

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

Electronic version, February 28, 2003

Table 1. Species and Evaluator Information

Species name (Latin binomial):	Myoporum laetum G. Forst.
Synonyms:	enter text here
Common names:	ngaio tree, false sandalwood, mousehole tree
Evaluation date (mm/dd/yy):	09/28/04
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:	Carla Bossard, John Randall, Cynthia Roye, Jake Sigg, Peter Warner
Committee review date:	2/11/05
List date:	enter text here
Re-evaluation date(s):	enter text here

General comments on this assessment:

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	A	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:
UACD
 Use matrix determine the score; enter below:
B

2.1	Role of anthropogenic and natural disturbance	B 2	Rev'd, Sci. Pub'n
2.2	Local rate of spread with no management	B 2	Observational
2.3	Recent trend in total area infested within state	C 1	Observational
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	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:
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/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 No Information back</p>
<p>Identify ecosystem processes impacted: The species accumulates dead twigs, rendering it flammable (1). However, no documentation that this species has actually contributed to the spread of wildland fires, or to a change in fire intensity or frequency.</p>	
<p>Rationale: insufficient documentation of impact on fire regimes</p>	
<p>Sources of information: 1. Kitz, J. 2000. <i>Myoporum laetum</i>. in Bossard, CC, JM Randall, and MC Hoshovsky. <i>Invasive Plants of California's Wildlands</i>. University of California Press, Berkeley. pp. 246-249.</p>	
<p>Question 1.2 Impact on plant community composition, structure, and interactions</p>	<p>A Other Pub. Mat'l back</p>
<p>Identify type of impact or alteration: Competition for light, moisture, nutrients in moist habitats, displacing native species of trees, shrubs, herbs, and forming monocultures (1, 2, 3, 4, 5, 6).</p>	
<p>Rationale: Personal observations, personal communications about <i>Myoporum</i> populations in California state parks.</p>	
<p>Sources of information: 1. Kitz, J. 2000. <i>Myoporum laetum</i>. in Bossard, CC, JM Randall, and MC Hoshovsky. <i>Invasive Plants of California's Wildlands</i>. University of California Press, Berkeley. pp. 246-249.</p> <p>2. Goode, Suzanne. 2004. Personal communication. State Parks Resource Ecologist, Angeles District, California Department of Parks and Recreation.</p> <p>3. Kerbavaz, Joanne. 2004. Personal communication. State Parks Resource Ecologist, San Mateo Coast Sector, Santa Cruz District, California Department of Parks and Recreation.</p> <p>4. Orr, Regena. 2004. Personal communication. State Parks Resource Ecologist, San Luis Obispo Coast District, California Department of Parks and Recreation. (805) 771-1913 / rorr@hearst-castle.org</p> <p>5. Smith, Darren Scott. 2004. Personal communication. State Parks Resource Ecologist,. San Diego Coast District, California Department of Parks and Recreation. (619) 278-3785</p> <p>6. Warner, PJ. 2004. Personal observations, 1995-2004, Marin, Sonoma, Mendocino Counties. (707) 937-2278/ corylus@earthlink.net</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: Potentially toxic to wildlife, based on published accounts of toxicity to livestock, including sheep and cattle (1, 2, 3). Attractiveness of fleshy fruits could contribute to wildlife poisoning, although fruits are less toxic than foliage (2).</p>	
<p>Rationale: Foliage is likely to be ingested by some herbivores, such as deer, and fruit is toxic to some degree, potentially injuring birds.</p>	
<p>Sources of information: 1. Kitz, J. 2000. <i>Myoporum laetum</i>. in Bossard, CC, JM Randall, and MC Hoshovsky. <i>Invasive Plants of California's Wildlands</i>. University of California Press, Berkeley. pp. 246-249.</p>	

<p>2. DiTomaso, J, and E. Healy. (in production). Weeds of California and Other Western States (unpublished).</p> <p>3. Fuller, TC, and E McClintock. 1986. in Poisonous Plants of California.</p>	
<p>Question 1.4 Impact on genetic integrity</p>	<p>D Other Pub. Mat'l back</p>
<p>Identify impacts: None likely. This is the only species in the family that grows without human assistance in California (1).</p>	
<p>Rationale: No closely related species native to California.</p>	
<p>Sources of information: 1. Hickman, JC (editor). 1993. The Jepson Manual: Higher Plants of California (Third Printing, with corrections). University of California Press, Berkeley. p. 765.</p>	
<p>Question 2.1 Role of anthropogenic and natural disturbance in establishment</p>	<p>B Rev'd, Sci. Pub'n back</p>
<p>Describe role of disturbance: Results of germination trials (1) suggest that Myoporum requires moisture and light for optimal germination rates. Myoporum's 4 seeds/fruit are encased in a hard endocarp; cutting of this endocarp resulted in no difference in germination, suggesting that physical disturbance is not necessarily needed for seed germination. However, germination does not occur if the 4-seeded unit is retained within the fleshy drupe.</p>	
<p>Rationale: Reports indicate that this species spreads from landscape plantings into adjacent moist areas, or where the water table may be near to the soil surface (2, 3, 4, 5, 6). Under these conditions, Myoporum appears to need little physical disturbance. In light of these observations, the posted score here is conservative.</p>	
<p>Sources of information: 1. Burrows, CJ. 1996. Germination behaviour of seeds of the New Zealand woody species Melicope simplex, Myoporum laetum, Myrsine divaricata, and Urtica ferox. New Zealand Journal of Botany 34(2):205-213.</p> <p>2. Goode, Suzanne. 2004. Personal communication. State Parks Resource Ecologist, Angeles District, California Department of Parks and Recreation.</p> <p>3. Kerbavaz, Joanne. 2004. Personal communication. State Parks Resource Ecologist, San Mateo Coast Sector, Santa Cruz District, California Department of Parks and Recreation.</p> <p>4. Orr, Regena. 2004. Personal communication. State Parks Resource Ecologist, San Luis Obispo Coast District, California Department of Parks and Recreation. (805) 771-1913 / rorr@hearst-castle.org</p> <p>5. Smith, Darren Scott. 2004. Personal communication. State Parks Resource Ecologist,. San Diego Coast District, California Department of Parks and Recreation. (619) 278-3785</p> <p>6. Warner, PJ. 2004. Personal observations, 1995-2004, Marin, Sonoma, Mendocino Counties. (707) 937-2278/ corylus@earthlink.net</p>	
<p>Question 2.2 Local rate of spread with no management</p>	<p>B Observational back</p>
<p>Describe rate of spread: Spreads from landscape plantings at central and southern California coastal state parks, where campground plantings of Myoporum are common. Also observed spreading occasionally from landscape plantings in northern coastal California.</p>	
<p>Rationale: No indication or observations that the spread is rampant; a conservative estimation of spread is less</p>	

than doubling in area over 10 years.	
Sources of information: 1. Goode, Suzanne. 2004. Personal communication. State Parks Resource Ecologist, Angeles District, California Department of Parks and Recreation. 2. Kerbavaz, Joanne. 2004. Personal communication. State Parks Resource Ecologist, San Mateo Coast Sector, Santa Cruz District, California Department of Parks and Recreation. 3. Orr, Regena. 2004. Personal communication. State Parks Resource Ecologist, San Luis Obispo Coast District, California Department of Parks and Recreation. (805) 771-1913 / rorr@hearst-castle.org 4. Smith, Darren Scott. 2004. Personal communication. State Parks Resource Ecologist,. San Diego Coast District, California Department of Parks and Recreation. (619) 278-3785 5. Warner, PJ. 2004. Personal observations, 1995-2004, Marin, Sonoma, Mendocino Counties. (707) 937-2278/ corylus@earthlink.net	
Question 2.3 Recent trend in total area infested within state	C Observational back
Describe trend: No quantified information on total area infested. The species has been planted widely for many years, and is currently being removed in several state parks.	
Rationale: A qualified estimate, based on this species' widespread use in landscapes, and the current rate of removal.	
Sources of information: Warner, PJ. 2004. Personal observations, 1995-2004, Marin, Sonoma, Mendocino Counties. (707) 937-2278/ corylus@earthlink.net	
Question 2.4 Innate reproductive potential	B Other Pub. Mat'l back
Describe key reproductive characteristics: Fruit is a fleshy drupe enclosing a stony endocarp containing 1-4 seeds (1, 2). Seeds removed from fruit and endocarp tend to germinate more readily than those remaining contained in the endocarp (1, 2). The endocarp may be an adaptation for seed longevity, and could account for long-lived seed banks.	
Rationale: Abundance of seed production is unclear: > 1000 seeds/square meter? Seeds will definitely germinate in suitable habitat in California.	
Sources of information: 1. Burrows, CJ. 1996. Germination behaviour of seeds of the New Zealand woody species <i>Melicope simplex</i> , <i>Myoporum laetum</i> , <i>Myrsine divaricata</i> , and <i>Urtica ferox</i> . <i>New Zealand Journal of Botany</i> 34(2):205-213. 2. DiTomaso, J, and E. Healy. (in production). <i>Weeds of California and Other Western States</i> (unpublished).	
Question 2.5 Potential for human-caused dispersal	A Other Pub. Mat'l back
Identify dispersal mechanisms: Nurseries sell this species, seed catalogues advertise it, and the City of Los Angeles identifies it as a desirable street tree (1). Calif. Dept. of Parks and Recreation and other agencies planted this tree widely in coastal areas over the past century	

Rationale: enter text here	
Sources of information: 1. City of Los Angeles website. 2004. http://www.lacity.org/BOSS/streettree/MyoporumLaetum.htm	
Question 2.6 Potential for natural long-distance dispersal	A Other Pub. Mat'l back
Identify dispersal mechanisms: Fruit is readily bird-dispersed, perhaps less commonly by water, to distances greater than 1 km (1, 2)	
Rationale: Purple, fleshy fruits lead to purple, seedy poops....far away.	
Sources of information: 1. Kitz, J. 2000. <i>Myoporum laetum</i> . in Bossard, CC, JM Randall, and MC Hoshovsky. <i>Invasive Plants of California's Wildlands</i> . University of California Press, Berkeley. pp. 246-249.	
2. DiTomaso, J, and E. Healy. (in production). <i>Weeds of California and Other Western States</i> (unpublished).	
Question 2.7 Other regions invaded	C Other Pub. Mat'l back
Identify other regions: Native to New Zealand coastal forests (1, 2). Cited (2) as invasive in Hawai'i, but not by USDA (3) in that state. Otherwise, no reports from anywhere other than the California coast, where it apparently invades habitats other than coastal forests.	
Rationale: Due to frost sensitivity, and need for moisture, this species would probably not pose invasive threat to interior California, or the more northern coast - this may account for its scarcity as an invasive plant north of the SF Bay Area.	
Sources of information: 1. Burrows, CJ. 1996. Germination behaviour of seeds of the New Zealand woody species <i>Melicope simplex</i> , <i>Myoporum laetum</i> , <i>Myrsine divaricata</i> , and <i>Urtica ferox</i> . <i>New Zealand Journal of Botany</i> 34(2):205-213.	
2. Kitz, J. 2000. <i>Myoporum laetum</i> . in Bossard, CC, JM Randall, and MC Hoshovsky. <i>Invasive Plants of California's Wildlands</i> . University of California Press, Berkeley. pp. 246-249.	
3. USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	
Question 3.1 Ecological amplitude/Range	A Observational back
Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Central and southern California coast, especially moist to wet habitats, including coastal scrub, riparian woodland and scrub, salt, brackish, and freshwater marshes, dunes/strand where moisture is available (1, 2, 3, 4, 5, 6, 7)	
Rationale: enter text here	
Sources of information: 1. Kitz, J. 2000. <i>Myoporum laetum</i> . in Bossard, CC, JM Randall, and MC Hoshovsky.	

Invasive Plants of California's Wildlands. University of California Press, Berkeley. pp. 246-249.

2. DiTomaso, J, and E. Healy. (in production). Weeds of California and Other Western States (unpublished).
3. Goode, Suzanne. 2004. Personal communication. State Parks Resource Ecologist, Angeles District, California Department of Parks and Recreation.
4. Kerbavaz, Joanne. 2004. Personal communication. State Parks Resource Ecologist, San Mateo Coast Sector, Santa Cruz District, California Department of Parks and Recreation.
5. Orr, Regena. 2004. Personal communication. State Parks Resource Ecologist, San Luis Obispo Coast District, California Department of Parks and Recreation. (805) 771-1913 / rorr@hearst-castle.org
6. Smith, Darren Scott. 2004. Personal communication. State Parks Resource Ecologist,. San Diego Coast District, California Department of Parks and Recreation. (619) 278-3785
7. Warner, PJ. 2004. Personal observations, 1995-2004, Marin, Sonoma, Mendocino Counties. (707) 937-2278/ corylus@earthlink.net

Question 3.2 Distribution/Peak frequency

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Describe distribution: more common in these ecological types from SF Bay Area south (1, 2, 3, 4, 5)

Rationale: conservative estimates, lacking any quantified data.

Sources of information:

1. Goode, Suzanne. 2004. Personal communication. State Parks Resource Ecologist, Angeles District, California Department of Parks and Recreation.
2. Kerbavaz, Joanne. 2004. Personal communication. State Parks Resource Ecologist, San Mateo Coast Sector, Santa Cruz District, California Department of Parks and Recreation.
3. Orr, Regena. 2004. Personal communication. State Parks Resource Ecologist, San Luis Obispo Coast District, California Department of Parks and Recreation. (805) 771-1913 / rorr@hearst-castle.org
4. Smith, Darren Scott. 2004. Personal communication. State Parks Resource Ecologist,. San Diego Coast District, California Department of Parks and Recreation. (619) 278-3785
5. Warner, PJ. 2004. Personal observations, 1995-2004, Marin, Sonoma, Mendocino Counties. (707) 937-2278/ corylus@earthlink.net

Worksheet A

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Reaches reproductive maturity in 2 years or less	No: 0 pt
Dense infestations produce >1,000 viable seed per square meter	Unknown: 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	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	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 2 unknowns
	B (4-5 pts)

Note any related traits: Fruit is a fleshy drupe enclosing a stony endocarp containing 1-4 seeds. Seeds removed from fruit and endocarp tend to germinate more readily than those remaining contained in the endocarp. The endocarp may be an adaptation for seed longevity, and could account for long-lived seed banks.

Worksheet C - California Ecological Types

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(*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	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	D. prese ₁
	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	C. 5-20%
Riparian and Bottomland	riparian forest	score
	riparian woodland	D. prese ₁
	riparian scrub (incl. desert washes)	D. prese ₁
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).