsewhere	Unknown: 0 pts
Resprouts readily when cut, grazed, or burned	Yes: 1 pt
	2 pts 7 unknowns
	U (3+ unknowns)
Note any related traits: enter text here	

Worksheet C - California Ecological Types

(*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	D. present
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
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	score
	riparian woodland	score
	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).