

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):	Bassia hyssopifolia
Synonyms:	Echinopsilon hyssopifolius (Pallus) Moq., Kochia hyssopifolia (Pallas) Schrad., Salsola hyssopifolia (Pall.)
Common names:	five-horn smotherweed, five-hook bassia, five horn bassia, hyssop-leaved echinopsilon, smotherweed, thorn orache,
Evaluation date (mm/dd/yy):	08/03/2004
Evaluator #1 Name/Title:	Brianna Richardson, Project Manager
Affiliation:	California Invasive Plant Council
Phone numbers:	510.843.3902
Email address:	brichardson@cal-ipc.org
Address:	1442-A Walnut Street #462, Berkeley, CA 94709
Evaluator #2 Name/Title:	Matt Brooks
Affiliation:	U.S. Geological Survey
Phone numbers:	702-564-4615
Email address:	matt_brooks@usgs.gov
Address:	160 N.Stephanie St., Henderson, NV 89074

Section below for list committee use—please leave blank

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

General comments on this assessment:

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	D	Other Pub. Mat'l
1.2	Impact on plant community	C	Other Pub. Mat'l
1.3	Impact on higher trophic levels	D	Rev'd, Sci. Pub'n
1.4	Impact on genetic integrity	D	Other Pub. Mat'l

<p>Impact</p> <p><i>Enter four characters from Q1.1-1.4 below:</i></p> <p>DCDD</p> <p><i>Using matrix, determine score and enter below:</i></p> <p>C</p>

2.1	Role of anthropogenic and natural disturbance	C (1 pt)	Other Pub. Mat'l
2.2	Local rate of spread with no management	C (1 pt)	Other Pub. Mat'l
2.3	Recent trend in total area infested within state	C (1 pt)	Observational
2.4	Innate reproductive potential Wksht A	B (2 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	A (3 pts)	Other Pub. Mat'l
2.7	Other regions invaded	U (0 pts)	No Information

<p>Invasiveness</p> <p><i>Enter the sum total of all points for Q2.1-2.7 below:</i></p> <p>10</p> <p><i>Use matrix to determine score and enter below:</i></p> <p>C</p>
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<p>Plant Score</p> <p><i>Using matrix, determine Overall Score and Alert Status from the three section scores and enter below:</i></p> <p>Low</p> <p>No Alert</p>
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3.1	Ecological amplitude/Range	A	Other Pub. Mat'l
3.2	Distribution/Peak frequency Wksht C	D	Observational

<p>Distribution</p> <p><i>Using matrix, determine score and enter below:</i></p> <p>B</p>

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes	D Other Pub. Mat'l back
Identify ecosystem processes impacted: None.	
Rationale: There is no evidence that Bassia alters ecosystem processes.	
Sources of information: Bossard, CC, JM Randall, MC Hoshovsky. 2000. Invasive Plants of California's Wildlands. University of California Press: 62-65.	
Question 1.2 Impact on plant community composition, structure, and interactions	C Other Pub. Mat'l back
Identify type of impact or alteration: In the densest stands it may form a monoculture. More commonly persists in clumps.	
Rationale: Evidence currently limited to one population at the Kern River. Alteration can occur, but the frequency of this is undocumented.	
Sources of information: Hoshovsky, M. 2000. The Nature Conservancy Elemental Abstract for Bassia hyssopifolia.	
Question 1.3 Impact on higher trophic levels	D Rev'd, Sci. Pub'n back
Identify type of impact or alteration: Toxic to sheep when ingested in large amounts. Acts as a late summer host to leafhopper genus Lygus in NV. Seeds are eaten by green-winged teal wintering in CA.	
Rationale: No sources document toxicity to wildlife.	
Sources of information: James, L.F., M.C. Williams, A.T. Bleak. 1976. Toxicity of Bassia hyssopifolia to sheep. Journal of Range Management 29(4): 284-285. Hoshovsky, M. 2000. The Nature Conservancy Elemental Abstract for Bassia hyssopifolia. DiTomaso, J., E. Healy. Weeds of California and Other Western States. An Illustrated Guide to Arizona Weeds. Univeristy of Arizon Press. Accessed 8/11/2004. www.aupress.arizona.edu/onlinebks/weeds/fivehook.htm . Euliss, NH Jr., SW Harris. 1987. Feeding ecology of northern pintails and green-winged teal wintering in California. Journal of Wildlife Mangement. 51(4): 724-732. Accessed from Northern Prarie Wildlife Research Center Home Page. www.npwrc.usgs.gov . 8/11/2004.	
Question 1.4 Impact on genetic integrity	D Other Pub. Mat'l back
Identify impacts: None.	
Rationale: There are no relatives native in California.	

Sources of information: Hickman, JC. 1993. The Jepson Manual: Higher Plants of California. University of California Press.	
Question 2.1 Role of anthropogenic and natural disturbance in establishment	C Other Pub. Mat'l back
Describe role of disturbance: Most common in disturbed sites, roads, fields, especially on alkaline soils.	
Rationale: Can establish in undisturbed sites, but more commonly establishes in sites disturbed by human activity. Especially dominant adjacent to agricultural fields, and within abandoned fields, in desert regions, the Colorado River Valley, and the southern central valley of California.	
Sources of information: CalFlora database. www.calflora.org. Accessed 8/3/04. Bossard, CC, JM Randall, MC Hoshovsky. 2000. Invasive Plants of California's Wildlands. University of California Press: 62-65. Hoshovsky, M. 2000. The Nature Conservancy Elemental Abstract for Bassia hyssopifolia. DiTomaso, J., E. Healy. Weeds of California and Other Western States Matt Brooks, personal observation Observational, Joe DiTomaso, 2004.	
Question 2.2 Local rate of spread with no management	C Other Pub. Mat'l back
Describe rate of spread: At the Kern River Preserve, it is being replaced by native species. Is persistent but is not increasing. In the Amargosa River Valley in the Mojave Desert, it has rapidly spread into a saltgrass/mesquite area recently disturbed by fire.	
Rationale: Local rate of spread is stable or declining without management. In burned areas it can increase in dominance rapidly, but its persistence is unknown.	
Sources of information: Hoshovsky, M. 2000. The Nature Conservancy Elemental Abstract for Bassia hyssopifolia Matt Brooks, personal observation. Observational, Joe DiTomaso, 2004.	
Question 2.3 Recent trend in total area infested within state	C Observational back
Describe trend: After introduction into the US, the plant spread rapidly.	
Rationale: Stable within state.	

Sources of information: Collins, S.L., W.H. Blackwell Jr. 1979. Bassia (Chenopodiaceae) in North America. Sida 8(1): 57-64. Observational, Joe DiTomaso, 2004.	
Question 2.4 Innate reproductive potential	B Other Pub. Mat'l back
Describe key reproductive characteristics: Annual. Reproduces by seed, which easily attach to fur or feathers of passing animals. Flowers July-October. Produces "abundant" seed. Doesn't spread vegetatively.	
Rationale: 4 points	
Sources of information: Hoshovsky, M. 2000. The Nature Conservancy Elemental Abstract for Bassia hyssopifolia. CalFlora database. www.calflora.org. Accessed 8/3/04. DiTomaso, J., E. Healy. Weeds of California and Other Western States. Knight, A.P., R.G. Walter. 2001. A Guide to Plant Poisoning. Teton New Media: Wyoming: 266-267. Observational, Joe DiTomaso, John Randall 2004.	
Question 2.5 Potential for human-caused dispersal	B Other Pub. Mat'l back
Identify dispersal mechanisms: Likely spread on the Kern River Preserve by human disturbance, road bldg, and ditch clearing. Road building or ditch clearing help establish and spread. Closely associated with agricultural developments in the desert regions, Colorado River Valley, and the southern central valley areas of California.	
Rationale: Human dispersal occurs, but it is usually not intentional and is therefore less prevalent.	
Sources of information: Hoshovsky, M. 2000. The Nature Conservancy Elemental Abstract for Bassia hyssopifolia. Bossard, CC, JM Randall, MC Hoshovsky. 2000. Invasive Plants of California's Wildlands. University of California Press: 62-65 Matt Brooks, personal observation..	
Question 2.6 Potential for natural long-distance dispersal	A Other Pub. Mat'l back
Identify dispersal mechanisms: Seeds are designed to easily attach to fur or feathers of passing animals, this is believed to be a major method of spread.	
Rationale: Frequent opportunity for spread via animal movement.	
Sources of information: Hoshovsky, M. 2000. The Nature Conservancy Elemental Abstract for Bassia hyssopifolia (cites Collins and Blackwell, 1979).	

Question 2.7 Other regions invaded	U No Information back
Identify other regions: Present in HI, WA, OR, NV, AZ, TX, CO, UT, ID, MT, NM, WY. Noxious weed in CO, MN, OR, and WA.	
Rationale: Unclear which ecotypes anywhere are invaded.	
Sources of information: USDA Plants Database. http://plants.usda.gov . Accessed 8/3/04.	
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: First introduced to the US (NV) in 1915, probably as a seed contaminant. Present in San Joaquin Valley, Owens Valley, the Santa Ana, Imperial, and Palo Verde Valleys, northward through Sacramento Valley and eastward into the Mojave Desert and Colorado River Valley. Common in Riverside and San Bernadino counties (though not a major problem). A problem at Morongo Canyon and Creighton Ranch in CA. Found in roadsides, disturbed places, crop fields, and seasonal wetlands. Tolerates alkaline and saline soil, and drought. Found in spiny saltbush and mixed lowland associations of the San Joaquin, Owns River, Santa Ana River, Imperial, Coachella, Palo Verde, Colorado River, valleys. Largely a weed of abandoned pastures and other disturbed ruderal areas. Invades riparian habitats and playa edges in the deserts of California.	
Rationale: Found in at least 3 major ecotypes and 4 minor. (Note: I was unable to correlate "spiny saltbush" and "mixed lowland association" with the ecotype table = "chenopod scrub". I correlated "alkaline flats" with alkali playa, which might be inaccurate. BR)	
Sources of information: Hoshovsky, M. 2000. The Nature Conservancy Elemental Abstract for <i>Bassia hyssopifolia</i> . DiTomaso, J., E. Healy. Weeds of California and Other Western States. Bossard, CC, JM Randall, MC Hoshovsky. 2000. Invasive Plants of California's Wildlands. University of California Press: 62-65. Van Devender, TR., RS Felger, A Burquez M. 1997. Exotic plants in the Sonoran Desert region, Arizona and Sonora. California Exotic Pest Plant Council Symposium Proceedings. USGS. Western wetland flora. Field Office Guide Plant Species. Northern Prairie Wildlife Research Center. Accessed 8/11/2004. www.npwrc.usgs.gov . Matt Brooks, personal observation.	
Question 3.2 Distribution/Peak frequency	D Observational back
Describe distribution: Occurs at <5% of any one ecological type	
Rationale: enter text here	
Sources of information: Matt Brooks, personal observation. Observational, Joe DiTomaso, John Randall, 2004.	

Worksheet A[back](#)

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	Unknown: 0 pts
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	No: 0 pt
	4 pts 2 unknowns
	B (4-5 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	score
	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	D. presen
	chenopod scrub	D. presen
	montane dwarf scrub	score
	Upper Sonoran subshrub scrub	score
	chaparral	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	D. presen
	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).