

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):	<i>Alhagi maurorum</i>
Synonyms:	<i>Alhagi pseudalhagi</i>
Common names:	Camelthorn
Evaluation date (mm/dd/yy):	August 1, 2003
Evaluator #1 Name/Title:	Joe DiTomaso
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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 review committee use—please leave blank

Review committee members:	Jake Sigg, Peter Warner, Doug Johnson, Joe DiTomaso, Brianna Richardson
Committee review date:	August 1, 2003
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	B	Rev'd, Sci. Pub'n
1.2	Impact on plant community	B	Other Pub. Mat'l
1.3	Impact on higher trophic levels	C	Other Pub. Mat'l
1.4	Impact on genetic integrity	D	Observational

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

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	Rev'd, Sci. Pub'n
2.3	Recent trend in total area infested within state	D 0	Other Pub. Mat'l
2.4	Innate reproductive potential	A 3	Rev'd, Sci. Pub'n
2.5	Potential for human-caused dispersal	C 1	Other Pub. Mat'l
2.6	Potential for natural long-distance dispersal	A 3	Rev'd, Sci. Pub'n
2.7	Other regions invaded	C 1	Other Pub. Mat'l

“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:
13
 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:
Medium
No Alert

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

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

Worksheet A. Complete this worksheet to answer Question 2.4.

Reaches reproductive maturity in 2 years or less	Yes: 1 pt
Dense infestations produce >1,000 viable seed per square meter	No: 0 pts
Populations of this species produce seeds every year.	No: 0 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	Yes: 2 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	Yes: 2 pts
Resprouts readily when cut, grazed, or burned	Yes: 1 pt
	7 pts 1 unknown
	A (6+ pts)

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes
Identify ecosystem processes impacted: Considered a water waster.
Rationale:
Sources of information: Kerr, H.D., W.C. Robacker and T.J. Muzik. 1965. Characteristics and control of camelthorn. <i>Weeds</i> 13(2): 156-163
Question 1.2 Impact on plant community composition, structure, and interactions
Identify type of impact or alteration: Can outcompete both native vegetation and crops. Dense stands can be impenetrable.
Rationale:
Sources of information: O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, <i>Invasive Plants of California's Wildlands</i> . Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.
Question 1.3 Impact on higher trophic levels
Identify type of impact or alteration: Spiny stems can injure animals, but livestock will eat it and often seek it out.
Rationale:
Sources of information: O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, <i>Invasive Plants of California's Wildlands</i> . Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.
Question 1.4 Impact on genetic integrity
Identify impacts: Probably none.
Rationale: No other species of Alhagi in California.
Sources of information:
Question 2.1 Role of anthropogenic and natural disturbance in establishment
Describe role of disturbance: Agricultural weed that prefers disturbance, but can invade non-disturbed areas.
Rationale: Weed of agricultural areas and disturbed fields.
Sources of information: O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, <i>Invasive Plants of California's Wildlands</i> . Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.; Parsons, W.T., and E.G. Culhbertson. 1992. <i>Noxious Weeds of Australia</i> . Inkata Press, Sydney, Australia, pp. 464-466.
Question 2.2 Local rate of spread with no management
Describe rate of spread: High rate of spread. Can expand circularly stands by 7.4 m per year.
Rationale:
Sources of information: O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In,

Invasive Plants of California's Wildlands. Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.; Bottel, A.E.1933. Introduction and control of camelthorn. Calif. State Dept. Agric. Monthly Bulletin, 22:261-263
Question 2.3 Recent trend in total area infested within state
Describe trend: Nearly eradicated from state due to County and CDFA control efforts.
Rationale:
Sources of information: DiTomaso, J.M. and E. A. Healy. 2005. Weeds of California. Div. Nat. Agr. Res. Univ. California (in press); O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, Invasive Plants of California's Wildlands. Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.
Question 2.4 Innate reproductive potential
Describe key reproductive characteristics: Seedlings rarely found. Primarily spreads vegetatively. Lateral growth of extensive root system.
Rationale:
Sources of information: DiTomaso, J.M. and E. A. Healy. 2005. Weeds of California. Div. Nat. Agr. Res. Univ. California (in press); O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, Invasive Plants of California's Wildlands. Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.; Kassar, M. 1952. On the reproductive capacity and life cycle of Alhagi maurorum. Proc. Egyptian Acad. Sci. 8:114-122.
Question 2.5 Potential for human-caused dispersal
Identify dispersal mechanisms: Although it used to be spread as a legume seed contaminant, it is unlikely that humans spread it much today.
Rationale:
Sources of information: O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, Invasive Plants of California's Wildlands. Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.
Question 2.6 Potential for natural long-distance dispersal
Identify dispersal mechanisms: Seeds and root pieces can spread with wind and water. Ball of entangled aerial parts can blow long distances. Seeds can also move long distances and remain viable in animal fecal material.
Rationale:
Sources of information: Kerr, H.D., W.C. Robacker and T.J. Muzik. 1965. Characteristics and control of camelthorn. Weeds 13(2): 156-163; O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, Invasive Plants of California's Wildlands. Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.; Richardson, J.M. 1953. Camelthorn (Alhagi camelorum Fisch.) J. Dept. Agr. South Australia. 57:18-20,33..
Question 2.7 Other regions invaded
Identify other regions: Weedy in other southwestern states (also Washington), as well as South Africa and Australia.
Rationale:
Sources of information: O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, Invasive Plants of California's Wildlands. Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.; Parsons, W.T., and E.G. Culhbertson. 1992. Noxious Weeds of Australia. Inkata Press, Sydney, Australia, pp. 464-466.
Question 3.1 Ecological amplitude
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: First reported in California in 1915. Found in saline meadows, playas, sandbars, riverbanks, irrigation canals. Mojave and Sonoran Deserts, Central Valley, and Sierra Nevada foothills.
Rationale:
Sources of information: Kerr, H.D., W.C. Robacker and T.J. Muzik. 1965. Characteristics and control of camelthorn. Weeds 13(2): 156-163; DiTomaso, J.M. and E. A. Healy. 2005. Weeds of California. Div. Nat. Agr. Res. Univ. California (in press); O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, Invasive Plants of California's Wildlands. Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of California Press, Berkeley.
Question 3.2 Distribution
Describe distribution: Eradication program by CDFA has dramatically reduced populations. Less than 4 ha remain in California by 1992.
Rationale:
Sources of information: O'Connell, R. and M.C. Hoshovsky. 2000. Alhagi pseudalhagi. Pages 37-41. In, Invasive Plants of California's Wildlands. Eds, C. C. Bossard, J.M. Randall and M.C. Hoshovsky. University of

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	score
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)	D. presen
	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	D. presen
	Great Basin grassland	score
	vernal pool	score
	meadow and seep	D. presen
	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	D. presen
	piñon and juniper woodland	score
	Sonoran thorn woodland	D. presen
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).