

California Invasive Plant Council

Protecting California's wildlands from invasive plants through research, restoration, and education.

www.cal-ipc.org

Invasive plants are one of the most serious environmental issues facing California. They disrupt ecosystems by altering physical processes, displacing native plants, and degrading wildlife habitat. The California Invasive Plant Inventory is a vital resource for those working to protect the state's natural areas. The Inventory summarizes the impacts, potential for spread, and distribution of more than 200 non-native plants that invade wildlands in California. The Inventory represents the best available knowledge of the state's invasive plant experts. It is designed to prioritize plants for control at the state and local levels, to provide key information to those working in habitat restoration, to show areas where research is needed, to aid those preparing or commenting on environmental planning documents, and to educate public policy makers. Detailed assessments for each plant, with documented sources, are available online at www.cal-ipc.org.



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Pampasgrass (*Cortaderia selloana*) displaces native plant communities in coastal habitats. (Photo by Bob Case, California Native Plant Society).

Front cover photo credits:

Centaurea solstitialis (yellow starthistle) left, and *Eichornia crassipes* (water hyacinth) bottom right, by Bob Case.

Cynara cardunculus (artichoke thistle) center right, by Jason and Jesse Giessow, Dendra, Inc.

Delairea odorata (Cape-ivy) top right, by Carolyn Martus, California Native Plant Society.

CALIFORNIA INVASIVE PLANT INVENTORY

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The California Invasive Plant Council (Cal-IPC) formed as a non-profit organization in 1992 to address the growing ecological and economic impacts caused by invasive plants in California's wildlands. We promote research, restoration, and education in pursuit of this goal. Formerly known as the California Exotic Pest Plant Council, Cal-IPC is a member-driven organization with land managers, researchers, policy makers, and concerned citizens working together to protect the state's natural areas from invasive plants. For more information, visit our website at www.cal-ipc.org.

PROVIDING INPUT FOR FUTURE REVISIONS

If you have additional information to add to a plant assessment, please submit it to info@cal-ipc.org. The Inventory Review Committee will meet periodically to consider additions and modifications to the Inventory.

ACKNOWLEDGMENTS

We gratefully acknowledge the effort of all those who volunteered their time to write plant assessment forms, provide comments on assessments, or add observations to fill gaps in information. Too many people contributed information for us to list them individually, but each assessment contains the name of its author and those who provided information on that species. In particular, we thank those who helped develop the criteria, including John Hall of The Nature Conservancy in Arizona, Ann Howald of Garcia and Associates, and Maria Ryan of University of Nevada Cooperative Extension. We also wish to thank Kristin Dzurella of UC Davis and John Knapp of the Catalina Island Conservancy for their contributions of time and data.

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Designed by Melanie Haage

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Introduction

Invasive plants damage ecosystems around the world. They displace native species, change plant community structure, and reduce the value of habitat for wildlife.¹ Invasive plants may disrupt physical ecosystem processes, such as fire regimes, sedimentation and erosion, light availability, and nutrient cycling. In aquatic ecosystems, invasive plants clog lakes, streams, and waterways, reducing oxygen levels for fish and degrading habitat for waterbirds. The impact is especially severe in California, with its rich diversity of natural resources.

The California Invasive Plant Inventory categorizes non-native invasive plants that threaten the state's wildlands. Categorization is based on an assessment of the ecological impacts of each plant. The Inventory represents the best available knowledge of invasive plant experts in the state. However, it has no regulatory authority, and should be used with full understanding of the limitations described later in this Introduction.

California is home to 4,200 native plant species, and is recognized internationally as a "biodiversity hotspot." Approximately 1,800 non-native plants also grow in the wild in the state. A small number of these, approximately 200, are the ones that this Inventory considers invasive. Improved understanding of their impacts will help those working to protect California's treasured biodiversity.

The Inventory

The Inventory categorizes plants as High, Moderate, or Limited, reflecting the level of each species' negative ecological impact in California. Other factors, such as economic impact or difficulty of management, are not included in this assessment.

It is important to note that every species listed in Table 1 is invasive, regardless of its overall rating, and should be of concern to land managers. Although the impact of each plant varies regionally, its rating represents cumulative impacts statewide. Therefore, a plant whose statewide impacts are categorized as Limited may have more severe impacts in a particu-



In the past 15 years, approximately \$15 million has been spent statewide to control Arundo donax (giant reed) in California. (Photo by David Chang, Santa Barbara County Agricultural Commissioner's office)

lar region. Conversely, a plant categorized as having a High cumulative impact across California may have very little impact in some regions.

Members of the Inventory Review Committee, Cal-IPC staff, and volunteers drafted assessments for each plant based on the formal criteria system described below. The committee solicited information from land managers across the state to complement the available literature. Assessments were released for public review before the committee finalized them. All plant assessments that form the basis for this summary document are available at www.cal-ipc.org. The final list includes 39 High species, 65 Moderate species, and 89 Limited species. Additional information, including updated observations, will be added to the Cal-IPC website periodically, with revisions tracked and dated.

Definitions

The Inventory categorizes "invasive non-native plants that threaten wildlands" according to the definitions below. Plants were evaluated only if they invade

Figure 1. The Criteria System

Section 1. Ecological Impact

- 1.1 Impact on abiotic ecosystem processes (e.g. hydrology, fire, nutrient cycling)
- 1.2 Impact on native plant community composition, structure, and interactions
- 1.3 Impact on higher trophic levels, including vertebrates and invertebrates
- 1.4 Impact on genetic integrity of native species (i.e. potential for hybridization)

Section 2. Invasive Potential

- 2.1 Ability to establish without anthropogenic or natural disturbance
- 2.2 Local rate of spread with no management
- 2.3 Recent trend in total area infested within state
- 2.4 Innate reproductive potential (based on multiple characteristics)
- 2.5 Potential for human-caused dispersal
- 2.6 Potential for natural long-distance (>1 km) dispersal
- 2.7 Other regions invaded worldwide that are similar to California

Section 3. Distribution

- 3.1 Ecological amplitude (ecological types invaded in California)
- 3.2 Ecological intensity (highest extent of infestation in any one ecological type)

Documentation Levels

Assessed as highest level of documentation for each criterion.

- 4 = Reviewed scientific publications
- 3 = Other published material (reports or other non-peer-reviewed documents)
- 2 = Observational (unpublished information confirmed by a professional in the field)
- 1 = Anecdotal (unconfirmed information)
- 0 = No information

Complete description of criteria system and detailed plant assessments available at www.cal-ipc.org.



*Dense mats formed by aquatic plants such as water hyacinth (*Eichhornia crassipes*) reduce habitat for waterfowl and fish. (Photo by Bob Case, California Native Plant Society)*

California wildlands with native habitat values. The Inventory does not include plants found solely in areas of human-caused disturbance such as roadsides and cultivated agricultural fields.

- **Wildlands** are public and private lands that support native ecosystems, including some working landscapes such as grazed rangeland and active timberland.
- **Non-native** plants are species introduced to California after European contact and as a direct or indirect result of human activity.
- **Invasive non-native plants that threaten wildlands** are plants that 1) are not native to, yet can spread into, wildland ecosystems, and that also 2) displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes.

Criteria for Listing

The California Invasive Plant Inventory updates the 1999 “Exotic Pest Plants of Greatest Ecological Concern in California.”² Cal-IPC’s Inventory Review Committee met regularly between 2002 and 2005 to review 238 non-native species with known or suspected impacts in California wildlands. These assessments are based on the “Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands”³ which were developed in collaboration with the Southwestern Vegetation Management Association in Arizona (www.swvma.org) and the University of Nevada Cooperative Extension (www.unce.unr.edu).

edu) so that ratings could be applied across political boundaries and adjusted for regional variation. The goals of the criteria system and the Inventory are to:

- Provide a uniform methodology for categorizing non-native invasive plants that threaten wildlands;
- Provide a clear explanation of the process used to evaluate and categorize plants;
- Provide flexibility so the criteria can be adapted to the particular needs of different regions and states;
- Encourage contributions of data and documentation on evaluated species;
- Educate policy makers, land managers, and the public about the biology, ecological impacts, and distribution of invasive non-native plants.

The criteria system generates a plant's overall rating based on an evaluation of 13 criteria, which are divided into three sections assessing Ecological Impacts, Invasive Potential, and Ecological Distribution (Fig. 1). Evaluators assign a score of A (severe) to D (no impact) for each criterion, with U indicating unknown. The scoring scheme is arranged in a tiered format, with individual criteria contributing to section scores that in turn generate an overall rating for the plant.

Detailed plant assessment forms list the rationale and applicable references used to arrive at each criterion's score. The level of documentation for each question is also rated, and translated into a numerical score for averaging (Fig. 1). The documentation score presented in the tables is a numeric average of the documentation levels for all 13 criteria.

Inventory Categories

Each plant in Table 1 has received an overall rating of High, Moderate or Limited based on evaluation using the criteria system. The meaning of these overall ratings is described below. In addition to the overall ratings, specific combinations of section scores that indicate significant potential for invading new ecosystems triggers an Alert designation so that land managers may watch for range expansions. Table 3 lists plants categorized as Evaluated But Not Listed because either we lack sufficient information to assign a rating or the available information indicates that the species does not have significant impacts at the present time.

- **High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- **Moderate** – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- **Limited** – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Reading the Tables

The core of the Inventory is Table 1, which lists those plants we have categorized as invasive plants that threaten California wildlands.. The types of information contained in Table 1 is described below.



When *Bromus tectorum* (downy brome or cheatgrass) replaces native perennial grasses, the frequency of wildfires shortens from 60-100 years to 3-5 years. (Photo by Joe DiTomaso, UC Davis)

Figure 2. Jepson Geographic Regions

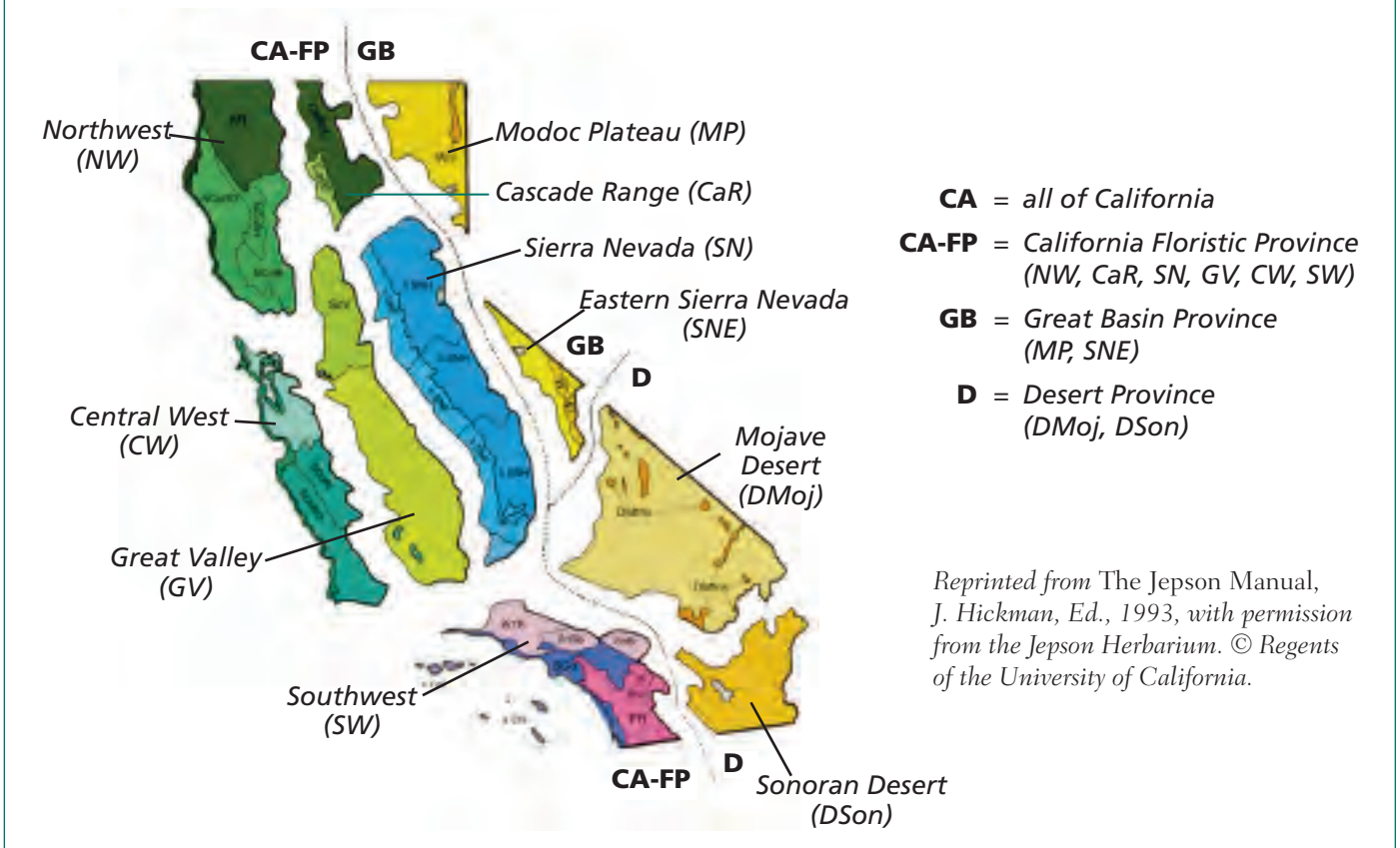


Table 2 contains four plants that are native to specific regions of California but have become invasive in other regions of the state to which humans have moved them. Table 3 lists those plant species that were evaluated but did not meet the threshold for listing. Finally, Table 4 contains plants that were nominated for review but dismissed without a formal assessment because either they do not invade wildlands (except for isolated instances) or the Inventory Review Committee lacked adequate information to answer the criteria questions.

Table 1 summarizes rating information for all plant species categorized as invasive by this Inventory. The columns contain the following information:

- A diamond (◆) in the first column designates an Alert status for that species.
- Scientific nomenclature for most species follows *The Jepson Manual*.⁴
- For each species, the first common name is based on the Weed Science Society of America,⁵ followed by other names commonly used in California. (Appendix 4 provides an index of common names.)
- The overall rating for the plant (High, Moderate,

or Limited) is listed next. (Because Table 1 is organized alphabetically, we have included a listing organized by rating level in Appendix 1.)

- Section scores are shown for Ecological Impact, Invasive Potential, and Distribution. These can typically be interpreted as A=high, B=moderate, C=limited, D=none, U=unknown.
- Documentation Level presents the average level of the references used to evaluate that species, from 0 (no information) to 4 (all information based on peer-reviewed scientific publications).
- Ecological Types Invaded and Other Comments provides additional information of interest. The classification of ecological types is adapted from a system developed by the California Department of Fish and Game.⁶ (Appendix 3 provides detailed examples of ecological types.)
- Regions Invaded are based on floristic regions described in *The Jepson Manual*⁴ (Fig. 2) and indicate heavily impacted areas. This information is incomplete for many species, so regions listed in this column should be considered the minimum area invaded.



Cirsium vulgare (bull thistle) is spreading at high elevations, such as in Yosemite National Park. (Photo by Bob Case, California Native Plant Society)

Uses and Limitations

The California Invasive Plant Inventory serves as a scientific and educational report. It is designed to prioritize plants for control, to provide information to those working on habitat restoration, to show areas where research is needed, to aid those who prepare or comment on environmental planning documents, and to educate public policy makers. Plants that lack published information may be good starting points for student research projects.

The Inventory cannot address, and is not intended to address, the range of geographic variation in California, nor the inherently regional nature of invasive species impacts. While we have noted where each plant is invasive, only the cumulative statewide impacts of the species have been considered in the evaluation. The impact of these plants in specific geographic regions or habitats within California may be greater or lesser than their statewide rating indicates. Management actions for a species should be considered on a local and site-specific basis, as the

inventory does not attempt to suggest management needs for specific sites or regions. The criteria system was designed to be adapted at multiple scales, and local groups are encouraged to use the criteria for rating plants in their particular area.

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Lepidium latifolium (perennial pepperweed or tall whitetop) concentrates salt in marsh soils, threatening several rare plant species. (Photo by Bob Case)

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	<i>Acacia melanoxylon</i>	black acacia, blackwood acacia	Limited	C	C	B	2.7	Coniferous forest, chaparral, woodland, riparian. Impacts low in most areas.	NW, CW, SW
	<i>Acroptilon repens</i>	Russian knapweed	Moderate	B	B	B	3.2	Scrub, grasslands, riparian, pinyon-juniper woodland, forest. Severe impacts in other western states. Spreading in many areas of CA.	CA-FP, GB
	<i>Aegilops triuncialis</i>	barb goatgrass	High	A	A	B	3.6	Grassland, oak woodland. Spreading in NW and Central Valley.	CaR, CW, SN, GV
	<i>Ageratina adenophora</i>	croftonweed, eupatorium	Moderate	B	B	B	2.8	Coastal canyons, scrub, slopes. Very invasive in Australia, limited information and distribution in CA.	CW, SW
	<i>Agrostis avenacea</i>	Pacific bentgrass	Limited	C	C	C	2.4	Vernal pools, coastal prairie, meadows, grasslands. Impacts are low in most areas.	NW, SN, GV, CW, SW
	<i>Agrostis stolonifera</i>	creeping bentgrass	Limited	C	B	C	1.9	Wetlands, riparian; grown for domestic forage. Limited distribution and impacts unknown.	NW, SN, GV, CW, SW
	<i>Ailanthus altissima</i>	tree-of-heaven	Moderate	B	B	B	3.0	Riparian areas, grasslands, oak woodland. Impacts highest in riparian areas.	CA-FP
	<i>Alhagi maurorum</i> (= <i>A. pseudalhagi</i>)	camelthorn	Moderate	B	B	B	3.2	Grassland, meadows, riparian and desert scrub, Sonoran thorn woodland. Very invasive in southwestern states. Limited distribution in CA.	GV, D, SNE
◆	<i>Alternanthera philoxeroides</i>	alligatorweed	High	A	B	C	2.9	Freshwater aquatic systems, including marshes	GV, SW
	<i>Ammophila arenaria</i>	European beachgrass	High	A	B	B	3.2	Coastal dunes	NW, CW, SW
	<i>Anihoxanthum odoratum</i>	sweet vernalgrass	Moderate	B	B	B	2.7	Coastal prairie, coniferous forest. Little information available on impacts and limited ecological range.	NW, SN, CW
◆	<i>Arctotheca calendula</i> (fertile strains)	fertile capeweed	Moderate	B	B	C	3.6	Coastal prairie. Can produce seed. Important agricultural weed in Australia, but limited distribution in CA.	NW, CW
	<i>Arctotheca calendula</i> (sterile strains)	sterile capeweed	Moderate	B	B	B	2.8	Coastal prairie. Only propagates vegetatively. More competitive than fertile form, but limited distribution.	NW, CW
	<i>Arundo donax</i>	giant reed	High	A	B	A	2.8	Riparian areas. Commercially grown for musical instrument reeds, structural material, etc.	CW, SN, GV, SW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
◆	<i>Asparagus asparagoides</i>	bridal creeper	Moderate	B	B	D	2.6	Riparian woodland	CW, SW
◆	<i>Asphodelus fistulosus</i>	onionweed	Moderate	B	A	C	2.9	Coastal dunes, prairie, grasslands. Invasive in Australia. High invasiveness but limited distribution in CA.	GV, SW
	<i>Atriplex semibaccata</i>	Australian saltbush	Moderate	B	B	B	2.9	Coastal grasslands, scrub, upper salt marsh. Limited distribution, but can be very invasive regionally.	CA except CaR and SN
	<i>Avena barbata</i>	slender wild oat	Moderate	B	B	A	3.5	Coastal scrub, grasslands, oak woodland, forest. Very widespread, but impacts more severe in desert regions.	CA-FP, MP, DMoj
	<i>Avena fatua</i>	wild oat	Moderate	B	B	A	3.2	Coastal scrub, chaparral, grasslands, woodland, forest. Very widespread, but impacts more severe in desert regions.	CA-FP, MP, DMoj
	<i>Bassia hyssopifolia</i>	fivehook bassia	Limited	C	C	B	2.7	Alkaline habitats. Weed of agriculture or disturbed sites. Impacts minor in wildlands.	CA except NW
	<i>Bellardia trixago</i>	bellardia	Limited	C	C	C	1.9	Grasslands, including serpentine. Impacts and invasiveness appear to be minor.	NW, CW
◆	<i>Brachypodium sylvaticum</i>	perennial false-brome	Moderate	B	A	D	2.5	Redwoods and mixed evergreen forest in Santa Cruz Mtns. Expanding range rapidly in OR, potentially very invasive.	CW
	<i>Brassica nigra</i>	black mustard	Moderate	B	B	A	2.0	Widespread. Primarily a weed of disturbed sites, but can be locally a more significant problem in wildlands.	CA-FP
	<i>Brassica rapa</i>	birdrape mustard, field mustard	Limited	C	B	B	1.8	Coastal scrub, grasslands meadows, riparian. Primarily in disturbed areas. Impacts appear to be minor or unknown in wildlands.	CA-FP
	<i>Brassica tournefortii</i>	Saharan mustard, African mustard	High	A	A	B	2.3	Desert dunes, desert and coastal scrub	SW, D
	<i>Briza maxima</i>	big quakinggrass, rattlesnakegrass	Limited	B	C	B	2.3	Grasslands. Widespread in coast range. Impacts generally minor, but locally can be higher.	NW, SN, CW, SW
	<i>Bromus diandrus</i>	ripgut brome	Moderate	B	B	A	3.3	Dunes, scrub, grassland, woodland, forest. Very wide-spread, but monotypic stands uncommon.	CA

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	<i>Bromus hordeaceus</i>	soft brome	Limited	B	C	A	2.8	Grasslands, sagebrush, serpentine soils, many other habitats. Very widespread, but primarily in converted annual grasslands.	CA
	<i>Bromus madriensis</i> ssp. <i>rubens</i> (= <i>B. rubens</i>)	red brome	High	A	B	A	3.0	Scrub, grassland, desert washes, woodlands. Impacts most significant in desert areas.	CA
	<i>Bromus tectorum</i>	downy brome, cheatgrass	High	A	B	A	3.1	Interior scrub, woodlands, grasslands. Most widely distributed invasive plant in the US.	SN, GB, D
	<i>Cakile maritima</i>	European sea-rocket	Limited	C	B	B	3.6	Coastal dunes. Widespread, but impacts appear to be minor.	NW, CW, SW
◆	<i>Cardaria chalapensis</i> (= <i>C. draba</i> ssp. <i>chalepensis</i>)	lens-podded whitetop	Moderate	B	B	C	3.2	Central Valley wetlands. Limited distribution in CA. May not be as invasive as <i>C. draba</i> .	CA-FP, GB
	<i>Cardaria draba</i>	hoary cress	Moderate	B	B	B	2.6	Riparian areas, marshes of central coast. More severe invasive in northern CA.	CW, SW
	<i>Cardaria pubescens</i>	hairy whitetop	Limited	C	B	C	2.5	Grasslands and meadows. Impacts unknown but may be significant in meadows of Cascade Range.	GV, SW
	<i>Carduus acanthoides</i>	plumeless thistle	Limited	B	C	C	3.0	Valley and foothill grasslands. Limited distribution in CA, impacts higher locally.	NW, SN, CW
	<i>Carduus nutans</i>	musk thistle	Moderate	B	B	B	3.1	Grasslands. More invasive in other western states. Limited distribution in CA.	NW, CaR, SN
	<i>Carduus pycnocephalus</i>	Italian thistle	Moderate	B	B	A	2.9	Forest, scrub, grasslands, woodland. Very widespread. Impacts may be variable regionally.	NW, SN, CW, SW
	<i>Carduus tenuiflorus</i>	slenderflower thistle	Limited	C	C	B	2.8	Valley and foothill grasslands. Limited distribution. Impacts appear to be minor.	NW, SN, CW, SW
	<i>Carpobrotus chilensis</i> (and <i>C. edulis</i> x <i>chilensis</i> hybrids)	sea-fig, iceplant	Moderate	B	B	A	1.8	Coastal dunes, scrub, prairie. Little information on species, most inferred from <i>C. edulis</i> .	NW, CW, SW
	<i>Carpobrotus edulis</i>	Hottentot-fig, iceplant	High	A	B	A	3.3	Coastal habitats, especially dunes	NW, CW, SW
◆	<i>Carthamus lanatus</i>	woolly distaff thistle	Moderate	A	B	C	2.8	Grasslands. Expanding in coast ranges, may become more severe. Current distribution limited.	NW, SN, CW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	<i>Centaurea calcitrapa</i>	purple starthistle	Moderate	B	B	B	2.7	Grasslands. Impacts regionally variable. Relatively limited distribution.	NW, SN, GV, CW, SW
◆	<i>Centaurea debeauxii</i> (= <i>C. jacea</i> x <i>C. nigra</i> , <i>C. x pratensis</i>)	meadow knapweed	Moderate	B	B	C	2.7	Grasslands. Spreading rapidly in NW CA, but limited distribution elsewhere. Little known of impacts.	NW, CW
	<i>Centaurea diffusa</i>	diffuse knapweed	Moderate	B	B	B	3.3	Great Basin scrub, coastal prairie. Severe impacts in other western states. Limited distribution in CA with impacts higher in some locations.	Ca-R, CW, NW, SN
	<i>Centaurea maculosa</i> (= <i>C. biebersteinii</i>)	spotted knapweed	High	A	B	B	3.4	Riparian, grasslands, wet meadows, forests. More widely distributed in other western states.	CA-FP, GB
	<i>Centaurea melitensis</i>	Malta starthistle, tocalote	Moderate	B	B	B	2.6	Grasslands, oak woodland. Sometimes misidentified as <i>C. solstitialis</i> . Impacts vary regionally.	CW, SW, D
	<i>Centaurea solstitialis</i>	yellow starthistle	High	A	B	A	3.0	Grasslands, woodlands, occasionally riparian	CA-FP
	<i>Centaurea virgata</i> var. <i>squarrosa</i> (= <i>C. squarrosa</i>)	squarrose knapweed	Moderate	B	B	B	2.8	Scrub, grassland, pinyon-juniper woodland. Highly invasive in Utah and other western states. Limited distribution in CA.	NW, CaR, MP
	<i>Chondrilla juncea</i>	rush skeletonweed	Moderate	B	B	B	3.1	Grasslands. Very invasive in other western states, but currently limited distribution in CA.	NW, CaR, SN, GV, CW,
	<i>Chrysanthemum coronarium</i>	crown daisy	Moderate	B	B	B	2.0	Coastal prairie, dunes, and scrub. Impacts generally low to moderate, but can vary regionally.	CW, SW
	<i>Cirsium arvense</i>	Canada thistle	Moderate	B	B	B	2.8	Grasslands, riparian areas, forests. Severe impacts in other western states. Limited distribution in CA.	CA-FP, DMoj
	<i>Cirsium vulgare</i>	bull thistle	Moderate	B	B	B	3.3	Riparian areas, marshes, meadows. Widespread, can be very problematic regionally.	CA-FP, GB
	<i>Conicosia pugioniformis</i>	narrow/leaf iceplant	Limited	C	B	C	2.1	Coastal dunes, scrub, grassland. Limited distribution. Impacts generally minor but can be higher locally.	CW
	<i>Conium maculatum</i>	poison-hemlock	Moderate	B	B	B	2.8	Riparian woodland, grassland. Widespread in disturbed areas. Abiotic impacts unknown. Impacts can vary locally.	CA-FP

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

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<i>Cordylone australis</i>	giant dracaena, New Zealand-cabbage tree	Limited	C	C	C	2.0	Coniferous forest. Two reports of horticultural escape into wildlands. Appears best suited to moist, cool climates.	NW, CW
<i>Cortaderia jubata</i>	jubatagrass	High	A	A	A	3.1	Many coastal and interior habitats	NW, CW, SW
<i>Cortaderia seloana</i>	pampasgrass	High	A	A	B	3.2	Coastal dunes, coastal scrub, Monterey pine, riparian, grasslands, wetlands, serpentine soils. Still spreading both coastal and inland.	CW, SW
<i>Cotoneaster franchetii</i>	orange cotoneaster	Moderate	B	A	B	2.6	Coniferous forest. Limited distribution. Abiotic impacts largely unknown.	NW, CW
<i>Cotoneaster lacteus</i>	Parney's cotoneaster	Moderate	B	B	B	2.1	Many coastal habitats, mainly a problem from SF Bay Area north along coast. Limited distribution. Abiotic impacts largely unknown.	NW, CW
<i>Cotoneaster pannosus</i>	silverleaf cotoneaster	Moderate	B	A	B	2.5	Many coastal habitats, mainly a problem from SF Bay Area north along coast. Limited distribution. Abiotic impacts largely unknown.	NW, CW
<i>Cotula coronopifolia</i>	brassbuttons	Limited	C	C	B	2.2	Salt and freshwater marshes. Impacts largely unknown, but appear to be minor.	NW, CW, SW
<i>Crataegus monogyna</i>	English hawthorn	Limited	C	B	C	3.4	Riparian habitats, woodland. Limited distribution. Impacts appear to be minor.	NW, CW, SW
<i>Crocsmia x crocosmiflora</i>	montbretia	Limited	C	B	B	2.6	Coastal scrub and prairie, north coast forests. Abiotic impacts unknown. Higher invasiveness in some areas.	NW, CW
<i>Crupina vulgaris</i>	common crupina, bearded creeper	Limited	B	C	B	3.2	Forest, woodland, grassland. Limited distribution. More invasive in other western states.	NW, MP
<i>Cynara cardunculus</i>	artichoke thistle	Moderate	B	B	B	4.0	Coastal grasslands. Impacts more severe in southern CA where monotypic stands are more common.	CW, SW
<i>Cynodon dactylon</i>	bermudagrass	Moderate	B	B	B	3.3	Riparian scrub in southern CA. Common landscape weed, but can be very invasive in desert washes.	SW, DSon
<i>Cynoglossum officinale</i>	houndstongue	Moderate	B	B	B	2.5	Woodland, forest, interior dunes. Abiotic impacts unknown. Limited distribution. Can have impacts in other western states.	CaR, SN

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<i>Cynosurus echinatus</i>	hedghog dogtailgrass	Moderate	B	B	A	2.5	Oak woodland, grassland. Widespread, impacts vary regionally, but typically not in monotypic stands.	NW, SN, GV, CW, SW
<i>Cytisus scoparius</i>	Scotch broom	High	A	B	A	3.2	Coastal scrub, oak woodland, horticultural varieties may also be invasive.	CA-FP
<i>Cytisus striatus</i>	Portuguese broom	Moderate	B	B	B	2.7	Coastal scrub, grasslands. Often confused with <i>C. scoparius</i> . Limited distribution.	NW, CW, SW
<i>Dactylis glomerata</i>	orchardgrass	Limited	C	B	B	2.9	Grasslands, broadleaved forest, woodlands. Common forage species. Impacts appear to be minor.	CA-FP
<i>Delairea odorata</i> (= <i>Senecio mikanioides</i>)	Cape-ivy, German-ivy	High	A	A	B	3.1	Coastal, occasionally other riparian areas.	CW, SW
<i>Descurainia sophia</i>	flixweed, tansy mustard	Limited	C	B	B	1.9	Scrub, grassland, woodland. Impacts appear to be minor, but locally more invasive in NE CA.	CA
<i>Digitalis purpurea</i>	foxglove	Limited	C	B	B	2.4	Forest, woodland. Widely escaped ornamental. Impacts largely unknown or appear to be minor.	NW, SN, CW
<i>Dipsacus fullonum</i>	common teasel	Moderate	B	B	B	3.8	Grasslands, seep, riparian scrub. Impacts regionally variable, forms dense stands on occasion.	NW, CW, SN
<i>Dipsacus sativus</i>	fuller's teasel	Moderate	B	B	B	3.8	Grasslands, seep, bogs. Impacts regionally variable, forms dense stands on occasion.	NW, CW, SW
◆ <i>Dittrichia graveolens</i>	stinkwort	Moderate	B	A	C	3.0	Grasslands, riparian scrub. Spreading rapidly, impacts may become more important in future.	NW, SN, CW, GV, SW
<i>Echium candicans</i>	pride-of-Madeira	Limited	C	B	B	1.5	Two escaped populations near Big Sur and San Elijo Lagoon. Little information on impacts.	CW, NW, SW
<i>Egeria densa</i>	Brazilian egeria	High	A	A	B	3.1	Streams, ponds, sloughs, lakes, Sacramento-San Joaquin Delta	SN, GV, SW
<i>Ehrlharta calycina</i>	purple veldtgrass	High	A	A	B	3.4	Sandy soils, especially dunes. Rapidly spreading on central coast.	CW, SW
<i>Ehrlharta erecta</i>	erect veldtgrass	Moderate	B	B	B	2.2	Scrub, grasslands, woodland, forest. Spreading rapidly. Impacts may become more important in future.	CW, SW

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◆	<i>Ehnharta longiflora</i>	long-flowered veldtgrass	Moderate	B	B	C	2.8	Coastal scrub. Limited distribution, but spreading rapidly in southern CA. Impacts largely unknown.	SW
◆	<i>Eichhornia crassipes</i>	water hyacinth	High	A	A	C	3.2	Aquatic systems in Sacramento-San Joaquin Delta	GV, CW, SW
	<i>Elaeagnus angustifolia</i>	Russian-olive	Moderate	B	A	B	3.3	Interior riparian. Impacts more severe in other western states. Current distribution limited in CA.	GV, CW, DMoj
◆	<i>Emex spinosa</i>	spiny emex, devil's-thorn	Moderate	B	B	D	1.6	Edges of beaches, other coastal habitats. Invasive in other states and countries. Spreading rapidly in southern CA. Impacts not well known.	SW
	<i>Erechtites glomerata</i> , <i>E. minima</i>	Australian fireweed, Australian burnweed	Moderate	C	B	A	3.2	Coastal woodland, scrub, forests. Widespread on coast, but impacts low overall. May vary locally.	NW, CW
	<i>Erodium cicutarium</i>	redstem filaree	Limited	C	C	A	3.1	Many habitats. Widespread. Impacts minor in wildlands. High-density populations are transient.	CA
	<i>Eucalyptus camaldulensis</i>	red gum	Limited	C	C	C	2.2	Mainly southern CA urban areas. Impacts, invasiveness and distribution all minor.	NW, GV, CW, SW
	<i>Eucalyptus globulus</i>	Tasmanian blue gum	Moderate	B	B	B	2.8	Riparian areas, coastal grasslands, scrub. Impacts can be much higher in coastal areas.	NW, GV, CW, SW
◆	<i>Euphorbia esula</i>	leafy spurge	High	A	A	C	3.5	Forests, woodlands, juniper forest. More widespread invasive in northern states.	NW, CaR, MP
	<i>Euphorbia oblongata</i>	oblong spurge	Limited	C	C	B	2.0	Meadows, woodlands. Limited distribution. Impacts unknown. Locally in dense stands.	GV, CW
◆	<i>Euphorbia terracina</i>	carnation spurge	Moderate	B	B	C	1.7	Coastal scrub. Limited distribution. Spreading in southern CA. Impacts unknown.	SW
	<i>Festuca arundinacea</i>	tall fescue	Moderate	B	B	A	2.9	Coastal scrub, grasslands; common forage grass. Widespread, abiotic impacts unknown.	CA-FP
	<i>Ficus carica</i>	edible fig	Moderate	B	A	B	2.6	Riparian woodland. Can spread rapidly. Abiotic impacts unknown. Can be locally very problematic.	CW, SW, GV
	<i>Foeniculum vulgare</i>	fennel	High	A	B	A	3.0	Grasslands, scrub.	CA-FP

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	<i>Genista monspessulana</i>	French broom	High	A	A	B	3.2	Coastal scrub, oak woodland, grasslands. Horticultural selections may also be invasive.	NW, CW, SW
	<i>Geranium dissectum</i>	cutleaf geranium	Limited	C	B	A	1.7	Numerous habitats but impacts appear minor.	CA-FP
	<i>Glyceria declinata</i>	waxy manna grass	Moderate	B	B	B	1.9	Vernal pools, moist grasslands. Often confused with native <i>Glyceria</i> . Impacts largely unknown, but may be significant in vernal pools.	GV
	<i>Halogeton glomeratus</i>	halogeton	Moderate	B	A	B	3.0	Scrub, grasslands, pinyon-juniper woodland. Larger problem in NV. Monotypic stands are rare.	CaR, DMoj, GB
	<i>Hedera helix</i> , <i>H. canariensis</i>	English ivy, Algerian ivy	High	A	A	A	2.7	Coastal forests, riparian areas. Species combined due to genetics questions.	CA-FP
	<i>Helichrysum petiolare</i>	licorice plant	Limited	C	B	C	2.0	North coastal scrub. Limited distribution. Impacts unknown, but can form dense stands.	NW, CW
	<i>Hirschfeldia incana</i>	shortpod mustard, summer mustard	Moderate	B	B	A	1.9	Scrub, grasslands, riparian areas. Impacts not well understood, but appear to be greater in southern CA.	CW, GV, NW, SN, SW
	<i>Holcus lanatus</i>	common velvet-grass	Moderate	B	B	A	2.9	Coastal grasslands, wetlands. Impacts can be more severe locally, especially in wetland areas.	CA-FP, DMoj, GB
	<i>Hordeum marinum</i> , <i>H. murinum</i>	Mediterranean barley, hare barley, wall barley	Moderate	B	B	A	2.8	Grasslands. <i>H. marinum</i> invades drier habitats, while <i>H. murinum</i> invades wetlands. Widespread, but generally do not form dominant stands.	CA
◆	<i>Hydrilla verticillata</i>	hydrilla	High	A	B	C	3.2	Freshwater aquatic systems. The most important submerged aquatic invasive in southern states.	NW, SN, GV, SW, D
◆	<i>Hypericum canariense</i>	Canary Island hypericum	Moderate	B	B	C	1.2	Coastal scrub, prairie. Impacts unknown. Limited distribution. Spreading rapidly on central coast.	SW, CW
	<i>Hypericum perforatum</i>	common St. Johnswort, klamathweed	Moderate	B	B	B	3.7	Many northern CA habitats. Abiotic impacts low. Biological control agents have reduced overall impact.	SN, CW, GV, NW, SW
	<i>Hypochaeris glabra</i>	smooth catsear	Limited	C	B	B	3.1	Scrub and woodlands. Widespread. Impacts appear to be minor. Some local variability.	CA-FP
	<i>Hypochaeris radicata</i>	rough catsear, hairy dandelion	Moderate	C	B	A	2.2	Coastal dunes, scrub, and prairie, woodland, forest. Widespread. Impacts unknown or appear to be minor.	CA-FP

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◆	<i>Ilex aquifolium</i>	English holly	Moderate	B	B	C	2.7	North coast forests. Expanding range south from Oregon.	CW, NW
	<i>Iris pseudacorus</i>	yellowflag iris	Limited	C	B	C	2.3	Riparian, wetland areas, especially southern CA. Limited distribution. Abiotic impacts unknown.	SN, GV, CW, SW
	<i>Isatis tinctoria</i>	dye's woad	Moderate	B	B	A	3.0	Great Basin scrub and grasslands, coniferous forest. More severe impacts in other western states, but can be locally very invasive in northern CA.	CaR, NW, SN, MP
	<i>Kochia scoparia</i>	kochia	Limited	B	C	B	3.2	Scrub, chaparral, grasslands. Primarily a weed of disturbed sites.	CW, GV, D, GB
	<i>Lepidium latifolium</i>	perennial pepperweed, tall whitetop	High	A	A	A	3.1	Coastal and inland marshes, riparian areas, wetlands, grasslands. Has potential to invade montane wetlands.	CA-FP, GB
	<i>Leucanthemum vulgare</i>	oxeye daisy	Moderate	B	B	B	2.5	Montane meadows, coastal grasslands, coastal scrub. Expanding range, invasiveness varies locally.	CW, NW, SN, SW
	<i>Linaria genisifolia</i> ssp. <i>dalmatica</i> (= <i>L. dalmatica</i>)	Dalmatian toadflax	Moderate	B	B	B	2.8	Grasslands, forest clearings. Limited distribution. More severe impacts in other western states.	CA-FP
	<i>Lobularia maritima</i>	sweet alyssum	Limited	C	B	B	2.4	Coastal dune, coastal scrub, coastal prairie, riparian.	NW, CW, SW
	<i>Lolium multiflorum</i>	Italian ryegrass	Moderate	B	B	A	2.6	Grasslands, oak woodland, pinyon-juniper woodland; widely used for post-fire erosion control. Widespread. Impacts can vary with region.	CA-FP
	<i>Ludwigia peploides</i> ssp. <i>montevidensis</i>	creeping water-primrose	High	A	B	B	2.5	Freshwater aquatic systems. Clarification needed on taxonomic identification.	NW, SN, GV, CW, SW, DMoj
◆	<i>Ludwigia hexapetala</i> (= <i>L. uruguayensis</i>)	Uruguay water-primrose	High	A	B	C	2.6	Freshwater aquatic systems. Clarification needed on taxonomic identification.	NW, CW, SW
	<i>Lythrum hyssopifolium</i>	hyssop loosestrife	Limited	C	B	B	3.0	Grasslands, wetlands, vernal pools. Widespread. Impacts unknown, but appear to be minor.	CA-FP
	<i>Lythrum salicaria</i>	purple loosestrife	High	A	A	B	3.8	Wetlands, marshes, riparian areas	NW, GV, MP
	<i>Marrubium vulgare</i>	white horehound	Limited	C	C	B	2.8	Grasslands scrub, riparian areas. Widespread. Rarely in dense stands. Impacts relatively minor.	CA-FP, DMoj

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	<i>Medicago polymorpha</i>	California burclover	Limited	C	C	A	2.8	Grasslands. Widespread weed of agriculture and disturbed areas. Impacts in wildlands minor.	CA-FP
	<i>Mentha pulegium</i>	pennyroyal	Moderate	C	A	A	2.7	Vernal pools, wetlands. Poisonous to livestock. Spreading rapidly. Impacts largely unknown.	CW, GV, NW, SW
◆	<i>Mesembryanthemum crystallinum</i>	crystalline iceplant	Moderate	B	B	C	3.7	Coastal bluffs, dunes, scrubs, grasslands. Limited distribution. Locally problematic, especially in southern CA.	CW, NW, SW
	<i>Myoporum laetum</i>	myoporum	Moderate	B	B	B	2.6	Coastal habitats, riparian areas. Mostly along the southern coast. Abiotic impacts unknown.	CW, SW
	<i>Myosotis latifolia</i>	common forget-me-not	Limited	C	B	B	2.2	Coniferous forest, riparian. Little information on impacts.	CA-FP
◆	<i>Myriophyllum aquaticum</i>	parrotfeather	High	A	B	C	2.8	Freshwater aquatic systems	NW, CaR, CW, SW
	<i>Myriophyllum spicatum</i>	Eurasian watermilfoil	High	A	A	B	2.8	Freshwater aquatic systems	SN, GV, CW
	<i>Nicotiana glauca</i>	tree tobacco	Moderate	B	B	B	2.5	Coastal scrub, grasslands, riparian woodland. Abiotic impacts unknown. Impacts vary locally. Rarely in dense stands.	NW, SN, GV, SW, D
	<i>Olea europaea</i>	olive	Limited	C	B	B	2.5	A problem in Australia. Rarely escapes in CA but is a concern due to the possibility of spread from planted groves.	CW, GV, NW, SW
	<i>Ononis alopecuroides</i>	foxtail restharrow	Limited	C	B	C	2.2	Grasslands, oak woodland. Highly invasive but impacts unknown. Nearly eradicated.	CW
	<i>Onopordum acanthium</i>	Scotch thistle	High	A	B	B	2.9	Wet meadows, sage brush, riparian areas	CA-FP, MP
	<i>Oxalis pes-caprae</i>	buttercup oxalis, Bermuda buttercup, yellow oxalis	Moderate	B	B	B	2.9	Coastal dunes, scrub, oak woodland. Impacts in coastal areas may prove more severe in time.	CW, NW, SW
	<i>Parentucellia viscosa</i>	yellow glandweed, sticky parentucellia	Limited	C	B	B	2.5	Coastal prairie, grassland, and dunes. Impacts unknown, but can be locally significant.	NW, CaR, SN, CW, SW
	<i>Pennisetum clandestinum</i>	kikuyugrass	Limited	C	C	B	2.3	Present at low levels in numerous wildland habitats. Impacts unknown. Common turf weed.	NW, CW, SW

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	<i>Pennisetum setaceum</i>	crimson fountaingrass	Moderate	B	B	B	2.9	Coastal dunes and scrub, chaparral, grasslands. Some horticultural cultivars sterile. Very invasive in Hawaii.	CW, NW, SN, SW
	<i>Phalaris aquatica</i>	hardinggrass	Moderate	B	B	B	2.6	Coastal sites, especially moist soils. Limited distribution. Can be highly invasive locally.	CW, NW, SN, SW
	<i>Phoenix canariensis</i>	Canary Island date palm	Limited	C	B	D	2.3	Desert washes; agricultural crop plant. Limited distribution in southern CA. Impacts can be higher locally.	CW, SW
	<i>Picris echioides</i>	bristly oxtongue	Limited	C	B	B	2.4	Coastal prairie, scrub, riparian woodland. Widespread locally. Abiotic impacts unknown.	CA-FP
	<i>Piptatherum miliaceum</i>	smilgrass	Limited	C	B	B	2.4	Coastal dunes, scrub, riparian, grassland. Expanding range. Impacts largely unknown.	GV, CW, SW
	<i>Plantago lanceolata</i>	buckhorn plantain, English plantain	Limited	C	C	B	2.1	Many habitats. Turf weed primarily. Low density and impact in wildlands.	CA-FP
	<i>Poa pratensis</i>	Kentucky bluegrass	Limited	C	B	B	2.7	Grasslands scrub, riparian areas. Widespread turf plant. Abiotic impacts unknown.	CA
◆	<i>Polygonum cuspidatum</i> (= <i>Fallopia japonica</i>)	Japanese knotweed	Moderate	B	B	D	2.7	Riparian areas, wetlands, forest edges. More severe impacts in NW wetlands. Distribution limited in CA.	NW, CaR, SN, GV, CW
◆	<i>Polygonum sachalinense</i>	Sakhalin knotweed	Moderate	B	A	D	2.5	Riparian areas. More severe impacts in NW wetlands. Distribution limited in CA.	NW, CaR, SN, GV, CW
	<i>Polygonum monspeliensis</i> and subsp.	rabbitfoot polygon, rabbitgoot grass	Limited	C	C	B	2.3	Margins of ponds and streams, seasonally wet places, edge of coastal dunes. Widespread. Impacts appear to be minor.	CA
	<i>Potamogeton crispus</i>	curlyleaf pondweed	Moderate	B	B	B	3.2	Freshwater aquatic systems. Can be very invasive locally.	NW, GV, CW, SW, DMoj
	<i>Prunus cerasifera</i>	cherry plum, wild plum	Limited	C	B	B	1.8	Riparian habitats, chaparral, woodland. Limited distribution. Abiotic impacts unknown.	NW, CW
	<i>Pyracantha angustifolia</i> , <i>P. crenulata</i> , <i>P. coccinea</i>	pyracantha, firethorn	Limited	C	B	B	2.8	Coastal scrub and prairie, riparian areas. Horticultural escape. Impacts unknown or minor.	NW, CW, SW
	<i>Ranunculus repens</i>	creeping buttercup	Limited	C	C	B	2.9	Riparian areas, coniferous forest. Impacts appear to be minor to negligible in most areas.	NW, CaR, SN, CW, SW
	<i>Raphanus sativus</i>	radish	Limited	C	C	B	2.5	Present at low levels in numerous habitats. Widespread in disturbed sites.	CA-FP

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
◆	<i>Retama monosperma</i>	bridal broom	Moderate	B	B	C	1.8	Coastal scrub. Can spread rapidly but largely if uncontrolled. Limited distribution in CA.	SW
	<i>Ricinus communis</i>	castorbean	Limited	C	B	B	2.5	Coastal scrub and prairie, riparian areas. Widespread in southern CA. Impacts locally variable.	GV, CW, SW
	<i>Robinia pseudoacacia</i>	black locust	Limited	C	B	B	2.8	Riparian areas, canyons. Severe impacts in southern states. Impacts minor in CA.	CA-FP, GB
	<i>Rubus armeniacus</i> (= <i>R. discolor</i>)	Himalaya blackberry	High	A	A	A	3.0	Riparian areas, marshes, oak woodlands	CA-FP
	<i>Rumex acetosella</i>	red sorrel, sheep sorrel	Moderate	B	B	A	2.3	Many habitats, riparian areas, forest, wetlands. Widespread. Abiotic impacts unknown. Impacts can vary locally.	CA-FP
	<i>Rumex crispus</i>	curly dock	Limited	C	C	A	2.7	Grasslands, vernal pool, meadows, riparian. Widespread. Impacts appear to be minor.	CA
	<i>Salsola paulsenii</i>	barbwire Russian-thistle	Limited	C	C	C	2.9	Desert and Great Basin scrub. Limited distribution. Impacts in desert appear to be minor.	SW, SNE, DMoj
	<i>Salsola tragus</i> (= <i>S. kali</i>)	Russian-thistle	Limited	C	B	B	2.8	Desert dunes and scrub, alkali playa. Widespread. Impacts minor in wildlands.	CA
	<i>Salvia aethiopsis</i>	Mediterranean sage	Limited	C	B	B	2.5	Sagebrush, juniper, bunchgrass. Limited distribution. Impacts minor but can be locally higher.	MP
◆	<i>Salvinia molesta</i>	giant salvinia	High	A	A	C	2.9	Freshwater aquatic systems	CW, DSon
◆	<i>Sapium sebiferum</i> (= <i>Triadica sebifera</i>)	Chinese tallowtree	Moderate	B	B	C	3.2	Riparian areas. Impacts severe in southeast US. Limited distribution, but spreading rapidly regionally.	GV
	<i>Saponaria officinalis</i>	bouncingbet	Limited	C	B	C	2.5	Riparian scrub and woodland. Impacts unknown or minor, but appear to be locally variable.	NW, GV, CW, SW, GB
	<i>Schinus molle</i>	Peruvian peppertree	Limited	C	B	B	2.5	Riparian. Limited distribution. Impacts largely unknown in CA.	GV, SN, CW, SW
	<i>Schinus terebinthifolius</i>	Brazilian peppertree	Limited	C	B	C	2.6	Riparian. Very invasive in tropics. Abiotic impacts unknown, but appear significant locally.	SW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	<i>Selismus arabicus</i> , <i>S. barbatus</i>	mediterranean-grass	Limited	B	C	A	2.3	Scrub, thorn woodland. Widespread in deserts. Impacts can be more important locally.	GV, CW, SW, D
	<i>Senecio jacobaea</i>	tansy ragwort	Limited	C	B	B	2.8	Grasslands, riparian. Impacts generally minor. Can be locally important in NW CA.	CA-FP
◆	<i>Sesbania punicea</i>	red sesbania, scarlet wisteria	High	A	B	C	3.2	Riparian areas	GV
	<i>Silybum marianum</i>	blessed milkthistle	Limited	C	C	A	3.5	Grasslands, riparian. Widespread, primarily in disturbed areas. Impacts can be higher locally	NW, GV, CW, SW
	<i>Sinapis arvensis</i>	wild mustard, charlock	Limited	C	C	C	2.9	Grasslands. Primarily in disturbed sites. Impacts minor or unknown in wildlands.	CA-FP
	<i>Sisymbrium irio</i>	London rocket	Moderate	B	B	A	1.9	Scrub, grasslands. Widespread. Primarily in disturbed sites. Impacts vary locally.	GV, SW
◆	<i>Spartina alterniflora</i> (and <i>S. alterniflora</i> x <i>foliosa</i> hybrids)	smooth cordgrass & hybrids, Atlantic cordgrass	High	A	A	C	3.5	San Francisco Bay salt marshes and mudflats. Hybridizes with native <i>S. foliosa</i> .	CW
◆	<i>Spartina anglica</i>	common cordgrass	Moderate	B	B	D	3.4	San Francisco Bay salt marshes. Very severe impact in other countries. Limited distribution in CA.	CW
◆	<i>Spartina densiflora</i>	dense-flowered cordgrass	High	A	B	C	3.3	San Francisco and Humboldt Bay salt marshes	NW, CW
	<i>Spartina patens</i>	saltmeadow cordgrass	Limited	C	C	D	2.9	San Francisco Bay salt marshes. Very limited distribution. Impacts currently minor in CA, but high in other countries.	CW
	<i>Spartium junceum</i>	Spanish broom	High	A	B	B	3.2	Coastal scrub, grasslands, wetlands, oak woodland, forests	NW, CW, SW
◆	<i>Stipa capensis</i>	Mediterranean steppegrass, twisted-awned speargrass	Moderate	B	B	D	1.9	Desert scrub. First recorded in CA 1995. Limited distribution, but spreading rapidly in CA deserts.	Dson
	<i>Taenatherum caput-medusae</i>	medusahead	High	A	A	A	3.4	Grasslands, scrub, woodland	CaR, NW, SN, GV, SW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	<i>Tamarix aphylla</i>	athel tamarisk	Limited	C	B	B	3.5	Desert washes, riparian areas. Limited distribution. Impacts minor, but can be locally higher.	GV, SW, D
	<i>Tamarix parviflora</i>	smallflower tamarisk	High	A	A	B	3.1	Riparian areas, desert washes, coastal scrub	NW, GV, CW, Dmoj
	<i>Tamarix ramosissima</i>	saltcedar, tamarisk	High	A	A	A	3.3	Desert washes, riparian areas, seeps and springs	SN, GV, CW, SW, D, SNE
	<i>Tanacetum vulgare</i>	common tansy	Moderate	B	B	B	2.3	Riparian areas, forest. Limited distribution. Severe problem in other western states.	NW, CaR,
	<i>Torilis arvensis</i>	hedgearsley	Moderate	C	B	A	2.3	Expanding range. Appears to have only moderate ecological impacts.	CA-FP, especially CW, NW
	<i>Trifolium hirtum</i>	rose clover	Moderate	C	B	B	2.8	Grasslands, oak woodland. Widely planted in CA. Impacts relatively minor in most areas.	CA-FP
	<i>Ulex europaeus</i>	gorse	High	A	B	B	2.9	Scrub, woodland, forest, coastal grassland	NW, CaR, SN, CW
	<i>Undaria pinnatifida</i>	wakame	Limited	C	B	C	3.3	Algae of estuaries. First recorded in CA in 2000. Impacts unknown, but do not appear to be significant	CW, SW
	<i>Verbascum thapsus</i>	common mullein, woolly mullein	Limited	C	B	B	3.8	Meadows, riparian, sagebrush, pinyon-juniper woodlands. Widespread. Impacts minor.	NW, CaR, SN
	<i>Vinca major</i>	big periwinkle	Moderate	B	B	B	2.8	Riparian, oak woodlands, coastal scrub. Distribution currently limited but spreading in riparian areas. Impacts can be higher locally.	CaR, SW, SN, GV
	<i>Vulpia myuros</i>	rattail fescue	Moderate	B	B	A	3.0	Coastal sage scrub, chaparral. Widespread. Rarely forms monotypic stands, but locally problematic.	CA-FP, D
◆	<i>Washingtonia robusta</i>	Mexican fan palm	Moderate	B	B	C	2.7	Desert washes. Limited distribution but spreading in southern CA. Impacts can be higher locally.	SW
	<i>Watsonia meriana</i>	bulbil watsonia	Limited	C	B	C	2.3	Coastal prairie, coniferous forest. Abiotic impacts unknown, but may be locally dense.	NW
	<i>Zantedeschia aethiopica</i>	calla lily	Limited	C	B	C	2.1	Coastal prairie, wetlands. Impacts high in other countries and local impacts may be high in CA.	NW, CW, SW

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TABLE 2: Species Native to Part of California, but Invasive in Other Parts of the State

A few native species have become invasive in regions outside their natural range. This table lists those species that cause negative impacts in their introduced range. No overall rating is provided, since impacts are not statewide, but the section scores for each of the three plants assessed would result in Moderate ratings for the areas in which they are invasive.

Scientific Name	Common Name	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Native Range	Invasive Range
<i>Cupressus macrocarpa</i>	Monterey cypress	B	B	B	2.3	Native to Monterey area. Invades coastal prairie, desert scrub, riparian areas.	CW	NW
<i>Lupinus arboreus</i>	yellow bush lupine	B	B	B	3.5	Native south of Point Reyes. Invasive in north coast dunes.	SW, CW Bay Area	NW
<i>Phragmites australis</i>	common reed	Unable to score.				Genetic issues make it unclear which strains are native to CA.	Uncertain	
<i>Pinus radiata</i> cultivars	Monterey pine	B	B	B	2.6	Five populations native to CA. Invades coastal scrub, prairie, and chaparral.	CW	NW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America’s “Composite List of Weeds” (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 3: Species Evaluated But Not Listed

In general, this designation is for species for which information is currently inadequate to respond with certainty to the minimum number of criteria questions (i.e., too many “U” responses), or for which the sum effects of Ecological Impacts, Invasive Potential, and Ecological Amplitude and Distribution fall below the threshold for ranking (i.e. the overall score falls below Limited). Many such species are widespread but are not known to have substantial ecological impacts (though such evidence may appear in the future). All species receiving a D score for Ecological Impacts, regardless of other section scores, are by default placed into this category.

Scientific Name	Common Name	Impacts	Invasiveness	Distribution	Doc. Level	Comments
<i>Acacia paradoxa</i>	kangaroothorn	D	C	C	2.5	Does not spread in wildlands.
<i>Aeschynomene rudis</i>	rough jointvetch	D	C	D	3.2	Serious agricultural weed, but not known to have impacts in wildlands.
<i>Aira caryophylla</i>	silver hairgrass	D	C	A	2.6	Widespread in grasslands, but impacts appear negligible.
<i>Aira praecox</i>	European hairgrass	D	C	C	2.8	Appears to be spreading locally, but impacts unknown.
<i>Albizia lophantha</i>	plume acacia	U	B	C	1.5	Present in Golden Gate National Recreation Area. Need more information
<i>Allium triquetrum</i>	three-cornered leak	U	C	C	1.6	Impacts unknown.
<i>Anthemis cotula</i>	mayweed chamomile, dog fennel	D	B	B	2.4	Abiotic and wildlife impacts unknown
<i>Bellis perennis</i>	English daisy	D	C	C	2.8	Present along trails, not known to spread into undisturbed areas.
<i>Berberis darwinii</i>	Darwin barberry	U	B	D	2.1	Impacts unknown.
<i>Buddleja davidii</i>	butterflybush	D	B	D	2.5	Not known to be invasive in CA, although it is a problem in Oregon.
<i>Cestrum parqui</i>	willow jessamine	U	B	C	2.0	Impacts unknown.
<i>Chorispora tenella</i>	blue mustard	U	C	C	1.5	Impacts unknown.
<i>Cistus ladanifer</i>	gum rockrose	D	C	C	3.3	Negligible known impacts in wildlands.
<i>Convolvulus arvensis</i>	field bindweed	D	B	B	3.5	Only known as agricultural weed.
<i>Daucus carota</i>	wild carrot, Queen Anne’s lace	D	C	B	2.7	Very widespread, but primarily in disturbed sites, particularly roadsides.
<i>Dimorphotheca sinuata</i>	African daisy	D	C	B	1.8	Impacts to abiotic processes and plant communities unknown.
<i>Erigeron karvinskianus</i>	Mexican daisy	U	B	C	1.9	Impacts unknown, but appears to be expanding. May become more problematic in future.
<i>Erodium botrys</i>	broadleaf filaree	D	C	A	2.8	Present in wildlands but known impacts are negligible. Often transient.
<i>Erodium brachycarpum</i>	short-fruited filaree	D	C	A	2.6	Present in wildlands but known impacts are negligible. Often transient.
<i>Erodium moschatum</i>	whitestem filaree	D	C	A	2.7	Primarily an agricultural weed, little impact in wildlands.
<i>Euphorbia lathyris</i>	caper spurge	D	C	B	2.2	Abiotic impacts unknown.
<i>Fumaria officinalis</i>	fumitory	D	C	D	2.3	Abiotic impacts unknown.
<i>Geranium molle</i>	dovefoot geranium	D	B	A	1.7	Present in wildlands, but known impacts are negligible.

TABLE 3: Species Evaluated But Not Listed (continued)

Scientific Name	Common Name	Impacts	Invasiveness	Distribution	Doc. Level	Comments
<i>Geranium retrorsum</i>	New Zealand geranium	D	B	B	1.9	Present in wildlands, but known impacts are negligible.
<i>Geranium robertianum</i>	herb-robert, Robert geranium	D	B	C	2.8	Present in wildlands, but known impacts are negligible.
<i>Gleditsia triacanthos</i>	honey locust	D	B	C	3.3	Very limited distribution.
<i>Lactuca serriola</i>	prickly lettuce	D	C	B	3.1	Primarily an agricultural and roadside weed.
<i>Leptospermum laevigatum</i>	Australian tea tree	D	C	D	2.2	Very limited distribution.
<i>Ligustrum lucidum</i>	glossy privet	D	B	C	3.1	May prove problematic in riparian areas.
<i>Lotus corniculatus</i>	birdsfoot trefoil	D	B	B	2.8	Primarily a turf or agricultural weed in CA.
<i>Malephora crocea</i>	coppery mesembryanthemum	D	C	C	2.0	A problem on southern CA islands, but statewide impacts are limited.
<i>Maytenus boaria</i>	mayten	D	C	D	2.4	Infestation on Angel Island, San Francisco Bay.
<i>Melilotus officinalis</i>	yellow sweetclover	D	C	C	3.3	Present in human-disturbed habitats only.
<i>Nerium oleander</i>	oleander	D	B	D	2.6	Not known to be invasive, although reported from riparian areas in Central Valley and San Bernardino Mtns.
<i>Nothoscordum gracile</i>	false garlic	D	B	D	2.1	Mainly an urban garden weed.
<i>Nymphaea odorata</i>	fragrant waterlily	D	B	C	2.3	Present only at one site.
<i>Oxalis corniculata</i>	creeping woodsorrel	D	C	C	2.2	Primarily a turf weed in CA.
<i>Parkinsonia aculeata</i>	Mexican palo-verde	D	B	D	2.2	Has not escaped into wildlands enough to cause impacts.
<i>Pistachia chinensis</i>	Chinese pistache	U	C	D	0.9	Impacts unknown.
<i>Pittosporum undulatum</i>	Victorian box	D	C	D	2.7	Infestations in CA are small. More problematic on north coast.
<i>Plantago coronopus</i>	cutleaf plantain	U	C	B	1.7	Impacts unknown. Common on north coast.
<i>Solanum elaeagnifolium</i>	silverleaf nightshade	D	B	B	2.8	Primarily an agricultural weed, but escaping to wildlands in other countries. May prove to be more important in future.
<i>Sonchus asper</i>	spiny sowthistle	D	B	B	3.1	Primarily an agricultural weed.
<i>Taraxacum officinale</i>	common dandelion	D	B	B	2.8	Primarily a turf weed in CA.
<i>Tragopogon dubius</i>	yellow salsify	D	C	B	3.2	Generally a minor component of disturbed areas.
<i>Tropaeolum majus</i>	garden nasturtium	D	C	C	1.4	Impacts on abiotic processes and native plants unknown.
<i>Ulmus pumila</i>	Siberian elm	D	B	B	2.5	Impacts unknown.
<i>Verbena bonariensis</i> , <i>V. litoralis</i>	tall vervain, seashore vervain	D	B	C	2.1	Often in disturbed areas of irrigation canals.
<i>Vicia villosa</i>	hairy vetch	D	C	B	2.8	Primarily an agricultural weed. Widespread but impacts minor in wildlands.
<i>Vulpia bromoides</i>	squirreltail fescue	D	C	B	2.9	Less common than <i>V. myuros</i> .

TABLE 4: Species Nominated but Not Reviewed

The following species were nominated for review, but not evaluated because either they are not known to escape into wildlands or we lacked sufficient information to complete an assessment.

Scientific Name	Common Name	Comments
<i>Aptenia cordifolia</i>	baby sun rose, heartleaf iceplant	Occasional ornamental escape.
<i>Araujia sericifera</i>	bladderflower	Need more information.
<i>Brassica oleracea</i>	cabbage	Disturbed areas along north and central coast.
<i>Catalpa bignonioides</i>	southern catalpa	Reported from Sacramento/San Joaquin Valley riparian corridors. Need more information.
<i>Chrysanthemum segetum</i>	corn daisy	Disturbed areas only.
<i>Coprosma repens</i>	creeping mirrorplant	1999 Cal-EPPC list indicated no evidence of wildland threat.
<i>Crepis capillaris</i>	smooth hawkbeard	Primarily in pastures and roadsides in coastal areas of northwest CA.
<i>Erica lusitanica</i>	Spanish heath	Reported from Humboldt and Del Norte Cos. Need more information.
<i>Eriogonum fasciculatum</i>	California buckwheat	Invades along roadsides and other areas of human disturbance. Not known to threaten wildlands.
<i>Gazania linearis</i>	gazania	Reported to invade in San Francisco Bay Area. Need more information.
<i>Grindelia squarrosa</i>	curlycup gumweed, gumplant	Mainly along roadsides. More a problem in Nevada.
<i>Kniphofia varia</i>	redhot poker	Primarily along roadsides.
<i>Lathyrus latifolius</i>	perennial sweetpea	Reported from the north coast. Need more information.
<i>Lathyrus tingitanus</i>	Tangier pea	Along roadsides. Need more information.
<i>Limonium ramosissimum</i> ssp. <i>provinciale</i>	sea-lavender	Present in salt marshes. Need more information.
<i>Melilotus indicus</i>	Indian sweetclover	Reported from disturbed sites. Need more information.
<i>Mesembryanthemum nodiflorum</i>	slenderleaf iceplant	Common in San Diego area along coast. Need more information on impacts.
<i>Osteospermum fruticosum</i>	shrubby daisybush	Occasional ornamental escape in southern CA. Does not appear to be invasive.
<i>Passiflora caerulea</i>	blue passionflower	Not known to invade wildlands.
<i>Phalaris arundinacea</i>	reed canarygrass	<i>Jepson Manual</i> lists it as native in CA. Acts like a native in most areas of the state. A problem in NW states.
<i>Phoenix dactylifera</i>	date palm	Reported from southern CA deserts. Need more information.
<i>Phytolacca americana</i>	pokeweed	Reported invading riparian areas in northern Sacramento Valley. Need more information.
<i>Salsola soda</i>	glasswort	Reported from San Francisco Bay shorelines and creek mouths. Need more information.
<i>Ulmus parvifolia</i>	Chinese elm	Present in disturbed areas or old homesites only.
<i>Watsonia borbonica</i>	watsonia	May be confused with <i>W. meriana</i> , which is invasive in Mendocino Co.
<i>Zoysia</i> spp.	zoysiagrass	Does not appear to have escaped from turf.

APPENDIX 1. Species Listed by Category

◆ = Alert

High

- Aegilops triuncialis* (barb goatgrass)
- ◆ *Alternanthera philoxeroides* (alligatorweed)
- Ammophila arenaria* (European beachgrass)
- Arundo donax* (giant reed)
- Brassica tournefortii* (Saharan mustard, African mustard)
- Bromus madritensis* ssp. *rubens* (= *B. rubens*) (red brome)
- Bromus tectorum* (downy brome, cheatgrass)
- Carpobrotus edulis* (Hottentot-fig, iceplant)
- Centaurea maculosa* (= *C. biebersteinii*) (spotted knapweed)
- Centaurea solstitialis* (yellow starthistle)
- Cortaderia jubata* (jubatagrass)
- Cortaderia selloana* (pampasgrass)
- Cytisus scoparius* (Scotch broom)
- Delairea odorata* (= *Senecio mikanioides*) (Cape-ivy, German-ivy)
- Egeria densa* (Brazilian egeria)
- Ehrharta calycina* (purple veldtgrass)
- ◆ *Eichhornia crassipes* (water hyacinth)
- ◆ *Euphorbia esula* (leafy spurge)
- Foeniculum vulgare* (fennel)
- Genista monspessulana* (French broom)
- Hedera helix*, *H. canariensis* (English ivy, Algerian ivy)
- ◆ *Hydrilla verticillata* (hydrilla)
- Lepidium latifolium* (perennial pepperweed, tall whitetop)
- ◆ *Ludwigia hexapetala* (= *L. uruguayensis*) (Uruguay water-primrose)
- Ludwigia peploides* ssp. *montevidensis* (creeping water-primrose)
- Lythrum salicaria* (purple loosestrife)
- ◆ *Myriophyllum aquaticum* (parrotfeather)
- Myriophyllum spicatum* (Eurasian watermilfoil)
- Onopordum acanthium* (Scotch thistle)

- Rubus armeniacus* (= *R. discolor*) (Himalaya blackberry, Armenian blackberry)
- ◆ *Salvinia molesta* (giant salvinia)
- ◆ *Sesbania punicea* (red sesbania, scarlet wisteria)
- ◆ *Spartina alterniflora* hybrids (smooth cordgrass, Atlantic cordgrass)
- ◆ *Spartina densiflora* (dense-flowered cordgrass)
- Spartium junceum* (Spanish broom)
- Taeniatherum caput-medusae* (medusahead)
- Tamarix parviflora* (smallflower tamarisk)
- Tamarix ramosissima* (saltcedar, tamarisk)
- Ulex europaeus* (gorse)

Moderate

- Ageratina adenophora* (croftonweed, eupatorium)
- Ailanthus altissima* (tree-of-heaven)
- Alhagi maurorum* (= *A. pseudalhagi*) (camelthorn)
- Anthoxanthum odoratum* (sweet vernalgrass)
- ◆ *Arctotheca calendula* (fertile) (fertile capeweed)
- Arctotheca calendula* (sterile) (sterile capeweed)
- ◆ *Asparagus asparagoides* (bridal creeper, smilax asparagus)
- ◆ *Asphodelus fistulosus* (onionweed)
- Atriplex semibaccata* (Australian saltbush)
- Avena barbata* (slender wild oat)
- Avena fatua* (wild oat)
- ◆ *Brachypodium sylvaticum* (perennial false-brome)
- Brassica nigra* (black mustard)
- Bromus diandrus* (ripgut brome)
- ◆ *Cardaria chalapensis* (= *C. draba* ssp. *chalapensis*) (lens-podded whitetop)
- Cardaria draba* (hoary cress)
- Carduus nutans* (musk thistle)
- Carduus pycnocephalus* (Italian thistle)
- Carpobrotus chilensis* (sea-fig, iceplant)
- ◆ *Carthamus lanatus* (woolly distaff thistle)

APPENDIX 1: Species Listed by Category (continued)

Moderate (continued)

- Centaurea calcitrapa* (purple starthistle)
- ◆ *Centaurea debeauxii* (= *C. x pratensis*) (meadow knapweed)
 - Centaurea melitensis* (Malta starthistle, tocalote)
 - Centaurea virgata* ssp. *squarrosa* (= *C. squarrosa*) (squarrose knapweed)
 - Chondrilla juncea* (rush skeletonweed)
 - Chrysanthemum coronarium* (crown daisy)
 - Cirsium arvense* (Canada thistle)
 - Cirsium vulgare* (bull thistle)
 - Conium maculatum* (poison-hemlock)
 - Cotoneaster franchetii* (orange cotoneaster)
 - Cotoneaster lacteus* (Parney's cotoneaster)
 - Cotoneaster pannosus* (silverleaf cotoneaster)
 - Cynara cardunculus* (artichoke thistle)
 - Cynodon dactylon* (bermudagrass)
 - Cynoglossum officinale* (houndstongue)
 - Cynosurus echinatus* (hedgehog dogtailgrass)
 - Cytisus striatus* (Portuguese broom, striated broom)
 - Dipsacus fullonum* (wild teasel)
 - Dipsacus sativus* (fuller's teasel)
 - ◆ *Dittrichia graveolens* (stinkwort)
 - Ehrharta erecta* (erect veldtgrass)
 - ◆ *Ehrharta longiflora* (long-flowered veldtgrass)
 - Elaeagnus angustifolia* (Russian-olive)
 - ◆ *Emex spinosa* (spiny emex, devil's thorn)
 - Erechtites glomerata*, *E. minima* (Australian fireweed, Australian burnweed)
 - Eucalyptus globulus* (Tasmanian blue gum)
 - ◆ *Euphorbia terracina* (carnation spurge)
 - Festuca arundinacea* (tall fescue)
 - Ficus carica* (edible fig)
 - Geranium dissectum* (cutleaf geranium)
 - Glyceria declinata* (waxy mannagrass)
 - Halogeton glomeratus* (halogeton)
 - Hirschfeldia incana* (shortpod mustard, summer mustard)
 - Holcus lanatus* (common velvetgrass)
 - Hordeum marinum*, *H. murinum* (Mediterranean barley, hare barley, wall barley)
 - ◆ *Hypericum canariense* (Canary Island hypericum)
 - Hypericum perforatum* (common St. Johnswort, klamathweed)
 - Hypochaeris radicata* (rough catsear, hairy dandelion)
 - ◆ *Ilex aquifolium* (English holly)
 - Isatis tinctoria* (dyer's woad)
 - Kochia scoparia* (kochia)
 - Leucanthemum vulgare* (oxeye daisy)
 - Linaria genistifolia* ssp. *dalmatica* (= *L. dalmatica*) (Dalmation toadflax)
 - Lolium multiflorum* (Italian ryegrass)
 - Lythrum hyssopifolium* (hyssop loosestrife)
 - Mentha pulegium* (pennyroyal)
 - ◆ *Mesembryanthemum crystallinum* (crystalline iceplant)
 - Myoporum laetum* (myoporum)
 - Nicotiana glauca* (tree tobacco)
 - Oxalis pes-caprae* (buttercup oxalis, yellow oxalis, Bermuda buttercup)
 - Pennisetum setaceum* (crimson fountaingrass)
 - Phalaris aquatica* (hardinggrass)
 - ◆ *Polygonum cuspidatum* (= *Fallopia japonica*) (Japanese knotweed)
 - ◆ *Polygonum sachalinense* (Sakhalin knotweed, giant knotweed)
 - Potamogeton crispus* (curlyleaf pondweed)
 - ◆ *Retama monosperma* (bridal broom)
 - Rumex acetosella* (red sorrel, sheep sorrel)
 - ◆ *Sapium sebiferum* (Chinese tallowtree)
 - Sisymbrium irio* (London rocket)
 - ◆ *Spartina anglica* (common cordgrass)
 - ◆ *Stipa capensis* (Mediterranean steppegrass, twisted-awned spargrass)
 - Tanacetum vulgare* (common tansy)
 - Torilis arvensis* (hedgearsley)
 - Trifolium hirtum* (rose clover)
 - Vinca major* (big periwinkle)
 - Vulpia myuros* (rattail fescue)
 - ◆ *Washingtonia robusta* (Mexican fan palm, Washington palm)

APPENDIX 1: Species Listed by Category (continued)

Limited

- Acacia melanoxylon* (black acacia, blackwood acacia)
Agrostis avenacea (Pacific bentgrass)
Agrostis stolonifera (creeping bentgrass)
Bassia hyssopifolia (fivehook bassia)
Bellardia trixago (bellardia)
Brassica rapa (birdsrape mustard, field mustard)
Briza maxima (big quackinggrass, rattlesnakegrass)
Bromus hordeaceus (soft brome)
Cakile maritima (European sea-rocket)
Cardaria pubescens (hairy whitetop)
Carduus acanthoides (plumeless thistle)
Carduus tenuifolius (slenderflower thistle)
Conicosia pugioniformis (narrowleaf iceplant)
Cordyline australis (giant dracaena, New Zealand-cabbage tree)
Cotula coronopifolia (brassbuttons)
Crataegus monogyna (English hawthorn)
Crocsmia x crocosmiiflora (montbretia)
Crupina vulgaris (common crupina, bearded creeper)
Dactylis glomerata (orchardgrass)
Descurainia sophia (flixweed, tansy mustard)
Digitalis purpurea (foxglove)
Echium candicans (pride-of-Madeira)
Erodium cicutarium (redstem filaree)
Eucalyptus camaldulensis (red gum)
Euphorbia oblongata (oblong spurge)
Helichrysum petiolare (licoriceplant)
Hypochaeris glabra (smooth catsear)
Iris pseudacorus (yellowflag iris)
Lobularia maritima (sweet alyssum)
Marrubium vulgare (white horehound)
Medicago polymorpha (California burclover)
Myosotis latifolia (common forget-me-not)
Olea europaea (olive)
Ononis alopecuroides (foxtail restharrow)
Parentucellia viscosa (yellow glandweed, sticky parentucellia)
Pennisetum clandestinum (kikuyugrass)
Phoenix canariensis (Canary Island date palm)
Picris echioides (bristly oxtongue)
Piptatherum miliaceum (smilograss)
Plantago lanceolata (buckhorn plantain, English plantain)
Poa pratensis (Kentucky bluegrass)
Polypogon monspeliensis and subspp. (rabbitfoot polypogon, annual beardgrass, rabbitfoot grass)
Prunus cerasifera (cherry plum, wild plum)
Pyracantha angustifolia, *P. crenulata*, *P. coccinea*, etc. (pyracantha, firethorn)
Ranunculus repens (creeping buttercup)
Raphanus sativus (radish)
Ricinus communis (castorbean)
Robinia pseudoacacia (black locust)
Rumex crispus (curly dock)
Salsola paulsenii (barbwire Russian-thistle)
Salsola tragus (Russian-thistle)
Salvia aethiopis (Mediterranean sage)
Saponaria officinalis (bouncingbet)
Schinus molle (Peruvian peppertree)
Schinus terebinthifolius (Brazilian peppertree)
Schismus arabicus, *S. barbatus* (mediterraneangrass)
Senecio jacobaea (tansy ragwort)
Silybum marianum (blessed milkthistle)
Sinapis arvensis (wild mustard, charlock)
Spartina patens (saltmeadow cordgrass)
Tamarix aphylla (athel tamarisk)
Undaria pinnatifida (wakame)
Verbascum thapsus (common mullein, woolly mullein)
Watsonia meriana (bulbil watsonia)
Zantedeschia aethiopica (calla lily)

APPENDIX 2. Cal-IPC Species Listed by Other Ratings Systems

This table is provided so that those familiar with other commonly-used ratings systems may compare those lists to the 2006 Cal-IPC ratings. See the cited websites for explanations of rating systems. Species not included in this appendix do not appear on any of these lists.

CAL-EPPC 1999 – Cal-EPPC. 1999. The Cal-EPPC List: Exotic Pest Plants of Greatest Ecological Concern in California. California Exotic Pest Plant Council: San Juan Capistrano, CA. Available: www.cal-ipc.org.

CDFA – CDFA. 2005. EncycloWeedia: Notes on Identification, Biology, and Management of Plants Defined as Noxious Weeds by California Law. California Department of Food and Agriculture: Sacramento, CA. Available: www.cdffa.ca.gov/weedhome.

USDA – Plant Protection and Quarantine. 2002. Federal Noxious Weed List. USDA Animal and Plant Health Inspection Service. US Department of Agriculture: Washington, D.C. Available: plants.usda.gov.

AZ – Arizona Invasive Plant Working Group. 2005. Invasive Non-native Plants that Threaten Wildlands in Arizona. Southwest Vegetation Management Association. Available: www.swvma.org.

NATURESERVE – NatureServe. 2005. Invasive Species Impact Ranks for the United States: Summary of Results as of January 10, 2005. NatureServe: Arlington, VA. Available: www.natureserve.org.

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
<i>Acacia melanoxylon</i>	Need More Info				Medium/Insignificant
<i>Acacia paradoxa</i>		B			
<i>Acroptilon repens</i>		B		High	High/Medium
<i>Aegilops triuncialis</i>	Annual Grasses	B			
<i>Aeschynomene rudis</i>	Need More Info	A			
<i>Ageratina adenophora</i>	B		✓		
<i>Agrostis avenacea</i>	Need More Info				
<i>Ailanthus altissima</i>	A-2	*			Medium/Low
<i>Aira caryophylla</i>					Medium/Insignificant
<i>Albizia lophantha</i>	Considered, not listed				
<i>Alhagi maurorum</i> (=A. <i>pseudalhagi</i>)	Red Alert	A		Medium	Medium/Low
<i>Alternanthera philoxeroides</i>		A			Medium
<i>Ammophila arenaria</i>	A-1				High/Medium
<i>Anthemis cotula</i>					Medium/Insignificant
<i>Anthoxanthum odoratum</i>	Considered, not listed				
<i>Aptenia cordifolia</i>	Need More Info				
<i>Araujia sericifera</i>		B			
<i>Arctotheca calendula</i> (fertile strains)	Red Alert	A			

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
<i>Arundo donax</i>	A-1	*		High	High
<i>Asparagus asparagoides</i>					Low/Insignificant
<i>Asphodelus fistulosus</i>	Need More Info		✓	Low	
<i>Atriplex semibaccata</i>	A-2				High/Low
<i>Avena barbata</i>	Annual Grasses				
<i>Avena fatua</i>	Annual Grasses			Medium	High/Low
<i>Bassia hyssopifolia</i>	B				Low/Insignificant
<i>Bellardia trixago</i>	B				Medium/Insignificant
<i>Brachypodium sylvaticum</i>					High/Low
<i>Brassica nigra</i>	B				
<i>Brassica tournefortii</i>	A-2			Medium	High/Low
<i>Bromus diandrus</i>	Annual Grasses			Medium-Alert	
<i>Bromus madritensis</i> ssp. <i>rubens</i> (= <i>B. rubens</i>)	A-2			High	
<i>Bromus tectorum</i>	A-1			High	High
<i>Buddleja davidii</i>					High/Low
<i>Cardaria chalepensis</i> (= <i>C. draba</i> ssp. <i>chalepensis</i>)	B	B		Medium-Alert	
<i>Cardaria draba</i>	A-2	B		Medium-Alert	
<i>Cardaria pubescens</i>		B		Medium-Alert	
<i>Carduus acanthoides</i>	Need More Info	A			Medium/Low
<i>Carduus nutans</i>		A		Medium	High/Low
<i>Carduus pycnocephalus</i>	B	C			Medium
<i>Carduus tenuifolius</i>		C			Unknown
<i>Carpobrotus chilensis</i>	Considered, not listed				Medium
<i>Carpobrotus edulis</i>	A-1				High
<i>Carthamus lanatus</i>		B			
<i>Centaurea debeauxii</i> (= <i>C. x pratensis</i>)		A			
<i>Centaurea diffusa</i>		A		Medium	
<i>Centaurea maculosa</i> (= <i>C. biebersteinii</i>)	Red Alert	A		Medium	
<i>Centaurea melitensis</i>	B	C		Medium	Medium/Low
<i>Centaurea solstitialis</i>	A-1	C		High	High/Medium
<i>Centaurea virgata</i> ssp. <i>squarrosa</i> (= <i>C. squarrosa</i>)		A			
<i>Chondrilla juncea</i>		A		Medium-Alert	Medium/Insignificant
<i>Chorispora tenella</i>		B			Insignificant
<i>Cirsium arvense</i>	B	B		Medium	
<i>Cirsium vulgare</i>	B	*		Low	
<i>Cistus ladanifer</i>	Need More Info				
<i>Conicosia pugioniformis</i>	A-2				

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
<i>Conium maculatum</i>	B			Medium-Alert	Medium/Low
<i>Convolvulus arvensis</i>	Considered, not listed	C		Medium	Medium/Low
<i>Coprosma repens</i>	Considered, not listed				
<i>Cordyline australis</i>	Need More Info				
<i>Cortaderia jubata</i>	A-1	*			Medium
<i>Cortaderia selloana</i>	A-1			Medium	Medium/Low
<i>Cotoneaster franchetii</i>	Need More Info				
<i>Cotoneaster lacteus</i>	A-2				
<i>Cotoneaster pannosus</i>	A-2				Medium
<i>Crataegus monogyna</i>	B				
<i>Crocasmia x crocosmiiflora</i>	Considered, not listed				
<i>Crupina vulgaris</i>	Red Alert	A	✓		Medium/Low
<i>Cupressus macrocarpa</i>	Need More Info				
<i>Cynara cardunculus</i>	A-1	B			Medium
<i>Cynodon dactylon</i>		C		Medium	Medium/Low
<i>Cynoglossum officinale</i>				Low	Medium/Low
<i>Cytisus scoparius</i>	A-1	C			High/Medium
<i>Cytisus striatus</i>	A-2				
<i>Dactylis glomerata</i>					Medium/Insig
<i>Daucus carota</i>					Low
<i>Delairea odorata</i>	A-1	*			Medium
<i>Descurainia sophia</i>	Need More Info				Medium/Low
<i>Digitalis purpurea</i>	Considered, not listed				Medium/Insignificant
<i>Dimorphotheca sinuata</i>	Need More Info				
<i>Dipsacus fullonum</i>	Considered, not listed				High/Low
<i>Dipsacus sativus</i>	Considered, not listed				
<i>Echium candicans</i>	Need More Info				
<i>Egeria densa</i>	A-2	C			High/Medium
<i>Ehrharta calycina</i>	A-2				Medium/Low
<i>Ehrharta erecta</i>	B				Medium/Insignificant
<i>Ehrharta longiflora</i>	Need More Info				
<i>Eichhornia crassipes</i>	A-2			High-Alert	High
<i>Elaeagnus angustifolia</i>	A-2			High	High
<i>Emex spinosa</i>			✓		Insignificant
<i>Erechtites glomerata, E. minima</i>	B				Medium/Insignificant
<i>Erica lusitanica</i>	Need More Info				
<i>Erodium brachycarpum</i>					Insignificant

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
<i>Erodium cicutarium</i>				Medium	Medium/Low
<i>Eucalyptus globulus</i>	A-1				Medium
<i>Euphorbia esula</i>	A-2	A		High-Alert	High/Medium
<i>Euphorbia lathyris</i>	Need More Info				
<i>Euphorbia oblongata</i>		B			
<i>Festuca arundinacea</i>	B				
<i>Ficus carica</i>	A-2				Medium
<i>Foeniculum vulgare</i>	A-1				Medium/Low
<i>Fumaria officinalis</i>	Considered, not listed				
<i>Gazania linearis</i>	Need More Info				
<i>Genista monspessulana</i>	A-1	C			Medium
<i>Glyceria declinata</i>	Need More Info				
<i>Halogeton glomeratus</i>	Red Alert	A			High/Medium
<i>Hedera helix</i>	B				High/Medium
<i>Hedera canariensis</i>	Need More Info				
<i>Helichrysum petiolare</i>	Red Alert				
<i>Hirschfeldia incana</i>	Need More Info				High/Low
<i>Holcus lanatus</i>	B				
<i>Hordeum marinum, H. murinum</i>				Medium	High/Low
<i>Hydrilla verticillata</i>	Red Alert	A	✓	Not listed	High/Medium
<i>Hypericum canariense</i>	Need More Info				Low
<i>Hypericum perforatum</i>	B	C			High/Medium
<i>Hypochaeris radicata</i>	Need More Info				High/Low
<i>Ilex aquifolium</i>	B				High/Low
<i>Iris pseudacorus</i>	B				
<i>Isatis tinctoria</i>	Need More Info	B			High/Low
<i>Lactuca serriola</i>					Low/Insignificant
<i>Lepidium latifolium</i>	A-1	B		High-Alert	High
<i>Leucanthemum vulgare</i>	B			Low	Medium/Low
<i>Ligustrum lucidum</i>	Need More Info				
<i>Limonium ramosissimum</i> ssp. <i>provinciale</i>	Need More Info				
<i>Linaria genistifolia</i> ssp. <i>dalmatica</i> (= <i>L. dalmatica</i>)		A		Medium-Alert	
<i>Lolium multiflorum</i>	Annual Grasses				
<i>Lotus corniculatus</i>					Medium/Low
<i>Ludwigia hexapetala</i> (= <i>L. uruguayensis</i>)	Need More Info				
<i>Lupinus arboreus</i>	A-2				
<i>Lythrum salicaria</i>	Red Alert	B			

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
<i>Malephora crocea</i>	Need More Info				
<i>Marrubium vulgare</i>					Medium/Low
<i>Maytenus boaria</i>	Need More Info				
<i>Medicago polymorpha</i>	Considered, not listed				
<i>Melilotus officinalis</i>	Considered, not listed			Medium	Medium/Low
<i>Mentha pulegium</i>	A-2				
<i>Mesembryanthemum crystallinum</i>	B			Low	
<i>Mesembryanthemum nodiflorum</i>	Need More Info			Medium-Alert	
<i>Myoporum laetum</i>	A-2				
<i>Myriophyllum aquaticum</i>	B			High-Alert	High/Medium
<i>Myriophyllum spicatum</i>	A-1			High-Alert	High
<i>Nerium oleander</i>	Considered, not listed				Low/Insignificant
<i>Nicotiana glauca</i>	Need More Info				High/Low
<i>Olea europaea</i>	B				
<i>Ononis alopecuroides</i>	Red Alert	Q			
<i>Onopordum acanthium</i>		A		Low	
<i>Oxalis pes-caprae</i>	Need More Info				
<i>Parentucellia viscosa</i>	Need More Info				
<i>Passiflora caerulea</i>	Need More Info				
<i>Pennisetum clandestinum</i>	Need More Info	C	✓		
<i>Pennisetum setaceum</i>	A-1			High	High/Medium
<i>Phalaris aquatica</i>	B				
<i>Picris echioides</i>	Considered, not listed				
<i>Pinus radiata</i> cultivars	Need More Info				
<i>Piptatherum miliaceum</i>	Need More Info				
<i>Pistachia chinensis</i>	Need More Info				
<i>Pittosporum undulatum</i>					High/Low
<i>Plantago lanceolata</i>					High/Low
<i>Polygonum cuspidatum</i> (=Fallopia japonica)		B			
<i>Polygonum sachalinense</i>					High/Medium
<i>Polypogon monspeliensis</i> and subspp.					High/Low
<i>Potamogeton crispus</i>	B				Medium
<i>Prunus cerasifera</i>	Need More Info				Medium/Insignificant
<i>Pyracantha angustifolia, crenulata, coccinea, etc.</i>	Need More Info				Hi/Low, Low/Insig
<i>Ranunculus repens</i>					High/Medium
<i>Retama monosperma</i>	Red Alert				
<i>Ricinus communis</i>	B				

APPENDIX 2: Cal-IPC Species Listed by Other Rating Systems (continued)

Scientific Name	Cal-EPPC 1999	CDFA	USDA	Arizona	NatureServe
<i>Robinia pseudoacacia</i>	B				
<i>Rubus armeniacus</i> (=R. <i>discolor</i>)	A-1			Medium-Alert	Medium/Insignificant
<i>Salsola paulsenii</i>		C		Medium	Low
<i>Salsola soda</i>	Need More Info				
<i>Salsola tragus</i> (=S. <i>kali</i>)	Need More Info	C		Medium	
<i>Salvia aethiops</i>	Need More Info	B			Low
<i>Salvinia molesta</i>	Red Alert		✓	High-Alert	Medium
<i>Sapium sebiferum</i>	Red Alert				
<i>Saponaria officinalis</i>	A-2				Low/Insignificant
<i>Schimus molle</i>	B				Medium/Low
<i>Schimus terebinthifolius</i>	B				
<i>Schismus arabicus</i> , <i>S. barbatus</i>	Annual Grasses			Medium	Medium, Hi/Medium
<i>Senecio jacobaea</i>	B	B			Low
<i>Sesbania punicea</i>	Red Alert				
<i>Silybum marianum</i>	Considered, not listed				Medium/Low
<i>Sisymbrium irio</i>					Medium/Insignificant
<i>Solanum elaeagnifolium</i>		B			
<i>Sonchus asper</i>				Medium	
<i>Spartina alterniflora</i> hybrids	A-2				
<i>Spartina anglica</i>	Red Alert				
<i>Spartina densiflora</i>	Red Alert				High/Medium
<i>Spartina patens</i>	Red Alert				
<i>Spartium junceum</i>	B	*			
<i>Stipa capensis</i>	Need More Info				
<i>Taeniatherum caput-medusae</i>	A-1	C			High
<i>Tamarix aphylla</i>	Need More Info			Low	
<i>Tamarix parviflora</i>	A-1	*			
<i>Tamarix ramosissima</i>	A-1	*		High	High
<i>Tanacetum vulgare</i>	Need More Info				Low
<i>Ulex europaeus</i>	A-1	B			
<i>Ulmus pumila</i>				Medium	Medium/Low
<i>Verbascum thapsus</i>	B			Not listed	Medium
<i>Verbena bonariensis</i> , <i>V. litoralis</i>	Need More Info				
<i>Vinca major</i>	B			Medium-Alert	
<i>Zantedeschia aethiopica</i>	Considered, not listed				Medium/Low
<i>Zoysia</i> spp.	Considered, not listed				

*Under consideration. Not yet rated.

APPENDIX 3. Examples of Ecological Types

These ecological types were used to score the Distribution section of plant assessment forms. Adapted from “Preliminary Descriptions of the Terrestrial Natural Communities of California” drafted by R. F. Holland for the California Department of Fish and Game (1986). Communities within minor ecotypes include all those listed in Holland (1986). Additional information from Sawyer, J. O., and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society: Sacramento, CA.

Major Ecological Types	Minor Ecological Types	Communities within Minor Ecotypes
Marine Systems	marine systems	kelp and other macroalgae
	lakes, ponds, reservoirs	submergent and emergent vegetation in standing water
Freshwater and Estuarine Aquatic Systems	rivers, streams, canals	submergent and emergent vegetation in moving ephemeral, intermittent or perennial water
	estuaries	submergent vegetation in estuaries (seagrass beds)
	coastal	foredunes, dune scrub
Dunes	desert	desert dunes and sand fields
	interior	interior and relictual dunes, primarily in the Great Valley
	coastal bluff scrub	northern and southern coastal bluff scrub
Scrub and Chaparral	coastal scrub	coyote bush, salal, silk-tassel, coastal sage, maritime succulent, Diegan coastal, Diablan, and Riversidian sage scrubs
	Sonoran desert scrub	Sonoran creosote bush, Sonoran mixed woody and succulent scrubs
	Mojavean desert scrub	Mojave creosote bush, blackbush, Mojave mixed woody, Mojave mixed steppe, and Mojave wash scrubs; Joshua tree woodland
	Great Basin scrub	big sagebrush and rabbitbrush scrubs; sagebrush steppe
	chenopod scrub	desert saltbush, desert sink, desert greasewood, shadscale, valley sink, and valley saltbush scrubs
	montane dwarf scrub	low sagebrush series
	Upper Sonoran subshrub scrub	bladderpod-California ephedra-narrowleaf goldenbush series
	chaparral	mixed, redshank, semi-desert, and montane (mixed, ceanothus, manzanita) chaparrals; chamise
	coastal prairie	coastal terrace and bald hills prairies
	valley and foothill grassland	valley needlegrass, valley sacaton, serpentine bunchgrass, valley wildrye and, pine bluegrass grasslands
Grasslands, Vernal Pools, Meadows, and other Herb Communities	Great Basin grassland	open, steppe-like vegetation of perennial bunchgrasses
	vernal pool	hardpan, claypan, basalt flow, and San Diego mesa vernal pools
	meadow and seep	wet or dry montane meadows; wet or dry subalpine or alpine meadows; alkali meadows and seeps; freshwater seep
	alkali playa	low, grayish, microphyllous, and succulent shrubs primarily in transmontane deserts
	pebble plain	dense clay soils with quartzite pebbles

APPENDIX 3: Examples of Ecological Types (continued)

Major Ecological Types	Minor Ecological Types	Communities within Minor Ecotypes
Bog and Marsh	bog and fen	sphagnum bog, Darlingtonia bog, fen
	marsh and swamp	salt, brackish, freshwater, transmontane alkali, and vernal marshes; freshwater swamp
Riparian and Bottomland	riparian forest	cottonwood, cottonwood-sycamore, red alder, white alder, aspen, willow, live oak, valley oak, Mojave, and mixed riparian forests; mesquite bosque
	riparian woodland	sycamore, sycamore-alder, desert dry wash, and fan palm oasis woodlands
	riparian scrub	riparian, mulefat, willow, mesquite, and buttonbush, desert wash, tamarisk and arrowweed scrubs; elderberry savanna; desert washes
Woodland	cismontane	blue oak, coast live oak, interior live oak, valley oak, island oak, California walnut, and foothill pine woodlands
	piñon and juniper	juniper woodland and scrub, pinon woodland
	Sonoran thorn	crucifixion thorn and Arizona woodlands
Forest	broadleaved upland	mixed evergreen, California bay, coast live oak, black oak, tan oak, red alder, and aspen forests
	North Coast coniferous	redwood, Sitka spruce-grand fir, western hemlock, Douglas-fir, and Port Orford Cedar forests
	closed cone coniferous	beach pine, bishop pine, Monterey pine, Torrey pine, Monterey cypress, pygmy cypress, interior cypress, knobcone pine forests
	lower montane coniferous	Coast Range coniferous, Klamath coniferous, ponderosa pine, Coulter pine, white pine, white fir, and big tree forests
	upper montane coniferous	Jeffrey pine, upper montane mixed coniferous, upper montane fir, and Klamath enriched coniferous forests
	subalpine coniferous	lodgepole pine, whitebark pine, foxtail pine, bristlecone pine, and limber pine forests
Alpine Habitats	alpine boulder and rock field	fell-field, talus and scree slope, snow margin
	alpine dwarf scrub	shrub dominated communities above the treeline

APPENDIX 4. Species by Common Name

Includes Species from Tables 1, 2, 3 and 4.

acacia, blackwood	<i>Acacia melanoxylon</i>	camelthorn	<i>Alhagi maurorum</i> (=A. <i>pseudalhagi</i>)
acacia, plume	<i>Albizia lophantha</i>	canarygrass, reed	<i>Phalaris arundinacea</i>
alligatorweed	<i>Alternanthera philoxeroides</i>	Cape-ivy	<i>Delairea odorata</i> (= <i>Senecio mikanioides</i>)
alyssum, sweet	<i>Lobularia maritima</i>	capeweed, fertile	<i>Arctotheca calendula</i> (fertile)
asparagus, smilax	<i>Asparagus asparagoides</i>	capeweed, sterile	<i>Arctotheca calendula</i> (sterile)
barberry, Darwin	<i>Berberis darwinii</i>	carrot, wild	<i>Daucus carota</i>
barbwire Russian-thistle	<i>Salsola paulsenii</i>	castorbean	<i>Ricinus communis</i>
barley, Mediterranean	<i>Hordeum marinum</i> ,	catalpa, southern	<i>Catalpa bignonioides</i>
barley, wall	<i>Hordeum murinum</i>	catsear, rough	<i>Hypochaeris radicata</i>
beachgrass, European	<i>Ammophila arenaria</i>	catsear, smooth	<i>Hypochaeris glabra</i>
beardgrass, annual	<i>Polypogon monspeliensis</i> and subspp.	chamomile, mayweed	<i>Anthemis cotula</i>
bellardia	<i>Bellardia trixago</i>	charlock	<i>Sinapis arvensis</i>
bentgrass, creeping	<i>Agrostis stolonifera</i>	cheatgrass	<i>Bromus tectorum</i>
bentgrass, Pacific	<i>Agrostis avenacea</i>	cherry plum	<i>Prunus cerasifera</i>
bermudagrass	<i>Cynodon dactylon</i>	Chinese tallowtree	<i>Sapium sebiferum</i>
bindweed, field	<i>Convolvulus arvensis</i>	clover, California bur	<i>Medicago polymorpha</i>
birdsfoot trefoil	<i>Lotus corniculatus</i>	clover, rose	<i>Trifolium hirtum</i>
blackberry, Armenian	<i>Rubus armeniacus</i> (=R. <i>discolor</i>)	cordgrass, Atlantic	<i>Spartina alterniflora</i>
blackberry, Himalaya	<i>Rubus armeniacus</i> (=R. <i>discolor</i>)	cordgrass, common	<i>Spartina anglica</i>
bladderflower	<i>Araujia sericifera</i>	cordgrass, dense-flowered	<i>Spartina densiflora</i>
bluegrass, Kentucky	<i>Poa pratensis</i>	cordgrass, saltmeadow	<i>Spartina patens</i>
blue gum, Tasmanian	<i>Eucalyptus globulus</i>	cordgrass, smooth	<i>Spartina alterniflora</i> hybrids
bouncingbet	<i>Saponaria officinalis</i>	cotoneaster, orange	<i>Cotoneaster franchetii</i>
brassbuttons	<i>Cotula coronopifolia</i>	cotoneaster, Parney's	<i>Cotoneaster lacteus</i>
brome, downy	<i>Bromus tectorum</i>	cotoneaster, silverleaf	<i>Cotoneaster pannosus</i>
brome, red	<i>Bromus madritensis</i> ssp. <i>rubens</i> (=B. <i>rubens</i>)	creeper, Australian bluebell	<i>Sollya heterophylla</i>
brome, ripgut	<i>Bromus diandrus</i>	creeper, bearded	<i>Crupina vulgaris</i>
brome, soft	<i>Bromus hordeaceus</i>	creeper, bridal	<i>Asparagus asparagoides</i>
broom, bridal	<i>Retama monosperma</i>	creep, hoary	<i>Cardaria draba</i>
broom, French	<i>Genista monspessulana</i>	croftonweed	<i>Ageratina adenophora</i>
broom, Portuguese	<i>Cytisus striatus</i>	crupina, common	<i>Crupina vulgaris</i>
broom, Scotch	<i>Cytisus scoparius</i>	cypress, Monterey	<i>Cupressus macrocarpa</i>
broom, Spanish	<i>Spartium junceum</i>	daisy, African	<i>Dimorphotheca sinuata</i>
broom, striated	<i>Cytisus striatus</i>	daisy, corn	<i>Chrysanthemum segetum</i>
buckwheat, California	<i>Eriogonum fasciculatum</i>	daisy, crown	<i>Chrysanthemum coronarium</i>
burclover, California	<i>Medicago polymorpha</i>	daisy, English	<i>Bellis perennis</i>
burnweed, Australian	<i>Erechtites glomerata</i> , <i>E. minima</i>	daisy, Mexican	<i>Erigeron karvinskianus</i>
buttercup, Bermuda	<i>Oxalis pes-caprae</i>	daisy, oxeye	<i>Leucanthemum vulgare</i>
buttercup, creeping	<i>Ranunculus repens</i>	daisybush, shrubby	<i>Osteospermum fruticosum</i>
butterflybush	<i>Buddleja davidii</i>	dandelion, common	<i>Taraxacum officinale</i>
cabbage	<i>Brassica oleracea</i>	dandelion, hairy	<i>Hypochaeris radicata</i>
cabbage tree, New Zealand	<i>Cordyline australis</i>	devil's thorn	<i>Emex spinosa</i>
calla lily	<i>Zantedeschia aethiopica</i>	dock, curly	<i>Rumex crispus</i>
		dogtailgrass, hedgehog	<i>Cynosurus echinatus</i>
		dracaena, giant	<i>Cordyline australis</i>
		dyer's woad	<i>Isatis tinctoria</i>
		egeria, Brazilian	<i>Egeria densa</i>

APPENDIX 4: Species by Common Name (continued)

elm, Chinese	<i>Ulmus parvifolia</i>	houndstongue	<i>Cynoglossum officinale</i>
elm, Siberian	<i>Ulmus pumila</i>	hydrilla	<i>Hydrilla verticillata</i>
emex, spiny	<i>Emex spinosa</i>	hypericum, Canary Island	<i>Hypericum canariense</i>
eupatorium	<i>Ageratina adenophora</i>	iceplant	<i>Carpobrotus chilensis</i>
false-brome, perennial	<i>Brachypodium sylvaticum</i>	iceplant	<i>Carpobrotus edulis</i>
fennel	<i>Foeniculum vulgare</i>	iceplant, crystalline	<i>Mesembryanthemum crystallinum</i>
fennel, dog	<i>Anthemis cotula</i>	iceplant, heartleaf	<i>Aptenia cordifolia</i>
fescue, rattail	<i>Vulpia myuros</i>	iceplant, narrowleaf	<i>Conicosia pugioniformis</i>
fescue, squirreltail	<i>Vulpia bromoides</i>	iceplant, slenderleaf	<i>Mesembryanthemum nodiflorum</i>
fescue, tall	<i>Festuca arundinacea</i>	iris, yellowflag	<i>Iris pseudacorus</i>
fig, edible	<i>Ficus carica</i>	ivy, Algerian	<i>Hedera canariensis</i>
filaree, broadleaf	<i>Erodium botrys</i>	ivy, English	<i>Hedera helix</i>
filaree, redstem	<i>Erodium cicutarium</i>	jessamine, willow	<i>Cestrum parqui</i>
filaree, shortfruited	<i>Erodium brachycarpum</i>	jointvetch, rough	<i>Aeschynomene rudis</i>
filaree, whitestem	<i>Erodium moschatum</i>	jubatagrass	<i>Cortaderia jubata</i>
firethorn	<i>Pyracantha</i> spp.	kangaroothorn	<i>Acacia paradoxa</i>
fireweed, Australian	<i>Erechtites glomerata</i> , <i>E. minima</i>	kikuyugrass	<i>Pennisetum clandestinum</i>
fivehook bassia	<i>Bassia hyssopifolia</i>	klamathweed	<i>Hypericum perforatum</i>
flixweed	<i>Descurainia sophia</i>	knapweed, diffuse	<i>Centaurea diffusa</i>
forget-me-not, common	<i>Myosotis latifolia</i>	knapweed, meadow	<i>Centaurea debeauxii</i> (=C. \times <i>pratensis</i>)
fountaingrass, crimson	<i>Pennisetum setaceum</i>	knapweed, Russian	<i>Acroptilon repens</i>
foxglove	<i>Digitalis purpurea</i>	knapweed, spotted	<i>Centaurea maculosa</i> (=C. <i>bibersteinii</i>)
foxtail restharrow	<i>Ononis alopecuroides</i>	knapweed, squarrose	<i>Centaurea virgata</i> ssp. <i>squarrosa</i> (=C. <i>squarrosa</i>)
fumitory	<i>Fumaria officinalis</i>	knotweed, Japanese	<i>Polygonum cuspidatum</i> (=Fallopija <i>japonica</i>)
garlic, false	<i>Nothoscordum gracile</i>	knotweed, Sakhalin	<i>Polygonum sachalinense</i>
gazania	<i>Gazania linearis</i>	kochia	<i>Kochia scoparia</i>
geranium, cutleaf	<i>Geranium dissectum</i>	leek, three-cornered	<i>Allium triquetrum</i>
geranium, dovefoot	<i>Geranium molle</i>	lettuce, prickly	<i>Lactuca serriola</i>
geranium, New Zealand	<i>Geranium retrorsum</i>	licoriceplant	<i>Helichrysum petiolare</i>
geranium, Robert	<i>Geranium robertianum</i>	locust, black	<i>Robinia pseudoacacia</i>
German-ivy	<i>Delairea odorata</i>	locust, honey	<i>Gleditsia triacanthos</i>
glandweed, yellow	<i>Parentucellia viscosa</i>	London rocket	<i>Sisymbrium irio</i>
glasswort	<i>Salsola soda</i>	loosestrife, hyssop	<i>Lythrum hyssopifolium</i>
goatgrass, barb	<i>Aegilops triuncialis</i>	loosestrife, purple	<i>Lythrum salicaria</i>
gorse	<i>Ulex europaeus</i>	lupine, yellow bush	<i>Lupinus arboreus</i>
grass, rabbitfoot	<i>Polypogon monspeliensis</i>	mannagrass, waxy	<i>Glyceria declinata</i>
gumweed, curlycup	<i>Grindelia squarrosa</i>	mayten	<i>Maytenus boaria</i>
hairgrass, European	<i>Aira praecox</i>	Mediterranean grass	<i>Schismus arabicus</i> , <i>S. barbatus</i>
hairgrass, silver	<i>Aira caryophyllea</i>	Mediterranean sage	<i>Salvia aethiops</i>
halogeton	<i>Halogeton glomeratus</i>	medusahead	<i>Taeniatherum caput-medusae</i>
hardinggrass	<i>Phalaris aquatica</i>	mesembryanthemum, coppery	<i>Malephora crocea</i>
hawksbeard, smooth	<i>Crepis capillaris</i>	milkthistle, blessed	<i>Silybum marianum</i>
hawthorn, English	<i>Crataegus monogyna</i>	mirrorplant, creeping	<i>Coprosma repens</i>
heath, Spanish	<i>Erica lusitanica</i>		
hedgearsley	<i>Torilis arvensis</i>		
herb-robert	<i>Geranium robertianum</i>		
holly, English	<i>Ilex aquifolium</i>		
horehound, white	<i>Marrubium vulgare</i>		
Hottentot-fig	<i>Carpobrotus edulis</i>		

APPENDIX 4: Species by Common Name (continued)

montbretia	<i>Crocosmia x crocosmiiflora</i>	polypogon, rabbitfoot	<i>Polypogon monspeliensis</i> and subspp.
mullein, common	<i>Verbascum thapsus</i>	pondweed, curlyleaf	<i>Potamogeton crispus</i>
mullein, woolly	<i>Verbascum thapsus</i>	pride-of-Madeira	<i>Echium candicans</i>
mustard, birdsrape	<i>Brassica rapa</i>	privet, glossy	<i>Ligustrum lucidum</i>
mustard, black	<i>Brassica nigra</i>	pyracantha	<i>Pyracantha</i> spp.
mustard, blue	<i>Chorispora tenella</i>	quackinggrass, big	<i>Briza maxima</i>
mustard, field	<i>Brassica rapa</i>	Queen Anne's lace	<i>Daucus carota</i>
mustard, Saharan	<i>Brassica tournefortii</i>	radish	<i>Raphanus sativus</i>
mustard, shortpod	<i>Hirschfeldia incana</i>	ragwort, tansy	<i>Senecio jacobaea</i>
mustard, summer	<i>Hirschfeldia incana</i>	rattlesnakegrass	<i>Briza maxima</i>
mustard, tansy	<i>Descurainia sophia</i>	red gum	<i>Eucalyptus camaldulensis</i>
mustard, wild	<i>Sinapis arvensis</i>	redhot poker	<i>Kniphofia uvaria</i>
myoporum	<i>Myoporum laetum</i>	reed, common	<i>Phragmites australis</i>
nasturtium, garden	<i>Tropaeolum majus</i>	reed, giant	<i>Arundo donax</i>
nightshade, silverleaf	<i>Solanum elaeagnifolium</i>	rockrose, gum	<i>Cistus ladanifer</i>
oat, slender wild	<i>Avena barbata</i>	rose, baby sun	<i>Aptenia cordifolia</i>
oat, wild	<i>Avena fatua</i>	Russian-thistle	<i>Salsola tragus</i>
oleander	<i>Nerium oleander</i>	ryegrass, Italian	<i>Lolium multiflorum</i>
olive, Russian-	<i>Elaeagnus angustifolia</i>	salsify, yellow	<i>Tragopogon dubius</i>
olive	<i>Olea europaea</i>	saltbush, Australian	<i>Atriplex semibaccata</i>
onionweed	<i>Asphodelus fistulosus</i>	saltcedar	<i>Tamarix ramosissima</i>
orchardgrass	<i>Dactylis glomerata</i>	salvinia, giant	<i>Salvinia molesta</i>
oxalis, buttercup	<i>Oxalis pes-caprae</i>	sea-fig	<i>Carpobrotus chilensis</i>
oxalis, yellow	<i>Oxalis pes-caprae</i>	sea-lavender	<i>Limonium ramoissimum</i> ssp. <i>provinciale</i>
oxtongue, bristly	<i>Picris echioides</i>	sea-rocket, European	<i>Cakile maritima</i>
palm, Canary Island date	<i>Phoenix canariensis</i>	sesbania, red	<i>Sesbania punicea</i>
palm, date	<i>Phoenix dactylifera</i>	skeletonweed, rush	<i>Chondrilla juncea</i>
palm, Mexican fan	<i>Washingtonia robusta</i>	smilgrass	<i>Piptatherum miliaceum</i>
palm, Washington	<i>Washingtonia robusta</i>	sorrel, red	<i>Rumex acetosella</i>
paloverde, Mexican	<i>Parkinsonia aculeata</i>	sorrel, sheep	<i>Rumex acetosella</i>
pampasgrass	<i>Cortaderia selloana</i>	sowthistle, spiny	<i>Sonchus asper</i>
parentucellia, sticky	<i>Parentucellia viscosa</i>	speargrass, twisted-awned	<i>Stipa capensis</i>
parrotfeather	<i>Myriophyllum aquaticum</i>	spiny emex	<i>Emex spinosa</i>
passionflower, blue	<i>Passiflora caerulea</i>	spurge, caper	<i>Euphorbia lathyris</i>
pea, perennial sweet	<i>Lathyrus latifolius</i>	spurge, carnation	<i>Euphorbia terracina</i>
pea, Tangier	<i>Lathyrus tingitanus</i>	spurge, leafy	<i>Euphorbia esula</i>
pennyroyal	<i>Mentha pulegium</i>	spurge, oblong	<i>Euphorbia oblongata</i>
peppertree, Brazilian	<i>Schinus terebinthifolius</i>	St. Johnswort, common	<i>Hypericum perforatum</i>
peppertree, Peruvian	<i>Schinus molle</i>	starthistle, Malta	<i>Centaurea melitensis</i>
pepperweed, perennial	<i>Lepidium latifolium</i>	starthistle, purple	<i>Centaurea calcitrapa</i>
periwinkle, big	<i>Vinca major</i>	starthistle, yellow	<i>Centaurea solstitialis</i>
pine, Monterey	<i>Pinus radiata</i> cultivars	steppeggrass, Mediterranean	<i>Stipa capensis</i>
pistache, Chinese	<i>Pistachia chinensis</i>	stinkwort	<i>Dittrichia graveolens</i>
plantain, buckhorn	<i>Plantago lanceolata</i>	sweetclover, Indian	<i>Melilotus indicus</i>
plantain, cutleaf	<i>Plantago coronopus</i>	sweetclover, yellow	<i>Melilotus officinalis</i>
plantain, English	<i>Plantago lanceolata</i>	sweetpea, perennial	<i>Lathyrus latifolius</i>
plum, wild	<i>Prunus cerasifera</i>	tallowtree, Chinese	<i>Sapium sebiferum</i>
poison-hemlock	<i>Conium maculatum</i>		
pokeweed	<i>Phytolacca americana</i>		

APPENDIX 4: Species by Common Name (continued)

tamarisk	<i>Tamarix ramosissima</i>	velvetgrass, common	<i>Holcus lanatus</i>
tamarisk, athel	<i>Tamarix aphylla</i>	vernalgrass, sweet	<i>Anthoxanthum odoratum</i>
tamarisk, smallflower	<i>Tamarix parviflora</i>	vervain, seashore	<i>Verbena litoralis</i>
tansy, common	<i>Tanacetum vulgare</i>	vervain, tall	<i>Verbena bonariensis</i>
tea tree, Australian	<i>Leptospermum laevigatum</i>	vetch, hairy	<i>Vicia villosa</i>
teasel, fuller's	<i>Dipsacus sativus</i>	Victorian box	<i>Pittosporum undulatum</i>
teasel, wild	<i>Dipsacus fullonum</i>	wakame	<i>Undaria pinnatifida</i>
thistle, artichoke	<i>Cynara cardunculus</i>	water hyacinth	<i>Eichhornia crassipes</i>
thistle, bull	<i>Cirsium vulgare</i>	waterlily, fragrant	<i>Nymphaea odorata</i>
thistle, Canada	<i>Cirsium arvense</i>	watermilfoil, Eurasian	<i>Myriophyllum spicatum</i>
thistle, Italian	<i>Carduus pycnocephalus</i>	water-primrose, creeping	<i>Ludwigia peploides</i> ssp.
thistle, musk	<i>Carduus nutans</i>		<i>montevidensis</i>
thistle, plumeless	<i>Carduus acanthoides</i>	water-primrose, Uruguay	<i>Ludwigia hexapetala</i>
thistle, Scotch	<i>Onopordum acanthium</i>		(= <i>L. uruguayensis</i>)
thistle, slenderflower	<i>Carduus tenuifolius</i>	watsonia	<i>Watsonia borbonica</i>
thistle, woolly distaff	<i>Carthamus lanatus</i>	watsonia, bulbil	<i>Watsonia meriana</i>
toadflax, Dalmatian	<i>Linaria genistifolia</i> ssp.	whitetop, hairy	<i>Cardaria pubescens</i>
	<i>dalmatica</i> (= <i>L. dalmatica</i>)	whitetop, lens-podded	<i>Cardaria chalepensis</i>
	<i>Nicotiana glauca</i>		(= <i>C. draba</i> ssp. <i>chalepensis</i>)
tobacco, tree	<i>Centaurea melitensis</i>	whitetop, tall	<i>Lepidium latifolium</i>
tocalote	<i>Ailanthus altissima</i>	wisteria, scarlet	<i>Sesbania punicea</i>
tree-of-heaven	<i>Ehrharta erecta</i>	woodsorrel, creeping	<i>Oxalis corniculata</i>
veldtgrass, erect	<i>Ehrharta longiflora</i>	zoysiagrass	<i>Zoysia</i> spp.
veldtgrass, long-flowered	<i>Ehrharta calycina</i>		
veldtgrass, purple			



The Nation Park Service's Exotic Plant Management Team removes satellite infestations of *Centaurea solstitialis* (yellow starthistle) to prevent the plant's spread. (Photo by Bobbi Simpson, Point Reyes National Seashore)

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*Circular clones of *Spartina alterniflora* x *foliosa* (smooth cordgrass hybrid) spread in San Francisco Bay. (Photo by Stephen Joseph, Invasive *Spartina* Project)*