

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

Table 1. Species and Evaluator Information

Species name (Latin binomial):	Piptatherum miliaceum
Synonyms:	Agrostis miliacea L., Oryzopsis miliacea
Common names:	smilo grass, bamboo grass, milo, ricegrass, rice millet, millet mountain-rice, San Diego grass
Evaluation date (mm/dd/yy):	08/02/04
Evaluator #1 Name/Title:	Jonathan C. Fox/ Research Associate
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Evaluator #2 Name/Title:	enter text here
Affiliation:	enter text here
Phone numbers:	enter text here
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Address:	enter text here

Section below for list committee use—please leave blank

List committee members:	John Randall, Cyntia Roye, Joe DiTomaso, Peter Warner, Alison Stanton, Jake Sigg
Committee review date:	8/27/2004
List date:	enter text here
Re-evaluation date(s):	enter text here

<p>General comments on this assessment: Origin - Mediterranean</p>

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	U	No Information
1.2	Impact on plant community	B	Observational
1.3	Impact on higher trophic levels	U	No Information
1.4	Impact on genetic integrity	C	Other Pub. Mat'l

Impact

Enter four characters from Q1.1-1.4 below:

UBUC

Using matrix, determine score and enter below:

C

2.1	Role of anthropogenic and natural disturbance	B (2 pts)	Rev'd, Sci. Pub'n
2.2	Local rate of spread with no management	A (3 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	B (2 pts)	Other Pub. Mat'l
2.6	Potential for natural long-distance dispersal	C (1 pt)	Other Pub. Mat'l
2.7	Other regions invaded	C (1 pt)	Other Pub. Mat'l

Invasiveness

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

14

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:

Low
No Alert

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

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 Observational back
Identify type of impact or alteration: Impacts community composition of riparian understory vegetation. Alters structure of grassland areas.	
Rationale: Competes with and crowds out riparian understory vegetation. <i>P. miliaceum</i> is larger in stature than most native grasses. Grassland structure is altered by formation of small monospecific stands of <i>P. miliaceum</i> which creates a raised canopy.	
Sources of information: (1) Knapp, J.J. 2004. Personal observation during 2003 field surveys on Santa Catalina Island, CA. (310)510-1299, knappweed@catalinaisp.com	
Question 1.3 Impact on higher trophic levels	U No Information back
Identify type of impact or alteration: enter text here	
Rationale: enter text here	
Sources of information: enter text here	
Question 1.4 Impact on genetic integrity	C Other Pub. Mat'l back
Identify impacts: Members of this genus have been known to hybridize with <i>Achnatherum hymenoides</i> (INDIAN RICEGRASS)(1).	
Rationale: <i>A. hymenoides</i> and <i>P. miliaceum</i> have overlapping ranges in Southern Coastal California(2). <i>A. hymenoides</i> is also sold as a horticultural plant(2). Hybridization may occur in other areas of California with horticultural plantings of <i>A. hymenoides</i> and infestations of <i>P. miliaceum</i> .	
Sources of information: (1) Watson, L. and Dallwitz, M.J. (1992 onwards). Grass genera of the world: descriptions, illustrations, identification, and information retrieval; including synonyms, morphology, anatom, physiology, phytochemistry, cytology, classification, pathogens, world and local distribution, and references. http://biodiversity.uno.edu/delta/ . Version: 18 th August 1999.	
(2) Hickman, J.C. ed.(1996). The Jepson Manual: higher plants of California. University of California Press, Ltd. London England. pg 1226 & 1283.	

Question 2.1 Role of anthropogenic and natural disturbance in establishment	B Rev'd, Sci. Pub'n back
Describe role of disturbance: Typically found in areas with anthropogenic disturbance as well as natural disturbance. In semi-arid areas <i>P. miliaceum</i> may invade undisturbed areas.	
Rationale: Literature for California describe habitats invaded as roadsides, fields and waste places(1). These are typically anthropogenic disturbances. <i>P. miliaceum</i> has also been described in riparian areas(1), on animal trails and near ground squirrel mounds(2). In East and South East Spain(native range), literature describes <i>P. miliaceum</i> in semi-arid grasslands(3). A study on the effects of arbuscular mycorrhizal on the development of plants colonizing a semi-arid area in Spain found <i>P. miliaceum</i> to have 100% survivability with or without the mycorrhizal treatment. Mycorrhizal inoculation showed no improvement in growth but significantly increased the number of seedlings germinated in the soil surrounding the mycorrhizal plant(3). This may facilitate invasion by <i>P. miliaceum</i> into undisturbed areas where these mycorrhizal relationships exist.	
Sources of information: (1) DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished. pg. 570 (2) Knapp, J.J. 2004. Personal observations during 2003 field surveys on Santa Catalina Island, CA. (310) 510-1299, knappweed@catalinaisp.com. (3) Roldan-Fajardo, B.E. 1994. Effect of indigenous arbuscular mycorrhizal endophytes on the development of six wild plants colonizing a semi-arid area in south-east Spain. New Phytologist. 127(1): 115-121.	
Question 2.2 Local rate of spread with no management	A Observational back
Describe rate of spread: Extensive drainage segments exist on Santa Catalina Island that are still open to invasion, allowing <i>P. miliaceum</i> to increase within the Island (1). Neither floras for Santa Catalina Island list <i>P. miliaceum</i> , but by 2003, 2,854 populations were recorded (2).	
Rationale: enter text here	
Sources of information: (1) Knapp, J.J. 2004. Personal observation during 203 field surveys on Santa Catalina Island, CA. (310)510-1299, knappweed@catalinaisp.com (2) Knapp, J.J. 2004. Prioritized invasive plant management plan for the Santa Catalina Island Conservancy. Unpublished.	
Question 2.3 Recent trend in total area infested within state	B Other Pub. Mat'l back
Describe trend: Listed by the Santa Barbara Botanic Garden as a species that should be eradicated when encountered on private property near wildlands (1). On Santa Catalina Island, <i>P. miliaceum</i> is one of the most wide spread species totalling 356 acres (2), but there has not been a concerted effort to reduce its abundance (3).	
Rationale: Using information from Catalina Island because not much published information on this plant.	
Sources of information: (1)Santa Barbara Botanic Garden. No date. Worst invasive plants in Santa Barbara County: exotic species to eradicate if found on your property. http://www.santabarbarabotanicgarden.org/sections/visitor_info/visitor_level_3/visitor .	

<p>(2)Knapp, J.J. 2004. Prioritized invasive plant management plan for the Santa Catalina Island Conservancy. Unpublished.</p> <p>1) Knapp, J.J. 2004. Personal observation during 203 field surveys on Santa Catalina Island, CA. (310)510-1299, knappweed@catalinaisp.com</p>	
<p>Question 2.4 Innate reproductive potential</p>	<p>A Other Pub. Mat'l back</p>
<p>Describe key reproductive characteristics: Perennial (2) that reproduces by seed (1). Flowers April to September (2). P. miliaceum is both self and cross pollinated (3). Resporouts from underground rhizomes when cut (4).</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: (1) DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished. pg. 570</p> <p>(2) Wilken, D. and Hannah, L. 1998. Piptatherum miliaceum: Channel Islands National Park Service literature review. Unpublished.</p> <p>(3) Watson, L. and Dallwitz, M.J. (1992 onwards). Grass genera of the world: descriptions, illustrations, identification, and information retrieval; including synonyms, morphology, anatom, physiology, phytochemistry, cytology, classification, pathogens, world and local distribution, and references. http://biodiversity.uno.edu/delta/. Version: 18th August 1999.</p> <p>(4) Park, J., Allanson, A. and Tucker, P. No date. Rice millet (not a native grass) - Piptatherum miliaceum. Bushland weeds of South Australia. http://www.treesforlife.org.au/rogues/weeds/ricemillet.html.</p> <p>(5) Observational List Committee, 8/2004.</p>	
<p>Question 2.5 Potential for human-caused dispersal</p>	<p>B Other Pub. Mat'l back</p>
<p>Identify dispersal mechanisms: P. miliaceum has been used in the revegetation of frequently burned chaparral (1). It is sometimes cultivated for livestock forage (2).</p>	
<p>Rationale:</p>	
<p>Sources of information: (1) Wilken, D. and Hannah, L. 1998. Piptatherum miliaceum: Channel Islands National Park Service literature review. Unpublished.</p> <p>(2) DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished. pg. 570</p>	
<p>Question 2.6 Potential for natural long-distance dispersal</p>	<p>C Other Pub. Mat'l back</p>
<p>Identify dispersal mechanisms: P. miliaceum reproduces by seed. Seeds of plant disperse to greater distances with water, soil movement, human activities, and possibly animals.</p>	
<p>Rationale: enter text here</p>	
<p>Sources of information: (1) DiTomaso, JM, E Healy. Weeds of California and Other Western States. Not yet published.</p>	

(2) Observational, List Committee, 8/2004.	
Question 2.7 Other regions invaded	C Other Pub. Mat'l back
Identify other regions: <i>P. miliaceum</i> has been reported as waif in Great Britain and has become naturalized in California, western Nevada, and Australia (1). It can also be found in Arizona, Idaho, Utah, and a few northeastern states (2).	
Rationale: enter text here	
Sources of information: (1) Wilken, D. and Hannah, L. 1998. <i>Piptatherum miliaceum</i> : Channel Islands National Park Service literature review. Unpublished.	
(2) DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished. pg. 570	
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: Introduced to California around the turn of the 19 th century from southern Europe (Los Angeles in 1896, Santa Barbara and Monrovia in 1916), and was reported mostly in urban waste areas in urban southern California by 1940. It has been reported from all four northern California Channel Islands and is now known from most southern California counties (1). According to the Jepson Manual (4) <i>P. miliaceum</i> can be found: North Coast, Central Valley, Central Coast, Central-western region, South Coast, to 300 m. <i>P. miliaceum</i> occurs in dry or moist sites in disturbed areas, roadsides and ditches (1). Some ecotypes may be found on acid soils (2) In California it appears to be increasing in riparian areas, ditches along roadsides, and canyons, especially in the southern region (3). On Santa Catalina Island 2,854 populations of <i>P. miliaceum</i> were GPS'd. These populations invaded riparian, grassland, coastal scrub/grassland, coastal scrub, chaparral, bare, dune, non-native and oak woodland habitats (5).	
Rationale: Aluminum (Al) toxicity has been identified as one of the most important growth-limiting factors in acid soils. Some ecotypes of <i>P. miliaceum</i> have been found to be Al-tolerant (2)	
Sources of information: (1) Wilken, D. and Hannah, L. 1998. <i>Piptatherum miliaceum</i> : Channel Islands National Park Service literature review. Unpublished	
(2) Zavas, T.; Symeonidis, L.; Karataglis, S. 1996. Responses to aluminum toxicity effects of two populations of <i>Piptatherum miliaceum</i> (L.) Cosson. <i>Journal of Agronomy & Crop Science</i> . 177(1): 25-32	
(3) DiTomaso J., Healy E. Weeds of California and Other Western States. As yet unpublished. pg. 570	
(4) Hickman, J.C. ed.(1993). <i>The Jepson Manual: higher plants of California</i> . University of California Press, Ltd. London England. pg 1226 & 1283.	
(5) Knapp, J.J. 2004. Prioritized invasive plant management plan for the Santa Catalina Island Conservancy. Unpublished.	
Question 3.2 Distribution/Peak frequency	D Observational back
Describe distribution: Occurs in less than 5% of any ecotype in CA.	

Rationale: enter text here
Sources of information: Observational, List Committee, 8/2004.

Worksheet A

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Reaches reproductive maturity in 2 years or less	Yes: 1 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	No: 0 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	No: 0 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: 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	D. presen
	desert	score
	interior	score
Scrub and Chaparral	coastal bluff scrub	score
	coastal scrub	D. presen
	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	D. presen
Grasslands, Vernal Pools, Meadows, and other Herb Communities	coastal prairie	D. presen
	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	score
	riparian scrub (incl. desert washes)	D. presen
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).