

# 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**

<b>Species name</b> (Latin binomial):	Watsonia meriana (L.) Miller
<b>Synonyms:</b>	Watsonia bulbullifera Mathews & L. Bolus; Watsonia meriana (L.) Miller var. bulbullifera Mathews & L. Bolus; Watsonia bulbifera; Watsonia angusta auct. non Ker-Gawl.
<b>Common names:</b>	Watsonia; bulbil watsonia
<b>Evaluation date</b> (mm/dd/yy):	08/20/04
<b>Evaluator #1 Name/Title:</b>	Peter J. Warner
<b>Affiliation:</b>	California Department of Parks and Recreation; CNPS; Cal-IPC
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<b>Address:</b>	P. O. Box 603, Little River, CA 95456
<b>Evaluator #2 Name/Title:</b>	enter text here
<b>Affiliation:</b>	enter text here
<b>Phone numbers:</b>	enter text here
<b>Email address:</b>	enter text here
<b>Address:</b>	enter text here

Section below for list committee use—please leave blank

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

**General comments on this assessment:**

Very little substantive literature on ecology and biology of this taxon was available for this assessment. Most responses based on personal observations of the reviewer.

**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>Observational</b>
<a href="#">1.3</a>	Impact on higher trophic levels	<b>C</b>	<b>Other Pub. Mat'l</b>
<a href="#">1.4</a>	Impact on genetic integrity	<b>D</b>	<b>Other Pub. Mat'l</b>

**“Impact”**  
 Enter four characters from Q1.1-1.4 below:  
**UBCD**  
 Use matrix determine the score; enter below:  
**C**

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

**“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:  
**11**  
 Use matrix to determine score and enter below:  
**B**

**“Plant Score”**  
 Using matrix, determine the Overall Score and Alert Status from the three section scores and enter them below:  
**Low**  
**No Alert**

<a href="#">3.1</a>	Ecological amplitude/Range	<b>B</b>	<b>Observational</b>
<a href="#">3.2</a>	Distribution/Peak frequency <a href="#">Wksht C</a>	<b>D</b>	<b>Observational</b>

**“Distribution”**  
 Use matrix determine the score; enter below:  
**C**

**Table 3. Documentation**

<b>Question 1.1</b> Impact on abiotic ecosystem processes	U No Information <a href="#">back</a>
Identify ecosystem processes impacted: No information located.	
Rationale: enter text here	
Sources of information: enter text here	
<b>Question 1.2</b> Impact on plant community composition, structure, and interactions	B Observational <a href="#">back</a>
Identify type of impact or alteration: Forms a dense carpet of corms at or near the soil surface, inhibiting germination or growth of other species, and resulting in a very dense colony of Watsonia over time, feasibly resulting in loss of native herbaceous or shrub species in local areas. Does not appear to affect the growth of existing overstory plants negatively. Colonies tend to expand, in part, due to avoidance of Watsonia as forage (by deer, rabbits).	
Rationale: Observations of dense patches.	
Sources of information: Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; pwarner@mcn.org	
<b>Question 1.3</b> Impact on higher trophic levels	C Other Pub. Mat'l <a href="#">back</a>
Identify type of impact or alteration: Unpalatable to sheep and cattle (1); not observed as forage for deer (2)	
Rationale: Cited as unpalatable, and not observed used as forage for native herbivores, so growth of Watsonia colonies will displace native forage species, reducing choices for native herbivores in local areas. However, this assessment is conservative, given the lack of quantitative data.	
Sources of information: 1. Government of South Australia, Animal and Plant Control Commission. Weed Control Notes: Bulbil Watsonia. 2 pp. 2. Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; pwarner@mcn.org	
<b>Question 1.4</b> Impact on genetic integrity	D Other Pub. Mat'l <a href="#">back</a>
Identify impacts: None known, but unlikely.	
Rationale: No congeners are native in California (1). Cross-generic hybridization is very rare.	
Sources of information: 1. Hickman, JC (editor). 1993. The Jepson Manual: Higher Plants of California (Third	

Printing, with corrections). University of California Press, Berkeley. p. 1156.	
<b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment	B Observational <a href="#">back</a>
Describe role of disturbance: Human-caused and natural disturbance will aid in establishment, but new populations have been observed in relatively undisturbed sites. Watsonia's greatest success seems to be in areas that are frequently mowed. However, it prospers and spreads without this type of regular disturbance.	
Rationale: observations	
Sources of information: Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; pwarner@mcn.org	
<b>Question 2.2</b> Local rate of spread with no management	B Observational <a href="#">back</a>
Describe rate of spread: Spreads rather slowly from pioneer plants, but rate increases once bulbils (vegetative propagules borne on the stems; also called "cormils") become abundant.	
Rationale: Observed spreading slowly in several sites along Sonoma and Mendocino County coast.	
Sources of information: Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; pwarner@mcn.org	
<b>Question 2.3</b> Recent trend in total area infested within state	B Observational <a href="#">back</a>
Describe trend: Increasing slowly - new populations noted regularly along Sonoma and Mendocino coast.	
Rationale: Lack of management + unexploited, suitable habitat = increase in area infested	
Sources of information: Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; pwarner@mcn.org	
<b>Question 2.4</b> Innate reproductive potential	C Other Pub. Mat'l <a href="#">back</a>
Describe key reproductive characteristics: Reproduces only vegetatively, by bulbils (cormils) produced on flowering stems.	
Rationale: Lack of genetic diversity may be a positive factor in keeping this cultivated plant from invading new habitats.	
Sources of information: Castillo, Alberto. 2004. Personal communication @ <a href="http://lists.ibiblio.org/pipermail/pbs/2003-August/014794.html">lists.ibiblio.org/pipermail/pbs/2003-August/014794.html</a> Day, P. 2003. Watsonia Control – a proven success. @ <a href="http://members.iinet.net.au/~ewan/watsonia_peter.htm">http://members.iinet.net.au/~ewan/watsonia_peter.htm</a> Government of South Australia, Animal and Plant Control Commission. Weed Control Notes: Bulbil Watsonia.	

2 pp. Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; pwarner@mcn.org	
<b>Question 2.5</b> Potential for human-caused dispersal	B Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: Bulbils can be easily dispersed through mowing or other movement of plant debris or soil (1,2); rhizomes may less frequently be moved in soil, or in discarded landscape maintenance debris (2).	
Rationale: observations and deductive reasoning (2)	
Sources of information: 1. Government of South Australia, Animal and Plant Control Commission. Weed Control Notes: Bulbil Watsonia. 2 pp. 2. Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; pwarner@mcn.org	
<b>Question 2.6</b> Potential for natural long-distance dispersal	D Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: Dispersal by natural means (animals, water, wind) of bulbils or rhizomes (the only available reproductive structures (1,2,3,4)) would appear to be extremely rare, barring an enormous flood flowing through an established population.	
Rationale: physical evidence and deductive reasoning (5)	
Sources of information: 1. Castillo, Alberto. 2004. Personal communication @ lists.ibiblio.org/pipermail/pbs/2003-August/014794.html 2. Day, P. 2003. Watsonia Control – a proven success. @ http://members.iinet.net.au/lewan/watsonia_peter.htm 3. Government of South Australia, Animal and Plant Control Commission. Weed Control Notes: Bulbil Watsonia. 2 pp. 4. Hickman, JC (editor). 1993. The Jepson Manual: Higher Plants of California (Third Printing, with corrections). University of California Press, Berkeley. p. 1156. 5. Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; pwarner@mcn.org	

<b>Question 2.7</b> Other regions invaded	B Other Pub. Mat'l <a href="#">back</a>
Identify other regions: Australia (1,2) - riparian, native vegetation (2); Uruguay and Argentina (3)	
Rationale: Watsonia is not currently invasive in riparian areas along Sonoma and Mendocino coast, so this habitat may be vulnerable, in this area and elsewhere.	
Sources of information: 1. Day, P. 2003. Watsonia Control – a proven success. @ <a href="http://members.iinet.net.au/~ewan/watsonia_peter.htm">http://members.iinet.net.au/~ewan/watsonia_peter.htm</a>	
2. Government of South Australia, Animal and Plant Control Commission. Weed Control Notes: Bulbil Watsonia. 2 pp.	
3. Castillo, Alberto. 2004. Personal communication @ <a href="http://lists.ibiblio.org/pipermail/pbs/2003-August/014794.html">lists.ibiblio.org/pipermail/pbs/2003-August/014794.html</a>	
4. Calflora Database. 2004. <a href="http://www.calflora.org">www.calflora.org</a>	
<b>Question 3.1</b> Ecological amplitude/Range	B Observational <a href="#">back</a>
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Invades coastal prairie and closed cone pine stands in Sonoma and Mendocino Counties. However, these two habitat types are interspersed and differ very little in climate, although soil types may vary somewhat.	
Rationale: 2 major ecological types invaded, but distribution is quite narrowly constrained.	
Sources of information: Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; <a href="mailto:pwarner@mcn.org">pwarner@mcn.org</a>	
Calflora Database. 2004. <a href="http://www.calflora.org">www.calflora.org</a>	
<b>Question 3.2</b> Distribution/Peak frequency	D Observational <a href="#">back</a>
Describe distribution: Infrequently encountered in coastal prairie or closed-cone pine forests, even within known range (Sonoma and Mendocino coast).	
Rationale: Based on numerous observations.	
Sources of information: Warner, PJ. 2000-2004. Personal observations in Sonoma and Mendocino Counties. 707/937-9172; <a href="mailto:pwarner@mcn.org">pwarner@mcn.org</a>	

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

Reaches reproductive maturity in 2 years or less	<b>No: 0 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>No: 0 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>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	<b>No: 0 pts</b>
Resprouts readily when cut, grazed, or burned	<b>Yes: 1 pt</b>
	<b>2 pts      1 unknown</b>
	<b>C (1-3)</b>
<b>Note any related traits:</b> reproduces vegetatively only, by bulbils (cormils) produced on flowering stems, or by transplanting of the rhizomes.	

## 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	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	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	D. present
	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).