

# 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):	Brassica tournefortii
<b>Synonyms:</b>	enter text here
<b>Common names:</b>	Sahara mustard, Moroccan mustard, Asian mustard
<b>Evaluation date</b> (mm/dd/yy):	2/10/03 and revised 9/15/05
<b>Evaluator #1 Name/Title:</b>	Matt Brooks
<b>Affiliation:</b>	U.S. Geological Survey
<b>Phone numbers:</b>	702-564-4615
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<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>	Carla Bossard, Joe DiTomaso, John Randall, Peter Warner, Doug Johnson, John Hall, Cindy Roye, Dana Backer
<b>Committee review date:</b>	2/10/03
<b>List date:</b>	enter text here
<b>Re-evaluation date(s):</b>	enter text here

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

1.1	Impact on abiotic ecosystem processes	A	Observational
1.2	Impact on plant community	A	Observational
1.3	Impact on higher trophic levels	U	No Information
1.4	Impact on genetic integrity	U	No Information

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

2.1	Role of anthropogenic and natural disturbance	B 2	Other Pub. Mat'l
2.2	Local rate of spread with no management	A 3	Other Pub. Mat'l
2.3	Recent trend in total area infested within state	A 3	Other Pub. Mat'l
2.4	Innate reproductive potential	A 3	Other Pub. Mat'l
2.5	Potential for human-caused dispersal	A 3	Other Pub. Mat'l
2.6	Potential for natural long-distance dispersal	C 1	Other Pub. Mat'l
2.7	Other regions invaded	B 2	Observational

**“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:  
**17**  
 Use matrix to determine score and enter below:  
**A**

**“Plant Score”**  
 Using matrix, determine the Overall Score and Alert Status from the three section scores and enter them below:  
**High**

3.1	Ecological amplitude	A	Other Pub. Mat'l
3.2	Distribution	C	Other Pub. Mat'l

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

**Table 3. Documentation**

<b>Question 1.1</b> Impact on abiotic ecosystem processes
Identify ecosystem processes impacted: Possible increase in fire frequency and intensity where fire was previously uncommon in desert scrub. Can also increase fuel loads in coastal sage scrub, but mostly replacing other weedy mustards, so not introducing the totally novel fuel as in desert scrub.
Rationale: Increased fuel loads and continuity in interspaces created a new type of fuelbed that may promote fire and change fire regimes
Sources of information: Matt Brooks, personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Wildlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley
<b>Question 1.2</b> Impact on plant community composition, structure, and interactions
Identify type of impact or alteration: May compete with and reduce biomass, fecundity, and diversity of native annual plants and perennial seedlings.
Rationale: Very high density, cover, and biomass, especially after fire or other major disturbance, indicate that this species uses a lot of soil nutrients (e.g. moisture and minerals). This use very likely reduces nutrient availability for other plants rooted in the upper levels of the soil profile. Native annuals often senesce earlier in the spring where <i>Brassica tournefortii</i> cover is high, compared to where its cover is low.
Sources of information: Matt Brooks, personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Wildlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley;
<b>Question 1.3</b> Impact on higher trophic levels
Identify type of impact or alteration: In coastal sage scrub it may affect T&E species habitat, but mostly replacing other weedy mustards, so not introducing a novel habitat component. In desert scrub may have a greater effect, by competing with and reducing biomass of native annuals that the desert tortoise may depend on to maintain physiological health.
Rationale: Affects on native plant communities may alter habitat quality for higher tropic level species.
Sources of information: Matt Brooks, personal observations; Jennings, W.B. 1993. Foraging ecology of the desert tortoise ( <i>Gopherus agassizii</i> ) in the western Mojave Desert. M.S. Thesis. University of Texas at Arlington.; Nagy, K.A., Henen, B.T., Vyas, D.B. 1998. Nutritional quality of native and introduced food plants of wild desert tortoises. <i>Herpetologica</i> 42: 260-267.
<b>Question 1.4</b> Impact on genetic integrity
Identify impacts: Unknown, could affect native mustards, possibly making weedy natives more invasive
Rationale: May hybridize with other mutards

Sources of information: none
<b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment
Describe role of disturbance: Can establish in washes or in young sandy soils, may establish in undisturbed coppice mounds beneath desert shrubs where soil nutrients are higher than interspaces, also grows well on road berms, and in areas disturbed by fire and agricultural cropping
Rationale:
Sources of information: Matt Brooks, unpublished data and personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Wildlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley
<b>Question 2.2</b> Local rate of spread with no management
Describe rate of spread: Can spread rapidly along roadsides, and out from roadsides along washes in the Mojave and Sonoran deserts
Rationale: Has spread rapidly along roads from the Sonoran Desert into the Mojave Desert during the 1980s and 1990s.
Sources of information: Matt Brooks, unpublished data and personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Wildlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley
<b>Question 2.3</b> Recent trend in total area infested within state
Describe trend: Spreading rapidly in arid and semi-arid shrublands
Rationale: Has spread rapidly along roads from the Sonoran Desert into the Mojave Desert during the 1980s and 1990s.
Sources of information: Matt Brooks, unpublished data and personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Wildlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley
<b>Question 2.4</b> Innate reproductive potential
Describe key reproductive characteristics: Reaches reproductive maturity in 2 years or less. Dense infestations produce >1,000 viable seed per square meter. Populations of this species produce seeds every year. Seeds remain viable in soil for three or more years. Viable seed produced with <i>both</i> self-pollination and cross-pollination
Rationale: Matt Brooks, unpublished data and personal observations

Sources of information: Matt Brooks, unpublished data and personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Widlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley
<b>Question 2.5</b> Potential for human-caused dispersal
Identify dispersal mechanisms: Contamination of hay, dispersal via vehicle tires
Rationale: Thrives in alfalfa fields, when wet seeds are sticky and can adhere to vehicle tires, particularly significant since it likes to grow in the disturbed soils of roadsides and washes which are frequented by off-road vehicles
Sources of information: Matt Brooks, personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Widlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley
<b>Question 2.6</b> Potential for natural long-distance dispersal
Identify dispersal mechanisms: Can spread by "tumbleweed action"
Rationale: Senesced plants observed breaking off at the base and disarticulating as they are blown across the landscape, often accumulating along fencelines and lodging under shrubs.
Sources of information: Matt Brooks, personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Widlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley
<b>Question 2.7</b> Other regions invaded
Identify other regions: Currently in dunes and scrub habitats. Could invade grasslands where grass cover is low, has been observed along roadsides at the ecotone between desert scrub and grasslands biomes in southern California
Rationale:
Sources of information: Matt Brooks, personal observations
<b>Question 3.1</b> Ecological amplitude
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Desert dunes, coastal bluff scrub, coastal scrub, sonoran desert scrub, mojavean desert scrub, chenopod scrub, upper sonoran scrub
Rationale: all but two scrub minor types

Sources of information: Matt Brooks, unpublished data and personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Wildlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley
<b>Question 3.2</b> Distribution
Describe distribution: In desert scrub systems it is typically found along roadsides and in washes, on rare occasions it may spread up hillsides, especially in the sonoran desert where it has been present the longest. In coastal scrub habitats it is commonly found in disturbed areas, especially postfire.
Rationale:
Sources of information: Matt Brooks, personal observations; Minnich, R. and Sanders A. 2000. <i>Brassica tournefortii</i> . In, <i>Invasive Plants of California's Wildlands</i> . Eds. C. Bossard, J. Randall, and M. Hoshovsky. U.C. Press, Berkeley

### Worksheet A

Complete this worksheet to answer Question 2.4.

Reaches reproductive maturity in 2 years or less	<b>Yes</b>
Dense infestations produce >1,000 viable seed per square meter	<b>Yes</b>
Populations of this species produce seeds every year.	<b>Yes</b>
Seed production sustained over 3 or more months within a population annually	<b>No</b>
Seeds remain viable in soil for three or more years	<b>Yes</b>
Viable seed produced with <i>both</i> self-pollination and cross-pollination	<b>Yes</b>
Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes	<b>No</b>
Fragments easily and fragments can become established elsewhere	<b>No</b>
Resprouts readily when cut, grazed, or burned	<b>Unknown</b>
	<b>Total Pts 6 Total Unknowns 1</b>
	<b>Score A</b>
<b>Note any related traits:</b> enter text here	

## Worksheet C - California Ecological Types

(*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	C
	interior	score
<b>Scrub and Chaparral</b>	coastal bluff scrub	C
	coastal scrub	C
	Sonoran desert scrub	C
	Mojavean desert scrub (incl. Joshua tree woodland)	C
	Great Basin scrub	score
	chenopod scrub	C
	montane dwarf scrub	score
	Upper Sonoran subshrub scrub	C
<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).