

# Cal-IPC Plant Assessment Form

For use with “[Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands](#)”  
by the California Invasive Plant Council and the Southwest Vegetation Management Association

Version February 2003, modified March 2009  
California Invasive Plant Council (formerly CA Exotic Pest Plant Council)  
Berkeley, CA [www.cal-ipc.org](http://www.cal-ipc.org), phone (510) 843-3902

**Table 1. Species and Evaluator Information**

<b>Species name</b> (Latin binomial):	<i>Gazania linearis</i> (Thunb.) Druce
<b>Synonyms:</b>	<i>Gazania longiscapa</i> DC
<b>Common names:</b>	gazania, treasure flower
<b>Evaluation date</b> (mm/dd/yy):	6/27/11
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Section below for list committee use—please leave blank

<b>List committee members:</b>	enter text here
<b>Committee review date:</b>	enter text here
<b>List date:</b>	enter text here
<b>Re-evaluation date(s):</b>	enter text here

**General comments on this assessment:**

There is basically no published literature on this species. A Web of Science search brought up one conference paper and one patent for a horticultural cultivar, plus two more under the name *Gazania longiscapa*.

**Table 2. Criteria, Section, and Overall Scores**Species: *Gazania linearis*

Region: California

<a href="#">1.1</a>	Impact on abiotic ecosystem processes	<b>C</b>	<b>Observational</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>U</b>	No information
<a href="#">1.4</a>	Impact on genetic integrity	<b>D</b>	<b>Rev'd Sci. Publ</b>

<b>Impact</b>
<i>Enter four characters from Q1.1-1.4 below:</i>
<b>CBUD</b>
<i>Using matrix, determine score and enter below:</i>
<b>B</b>

<b>Plant Score</b>
<i>Using matrix, determine Overall Score and Alert Status from the three section scores and enter below:</i>
<b>Moderate Alert</b>

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

<b>Invasiveness</b>
<i>Enter the sum total of all points for Q2.1-2.7 below:</i>
<b>13</b>
<i>Use matrix to determine score and enter below:</i>
<b>B</b>

<b>Documentation</b>
<i>Average of all questions</i>
<b>2.2 out of 4.0</b>

<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>

<b>Distribution</b>
<i>Using matrix, determine score and enter below:</i>
<b>C</b>

**Table 3. Documentation** (Scores are explained in the “[Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands](#)”. Short citations may be used in this table. List full citations at end of PAF.)

<b>Impact</b>	
<b>Question 1.1 Impact on abiotic ecosystem processes</b>	C Observational <a href="#">back</a>
Identify ecosystem processes impacted: It forms a dense groundcover, preventing erosion on creek banks.	
Sources of information: Christina Danko, pers. comm.	
<b>Question 1.2 Impact on plant community composition, structure, and interactions</b>	B Observational <a href="#">back</a>
Identify type of impact or alteration: Outcompetes all native groundcover/herbaceous plantings. In riparian mitigation areas, we have seen this plant form a groundcover within one year, choking out seedlings from native riparian hydroseeded plantings. (Christina Danko, pers. comm.)	
In McClaren Park in San Francisco, it has spread into remnant patches of native grassland, including <i>Nassella pulchra</i> , <i>Danthonia californica</i> , and <i>Elymus glauca</i> . Also affecting a locally endemic plant. (Jake Sigg, pers. comm.)	
Sources of information: Christina Danko, personal communication Jake Sigg, San Francisco, personal communication, 2/3/10	
<b>Question 1.3 Impact on higher trophic levels</b>	U No Information <a href="#">back</a>
Identify type of impact or alteration: Don't have specific information but it is replacing a diverse grassland with a monoculture which presumably would affect the species that rely on the native species	
Sources of information: Jake Sigg, personal communication 2/3/10	
<b>Question 1.4 Impact on genetic integrity</b>	D Rev'd, Sci. Pub'n <a href="#">back</a>
Identify impacts: None. No native <i>Gazania</i> congeners in California.	
Sources of information: Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA enter text here	
<b>Invasiveness</b>	
<b>Question 2.1 Role of anthropogenic and natural disturbance in establishment</b>	B Observational <a href="#">back</a>
Describe role of disturbance: Wherever it is planted nearby as a groundcover ornamental we see wind blown invasion into surrounding areas, usually into riparian mitigation areas that have been disturbed and are being restored (Christina Danko, pers. comm).	
Spreading due to human disturbance in McClaren Park but the areas it is invading are remnant patches of fairly undisturbed native grassland (never tilled, etc.). (Jake Sigg, pers. comm.)	

Sources of information: enter text here	
<b>Question 2.2 Local rate of spread with no management</b>	B Observational <a href="#">back</a>
<p>Describe rate of spread: I am located in central California within the fog belt. Over the course of several years I have seen gazania expand on a neighboring property which is regularly mowed for vehicle parking. It crossed over onto adjacent BLM property, which is maintained as grassland, but the rate of spread seemed slow. However, this year a couple of people have commented to me that its range has expanded from last year and GPS data shows this to be true. Mostly troubling is one plant that was found about a mile from the original location (Sue Hubbard, pers. comm).</p> <p>Seen spreading in riparian areas in Ventura (Christine Danko, pers. comm.)</p> <p>Has spread quickly in McClaren Park, San Francisco. This is the only site where Jake has seen it but it spread rapidly from a planting in an adjacent parking lot. (Jake Sigg, pers. comm.)</p>	
Sources of information:	
Emails from Sue Hubbard, Weed Crew Supervisor, Bureau of Land Management, Fort Ord (pers. )	
Christina Danko, pers. comm.	
Jake Sigg, pers. comm.	
<b>Question 2.3 Recent trend in total area infested within state</b>	B Observational <a href="#">back</a>
Describe trend: Spreading? Has been seen becoming invasive fairly recently in several areas of California.	
Sources of information: enter text here	
<b>Question 2.4 Innate reproductive potential</b>	A Other publ material <a href="#">back</a>
Describe key reproductive characteristics: Perennial from stolons or rhizomes. Self-sowing. Difficult to remove because it develops a tap root.	
Sources of information:	
<b>Question 2.5 Potential for human-caused dispersal</b>	A Other publ material <a href="#">back</a>
<p>Identify dispersal mechanisms: Planted as a horticultural species. Listed in Sunset Garden Book which says it is self-sowing.</p> <p>Popular with landscape architects (Jake Sigg, pers. comm.). People really like the flowers because the colors grow true from seed (they aren't hybrids).</p>	
Sources of information: Brenzel 2001	
<b>Question 2.6 Potential for natural long-distance dispersal</b>	D Observational <a href="#">back</a>
Identify dispersal mechanisms: Probably unlikely? But see comment from Sue Hubbard that one plant was found a mile from the rest of the infestation at Fort Ord. Jepson manual indicates that pappus is only slender scales,	

thus not capable of wind dispersal. May occasionally be dispersed by birds or water, but vast majority of seed likely fall to ground below parent plant.	
Sources of information: Sue Hubbard, personal observation Joseph M. DiTomaso, personal observation Jepson Manual	
<b>Question 2.7 Other regions invaded</b>	C Other publ material <a href="#">back</a>
Identify other regions: <i>Gazania</i> is widespread and common in Victoria and naturalised in South Australia and Western Australia. Native to South Africa. Also invasive in Australia. California is the only state listed where naturalized in US by USDA PLANTS database. Listed as one of the "ten most serious invasive plants sold by nurseries in Australia" (Groves et al. 2005)	
Sources of information: <a href="http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&amp;ibra=all&amp;card=E18">http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&amp;ibra=all&amp;card=E18</a> Groves et al. 2005 USDA NRCS 2011	
<b>Distribution</b>	
<b>Question 3.1 Ecological amplitude/Range</b>	B Observational <a href="#">back</a>
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Riparian areas in the Simi Valley, Moorpark, and Newbury Park/Thousand Oaks area, Ventura County. WeedWatch, of the Los Angeles and San Gabriel Rivers Watershed Council, finds that gazanias invade these environments: riparian/wetland, coastal, coastal sage, chaparral, grassland, desert. (Christina Danko, pers. comm)  <i>Gazania linearis</i> is a problem plant in McLaren Park in San Francisco. About 15 years ago I commented on a list of plants to be planted in a median strip on the road running through the park. At my request they removed all the known invasives. At that time I had not known gazania to be problematic. Within a couple of years I was suffering remorse, as it jumped a four-lane road and is spreading into the grasslands. (Jake Sigg, pers. comm.)  Specimens in the Consortium of California Herbaria database in coastal counties from the San Francisco Bay Area to San Diego, as well as Riverside County. Some are within urban areas, others seem to be along trails.	
Sources of information: Christina Danko, pers. com. Jake Sigg, pers. comm. LASGRWC, date unknown CCH. 2011.	
<b>Question 3.2 Distribution/Peak frequency</b>	D Observational <a href="#">back</a>
Describe distribution: Probably a low frequency in any particular habitat type on a statewide level.	

Sources of information: enter text here
<p><b>References</b></p> <p>List full citations for all references used in the PAF (short citations such as DiTomaso and Healy 2007 may be used in table above). <b>Websites</b> should include the name of the organization and the date accessed. <b>Personal communications</b> should include the affiliation of the person providing the observation. Enter each reference on a separate line; the table will expand as needed.</p> <p><b>Examples:</b></p> <p>Mitich, L. W. 1995. Intriguing world of weeds: Tansy ragwort. <i>Weed Technology</i>. 9: 402-404.</p> <p>HEAR. Date unknown. <i>Emex spinosa</i>. Hawaiian Ecosystems at Risk. <a href="http://www.hear.org/pier/species/emex_spinosa.htm">www.hear.org/pier/species/emex_spinosa.htm</a>. Accessed March 17, 2009</p> <p>DiTomaso, J. M. Personal communication from Dr. Joe DiTomaso, Dept. of Plant Science, UC Davis. Email received 3/17/09.</p> <p>Brenzel, K.. N, 2001. <i>Sunset Western Garden Book</i>. Sunset Publishing Corporation. Menlo Park, CA</p> <p>CCH. 2011. Data provided by the participants of the Consortium of California Herbaria (<a href="http://ucjeps.berkeley.edu/consortium/">ucjeps.berkeley.edu/consortium/</a>). [Accessed May 24, 2011]</p> <p>Danko, Christina. Personal communication from Christina Danko, Ventura. Email received 3/1/2008.</p> <p>Groves, R., R. Boden, and W. Lonsdale. 2005. <i>Jumping the Garden Fence</i>. A CSIRO report for World Wildlife Fund-Australia. 173 pp.</p> <p>Hubbard, Sue. Personal communication from Sue Hubbard, Weed Crew Supervisor, BLM Fort Ord. Email received 2/3/09.</p> <p>LASGRWC. date unknown. <i>Los Angeles Regional Invasive Plant Guide</i>. Los Angeles and San Gabriel Rivers Watershed Council, Los Angeles, CA. Available: <a href="http://weedwatch.lasgrwc.org">http://weedwatch.lasgrwc.org</a>. [Accessed May 24, 2011]</p> <p>Sigg, Jake. Personal communication from Jake Sigg of California Native Plant Society in San Francisco. Email received 2/3/09.</p> <p>USDA, NRCS. 2011. <i>The PLANTS Database</i> (<a href="http://plants.usda.gov">http://plants.usda.gov</a>, 18 May 2011). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.</p>

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

Reaches reproductive maturity in 2 years or less	<b>Yes: 1 pt</b>
Dense infestations produce >1,000 viable seed per square meter	<b>Yes</b>
Populations of this species produce seeds every year.	<b>Yes: 1 pt</b>
Seed production sustained over 3 or more months within a population annually	<b>Yes</b>
Seeds remain viable in soil for three or more years	<u>Unknown</u>
Viable seed produced with <i>both</i> self-pollination and cross-pollination	<b>Unknown</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>Yes: 2 pts</b>
Resprouts readily when cut, grazed, or burned	<b>Yes</b>
	<b>Total Pts 9    Unknowns 2</b>
	<b>A</b>
<b>Note any related traits:</b> enter text here	

**Worksheet C - California Ecological Types**[back](#)*(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	
	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	D. present
	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).