

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):	Pyracantha angustifolia (Franch.) Schneid.; P. crenulata (D Don) Roemer; P. coccinea M. Roemer, et al.
Synonyms:	Cotoneaster pyracantha (L.) Spach
Common names:	narrowleaf firethorn; scarlet firethorn
Evaluation date (mm/dd/yy):	08/20/04
Evaluator #1 Name/Title:	Peter J. Warner
Affiliation:	California Department of Parks and Recreation; CNPS; Cal-IPC
Phone numbers:	(707) 937-9172 (w); (707) 937-278 (h)
Email address:	pwarner@mcn.org; pwarn@parks.ca.gov ; corylus@earthlink.net
Address:	P. O. Box 603, Little River, CA 95456
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:	Joe DiTomaso, Peter Warner, John Randall, Cyntia Roye, Alison Stanton, Jake Sigg
Committee review date:	8/27/2004
List date:	enter text here
Re-evaluation date(s):	enter text here

General comments on this assessment:

This assessment includes assessment of 3 commonly observed species of Pyracantha, and has been completed with little literature on the ecology or biology of Pyracantha available. Most responses based, at least in part, on personal observations.

Table 2. Criteria, Section, and Overall Scores

1.1	Impact on abiotic ecosystem processes	U	Other Pub. Mat'l
1.2	Impact on plant community	C	Other Pub. Mat'l
1.3	Impact on higher trophic levels	C	Other Pub. Mat'l
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	Observational
2.2	Local rate of spread with no management	B 2	Observational
2.3	Recent trend in total area infested within state	B 2	Other Pub. Mat'l
2.4	Innate reproductive potential Wksht A	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	A 3	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:

16

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/Range	A	Other Pub. Mat'l
3.2	Distribution/Peak frequency Wksht C	C	Observational

“Distribution”

Use matrix determine the score; enter below:

B

Table 3. Documentation

<p>Question 1.1 Impact on abiotic ecosystem processes</p>	<p>U Other Pub. Mat'l back</p>
<p>Identify ecosystem processes impacted: None known. Impacts not a factor include nitrogen fixation, fire regime change (1), structural changes (2).</p>	
<p>Rationale: literature and observations</p>	
<p>Sources of information: 1. Pacific Island Ecosystems at Risk (PIER). 2004. <i>Pyracantha angustifolia</i>. Online @ http://www.hear.org/pier/wra/pacific/pyracantha_angustifolia_htmlwra.htm 2. Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino Counties. 707/937-9172; pwarner@mcn.org</p>	
<p>Question 1.2 Impact on plant community composition, structure, and interactions</p>	<p>C Other Pub. Mat'l back</p>
<p>Identify type of impact or alteration: In some areas, pyracantha has become a component of community invaded, displacing native species to a minor extent (1) (more extensive displacement reported from Pacific Islands, including Hawai'i (2)). <i>Pyracantha</i> has been reported as a potential reservoir of plant pathogens (3), and thus could negatively affect related native species in the Rosaceae that might grow in the same areas.</p>	
<p>Rationale: Not a dominant species in any area observed in CA.</p>	
<p>Sources of information: 1. Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino Counties. 707/937-9172; pwarner@mcn.org 2. Pacific Island Ecosystems at Risk (PIER). 2004. <i>Pyracantha angustifolia</i>. Online @ http://www.hear.org/pier/wra/pacific/pyracantha_angustifolia_htmlwra.htm 3. Ecoaction.net. 2004. Weeds: <i>Pyracantha angustifolia</i>. Online @ http://www.ecoaction.net.au/ccserac/docs/weeds/pyracantha.htm</p>	
<p>Question 1.3 Impact on higher trophic levels</p>	<p>C Other Pub. Mat'l back</p>
<p>Identify type of impact or alteration: Fruits are well known as bird-dispersed (1, 2); plant is armed with thorns (3), reducing potential value as a forage species and is reputed to be unpalatable and toxic to animals (1). Plants provide edible fruits (1, 2) and nesting sites for birds (2).</p>	
<p>Rationale: Not reported as a dominant in California plant communities, so probably not a major factor in higher trophic level interactions.</p>	
<p>Sources of information: 1. Pacific Island Ecosystems at Risk (PIER). 2004. <i>Pyracantha angustifolia</i>. Online @ http://www.hear.org/pier/wra/pacific/pyracantha_angustifolia_htmlwra.htm 2. Ecoaction.net. 2004. Weeds: <i>Pyracantha angustifolia</i>. Online @ http://www.ecoaction.net.au/ccserac/docs/weeds/pyracantha.htm 3. Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino</p>	

Counties. 707/937-9172; pwarner@mcn.org	
Question 1.4 Impact on genetic integrity	D Other Pub. Mat'l back
Identify impacts: Unlikely - no closely related species in California.	
Rationale: deductive reasoning	
Sources of information: Hickman, JC (editor). 1993. The Jepson Manual: Higher Plants of California (Third Printing, with corrections). University of California Press, Berkeley. p. 972.	
Question 2.1 Role of anthropogenic and natural disturbance in establishment	B Observational back
Describe role of disturbance: Observed growing in infrequently disturbed areas, such as formerly grazed coastal prairie, as well as along more frequently disturbed areas, such as lakes, creeks, roadsides, fencelines; water availability or cool climate appears correlated to plant success.	
Rationale: Appears to become established more frequently in moderately disturbed sites, provided water is available	
Sources of information: Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino Counties. 707/937-9172; pwarner@mcn.org	
Question 2.2 Local rate of spread with no management	B Observational back
Describe rate of spread: Absent management, Pyracantha species will continue to be introduced (presumably aided by bird dispersal of seeds) and will thus spread. Most introductions seem very limited (one or a few plants), but spread is more likely in sufficiently warm and moist habitats.	
Rationale: Absent management, more plants and seeds will be available to increase population, but only under optimal growing conditions will spread be rapid. Management efforts are more critical in moist regimes than in drier ones.	
Sources of information: Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino Counties. 707/937-9172; pwarner@mcn.org	
Question 2.3 Recent trend in total area infested within state	B Other Pub. Mat'l back
Describe trend: As in 2.2 above, total area is likely increasing as seeds are dispersed; however, success rate of dispersal events is likely quite low. Calflora Database shows documented occurrences only from SF Bay Area counties (2), but I've seen the plant established at Folsom Lake (Sacramento and Placer Counties), in riparian areas and coastal prairies in Mendocino County, and recall anecdotes of its occurrence in southern California riparian areas (1). CSU-Chico (3) cites Pyracantha as common in the Sacramento Valley. Pyracantha is probably well distributed, if not especially abundant, in the state.	
Rationale: Continued introductions, including horticultural uses, + no management = increasing area of	

infestation.	
Sources of information: 1. Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino Counties. 707/937-9172; pwarner@mcn.org	
2. Calflora Database. 2004. www.calflora.org	
3. California State University, Chico. 2004. Exotic Riparian Plants Common to the Sacramento Valley. Online @ http://www.csuchico.edu/~pmaslin/Cr.Manag/exotic.html	
Question 2.4 Innate reproductive potential	B Other Pub. Mat'l back
Describe key reproductive characteristics: One mature plant can produce more than one million seeds annually (1), translating to over 1000 seeds/square meter (fruits w/ stones, each 1-2 seeded (3)). Plants do not mature rapidly (2) nor tend to spread vegetatively. Is reproductive success abetted by passage of seeds through animal digestive tracts?	
Rationale: Produces prolific numbers of fruits, but does not reproduce from vegetative fragments; will resprout. Longevity of viable seed in soil is unknown.	
Sources of information: 1. Ecoaction.net. 2004. Weeds: <i>Pyracantha angustifolia</i> . Online @ http://www.ecoaction.net.au/ccserac/docs/weeds/pyracantha.htm	
2. Pacific Island Ecosystems at Risk (PIER). 2004. <i>Pyracantha angustifolia</i> . Online @ http://www.hear.org/pier/wra/pacific/pyracantha_angustifolia_htmlwra.htm	
3. Hickman, JC (editor). 1993. The Jepson Manual: Higher Plants of California (Third Printing, with corrections). University of California Press, Berkeley. p. 972.	
Question 2.5 Potential for human-caused dispersal	A Other Pub. Mat'l back
Identify dispersal mechanisms: Horticultural sales (1,2); branch & fruit collection (e.g., for wreaths) (2); landscape debris dumping (spreads fruits to new locations, where birds can further distribute) (2).	
Rationale: Find a nursery (other than specialty nurseries) that doesn't sell <i>Pyracantha</i> ! Still widely planted domestically and municipally as a border or screening plant. Plants grow fast, and <i>Pyracantha</i> fruits travel far and wide as landscape maintenance pruning debris.	
Sources of information: 1. Pacific Island Ecosystems at Risk (PIER). 2004. <i>Pyracantha angustifolia</i> . Online @ http://www.hear.org/pier/wra/pacific/pyracantha_angustifolia_htmlwra.htm	
2. Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino Counties. 707/937-9172; pwarner@mcn.org	
Question 2.6 Potential for natural long-distance dispersal	A Other Pub. Mat'l back
Identify dispersal mechanisms: Widely acknowledged as bird-dispersed; fruits very attractive to several groups of avians (1,2).	

<p>Rationale: Attractive bright red fruit; lots of feeding, followed by flying, then perching (or not) well, you know the rest!</p>	
<p>Sources of information: 1. Ecoaction.net. 2004. Weeds: <i>Pyracantha angustifolia</i>. Online @ http://www.ecoaction.net.au/ccserac/docs/weeds/pyracantha.htm</p> <p>2. Pacific Island Ecosystems at Risk (PIER). 2004. <i>Pyracantha angustifolia</i>. Online @ http://www.hear.org/pier/wra/pacific/pyracantha_angustifolia_htmlwra.htm</p>	
<p>Question 2.7 Other regions invaded</p>	<p>B Other Pub. Mat'l back</p>
<p>Identify other regions: South Africa (riparian), Australia (woodlands, bushland), Hawai'i (upland forests), much of eastern North America (especially the southeast and northeast), Oregon</p>	
<p>Rationale: <i>Pyracantha</i> has not been reported from interior areas of woodland, scrub, chaparral in California, so these types, or adjacent riparian and lakeside areas, may be vulnerable to infestation in the future.</p>	
<p>Sources of information: 1. Ecoaction.net. 2004. Weeds: <i>Pyracantha angustifolia</i>. Online @ http://www.ecoaction.net.au/ccserac/docs/weeds/pyracantha.htm</p> <p>2. Pacific Island Ecosystems at Risk (PIER). 2004. <i>Pyracantha angustifolia</i>. Online @ http://www.hear.org/pier/wra/pacific/pyracantha_angustifolia_htmlwra.htm</p> <p>3. Eugene Parks and Open Space. 2004. Invasive Species Discouraged-from-use List. 2004. City of Eugene, OR. Online @ http://www.ci.eugene.or.us/parks/volunteer/invasive_list2.htm</p> <p>4. USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.</p>	
<p>Question 3.1 Ecological amplitude/Range</p>	<p>A Other Pub. Mat'l back</p>
<p>Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Riparian and lakeside areas, marsh edges, coastal scrub and prairie</p>	
<p>Rationale: Will become established with adequate moisture regime, so these sites are more vulnerable; probably intolerant of extensive freezing temperatures; <i>Pyracantha</i> is shade-intolerant, but will grow in sub-canopy of deciduous woodlands.</p>	
<p>Sources of information: Calflora Database. 2004. www.calflora.org</p> <p>California State University, Chico. 2004. Exotic Riparian Plants Common to the Sacramento Valley. Online @ http://www.csuchico.edu/~pmaslin/Cr.Manag/exotic.html</p> <p>Hickman, JC (editor). 1993. The Jepson Manual: Higher Plants of California (Third Printing, with corrections). University of California Press, Berkeley. p. 972.</p> <p>Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino Counties. 707/937-9172; pwarner@mcn.org</p>	

Question 3.2 Distribution/Peak frequency	C Observational back
Describe distribution: No data on distribution; Pyracantha is generally not abundant, but I find it frequently along creeks, and in moist coastal scrub and prairie, although generally not in great numbers.	
Rationale: very much a guess on the proportion of riparian and coastal habitats with Pyracantha a floristic element.	
Sources of information: Warner, PJ. 1999-2004. Personal observations in Marin, Sacramento, San Mateo, Sonoma, Mendocino Counties. 707/937-9172; pwarner@mcn.org	

Worksheet A

[back](#)

Reaches reproductive maturity in 2 years or less	No: 0 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	No: 0 pt
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	Yes: 1 pt
	4 pts 1 unknown
	B (4-5 pts)
Note any related traits: prolific fruit production (thousands/year on mature plants).	

Worksheet C - California Ecological Types

[back](#)

(*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	C. 5-20%
	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
Grasslands, Vernal Pools, Meadows, and other Herb Communities	coastal prairie	C. 5-20%
	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	D. present
Riparian and Bottomland	riparian forest	score
	riparian woodland	C. 5-20%
	riparian scrub (incl. desert washes)	D. present
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).