

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>Oxalis pes-caprae</i>
Synonyms:	
Common names:	Buttercup oxalis, Bermuda buttercup, sour grass
Evaluation date (mm/dd/yy):	5/22/03
Evaluator #1 Name/Title:	Joe DiTomaso
Affiliation:	UC Davis
Phone numbers:	530-754-8715
Email address:	DiTomaso@vegmail.ucdavis.edu
Address:	Weed Science Program, Robbins Hall, Univ. California, Davis CA 95616
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:	Joe DiTomaso, Peter Warner, Alison Stanton, Carla Bossard, Cynthia Roye, Jake Sigg, Doug Johnson, Brianna Richardson
Committee review date:	06/06/03
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	Other Pub. Mat'l
1.2	Impact on plant community	B	Other Pub. Mat'l
1.3	Impact on higher trophic levels	C	Anecdotal
1.4	Impact on genetic integrity	D	Rev'd, Sci. Pub'n

“Impact”
 Enter four characters from Q1.1-1.4 below:
BBDA
 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	Other Pub. Mat'l
2.3	Recent trend in total area infested within state	B 2	Observational
2.4	Innate reproductive potential	B 2	Rev'd, Sci. Pub'n
2.5	Potential for human-caused dispersal	B 2	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	Rev'd, Sci. Pub'n

“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:
14
 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	B	Other Pub. Mat'l
3.2	Distribution	C	Observational

“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	No: 0 pts
Viable seed produced with <i>both</i> self-pollination and cross-pollination	No: 0 pt
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
5 pts Total Unknowns 0	
B (4-5 pts)	

Table 3. Documentation

Question 1.1 Impact on abiotic ecosystem processes
Identify ecosystem processes impacted: Causes soil enrichment and stabilization of semi-stable areas, altering ecosystem nutrient cycling.
Rationale:
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoxal.html
Question 1.2 Impact on plant community composition, structure, and interactions
Identify type of impact or alteration: Outcompetes native vegetation for light and space. Also inhibits germination of native species in Australia. Pigs root our plant causing more soil disturbance.
Rationale: Not studied much in US, but expected to do the same. Observational info from A. Pickart indicated similar impacts.
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoxal.html ; Sigg, J. 2003. CalEPPC News 11(1):7-8; Observational-DiTomaso, Pickart
Question 1.3 Impact on higher trophic levels
Identify type of impact or alteration: Expected to have negative impact on wildlife forage because of toxicity.
Rationale: Insoluble oxalate crystals are poisonous to livestock. Not eaten by animals because taste is undesirable.
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoxal.html ; Sigg, J. 2003. CalEPPC News 11(1):7-8; Parsons, W.T. and E.G. Cuthbertson. 1992. Noxious Weeds of Australia. Inkata Press, Sydney.
Question 1.4 Impact on genetic integrity
Identify impacts: None
Rationale: No report of seed production in North America or Australia.
Sources of information: Ornduff, R. 1987. Annals of the Missouri Bot. Garden 74:79-84
Question 2.1 Role of anthropogenic and natural disturbance in establishment
Describe role of disturbance: Can establish in dunes without disturbance but readily established with disturbance. Plant is also grown as a garden ornamental and spreads at the urban wildland interface.
Rationale: Movement is only by bulbs.
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoxal.html ; Sigg, J. 2003. CalEPPC News 11(1):7-8; Parsons, W.T. and E.G. Cuthbertson. 1992. Noxious Weeds of Australia. Inkata Press, Sydney.
Question 2.2 Local rate of spread with no management
Describe rate of spread: Observed and reported to increase exponentially in a stabilized sand dune.
Rationale:
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoxal.html ; Sigg, J. 2003. CalEPPC News 11(1):7-8; Observational-Pickart
Question 2.3 Recent trend in total area infested within state
Describe trend: No real data on statewide trend. Not being controlled much so expected that it is increasing.
Rationale: Been in California for some time, exploding locally but probably only increasing slowly statewide.
Sources of information: Observational-DiTomaso
Question 2.4 Innate reproductive potential
Describe key reproductive characteristics: Reproduces by bulbs. No seed production in North America or Australia.
Rationale: The weight of new bulbs and bulblets in 1 year can be 10x that of the parent bulb and as much as 10,000 lb/acre.
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoxal.html ; DiTomaso, J.M. and E.A. Healy. 2005. Weeds of California. DANR (pre-print); Parsons, W.T. and E.G. Cuthbertson. 1992. Noxious Weeds of Australia. Inkata Press, Sydney; Ornduff, R. 1987. Annals of the Missouri Bot. Garden 74:79-84
Question 2.5 Potential for human-caused dispersal
Identify dispersal mechanisms: Dispersal of bulblets can occur by garden refuse, soil contamination, and equipment.
Rationale:
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoxal.html

Question 2.6 Potential for natural long-distance dispersal
Identify dispersal mechanisms: No seed dispersal, bulblets move by dispersal by birds. Short distance dispersal by pigs.
Rationale:
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoaxal.html ; Observational-DiTomaso
Question 2.7 Other regions invaded
Identify other regions: A wildland and agricultural weed of Australia, India, Iberian peninsula, Italy, Greece, other areas of Europe, and North Africa.
Rationale: Can be found in tropical areas and even semi-arid regions.
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoaxal.html ; Parsons, W.T. and E.G. Cuthbertson. 1992. Noxious Weeds of Australia. Inkata Press, Sydney; Peirce, J.R. 1997. Plant Protection Quarterly 12(3):110-119
Question 3.1 Ecological amplitude
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: In wildlands, it is found in forested areas, on coastal bluffs and dunes. A significant agricultural problem around the world and frequent urban escape both coastal and inland. Have been introduced in the US since at least 1925.
Rationale:
Sources of information: Tu, M. 2003. Weed Alert! Oxalis pes-caprae TNC website. Tncweeds.ucdavis.edu/alert/alrtoaxal.html
Question 3.2 Distribution
Describe distribution: Most common in coastal dunes, particularly from Monterey County northward.
Rationale:
Sources of information: Observational-DiTomaso

Complete the worksheet that corresponds to your state using the letter codes and instructions in Section 3.

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	C. 5-20%
	desert	score
	interior	score
Scrub and Chaparral	coastal bluff scrub	D. present
	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
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	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)	score
Woodland	cismontane woodland	score
	piñon and juniper woodland	score
	Sonoran thorn woodland	score
Forest	broadleaved upland forest	score
	North Coast coniferous forest	D. present
	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).