

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):	Crocosmia X crocosmiiflora (Lemoine) N. E. Br.
Synonyms:	derived from C. pottsii X C. aurea; Tritonia X crocosmiiflora
Common names:	montbretia
Evaluation date (mm/dd/yy):	08/25/04
Evaluator #1 Name/Title:	Peter Warner
Affiliation:	California Department of Parks and Recreation, Mendocino District
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Address:	P. O. Box 603, Little River, CA 95456-0603
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 list committee use—please leave blank

List committee members:	Alison Stanton, Jake Sigg, Cynthia Roye, John Randall, Joe DiTomaso, Peter Warner
Committee review date:	8/27/2004 (Revised Sept 13, J. DiTomaso, J. Sigg, Carla Bossard)
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	U	No Information
1.2	Impact on plant community	C	Other Pub. Mat'l
1.3	Impact on higher trophic levels	C	Observational
1.4	Impact on genetic integrity	D	Other Pub. Mat'l

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

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	Observational
2.3	Recent trend in total area infested within state	B 2	Other Pub. Mat'l
2.4	Innate reproductive potential	B 2	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	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:
15
 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:
Low
No Alert

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

Question 1.1 Impact on abiotic ecosystem processes
Identify ecosystem processes impacted: None known.
Rationale: No literature on ecological impacts has been located.
Sources of information: None
Question 1.2 Impact on plant community composition, structure, and interactions
Identify type of impact or alteration: Displaces native vegetation in herbaceous and shrub layers. However, the committee's consensus is that impacts in California are minor.
Rationale: Crocosmia forms dense patches that exclude native plants through superior competition for light, water, nutrients; patches expand from original infestation, gradually occupying a greater area (in Australia).
Sources of information: Nursery and Garden Industry Australia @ http://www.ngia.com.au/np/2000No12/00-12.html Warner, P.J. 2004. Personal observations, San Mateo, San Francisco, Marin, Sonoma, Mendocino Counties, 1999-2004. pwarner@mcn.org; 707/937-9172.
Question 1.3 Impact on higher trophic levels
Identify type of impact or alteration: None known; flowers are likely attractive to hummingbirds and perhaps butterflies. Observed displacing native Rubus species, a native food source for wildlife.
Rationale: No information in scientific literature; personal observation and web posting of hummingbird activity
Sources of information: Warner, P.J. 2004. Personal observations, San Mateo, San Francisco, Marin, Sonoma, Mendocino Counties, 1999-2004. pwarner@mcn.org; 707/937-9172. The Louisiana Museum of Natural History @ http://www.museum.lsu.edu/~Remsen/HUMNETf/Crocosmia.html

Question 1.4 Impact on genetic integrity
Identify impacts: None known; unlikely since no congeners exist in native California flora.
Rationale: Inferred from general knowledge of genetics and evolution.
Sources of information: Hickman, JC. 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, CA. p. 1152. Warner, PJ. 2004. Inference based on plant genetics and horticultural concepts.
Question 2.1 Role of anthropogenic and natural disturbance in establishment
Describe role of disturbance: Crocosmia is a widely cultivated garden plant, so does well with soil disturbance; often found in areas disturbed by human activities; horticulturalists cite the need to thin stands about every 3 years for maximum garden performance (flowering); also observed off trails, especially in damp forests and woodlands.
Rationale: From web-posted horticultural requirements, somewhat dependent upon disturbance of soil. However, montbretia is also capable of spreading without human intervention (personal observation).
Sources of information: The Garden of Paghat the Ratgirl @ www.paghat.com/crocosmia2.html ; Floridata @ www.floridata.com ; www.weedinfo.com.au/wd_crcro.htm ; Nursery and Garden Industry Australia @ http://www.ngia.com.au/np/2000No12/00-12.html Warner, PJ. 2004. Observations from 1986-2003 in residential landscapes and wildlands in Sonoma Co.; Golden Gate National Recreation Area; Pt. Reyes National Seashore; Mendocino County. 707/937-9172; pwarner@mcn.org .
Question 2.2 Local rate of spread with no management
Describe rate of spread: Observed to spread slowly at first, then more rapidly, within a single patch. Can also spread to adjacent areas through seed or cormlet dispersal.
Rationale: My observations suggest that once a new plant is established, it will expand rapidly to occupy more space. Once flowering is initiated, seeds can spread plants to nearby unoccupied sites (within several meters).
Sources of information: The Garden of Paghat the Ratgirl @ www.paghat.com/crocosmia2.html ; Floridata @ www.floridata.com ; www.weedinfo.com.au/wd_crcro.htm ; Ingwersen Nursery @ http://www.ingwersen.co.uk/Crocosmia%20x%20crocosmiiiflora.htm Warner, PJ. 2004. Observations from 1986-2004 in residential landscapes and wildlands in Sonoma Co.; Golden Gate National Recreation Area; Pt. Reyes National Seashore; Mendocino County. 707/937-9172; pwarner@mcn.org .

Question 2.3 Recent trend in total area infested within state
Describe trend: Estimated to be slowly increasing as new plantings and dispersal mechanisms lead to new introductions and establishment.
Rationale: Not known as invasive in interior California – reports found are all coastal, so some habitats may still be yet to be exploited
Sources of information: Redwood National Park @ www.nps.gov/redw/exot2000.doc Nursery and Garden Industry Australia @ http://www.ngia.com.au/np/2000No12/00-12.html ; California Invasive Plant Council @ ucce.ucdavis.edu/freeform/ceppc/documents/2002_Symposium_Proceedings1997.pdf
Question 2.4 Innate reproductive potential
Describe key reproductive characteristics: Corms (bud from existing corms); seeds
Rationale: Corms and seeds are both viable reproductive mechanisms.
Sources of information: Hickman, JC. 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, CA. p. 1152. The Garden of Paghat the Ratgirl @ www.paghat.com/crocoshmia2.html ; Floridata @ www.floridata.com ; www.weedinfo.com.au/wd_crcro.htm ; Ingwersen Gardens @ http://www.ingwersen.co.uk/Crocoshmia%20x%20crocoshmiiflora.htm
Question 2.5 Potential for human-caused dispersal
Identify dispersal mechanisms: Sold commercially; entire plants, corms, seeds spread as garden waste debris; spreads from horticultural plantings to adjacent areas from corms that bud prolifically; also produces seed that is easily dispersed by water, in soil movement (perhaps by animals or on human footwear)
Rationale: Numerous mechanisms for dispersal, and most based on human activities.
Sources of information: The Garden of Paghat the Ratgirl @ www.paghat.com/crocoshmia2.html ; Floridata @ www.floridata.com ; Weed Information @ www.weedinfo.com.au/wd_crcro.htm ; Warner, PJ. 2004. Personal inference.
Question 2.6 Potential for natural long-distance dispersal
Identify dispersal mechanisms: Corms and seeds can float; wind dispersal very unlikely; dispersal by animals unknown (seed ingestion by birds?); seeds are viable in warm moist areas

Rationale: Long-distance dispersal mechanisms appear lacking, although the potential for long-distance seed dispersal is unknown.
Sources of information: The Plants Database @ http://plantsdatabase.com ; The Garden of Paghat the Ratgirl @ www.paghat.com/crocosmia2.html ; Floridata @ www.floridata.com Warner, PJ. 2004. Personal inference.
Question 2.7 Other regions invaded
Identify other regions: Northwestern Europe (e.g., UK); Australia; New Zealand; southern and eastern U. S.; Pacific Northwest; Hawai'i (these areas are relatively humid)
Rationale: Cited as invasive in these regions on websites; likely that similar ecological types in CA have not yet reported invasion by Crocosmia (e.g., coastal riparian zones in southern CA, freshwater marshes)
Sources of information: The Plants Database @ http://plantsdatabase.com ; The Garden of Paghat the Ratgirl @ www.paghat.com/crocosmia2.html ; Floridata @ www.floridata.com ; Dept. of Agriculture, Western Australia @ http://agspsrv34.agric.wa.gov.au/progserv/plants/weeds/weedsci4.htm ; Dept. of Conservation (New Zealand) @ http://www.doc.govt.nz/Conservation/003~Weeds/south-island-wilding-conifer-strategy/Appendix-One.asp
Question 3.1 Ecological amplitude
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Occurs in coastal ecological types only in CA; well-established in CA gardens
Rationale: Reports and observations
Sources of information: Redwood National Park @ www.nps.gov/redw/exot2000.doc ; Calif. Invasive Plant Council @ ucce.ucdavis.edu/freeform/ceppc/documents/2002_Symposium_Proceedings1997.pdf ; Warner, PJ. 2004. Observations from 1986-2004 in residential landscapes and wildlands, Sonoma Co.; Golden Gate National Recreation Area; Pt. Reyes National Seashore; Mendocino County. 707/937-9172; pwarner@mcn.org.
Question 3.2 Distribution
Describe distribution: Sporadic, may be more extensive than perceived due to vegetative similarity to Iris species

Rationale: Reports and observations
Sources of information: Redwood National Park @ www.nps.gov/redw/exot2000.doc ; California Invasive Plant Council @ ucce.ucdavis.edu/freeform/ceppc/documents/2002_Symposium_Proceedings1997.pdf ; Warner, PJ. 2004. Observations from 1986-2004 in residential landscapes and wildlands, Sonoma Co.; Golden Gate National Recreation Area; Pt. Reyes National Seashore; Mendocino County. 707/937-9172; pwarner@mcn.org .

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.	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	Yes: 1 pt
Fragments easily and fragments can become established elsewhere	No: 0 pts
Resprouts readily when cut, grazed, or burned	Yes: 1 pt
	4 pts 2 unknowns
	B (4-5 pts)
Note any related traits: enter text here	

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	D. presen
	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	D. presen
	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	D. presen
	North Coast coniferous forest	C. 5-20%
	closed cone coniferous forest	D. presen
	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).