

SAN DIEGO COUNTY INVASIVE ORNAMENTAL PLANT GUIDE

This Guide is produced and distributed by the San Diego Chapter of the American Society of the Landscape Architects (SD/ASLA) and the San Diego Chapter of the California Native Plant Society (CNPS) for the primary purpose of educating landscape professionals and the general-public regarding the cultivation, selection, use and management of non-native and/or invasive plants in San Diego regional landscapes.

It is understood that this Guide is of special importance in the “urban interface”: areas where natural vegetation and man-made landscapes come into close contact. It is not the intent of the authors to add unnecessary constraints or to discourage the planting of a broad selection of native and non-native species where it is unlikely that their presence would have any effect upon indigenous plant populations or habitat. This Guide is provided solely as a reference document and is not intended for regulatory purposes.

What is an Invasive Plant?

An ‘Invasive Plant’ is a species that has become a weed pest: a plant that grows aggressively, spreads rampantly and displaces native plants. Invasive plants usually appear on disturbed ground and moist places, and the most aggressive can invade native areas. Invasive plants are generally undesirable because they can be difficult to control, can escape from cultivation, and can out-compete native plants. Invasive plant infestations can be environmentally destructive, costing government, resource agencies and private land owners millions of dollars each year to control and remove.

Characteristics of Invasive Plants

Invasive plants can be trees, shrubs, vines, groundcovers, grasses or aquatic plants. Invasive plants **tend to be:**

- Spread by wildlife, water, wind, and /or seeds.
- Reproduce rapidly by roots, seeds, shoots or all three.
- Produce numerous seeds that disperse and sprout easily.
- Adapt to different climatic conditions.
- Be non-native to San Diego County.
- Exploit and colonize disturbed land and non-disturbed native areas.
- Not be controlled by predators or native control mechanisms.

Impacts of Invasive Plants in San Diego County

With San Diego’s mild climate it is possible to use plants from around the world in our landscape. Some of these plants are invading the natural environment and displacing native plants and ultimately altering natural landscapes and habitats. Biological impacts of invasive species include:

- Competition with native plant species (e.g. space, water, nutrients, and biological resources such as pollinators and dispersers).
- Change in natural fire occurrences and frequencies (e.g. invasive annuals and desert fires).
- Decrease in quality of food and habitat for local fauna (e.g. poisonous weeds and poor nesting sites)
- Potentially adverse genetic effects of hybridization among invasive species and natives (e.g. swapping out of genes).¹

How to Use the Guide

This guide is intended to educate professionals and the general public on non-native invasive plants that can adversely impact habitats in San Diego County. The Guide will help the professional and the general public makes decisions on when and where not to use invasive plants. The Guide provides a list of plants in two categories:

1. Most Invasive - These plants have been documented as aggressive invaders that may establish even from distant plantings to displace natives and disrupt habitats. Using these plants in any landscape is strongly discouraged.
2. Moderately Invasive - These plants have been documented as moderately invasive and having the potential to spread when planted next to open space or natural areas. Before selecting or installing plants from this category, use the Guide to investigate whether the plant may be potentially invasive in a particular location and site.

More detailed information on each plant is available on our website at www.asla-sandiego.org

The San Diego Chapter of the American Society of Landscape Architects mission statement: “To lead, to educate and to participate in the careful stewardship, wise planning and artful design of our cultural and natural environments.”

The California Native Plant Society is a statewide nonprofit organization seeking to increase understanding and appreciation of California’s native plants and to preserve them in their natural habitat through scientific activities, education and conservation.

What Can I do about Invasive Plants?

The best way to control invasive plants is prevention. Methods of prevention include the following:

Select Plant Material Carefully. When designing landscapes or purchasing plants for installation, select plants that will compliment the site and prevent invasive plants from impacting the native plant communities, natural open spaces or surrounding environments. When landscaping adjacent to open space or natural areas, it is recommended to use locally native plants. The CNPS website (see Resources below) is a good source of information on native plants.

Remove Invasive Plants Before They Become A Problem. Effective monitoring is essential so that invasive plants can be removed while they are still small and easily controllable. For instance, do not let invasive plants go to seed or allow spreading groundcovers such as Ice Plant or Myoporum to spread and take root in natural areas. Mechanical removal through digging or cutting is preferred. Large populations of invasive plants may need to be stopped by trained professionals.

Replace Invasive Plants With Native Or Non-invasive Species. Invasive plants are often especially quick to exploit bare soil and disturbed areas. When you remove an invasive plant, replant with a native or non-invasive species, before the invasive plant can grow back from seed or its roots. Areas that can not be replanted should be covered with a heavy layer (3" minimum) of **weed free** mulch to prevent seeds of the invasive plants from germinating.

Use Fertilizers Wisely. Proper site preparation begins with a soil test before applying fertilizer. High fertilizer levels of nitrogen sometimes give an advantage to invasive plants that utilize fertility to develop explosive growth. For balanced soil fertility, try using organic, slow decomposing compost and weed free mulches instead of high nitrogen fertilizers.

Long Term Maintenance Planning. Landscape design should consider the ultimate size and potential spread of each plant species and the difficulty of controlling it in comparison with the maintenance to be available. Keep in mind that maintenance is a long term commitment and frequently subject to budget cuts and may not be always available. Areas near buildings and areas that are actively used get more maintenance than areas that are out of sight or distant from use areas. Plants with a potential for invasiveness should not be planted in areas where maintenance and observation are likely to be infrequent. Creating sustainable landscapes is encouraged.

For more information:

*San Diego Chapter of the American Society of Landscape Architects, www.asla-sandiego.org

* ASLA National Policy Statement on Non-Native Invasive Species, www.asla.org

*San Diego Chapter of the California Native Plant Society, www.cnpsd.org, info@cnpsd.org, Phone: 619- 685-7321

*California Invasive Plant Council, www.cal-ipc.org, Phone: 510-843-3902

*University of California Cooperative Extension County of San Diego, Regional Advisor on Invasive Plants, Carl Bell, <http://cesandiego.ucdavis.edu>

*San Diego County Plant Atlas, San Diego Natural History Museum, Department of Botany, www.sdplantatlas.org

Native Plant Demonstration Gardens in San Diego County

Mission Trails Regional Park, www.mtrp.org

Quail Botanical Gardens, www.qbgardens.com

San Diego Wild Animal Park, www.sandiegozoo.org

Torrey Pines State Reserve, www.torreypine.org

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This Guide is a living document and requires feedback to ensure the accuracy of the information. Please contact us with information on new invasive plants or with disagreements concerning plant species within the Guide at www.asla-sandiego.org.

¹ Mooney, H.A. and E.E. Cleland. 2000. The evolutionary impact of invasive species. In: *Proceedings of the National Academy of Sciences of the United States of America Colloquium on The Future of Evolution*. The National Academies Press, Washington, D.C.



CNPS *San Diego Chapter*
California Native Plant Society

BOTANICAL NAME:

Acacia cyclops

COMMON NAMES:

**Coastal Wattle, Cyclops
Acacia**

FAMILY: Fabaceae

(=Leguminosae)

ORIGIN: Dry Coastal Plains of
Southern and Western Australia



Photo © Carrie Schneider 2005

Reason for listing as invasive species:

This non-native species has escaped cultivation and established in natural areas of San Diego County according to the "Checklist of the Vascular Plant of San Diego County."¹ In its native habitat, it occurs on both calcareous and saline soils and tolerates wind, salt spray, poor soils, drought and flooding.² Used extensively for landscaping along freeways, it has now naturalized and invaded most lagoons and some canyons throughout San Diego County.³

Methods of invading natural areas:

Spreads by seed.

Locations where it invades:

chaparral, coastal sage, coastal habitats, riparian/wetland

Where invasive in San Diego:

San Elijo Lagoon, Switzer Canyon, Marian Bear Park, Escondido Creek, Buena Vista Lagoon, Agua Hedionda Lagoon, Manchester Reserve, Carlsbad Hydrological Unit, Lake Calavera Open Space

Invasive varieties include:

All members of the species *Acacia cyclops*

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species and cultivars:

Isomeris arborea
Encelia californica
Baccharis salicifolia
Rhus integrifolia
Malosma laurina
Heteromeles arbutifolia
Ceanothus spp.
Salix lasiolepis

Bladderpod
California Encelia
Mulefat
Lemonadeberry
Laurel Sumac
Toyon
California-lilac
Arroyo Willow

Ornamental species:

Arbutus unedo

Strawberry Tree

¹ Simpson, M.G. and J.P. Rebman. 2001. *Checklist of the vascular plants of San Diego County*, 3rd ed. SDSU Herbarium Press, San Diego.

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² Perry, Bob. *Landscape Plants for Western Region, An Illustrated Guide to Plants for Water Conservation*. 1992, p. 67

³ Field observation, Carolyn Martus, consulting biologist, c_martus@yahoo.com.

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BOTANICAL NAME:
Ailanthus altissima

COMMON NAMES:
Tree of Heaven

FAMILY: Simaroubaceae

ORIGIN: Asia (China)



Photo © 2006 Carolyn Martus

Reason for listing as invasive species:

This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate', and has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure.¹ It is fairly widespread in its distribution across California, including San Diego County.² "By producing abundant root sprouts, *Ailanthus* creates thickets of considerable area, displacing native vegetation. In California, its most significant displacement of native vegetation is in riparian zones. It also produces allelopathic chemicals that may contribute to displacement of native vegetation. A high degree of shade tolerance gives *Ailanthus* a competitive edge over other plant species."³ "Tree of Heaven is a prolific seed producer, grows rapidly, and can overrun native vegetation. Once established, it can quickly take over a site and form an impenetrable thicket. *Ailanthus* trees also produce toxins that prevent the establishment of other plant species. The root system is aggressive enough to cause damage to sewers and foundations."⁴

Methods of invading natural areas:

By seed and vegetatively by root sprouts³

Locations where it invades:

coastal habitat, coniferous woodland, oak woodland, chaparral, riparian/wetland, grassland, coastal sage.

Where invasive in San Diego:

Camp Pendleton, Ostrich Creek, Keys Creek, Escondido Creek, Sweetwater Open Space.⁵

Invasive varieties include:

All members of the species *Ailanthus altissima*

Varieties not known to be invasive:

None

Alternative plants to consider:

Native Species:

Ornamental species:

¹ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Ailanthus altissima*

<http://ucce.ucdavis.edu/files/filelibrary/5319/11723.pdf>.

² USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

http://plants.usda.gov/cgi_bin/topics.cgi?earl=plant_profile.cgi&symbol=AIAL

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³ Bossard, C.C, J.M. Randall, and M.C. Hoshovsky, eds. 2000. *Invasive plants of California's Wildlands*. University of California Press, Berkeley and Los Angeles.

http://groups.ucanr.org/ceppc/Publications/Invasive_Plants_of_California_Wildlands.htm

⁴ National Parks Service Plant Conservation Alliance, Alien Plant Working Group website.

<http://www.nps.gov/plants/alien/fact/aial1.htm>

⁵ Carolyn Martus, field observation, consulting biologist, c_martus@yahoo.com.

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BOTANICAL NAME:
Arctotheca calendula

COMMON NAMES:
Cape Weed

FAMILY: Asteraceae
(=Compositae)

ORIGIN: South Africa



Photo courtesy of UC Davis.edu

Reason for listing as invasive species:

This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate,' and has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure.¹ Listed by the USDA as a California state-listed noxious weed (A-list),² *Arctotheca calendula* is currently found primarily in coastal Marin and Humboldt counties but would easily survive in other parts of the state. It invades and displaces other plants in coastal grasslands and riparian zones, forming mono-specific stands of impenetrable mats. It will also grow in drier soils, spreading during the wet season and then going dormant during periods of drought. It is an aggressive competitor for water and space and seriously threatens native plant communities by crowding out grasses, herbs, and smaller shrubs.³ Note this species has only been observed invading natural habitats in San Diego County, it has not yet been documented with an herbarium specimen.

Methods of invading natural areas:

Spreads vegetatively by rooting stolons³, by seed, and by water/storm drainage.

Locations where it invades:

riparian/wetland, grassland, coastal habitat

Where invasive in San Diego:

Keys Creek, Fallbrook; Dinwiddie Preserve, Fallbrook⁴

Invasive varieties include:

All members of the species *Arctotheca calendula*

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species and cultivars:

Camissonia cheiranthifolia
Baccharis pilularis 'Pigeon Point'

Beach Evening-primrose
Dwarf Coyote Brush

Ornamental species:

Teucrium spp.
Rosmarinus officinalis

Teucrium
Rosemary

¹ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Arctotheca calendula*
<http://ucce.ucdavis.edu/files/filelibrary/5319/18216.pdf>, and
<http://ucce.ucdavis.edu/files/filelibrary/5319/18214.pdf>

² USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). [National Plant Data Center](http://plants.usda.gov), Baton Rouge, LA 70874-4490 USA.

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³ Bossard, C.C, J.M. Randall, and M.C. Hoshovsky, eds. 2000. *Invasive plants of California's Wildlands*. University of California Press, Berkeley and Los Angeles.

http://groups.ucanr.org/ceppc/Publications/Invasive_Plants_of_California_Wildlands.htm

⁴ Carolyn Martus, consulting biologist, field observation, c_martus@yahoo.com.

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BOTANICAL NAME:

**Arundo donax,
Arundo donax 'variegata'**



Photo courtesy of UC Davis.edu

COMMON NAMES:

**Giant Reed,
Arundo**

**FAMILY: Poaceae
(=Gramineae)**

ORIGIN: Europe

Reason for listing as invasive species:

This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'high', and has severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.¹ Also listed as a CDFG noxious weed.² This non-native species has escaped cultivation and established in natural areas of San Diego County according to the "Checklist of the Vascular Plants of San Diego County."³ Giant Reed has been the most serious problem in coastal river drainages of southern California, where it sometimes occupies entire river channels from bank to bank. It displaces native plants and associated wildlife species because of the massive stands it forms. It is also believed to alter hydrological regimes and reduce groundwater availability and presents fire hazards due to the massive quantity of fuel available, often near urban areas.⁴

Methods of invading natural areas:

Spreads vegetatively either by rhizomes or fragments⁴.

Locations where it invades:

riparian/wetland, coastal habitat

Where invasive in San Diego:

San Diego River, San Luis Rey River watershed, Santa Margarita River watershed, Escondido Creek, San Dieguito River/Santa Ysabel Creek, Sweetwater River, Otay River, Cottonwood Creek, Tijuana River⁵

Invasive varieties include:

All members of the species *Arundo donax*, including *A. donax* 'variegata'

Varieties not known to be invasive:

None

Alternative plants to consider:

Native Species:

Leymus condensatus

Giant Wild Rye

Ornamental species:

Bambusa spp.

Bamboo (clumping varieties)

¹ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Arundo donax* <http://ucce.ucdavis.edu/files/filelibrary/5319/11724.pdf>.

² USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). [National Plant Data Center](#), Baton Rouge, LA 70874-4490 USA.

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³ Simpson, M.G. and J.P. Rebman. 2001. *Checklist of the vascular plants of San Diego County*, 3rd ed. SDSU Herbarium Press, San Diego.

⁴ Bossard, C.C., J.M. Randall, and M.C. Hoshovsky, eds. 2000. *Invasive plants of California's Wildlands*. University of California Press, Berkeley and Los Angeles.

http://groups.ucanr.org/ceppc/Publications/Invasive_Plants_of_California_Wildlands.htm

⁵ The Santa Margarita and San Luis Rey Watersheds Weed Management Area website. Accessed October 6, 2004 on the World Wide Web at <http://www.smslrwma.org/>

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BOTANICAL NAME:
Atriplex semibaccata

COMMON NAMES:
Australian Saltbush

FAMILY: Amaranthaceae
[Chenopodiaceae]

ORIGIN: Australia



Photos courtesy the California Invasive Plant Council,
www.cal-ipc.org

Reason for listing as invasive species:

This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate,' and has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure.¹

Australian Saltbush displaces native plants as it spreads and hugs the ground. "Birds eat the red, berry-like fruits and may act as a means of dispersal (Sanders 1997.)"²

Methods of invading natural areas:

"Australian Saltbush reproduces by seed only. The plant flowers from April to December. Male and female flowers are borne on the same plant. Other similar *Atriplex* species are self-compatible and wind-pollinated; suggesting this also may be true of this plant. Seeds are produced in large numbers and are surrounded by fleshy bracts when mature (Sanders, pers. comm. 1997). These fleshy bracts are attractive to fruit eaters, which may help disperse the seeds. Seeds have been found in the stomach contents of foxes and lizards on Santa Cruz Island (Valido and Nogales 1994, Crooks 1994). Degree of persistence of seeds in soil and germination conditions are unknown."³ Seed germination occurs on saline soils, which provides a competitive advantage over other native species (De Villiers et al. 1995)⁴

Locations where it invades:

"In California, Australian Saltbush is found mostly in waste places, shrubland, or woodland below 3,280 feet (1,000 m) elevation in the Mojave and Sonoran deserts and arid parts of the South Coast, Central Coast, San Francisco Bay Area, and Central Valley as far north as Glenn County. It also inhabits coastal areas and coastal salt marshes from San Diego County to Mendocino County. Australian Saltbush is especially fond of heavy saline soils, particularly areas that have been heavily grazed or disturbed. It is quick to invade newly developed lands, roadsides, coastal marshes, and the margins of cultivated fields (Halvorson et al. 1988, Hickman 1993)."⁵

Where invasive in San Diego:

Cabrillo National Monument Bayside Trail and western (coastal) slopes, Pt. Loma San Diego⁶, Carlsbad Beach Sidewalk⁷, Torrey Pines State Reserve⁸, Temecula Gorge Santa Margarita Ecological Reserve⁹, San Marcos Hills¹⁰

Invasive varieties include:

All members of the species *Atriplex semibaccata*

Varieties not known to be

N / A

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invasive:

Alternative plants to consider:

California Native Species and cultivars:

Atriplex canescens

Four-wing Salt Bush

Baccharis pilularis 'Pigeon Point'
Ceanothus griseus var. *horizontalis*

Dwarf Coyote Brush
Carmel Ceanothus,
Wild Lilac

Eriogonum umbellatum
Eriogonum fasciculatum

Sulfur Buckwheat
California Buckwheat

Ornamental species:

Plecostachys serpyllifolia
Rosmarinus officinalis 'Prostrata'

Trailing Licorice
Prostrate Rosemary,
Trailing Rosemary

¹ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Atriplex semibaccata*
<http://ucce.ucdavis.edu/files/filelibrary/5319/18104.pdf>.

² Carla C. Bossard, John M. Randall, Marc C. Hoshovsky, Editors, University of California Press, 2000, *Invasive Plants of California's Wildlands*, Accessed November 25, 2004 on the World Wide Web at <http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=9&surveynumber=182>.

³ Carla C. Bossard, et al.

⁴ Carla C. Bossard, et al.

⁵ Carla C. Bossard, et al.

⁶ Tom Chester and Jane Strong, *Plant Guide to Bayside Trail, Cabrillo National Monument, San Diego*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/guides/cabrillo_nm/bayside_trail.html

⁷ Tom Chester and Jane Strong, *Plant Guide to Carlsbad Beach Sidewalk, San Diego County*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/guides/carlsbad_beach_sidewalk.html

⁸ Tom Chester, Jane Strong and Bob Muns, Bob, *Flora of Torrey Pines State Reserve*, 1990, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/plants/floras/coast/torrey_pines.html

⁹ Tom Chester and Jane Strong, *Plant Guide To North Gate to Temecula Gorge, Santa Margarita Ecological Reserve*, Tom Chester and Jane Strong, http://tchester.org/sd/plants/guides/smer/north_gate_to_gorge.html.

¹⁰ Tom Chester and Jane Strong, *Plants of San Marcos Hills on 8 March 2003 Field Trip*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/floras/san_marcos_hills_030308.html

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BOTANICAL NAME:
Asphodelus fistulosa

COMMON NAMES:
**Hollow-stem Asphodel,
Onionweed**

FAMILY: Asphodelaceae
[Liliaceae]

ORIGIN: Southern France



Photo courtesy of UCDavis.edu

Reason for listing as invasive species:

This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate,' and has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure.¹ This non-native species has escaped cultivation and established in natural areas of San Diego County according to the "Checklist of the Vascular Plants of San Diego County."² This species is listed on the Federal Noxious Weed List and the California state-listed noxious weeds (Quarantine)³.

Methods of invading natural areas:

Seed, root sprouts, vegetatively, wildlife. Spreads readily along freeways and roads.

Locations where it invades:

wetland/riparian, coastal habitat, chaparral, coastal sage, grassland.

Where invasive in San Diego:

Camp Pendleton, San Luis Rey Watershed, Carlsbad Hydrological Unit⁴, Marian Bear Natural Park, Carmel Mountain (burn area), Penasquitos Canyon, Torrey Pines State Park⁵, Tierrasanta along Portofino.⁶

It is moving along our transportation corridors, principally 52 and I-5 here locally, and other corridors in the state. From there it moves into the adjacent parks. It is currently being removed from Marian Bear, Rose and Tecolote Canyons under contract with City Parks.⁶

Invasive varieties include:

Varieties not known to be invasive:

All members of the species *Asphodelus fistulosa*

Alternative plants to consider:

California Native Species:

Ornamental species:

¹ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Asphodelus fistulosa*
<http://ucce.ucdavis.edu/files/filelibrary/5319/17779.pdf>.

² Simpson, M.G. and J.P. Rebman. 2001. *Checklist of the vascular plants of San Diego County*, 3rd ed. SDSU Herbarium Press, San Diego.

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³ USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). [National Plant Data Center](#), Baton Rouge, LA 70874-4490 USA.

⁴ Martus, Carolyn, consulting biologist, (c_martus@yahoo.com) E-mail to Marney Griffin. 11 Nov. 2004

⁵ Burrascano, Cindy, CNPS. Email to Marney Griffin. 11 Nov. 2004

⁶ Kelly, Mike, Cal-IPC. Email to CNPS listserv. 15 March 2005

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www.cal-ipc.org

Reason for listing as invasive species:

This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate,' and has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure.¹

Australian Saltbush displaces native plants as it spreads and hugs the ground. "Birds eat the red, berry-like fruits and may act as a means of dispersal (Sanders 1997.)"²

Methods of invading natural areas:

"Australian Saltbush reproduces by seed only. The plant flowers from April to December. Male and female flowers are borne on the same plant. Other similar *Atriplex* species are self-compatible and wind-pollinated; suggesting this also may be true of this plant. Seeds are produced in large numbers and are surrounded by fleshy bracts when mature (Sanders, pers. comm. 1997). These fleshy bracts are attractive to fruit eaters, which may help disperse the seeds. Seeds have been found in the stomach contents of foxes and lizards on Santa Cruz Island (Valido and Nogales 1994, Crooks 1994). Degree of persistence of seeds in soil and germination conditions are unknown."³ Seed germination occurs on saline soils, which provides a competitive advantage over other native species (De Villiers et al. 1995)⁴

Locations where it invades:

"In California, Australian Saltbush is found mostly in waste places, shrubland, or woodland below 3,280 feet (1,000 m) elevation in the Mojave and Sonoran deserts and arid parts of the South Coast, Central Coast, San Francisco Bay Area, and Central Valley as far north as Glenn County. It also inhabits coastal areas and coastal salt marshes from San Diego County to Mendocino County. Australian Saltbush is especially fond of heavy saline soils, particularly areas that have been heavily grazed or disturbed. It is quick to invade newly developed lands, roadsides, coastal marshes, and the margins of cultivated fields (Halvorson et al. 1988, Hickman 1993)."⁵

Where invasive in San Diego:

Cabrillo National Monument Bayside Trail and western (coastal) slopes, Pt. Loma San Diego⁶, Carlsbad Beach Sidewalk⁷, Torrey Pines State Reserve⁸, Temecula Gorge Santa Margarita Ecological Reserve⁹, San Marcos Hills¹⁰

Invasive varieties include:

All members of the species *Atriplex semibaccata*

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Varieties not known to be invasive:

N / A

Alternative plants to consider:

California Native Species and cultivars:

Atriplex canescens

Four-wing Salt Bush

Baccharis pilularis 'Pigeon Point'
Ceanothus griseus var. *horizontalis*

Dwarf Coyote Brush
Carmel Ceanothus,
Wild Lilac

Eriogonum umbellatum
Eriogonum fasciculatum

Sulfur Buckwheat
California Buckwheat

Ornamental species:

Plecostachys serpyllifolia
Rosmarinus officinalis 'Prostrata'

Trailing Licorice
Prostrate Rosemary,
Trailing Rosemary

¹ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Atriplex semibaccata*
<http://ucce.ucdavis.edu/files/filelibrary/5319/18104.pdf>.

² Carla C. Bossard, John M. Randall, Marc C. Hoshovsky, Editors, University of California Press, 2000, *Invasive Plants of California's Wildlands*, Accessed November 25, 2004 on the World Wide Web at <http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=9&surveynumber=182>.

³ Carla C. Bossard, et al.

⁴ Carla C. Bossard, et al.

⁵ Carla C. Bossard, et al.

⁶ Tom Chester and Jane Strong, *Plant Guide to Bayside Trail, Cabrillo National Monument, San Diego*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/guides/cabrillo_nm/bayside_trail.html

⁷ Tom Chester and Jane Strong, *Plant Guide to Carlsbad Beach Sidewalk, San Diego County*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/guides/carlsbad_beach_sidewalk.html

⁸ Tom Chester, Jane Strong and Bob Muns, Bob, *Flora of Torrey Pines State Reserve*, 1990, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/plants/floras/coast/torrey_pines.html

⁹ Tom Chester and Jane Strong, *Plant Guide To North Gate to Temecula Gorge, Santa Margarita Ecological Reserve*, Tom Chester and Jane Strong, http://tchester.org/sd/plants/guides/smer/north_gate_to_gorge.html.

¹⁰ Tom Chester and Jane Strong, *Plants of San Marcos Hills on 8 March 2003 Field Trip*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/floras/san_marcos_hills_030308.html

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BOTANICAL NAME:
Carpobrotus edulis,
Carpobrotus chilensis

COMMON NAMES:
Hottentot Fig,
Highway Iceplant,
Sea Fig (*C. chilensis*)

FAMILY: Aizoaceae

ORIGIN: South Africa

Reason for listing as invasive species:

Methods of invading natural areas:



Photos of *Carpobrotus edulis* courtesy the California Invasive Plant Council,
www.cal-ipc.org

Highway Iceplant thrives in a range of soil moisture and nutrient conditions and is able to establish, grow, and dominate in the presence of competition. "These qualities and others have meant that in many natural areas it has formed nearly impenetrable mats that dominate resources, including space. It has invaded foredune, dune scrub, coastal bluff scrub, coastal prairie, and maritime chaparral communities, and competes directly with several threatened or endangered plant species for nutrients, water, light, and space (State Resources Agency 1990). It can suppress the growth of both native seedlings (D'Antonio 1993) and mature native shrubs (D'Antonio and Mahall 1991). In addition, it can lower soil pH in loamy sand (D'Antonio 1990a) and change the root system morphology of at least two native shrub species (D'Antonio and Mahall 1991)."¹

"Highway Iceplant can reproduce both vegetatively and by seed. Flowering occurs almost year round, beginning in February in southern California and continuing through fall in northern California, with flowers present for at least a few months in any given population. Seed production is high, with hundreds of seeds produced in each fruit. Fruits mature on the plant and are eaten by mammals such as deer, rabbits, and rodents."² Because of the ability to produce roots and shoots at every node, any shoot segment can become a propagule. This allows for survival of individual branch segments when they are isolated from the rest of the plant by being severed or buried by sand. For this reason it is important to remove all material from the site when attempting to eradicate this species. Active growth appears to occur year round, with individual shoot segments growing more than three feet (1 m) per year (D'Antonio 1990b). All segments can produce roots at the nodes when in contact with soil, allowing for the formation of broad, thick mats. The impact on native competitors changes with the availability of water throughout the year, with the greatest impact occurring in times of drought (D'Antonio and Mahall 1991)."³

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Locations where it invades: "Highway Iceplant is found in coastal habitats and gardens from north of Eureka, California, south at least as far as Rosarito in Baja California. It is still abundant along highways, on military bases, and in other public and private landscapes. It spreads beyond landscape plantings and has invaded foredune, dune scrub, coastal bluff scrub, coastal prairie, and most recently maritime chaparral communities. Establishing readily after disturbance, its seedlings are often seen along roads and on trails and gopher mounds, as well as in areas of open sand and recently burned areas. It is intolerant of frost, and is not found far inland or at elevations greater than approximately 500 feet (150 m)."⁴

Where invasive in San Diego: San Diego River, Torrey Pines State Reserve⁵, most coastal lagoons and estuaries in the county, Switzer Canyon, San Clemente Canyon, Sycuan Peak Ecological Reserve⁶

Invasive varieties include: All members of both species, *C. edulis* and *C. chilensis* commonly hybridize

Varieties not known to be invasive: None

Alternative plants to consider:

| | | |
|--|--|---|
| <u>California Native Species and cultivars</u> | <i>Arctostaphylos</i> species <i>Baccharis pilularis</i> 'Pigeon Point' <i>Ceanothus griseus</i> var. <i>horizontalis</i> <i>Eriogonum fasciculatum</i> | Manzanita Dwarf Coyote Brush Carmel Ceanothus, California Wild Lilac California Buckwheat |
| <u>Ornamental species:</u> | <i>Juniperus</i> species <i>Rosmarinus officinalis</i> 'Prostrata' <i>Santolina virens</i> | Juniper (prostrate varieties) Prostrate Rosemary, Trailing Rosemary Santolina |

¹ Carla C. Bossard, John M. Randall, Marc C. Hoshovsky, Editors, University of California Press, 2000, *Invasive Plants of California's Wildlands*, Accessed November 25, 2004 on the World Wide Web at <http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=25&surveynumber=182>.

² Carla C. Bossard, et al.

³ Carla C. Bossard, et al.

⁴ Carla C. Bossard, et al.

⁵ Tom Chester, Jane Strong and Bob Muns, Bob, *Flora of Torrey Pines State Reserve*, 1990, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/plants/floras/coast/torrey_pines.html

⁶ Dr. Jon P. Rebman, Botanical Curator San Diego Natural History Museum, personal communication January 15th, 2006.

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BOTANICAL NAME:

Chrysanthemum coronarium

COMMON NAMES:

Garland Daisy, Crown Daisy

FAMILY: Asteraceae

(=Compositae)

ORIGIN:

Mediterranean



Photo © 2003 BonTerra Consulting

Reason for listing as invasive species:

Garland or Crown Daisy is an invasive annual wildflower. It produces many viable seeds that germinate readily in disturbed places, where it can be seen growing in solid stands. Desiccated foliage persists and can be a fire hazard in late summer.

Methods of invading natural areas:

It produces many viable seeds that germinate readily in disturbed places. It is often found in commercial seed mixes and its seedlings grow quickly and can out-compete native vegetation. Seeds persist for several seasons.

Locations where it invades:

Coastal and inland flatlands and hillsides. Typically occurs and can become a dominant plant in disturbed places.

Where invasive in San Diego:

Switzer Canyon, San Clemente Canyon San Diego, Torrey Pines State Reserve¹, Viejas Mountain²

Invasive varieties include:

All members of the species *Chrysanthemum coronarium*

Varieties not known to be invasive:

N / A

Alternative plants to consider:

California Native Species and cultivars:

| | |
|-----------------------------------|---------------------------------------|
| <i>Achillea millefolium</i> | Yarrow |
| <i>Coreopsis maritima</i> | Sea Dahlia |
| <i>Encelia californica</i> | California Encelia, Bush Sunflower |
| <i>Eriophyllum confertiflorum</i> | Long-stem Golden-yarrow |
| <i>Eschscholzia californica</i> | California Poppy |

¹ Tom Chester, Jane Strong and Bob Muns, *Flora of Torrey Pines State Reserve*, 1990, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/plants/muns/coast/torrey_pines.html

² Dr. Jon P. Rebman, Botanical Curator San Diego Natural History Museum, personal communication January 15th, 2006.

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Ornamental species:

Isocoma menziesii

Goldenbush

Many

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BOTANICAL NAME:
Cortaderia selloana,
Cortaderia jubata

COMMON NAMES:
Pampas Grass
(*C. selloana*),
Jubata Grass (*C. jubata*)

FAMILY: Poaceae
(=Gramineae)

ORIGIN: Argentina, South
America



Photo of *Cortaderia selloana* © 2006 Carolyn Martus

Reason for listing as invasive species:

Pampas Grass is a common weed in moist areas of southern California, and it can displace large areas of our wetlands, which are home to many threatened and endangered animal species.

"Once established, roots of a single Pampas Grass can occupy a soil volume of about 1,100 square feet (103 m²). Lateral roots can spread to thirteen feet (4 m) in diameter and eleven and one-half feet (3.5 m) in depth (Harradine 1991). Plants are capable of surviving about fifteen years (Moore 1994)."¹

"Pampas Grass creates a fire hazard with excessive build-up of dry leaves, leaf bases, and flowering stalks. In conservation areas pampas grass competes with native vegetation, reduces the aesthetic and recreational value of these areas, and also increases the fire potential."¹

"Large infestations of Jubata Grass threaten California's native coastal ecosystems by crowding out native plants, particularly in sensitive coastal dune areas (Cowan 1976). In addition to its effect on native plant diversity, Jubata Grass can reduce the aesthetic and recreational value of natural areas."¹

"It creates a fire hazard with excessive build-up of dry leaves, leaf bases, and flowering stalks. Large clumps can complicate fire management activities by blocking vehicle and human access and by becoming fire hazards themselves. The sawtoothed leaves can cause injury to humans."¹

Methods of invading natural areas:

Seed dispersal

Locations where it invades:

Pampas Grass "has escaped cultivation and spread along sandy, moist ditch banks throughout coastal regions of southern California (Costas-Lippman 1977) below 1,000 feet (330 m). Its distribution is not as extensive as *Cortaderia jubata*, but it appears to be expanding (DiTomaso et al.

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1998).¹

"Seedling growth and establishment of Jubata Grass are most rapid on bare, sandy soil and exposed road cuts, but typically require cool, foggy climate and moist soil (Cowan 1976)."²

Where invasive in San Diego:

San Diego River, San Diego to Santee; many coastal hillsides in the county; Florida Canyon; William Heise County Park³; Mt. Woodson Trail, Poway⁴; Torrey Pines State Reserve⁵; Santa Margarita Ecological Reserve⁶; Mission Village Drive, Serra Mesa, San Diego

All above locations are for *C. selloana*. *Cortaderia jubata* has not yet been documented with an herbarium voucher from San Diego County and it is believed to be more invasive in coastal parts of San Diego county.

Invasive varieties include:

It is unknown whether the cultivated and 'sterile' varieties of *Cortaderia* are able to cross with the wild species of *Cortaderia* and produce viable off-spring. Until this scientific research is conducted and considering the rampant ecological damage already caused by both *C. selloana* and *C. jubata*, it is not recommended to plant any members of the species, including cultivars, varieties and supposed 'sterile' varieties, *Cortaderia selloana* and *Cortaderia jubata*.

Varieties not known to be invasive:

Unknown, see note above.

Alternative plants to consider:

California Native Species and cultivars:

Bothriochloa barbinodis
Leymus condensatus
Muhlenbergia rigens

Cane Bluestem
Giant Wild Rye
Deergrass

Ornamental species:

Chondropetalum tectorum
Muhlenbergia spp.

Cape Rush
Muhly Grasses

¹ Carla C. Bossard, John M. Randall, Marc C. Hoshovsky, Editors, University of California Press, 2000, *Invasive Plants of California's Wildlands*, Accessed November 25, 2004 on the World Wide Web at <http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=35&surveynumber=182>.

² Carla C. Bossard, John M. Randall, Marc C. Hoshovsky, Editors, University of California Press, 2000, *Invasive Plants of California's Wildlands*, Accessed November 25, 2004 on the World Wide Web at <http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=33&surveynumber=182>.

³ Tom Chester and Jane Strong, *Plant Guide to Self-Guided Nature Trail, Heise County Park*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/guides/heise_park/nature_trail.html.

⁴ Tom Chester and Jane Strong, *Plant Guide to Blue Sky Ecological Reserve to Mt. Woodson Trail, Poway*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/guides/bser/bser_to_mt_woodson_trail.html.

⁵ Tom Chester and Jane Strong and Bob Muns, *Flora of Torrey Pines State Reserve*, 1990, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/plants/muns/coast/torrey_pines.html.

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⁶ Tom Chester and Jane Strong, *Santa Margarita Ecological Reserve: Preliminary Plant List By Trail*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/guides/smer/plant_list.html.

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BOTANICAL NAME:
Cytisus scoparius,
Cytisus striatus

COMMON NAMES:
Scotch Broom
(C. scoparius,
Portuguese Broom
(C. striatus)

FAMILY: Fabaceae
(=Leguminosae)

ORIGIN: Europe



Photos of *Cytisus scoparius* courtesy the California Invasive Plant Council, www.cal-ipc.org

Reason for listing as invasive species:

It has been found that one medium-sized Scotch Broom shrub can produce over 12,000 seeds a year.¹ Scotch and Portuguese Broom grow aggressively, quickly displacing native plant species and the seeds are toxic to hoofed mammals. "Mature shoots are unpalatable and are not used for forage except by rabbits in the seedling stage (Bossard and Rejmánek 1994). Foliage causes digestive disorders in horses (Parsons 1992). Since Scotch Broom can grow more rapidly than most trees used in forestry, it shades out tree seedlings in areas that are revegetated after tree harvest. Scotch and Portuguese Broom burn readily and carry fire to the tree canopy, increasing both the frequency and intensity of fires (Parsons 1992). These species is difficult to control because of its substantial and long-lived seedbank."²

Methods of invading natural areas:

Scotch Broom spreads by prodigious seed production. One medium-sized shrub can produce over 12,000 seeds a year. After ballistic dispersal, seeds are further dispersed by ants, animals, or in mud clinging to road grading or maintenance machinery. Scotch Broom is also readily dispersed by rain wash on slopes (Bossard 1991b). Plants can resprout from the root crown after cutting or freezing and sometimes after fire (Bossard and Rejmánek 1994).³ "Scotch Broom prefers soil with pH less than 6.5; it is rare on limestone soils. It tolerates a wide range of soil moisture conditions and is competitive in low-fertility soils."⁴

"Portuguese Broom probably spreads like Scotch Broom; that is, after ballistic dispersal, seeds may be further dispersed by ants, animals, by rain wash on open ground, or in mud clinging

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to road grading or maintenance machinery.”⁵ “Portuguese Broom is capable of invading and establishing dense populations in coastal prairie, coastal scrub, oak savannah, and open-canopy woodlands. In the San Francisco Bay Area, it is particularly common on non-calcareous soils.”⁶

Locations where it invades:

“Found along the California coast from Monterey north to the Oregon border, Scotch Broom is prevalent in interior mountains of northern California on lower slopes and very prevalent in Eldorado, Nevada, and Placer counties in the Sierra Nevada foothills. It is also reported from Los Angeles and San Bernardino counties. It is common in disturbed places, such as river banks, road cuts, and forest clearcuts, but can colonize undisturbed grassland, shrubland, and open canopy forest below 4,000 feet (1300 m).”⁷
 “Portuguese Broom is much less common than other Broom species. It currently occupies sixty-five acres in the Marin Headlands, Marin County, where it forms dense cover, one mature shrub per two square meters. It is found occasionally in other parts of the Bay area, and has been reported in Mendocino and San Diego counties, with probable occurrence in central and south coastal counties.”⁸

Where invasive in San Diego:

Scotch Broom has been found at Camp Pendleton but it has not been documented with an herbarium voucher.⁹
 Portuguese Broom at Cuyamaca and Laguna Mountains¹⁰

Invasive varieties include:

All members of the species *C. striatus* and *C. scoparius*

Varieties not known to be invasive:

N/A

Alternative plants to consider:

California Native Species and cultivars:

Dendromecon rigida
Encelia californica

Bush Poppy
 California Encelia,
 Bush Sunflower
 Long-stem Golden-yarrow
 Goldenbush

Eriophyllum confertiflorum

Isocoma menziesii

Ornamental species:

Rosa banksiae
Salvia greggii
Santolina virens

Lady Bank’s Rose
 Autumn Sage
 Santolina

¹ Carla C. Bossard, John M. Randall, Marc C. Hoshovsky, Editors, University of California Press, 2000, *Invasive Plants of California's Wildlands*, Accessed November 25, 2004 on the World Wide Web at <http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=39&surveynumber=182>.

² Carla C. Bossard, et al.

³ Carla C. Bossard, et al.

⁴ Carla C. Bossard, et al.

⁵ Carla C. Bossard, et al.

⁶ Carla C. Bossard, et al.

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⁷ Carla C. Bossard, et al.

⁸ Carla C. Bossard, et al.

⁹ Field observation, Carolyn Martus, consulting biologist, c_martus@yahoo.com.

¹⁰ Jerilyn Hirshberg and Duffie Clemons, *Vascular Plants of the Cuyamaca and Laguna Mountains: A Checklist*, Accessed November 25, 2004 on the World Wide Web at http://tchester.org/sd/plants/floras/cuyamaca_laguna_mtns_print.html.

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BOTANICAL NAME:
Delairea odorata
(*Senecio mikanioides*)

COMMON NAMES:
German Ivy,
Cape Ivy

FAMILY: Asteraceae
(=Compositae)

ORIGIN: South Africa



Photo © 2006 Carolyn Martus

Reason for listing as invasive species:

This aggressive and fast growing vine from mountain forests of South Africa invades damp, wooded sites and stream banks. It has also been found to occur in grasslands, oak forests, and scrublands. It is an extremely fast growing vine that envelopes and forms a dense mat over existing vegetation resulting in smothering and choking out of native species. *Delairea odorata* spreads vegetatively by stolons or stolon fragments. Manual eradication is difficult because even small pieces of rhizome left in the soil can re-sprout and root.¹ *Delairea odorata* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."² This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'high', this species has severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.³ It is not recommended for planting anywhere in San Diego County.^{1,2,3}

Methods of invading natural areas:

Stolons, vegetatively¹

Locations where it invades:

oak woodland, riparian¹

Where invasive in San Diego:

Wooded slopes along Highway 163 corridor through Balboa Park, San Diego. Marian Bear Park, Bonsall Preserve, Camp Pendleton, Buena Vista Creek^{4,5}

Invasive varieties include:

All members of the species *Delairea odorata*

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species:

Ornamental species:

¹ Bossard, Carla, *Invasive Plants of California Wildlands*, University of California Press, 2000.

² Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

³ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Delairea odorata*

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<http://ucce.ucdavis.edu/files/filelibrary/5319/18689.pdf>.

⁴ Carolyn Martus, consulting biologist, personal observation c_martus@yahoo.com.

⁵ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986, p. 114.

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BOTANICAL NAME:
Delairea odorata
(*Senecio mikanioides*)

COMMON NAMES:
German Ivy,
Cape Ivy

FAMILY: Asteraceae
(=Compositae)

ORIGIN: South Africa



Photo © 2006 Carolyn Martus

Reason for listing as invasive species:

This aggressive and fast growing vine from mountain forests of South Africa invades damp, wooded sites and stream banks. It has also been found to occur in grasslands, oak forests, and scrublands. It is an extremely fast growing vine that envelopes and forms a dense mat over existing vegetation resulting in smothering and choking out of native species. *Delairea odorata* spreads vegetatively by stolons or stolon fragments. Manual eradication is difficult because even small pieces of rhizome left in the soil can re-sprout and root.¹ *Delairea odorata* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."² This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'high', this species has severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.³ It is not recommended for planting anywhere in San Diego County.^{1,2,3}

Methods of invading natural areas:

Stolons, vegetatively¹

Locations where it invades:

oak woodland, riparian¹

Where invasive in San Diego:

Wooded slopes along Highway 163 corridor through Balboa Park, San Diego. Marian Bear Park, Bonsall Preserve, Camp Pendleton, Buena Vista Creek^{4,5}

Invasive varieties include:

All members of the species *Delairea odorata*

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species:

Ornamental species:

¹ Bossard, Carla, *Invasive Plants of California Wildlands*, University of California Press, 2000.

² Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

³ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Delairea odorata*

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<http://ucce.ucdavis.edu/files/filelibrary/5319/18689.pdf>.

⁴ Carolyn Martus, consulting biologist, personal observation c_martus@yahoo.com.

⁵ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986, p. 114.

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BOTANICAL NAME:

Ehrharta calycina
Ehrharta erecta
Ehrharta longiflora

COMMON NAMES:

Purple Veldt Grass
Panic Veldt Grass
Long-Flowered Veldt Grass

FAMILY: Poaceae
(=Gramineae)

ORIGIN: South Africa



Ehrharta calycina

Carl Austin Rietz © California Academy of Sciences

Reason for listing as invasive species:

A tussock forming perennial grass with numerous stems and flat, green to reddish purple tinged leaves 3 to 8 inches in length with a panicle inflorescence. Similar in appearance to crabgrass. Originally several species of the genus were introduced as erosion control in the mid 20th Century and now it is spreading rapidly. It can become a continuous cover under shrubs. It roots deeply, so can survive dry periods, although it prefers periodic rainfall and appears not to spread into arid regions. All three species can climb over adjacent vegetation with ascending stems. The dense turf that develops makes it difficult for seeds of other species to germinate. It can cause a rapid shift toward grassland in scrub communities. It is especially invasive in dune communities. It does not tolerate inundation.¹ *Ehrharta erecta* and *E. longiflora* are on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate,' these species have substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure.² *Ehrharta calycina* is on the 2005 Cal-IPC Invasive Plant Inventory as 'high', this species has severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.³

Methods of invading natural areas:

seed, wind-born seed, vegetative, wildlife

Locations where it invades:

oak woodland, chaparral, grassland, coastal sage scrub, coastal dunes

Where invasive in San Diego:

La Jolla Shores⁴, San Elijo Lagoon, Torrey Pines State Park, Tecolote Open Space Park⁵

Invasive varieties include:

All members of the species *E. erecta*, *E. longiflora*, and *E. calycina* (extremely rapid spread in San Diego County)⁶

Varieties not known to be

None

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invasive:

Alternative plants to consider:

California Native Species and cultivars:

Aristida purpurea
Bothriochloa barbinodis
Carex spissa
Elymus glaucus
Leymus condensatus
Muhlenbergia rigens
Nassella spp.

Three-awn Grass
Cane Bluestem
San Diego Sedge
Blue Wild Rye
Giant Wild Rye
Deergrass
Needlegrass, Stipa

Ornamental species:

¹ Bossard, Carla, *Invasive Plants of California Wildlands*, University of California Press, 2000.

² Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *E. calycina*
<http://ucce.ucdavis.edu/files/filelibrary/5319/17424.pdf>.

³ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *E. erecta* and *E. longiflora*
<http://ucce.ucdavis.edu/files/filelibrary/5319/17425.pdf> and
<http://ucce.ucdavis.edu/files/filelibrary/5319/17426.pdf>.

⁴ Bossard, Carla, *Invasive Plants of California Wildlands*, University of California Press, 2000.

⁵ Carolyn Martus, consulting biologist, field observations March 2005, c_martus@yahoo.com.

⁶ Ibid.

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BOTANICAL NAME:
Eucalyptus camaldulensis

COMMON NAMES:
**Red Gum,
River Red Gum**

FAMILY: Myrtaceae

ORIGIN: Australia



Photo from Landscape Plants for Western Regions¹

Reason for listing as invasive species:

This is the most widely occurring species of *Eucalyptus* in Australia. ¹ It grows in arid and semi-arid areas and can survive along seasonal watercourses in acidic or sandy alluvial soils and colonizes natural areas with moisture. Growth and development of understory plants is inhibited by large volumes of leaf, bark, excessive shade and branch debris. ² *Eucalyptus camaldulensis* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas." ³ It is on the 2005 Cal-IPC Invasive Plant Inventory as 'limited': this species is invasive but its ecological impacts are minor. Its reproductive biology and other attributes result in low to moderate rates of invasion. Ecological amplitude and distribution are generally limited, but this species may be locally persistent and problematic. ⁴

Methods of invading natural areas:

seed

Locations where it invades:

riparian, wetland

Where invasive in San Diego:

San Diego River, Torrey Pines, Rancho Santa Fe, Jamul, Otay ^{4,5}

Invasive varieties include:

All members of the species *Eucalyptus camaldulensis*

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species:

Platanus racemosa

Western Sycamore

Quercus agrifolia

Coast Live Oak

Lyonothamnus floribundus ssp.

Fern-leaved Catalina

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Ornamental species:

aspleniifolius
Tristania conferta

Ironwood
Brisbane Box

¹ Perry, Bob. *Landscape Plants for Western Regions*. 1992, p168.

² Personal communication Mike Kelly, mkellysd@aol.com

³ Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

⁴ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *E. camaldulensis* <http://ucce.ucdavis.edu/files/filelibrary/5319/20368.pdf>.

⁵ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986, p. 184.

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BOTANICAL NAME:
Eucalyptus globulus

COMMON NAMES:
Blue Gum

FAMILY: Myrtaceae

ORIGIN: Australia



Photo by John M. Randall, The Nature Conservancy, more photos at <http://tncweeds.ucdavis.edu/photos.html>

Reason for listing as invasive species:

Historically, *E. Globulus* was planted in California commercially for timber and fuel production. Existing stands of *E. globulus* can aggressively invade neighboring plant communities if sufficient moisture is available. Growth and development of understory plants is inhibited by large volumes of leaf, bark, excessive shade and branch debris. *Eucalyptus globulus* also contributes to the spread of fire because of its characteristic long, stringy bark.¹ *Eucalyptus globulus* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."² *Eucalyptus globulus* is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate': this species has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal. Ecological amplitude and distribution may range from limited to widespread.³

Methods of invading natural areas:

Seed

Locations where it invades:

riparian, wetland

Where invasive in San Diego:

San Diego River, Agua Hedionda Lagoon, Santa Margarita River, Buena Vista Creek, Penasquitos Canyon, Escondido Creek^{4,5}

Invasive varieties include:

All members of the species are invasive

Varieties not known to be invasive:

None

Alternative plants to consider:

Native Species:

Platanus racemosa
Quercus agrifolia
Lyonothamnus floribundus ssp.
aspleniifolius

Western Sycamore
Coast Live Oak
Fern-leaved Catalina
Ironwood

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Ornamental species:

Tristania conferta

Brisbane Box

¹ *Invasive Plants of California's Wildlands*. Bossard et al. 2000, p. 306.

² Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>

³ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *E. globulus*
<http://ucce.ucdavis.edu/files/filelibrary/5319/17202.pdf>

⁴ Field observation, Carolyn Martus, c_martus@yahoo.com

⁵ Beauchamp, R. Mitchel, A Flora of San Diego County, 1986, p. 184.

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BOTANICAL NAME:
Foeniculum vulgare

COMMON NAMES:
**Fennel, Sweet Fennel,
Wild Fennel**

FAMILY: Apiaceae
(=Umbelliferae)

ORIGIN: Mediterranean
region of Europe



Photo Courtesy John M. Randall, The Nature Conservancy, more photos at <http://tncweeds.ucdavis.edu/photos.html>

Reason for listing as invasive species:

Fennel will invade areas where the soil has been disturbed and can exclude or prevent the establishment of native species. It grows quickly, out-competing native plants for sunlight and water. *Foeniculum vulgare* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."¹ *Foeniculum vulgare* is on the 2005 Cal-IPC Invasive Plant Inventory as 'high': This species has severe impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.²

Methods of invading natural areas:

Humans have dispersed this plant globally for landscaping and cultivation. Seeds are transported by water, vehicles, humans and by birds and rodents.³

Locations where it invades:

riparian/wetlands, coastal habitats, grasslands, coastal sage

Where invasive in San Diego:

Camp Pendleton, Buena Vista Creek, Agua Hedionda Lagoon, Lake Calaveras, Escondido Creek, Spring Valley^{4,5}

Invasive varieties include:

All members of the species *Foeniculum vulgare*

Varieties not known to be invasive:

Unknown

Alternative plants to consider:

California Native Species:

Ornamental species:

¹ Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

² Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *F. vulgare* <http://ucce.ucdavis.edu/files/filelibrary/5319/20405.pdf>.

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³ Bossard, et al. 2000. *Invasive plants of California's Wildlands*. University of California Press, Berkeley and Los Angeles. http://groups.ucanr.org/ceppc/Publications/Invasive_Plants_of_California_Wildlands.htm

⁴ Personal observation, Carolyn Martus, c_martus@yahoo.com

⁵ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986, p. 84.

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BOTANICAL NAME:
Genista spp.
(Genista monspessulana)

COMMON NAMES:
Broom,
French Broom,
Genista

FAMILY: Fabaceae
(=Leguminosae)

ORIGIN: Mediterranean
countries



Photos from

<http://plants.montara.com/ListPages/FamPages/showpix/fabaS/genmon.JPG> and www.nps.gov/.../non_natives/french_broom.htm

Reason for listing as invasive species:

Genista monspessulana currently occupies approximately 100,000 acres in California. It grows more rapidly than native plants so it quickly out-competes native plants, including tree seedlings, preventing reforestation efforts. This species produces dense, long-lived seed banks making eradication difficult.¹ *Genista monspessulana* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."² *Genista monspessulana* is on the 2005 Cal-IPC Invasive Plant Inventory as 'high,' this species has severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.³

⁴
Methods of invading natural areas:

Seed

Locations where it invades:

oak woodland, riparian, grassland, coastal sage scrub, chaparral

Where invasive in San Diego:

Elfin Forest⁴,

Invasive varieties include:

All members of the species *G. monspessulana*

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species:

Dendromecon rigida

Bush Poppy

Ornamental species:

Tagetes lemmonii

Mexican Marigold, Bush Marigold

¹ Invasive Plants of California's Wildlands, Bossard et.al., 2000.

² Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

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³ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *G. monspessulana*
<http://ucce.ucdavis.edu/files/filelibrary/5319/18683.pdf>.

⁴ Field observation by Carolyn Martus, consulting biologist, c_martus@yahoo.com.

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BOTANICAL NAME:
Hedera canariensis

COMMON NAMES:
Algerian Ivy
Canary Ivy

FAMILY: Araliaceae

ORIGIN: Canary Islands and Northern Africa



Photo © 2001 Tony Morosco

Reason for listing as invasive species:

A hardy and clinging groundcover or vine climbing to 20-30 feet with equal spread. Leaves are 3-8" wide and glossy, and new growth is a lighter shade of green. It can be an aggressive invader that inhibits regeneration of understory plants i.e. forest wildflowers, new trees and shrubs. The dense growth prevents sunlight from reaching other plants, causing them to be shaded out. The ivy also replaces species used by native wildlife.¹ This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'high,' and has severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.² Infestations are currently small or localized and it is recognized as a pest in natural landscapes.^{3,4,5}

Methods of invading natural areas:

Seed and root sprouts³

Locations where it invades:

oak woodland, riparian⁴

Where invasive in San Diego:

Keys Creek, Buena Vista Creek⁴

Invasive varieties include:

All members of the species

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species and cultivars:

Arctostaphylos spp.
Baccharis pilularis 'Twin Peaks'
Clematis ligusticifolia
Fragaria chiloensis
Vitis californica

Manzanita
Dwarf Coyote Brush
Virgin's Bower
Beach Strawberry
California Wild Grape

Ornamental species:

Distictus buccinatoria
Juniperus conferta

Blood-Red Trumpet Vine
Shore Juniper

¹ Bossard, Carla, et al. *Invasive Plants of California's Wildlands*. 2000

² Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Hedera canariensis*
http://cal-ipc.org/file_library/Hedera%20helix%20and%20canariensis.pdf.

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³ PCA Alien Plant Working Group. Accessed February 28, 2005 on the World Wide Web at <http://www.nps.gov/plants/alien/fact/lysa1.htm> .

³ Perry, Bob. *Landscape Plants for Western Regions*. 1992, p. 54.

⁴ Carolyn Martus, consulting biologist, field observation, c_martus@yahoo.com.

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BOTANICAL NAME:
Lythrum salicaria

COMMON NAMES:
Purple Loosestrife

FAMILY: Lythraceae

ORIGIN: Eurasia



Photo © Barry A. Rice, The Nature Conservancy, more photos at <http://tncweeds.ucdavis.edu/photos.html>

Reason for listing as invasive species:

An erect, perennial herb with a strongly developed taproot, Purple Loosestrife ranges in height from 1.5 to 6 feet. Seeds are usually present in large numbers and germinate in such high densities that growth of native seedlings is suppressed. It is an extremely successful invader of wetlands which have been subjected to some type of disturbance. Loosestrife crowds or shades out native species, and pushes out floating vegetation by closing open water spaces. It eventually becomes a virtually mono-typic stand.¹ It interferes with wetlands, by the rapid decay of leaves which results in release of significant amounts of nutrients. The rapid degradation of wetlands results in diminishing the value of wildlife habitats.² This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'high' meaning this species has severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.³

Methods of invading natural areas:

Seed dispersal occurs primarily by wind and water (standing water, mud attached to wildlife, boats, tires and footwear)

Locations where it invades:

riparian, wetlands, and potentially grasslands

Where invasive in San Diego:

San Elijo Lagoon, although it has not been documented with an herbarium voucher

Invasive varieties include:

All members of the species *Lythrum salicaria*

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species:

Hyptis emoryi
Salvia clevelandii
Salvia leucophylla
Trichostema lanatum

Desert-lavender
Fragrant Sage
Purple Sage
Wooly Bluecurls

Ornamental species:

Leucophyllum laevigatum
Liatris spicata
Ruellia peninsularis

Chihuahuan Sage
Blazing Star
Desert Ruellia

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¹ Elemental Abstract for *Lythrum salicaria* by the Nature Conservancy as accessed on the worldwide web on March 13th, 2006, <http://tncweeds.ucdavis.edu/esadocs/documnts/lythsal.html>

² Bossard, C. et al. *Invasive Plants of California's Wildlands*. 2000. p. 212.

³ Completed Plant Assessment by Cal-IPC for *Lythrum salicaria*
<http://ucce.ucdavis.edu/files/filelibrary/5319/18105.pdf>

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BOTANICAL NAME:

**Melinis repens
(Rhynchelytrum repens)**

COMMON NAMES:

**Natal Grass, Natal Ruby
Grass, Red Top**

FAMILY: Poaceae
(=Graminae)

ORIGIN: South Africa



Photo: University of Hawaii

Reason for listing as invasive species:

An attractive 1 to 2 foot tall perennial grass with reddish to purple flower spikes that grows in full sun and looks best with regular water, but also grows well on dry slopes and edges of roadways. It has a distinctive red colored flower head which makes it attractive as an ornamental grass. It is short lived, but reseeds itself. It typically blooms June through September, but flowering can continue through the winter in San Diego's warm winter areas. Easily escapes from cultivation and ornamental gardens. Seed is distributed by wind and establishes readily along roadways, coastal sage and grasslands primarily in coastal areas and foothills.¹ This species will compete with and displace native species.

Methods of invading natural areas:

Seed, wildlife

Locations where it invades:

oak woodland, chaparral, riparian, grassland, desert, coastal sage, coastal habitat

Where invasive in San Diego:

San Diego, La Mesa, Allied Gardens, Casa de Oro, Dehesa,¹ spreading from roadsides into adjacent habitats along I-5, I-15, Hwy 76.²

Invasive varieties include:

Melinis repens and potentially all varieties

Varieties not known to be invasive:

Unknown

Alternative plants to consider:

California Native Species and cultivars:

Aristida purpurea
Bothriochloa barbinodis
Carex spissa
Elymus glaucus
Nassella species
Muhlenbergia rigens
Leymus condensatus

Purple Three-awn
Cane Bluestem
San Diego Sedge
Needlegrass
Blue Wild Rye
Deergrass
Giant Wild Rye

Ornamental species

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¹ Beauchamp, R. Mitchel, *A Flora of San Diego County*, Sweetwater River Press, 1986.
² Carolyn Martus, consulting biologist, field observation, c_martus@yahoo.com.

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BOTANICAL NAME:
Myoporum laetum

COMMON NAMES:
**Ngaio tree,
Myoporum,
Mousehole Tree**

FAMILY: Scrophulariaceae

ORIGIN: New Zealand



Photos © Carolyn Martus 2005

Reason for listing as invasive species:

This fast growing, adaptable, 15 to 30 foot tall evergreen shrub with bright green leaves invades damp soil areas and drainages and seeps in canyons, and edges of both fresh and salt water wetlands. It is aggressive and can quickly grow to 30 feet in height, shading, out-competing and displacing native species. Its heavy seed production results in dense monocultures that outcompete other species, and seed dispersal by birds over long distances results in rapid expansion of infested areas. Leaves and fruits are potentially toxic to wildlife. It can survive periods of drought, allowing it to spread into drier margins of wetlands and north-facing slopes.¹ This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate.' This species has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal. Ecological amplitude and distribution may range from limited to widespread.² In San Diego, its distribution in canyons and creeks is widespread.³

Methods of invading natural areas:

Seed germinates with first rains in autumn and each succeeding rain or heavy fog.

Locations where it invades:

riparian, wetland, and coastal¹

Where invasive in San Diego:

Widespread in creeks and canyons from Camp Pendleton to San Ysidro.³

Invasive varieties include:

Myoporum laetum entire species

Varieties not known to be invasive:

Unknown

Alternative plants to consider:

California Native Species and cultivars:

Fremontodendron californicum
Heteromeles arbutifolia
Lavatera assurgentiflora
Rhamnus californica
Rhus ovata

Flannelbush
Toyon
Island Mallow
California Coffeeberry
Sugar Bush

Ornamental species:

Laurus nobilis
Leucophyllum frutescens
Photinia _ fraseri

Sweet Bay
Texas Ranger
Fraser Photinia

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¹ Bossard, C. *Invasive Plants of California's Wildlands*. 2000. p. 212

² Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *M. laetum*
<http://ucce.ucdavis.edu/files/filelibrary/5319/18224.pdf>.

³ Carolyn Martus, field observation, consulting biologist, c_martus@yahoo.com

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BOTANICAL NAME:

Pennisetum ciliare
Pennisetum setaceum
Pennisetum clandestinum
Pennisetum villosum
(Sometimes listed as
genus Cenchrus)

COMMON NAMES:

Buffelgrass
Fountain Grass
Kikuyu Grass
African Feathertop

FAMILY: Poaceae (Gramineae)

ORIGIN: Africa & western Asia

Reason for listing as invasive species:

Methods of invading natural areas:

Locations where it invades:

Where invasive in San Diego:

Invasive varieties include:

Varieties not known to be invasive:

Alternative plants to consider:

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Pennisetum setaceum, "Fountain Grass"
Photo © 2006 Carolyn Martus

"Thanks to its heavy self-sowing, this species (*P. setaceum*) will threaten to crowd out native vegetation when planted near open country"¹. In natural lands or open spaces, it grows quickly and directly competes with native vegetation.² *Pennisetum setaceum*, *P. clandestinum*, and *P. villosum* are categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."³ *Pennisetum setaceum* is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate.' This species has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal. Ecological amplitude and distribution may range from limited to widespread. *Pennisetum clandestinum* is on the 2005 Cal-IPC Invasive Plant Inventory as 'limited': this species is invasive but its ecological impacts are minor. Its reproductive biology and other attributes result in low to moderate rates of invasion. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.⁴

seed, vegetatively, wildlife, water/storm drains

All habitat types

Pennisetum clandestinum: Buena Vista Lagoon, San Elijo Lagoon Ecological Reserve.⁵

Pennisetum setaceum: San Diego, Grossmont, Murphy Canyon, Rancho Bernardo, Wildcat Canyon, Penasquitos Regional Park⁶

All species and varieties of named species

Pennisetum setaceum 'rubrum' is being tested by researchers at UC Riverside for sterility properties.

California Native Species:

Aristida purpurea
Festuca californica
Nassella pulchra

Purple Three-awn
California Fescue
Purple Needlegrass

Ornamental species:

¹ *Sunset Western Garden Book*, 2001 edition.

² Carolyn Martus, consulting biologist, field observation c_martus@yahoo.com.

³ Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

⁴ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *P. setaceum* and *P. clandestinum* <http://ucce.ucdavis.edu/files/filelibrary/5319/17411.pdf> and <http://ucce.ucdavis.edu/files/filelibrary/5319/20386.pdf>

⁵ Carolyn Martus, consulting biologist, field observation c_martus@yahoo.com.

⁶ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986, p. 82.

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BOTANICAL NAME:
Phoenix canariensis

COMMON NAMES:
Canary Island Date Palm

FAMILY: Arecaceae
(=Palmae)

ORIGIN: Africa, Spain (Canary Islands)



Photo © Carolyn Martus 2006

Reason for listing as invasive species:

Canary Island Date Palm is recognizable by its massive trunk and its ascending glaucous leaves. Flowering throughout the year, it germinates by seed.

Phoenix canariensis is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."¹ Seeds are spread by birds and other wildlife (coyotes) and storm drains from planted areas to natural areas where the palms out-compete surrounding native plants. It is very invasive in areas with moisture such as wetlands, canyons and lagoons.² This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'limited': this species is invasive but its ecological impacts are minor. Its reproductive biology and other attributes result in low to moderate rates of invasion. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.³

Methods of invading natural areas:

seed, wildlife, water/storm drains

Locations where it invades:

riparian, wetland, coastal

Where invasive in San Diego:

Lagoons, creeks and canyons from Camp Pendleton to San Ysidro.

Invasive varieties include:

All members of the species *Phoenix canariensis*

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species:

Ornamental species

¹ Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html> .

² Carolyn Martus, consulting biologist, field observations, c_martus@yahoo.com .

³ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Phoenix canariensis* <http://ucce.ucdavis.edu/files/filelibrary/5319/20369.pdf>.

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BOTANICAL NAME:
Retama monosperma
(*Genista monosperma*,
Spartium monosperma,
Lygos monosperma)

COMMON NAMES:
Broom,
Bridal Veil Broom

FAMILY: Fabaceae
(=Leguminosae)

ORIGIN: Mediterranean region

Reason for listing as invasive species:

Methods of invading natural areas:

Locations where it invades:

Where invasive in San Diego:

Invasive varieties include:

Varieties not known to be invasive:

Alternative plants to consider:

California Native Species:

Ornamental species:



Photos courtesy www.smslrwma.org

Retama monosperma does well in rocky, infertile soils. ¹ Once established, it grows rapidly, displacing native perennials and annuals. It naturalizes and takes over coastal sage scrub, chaparral, and grasslands. ² *Retama monosperma* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas". ³ In 1999 it was listed by Cal-IPC as 'red-alert' status, meaning a species with potential to spread explosively but current infestations were restricted because of on-going control treatments. ⁴ When treatment began on Fallbrook Naval Weapons Station (NWS) in 1996, it was estimated to cover 2,000 acres. ² Ten years later, populations still persist on Fallbrook NWS, adjacent Camp Pendleton and the neighboring town of Fallbrook. ⁵ Because of its demonstrated ecological impact on a variety of intact native habitats and its ability to spread over a large area, this plant is not recommended for landscaping anywhere in San Diego County. ^{2,3,4,5}

seed

coastal sage, grasslands, chaparral

Camp Pendleton (various locations), Fallbrook Naval Weapons Station (various locations), Olive Hill Road (Fallbrook)

All members of the species *Retama monosperma*

None

Dendromecon rigida

Bush Poppy

Tagetes lemmonii

Mexican Marigold, Bush Marigold

¹ *Sunset Western Garden Book*, 2001.

² *Invasive Plants of California's Wildlands*, Bossard et.al., 2000.

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³ Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

⁴ Exotic Pest Plants of Greatest Ecological Concern. Accessed January 23, 2005 on the World Wide Web at http://groups.ucanr.org/ceppc/1999_Cal-IPC_list/

⁵ Field observation by Carolyn Martus, consulting biologist, c_martus@yahoo.com.

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BOTANICAL NAME:
Ricinus communis

COMMON NAMES:
Castor Bean

FAMILY: Euphorbiaceae

ORIGIN: Tropical Africa & Asia



Photo © 2006 Carolyn Martus

Reason for listing as invasive species:

Ricinus communis grows easily and quickly in our mild climate. One plant can produce at least 10,000 seeds. Once established in riparian areas, it can be difficult to control. It seeds within 3-6 months and quickly produces multiple generations within one year. Seeds can also be poisonous to wildlife. It is very invasive in San Diego County and difficult to confine to landscaped areas, and is not recommended for landscaping anywhere.^{1,2} *Ricinus communis* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."³ This plant is on the 2005 Cal-IPC Invasive Plant Inventory as 'limited': this species is invasive but its ecological impacts are minor. Its reproductive biology and other attributes result in low to moderate rates of invasion. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.⁴

Methods of invading natural areas:

Seed, capable of crown sprouting if cut; does not spread by root fragments.

Locations where it invades:

riparian, wetlands, and coastal habitats

Where invasive in San Diego:

San Onofre, Fallbrook, San Pasqual, Solana Beach, Mission Valley, Logan Heights, Tijuana River Valley, Escondido, Penasquitos Regional Park⁵

Invasive varieties include:

The entire species is invasive including cultivated varieties "Zanzibarensis" and "Dwarf Red Spire"

Varieties not known to be invasive:

None

Alternative plants to consider:

California Native Species:

Ornamental species:

¹ *Invasive Plants of California's Wildlands*, Bossard et.al., 2000.

² Observations of potentially invasive species in San Diego County by Carolyn Martus, c_martus@yahoo.com

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³ Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

⁴ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Ricinus communis* <http://ucce.ucdavis.edu/files/filelibrary/5319/19484.pdf>.

⁵ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986, p. 82

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BOTANICAL NAME:
Schinus terebinthefolius

COMMON NAMES:
Brazilian Pepper Tree

FAMILY: Anacardiaceae

ORIGIN: Dry Savannahs of Brazil, Argentina, and Paraguay



Photo © 2006 Carolyn Martus

Reason for listing as invasive species:

This species escapes easily from cultivation, and is known as a pernicious weed in other climates. Once established in natural areas or open spaces, it directly competes with native plants, eventually replacing native riparian trees and shrubs.¹ *Schinus terebinthifolius* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that it is persisting or spreading in natural, non-cultivated areas."² It is on the 2005 Cal-IPC Invasive Plant Inventory as 'limited': this species is invasive and its reproductive biology and other attributes result in low to moderate rates of invasion. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.³

Methods of invading natural areas:

Seeds spread via small mammals (especially raccoons) and birds, can also re-sprout after fire or removal

Locations where it invades:

riparian, wetlands, coastal habitats

Where invasive in San Diego:

Mission Valley, Chollas Valley, Sweetwater Valley, Agua Hedionda Lagoon, San Diego River⁴

Invasive varieties include:

All members of this species

Varieties not known to be invasive:

N/A

Alternative plants to consider:

Native Species:

Quercus agrifolia
Heteromeles arbutifolia

Coast Live Oak
Toyon

Ornamental species:

¹ Observations of potentially invasive species in San Diego County by Carolyn Martus, c_martus@yahoo.com

² Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

³ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *Schinus terebinthifolius* <http://ucce.ucdavis.edu/files/filelibrary/5319/20373.pdf>.

⁴ Beauchamp, R. Mitchel R., *A Flora of San Diego County*, 1986, p. 82.

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BOTANICAL NAME:
Spartium junceum

COMMON NAMES:
Spanish Broom

FAMILY: Fabaceae
(=Leguminosae)

ORIGIN: Mediterranean
region of Europe



Photo © 2006 Carolyn Martus

Reason for listing as invasive species:

Spanish Broom rapidly colonizes disturbed habitats and develops thick shrub communities that prevent colonization by native soft or hard chaparral species. Stands contain a large amount of dead wood and can become a fire hazard in dry months. It is also poor forage for wildlife species.¹ *Spartium junceum* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."² *Spartium junceum* is on the 2005 Cal-IPC Invasive Plant Inventory as 'high': this species has severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.³

Methods of invading natural areas:

Humans have dispersed this plant globally for landscaping and cultivation. One plant can produce 7,000 – 10,000 seeds in one season.¹ Seeds fall near the plant and are carried by wind, water, or wildlife.

Locations where it invades:

riparian, wetlands, oak woodlands, chaparral, coastal sage

Where invasive in San Diego:

De Luz area (Fallbrook), along Highway 67, and in Alpine off Hwy 8, base of Mt. Woodson, Crest^{4,5} Viejas Mountain⁶

Invasive varieties include:

Varieties not known to be invasive:

All members of the species *Spartium junceum* are invasive.

Alternative plants to consider:

California Native Species:

Dendromecon rigida
Dendromecon harfordii

Bush Poppy
Island Bush Poppy

Ornamental species:

Tagetes lemmonii

Mexican Marigold,

¹ *Invasive Plants of California's Wildlands*, Bossard et al. 2000, p. 306

² Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

³ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *S. junceum*

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<http://ucce.ucdavis.edu/files/filelibrary/5319/14908.pdf>.

⁴ Field observation, Carolyn Martus, consulting biologist, c_martus@yahoo.com.

⁵ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986, p. 164

⁶ Dr. Jon P. Rebman, Botanical Curator San Diego Natural History Museum, personal communication January 15th, 2006.

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BOTANICAL NAME:

Tamarix spp.
T. aphylla
T. chinensis
T. parviflora
T. ramosissima

COMMON NAMES:

Salt-cedar, Tamarisk

FAMILY: Tamaricaceae

ORIGIN: Mediterranean ,
central Asia to East Indies, to
Japan



Photo © 2000 Joe DiTomaso

Reason for listing as invasive species:

Tamarisk species spread easily to natural areas and once established in natural lands or open spaces it directly competes with native plants. It alters stream hydrology and soil salinity, and it uses more water than native plants, lowering the water table.¹ *Tamarix aphylla*, *T. chinensis*, *T. gallica*, *T. parviflora*, and *T. ramosissima* are categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."² *Tamarix chinensis*, *T. gallica*, *T. parviflora*, and *T. ramosissima* are listed in the 1999 CAL-IPC list A-1.³ *Tamarix aphylla* is listed as "needs more information" in the 1999 Cal-IPC list.³ *Tamarix parviflora* and *T. ramosissima* are on the 2005 Cal-IPC Invasive Plant Inventory as 'high': these species have severe ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.⁴ *Tamarix aphylla* is on the 2005 Cal-IPC Invasive Plant Inventory as 'limited': this species is invasive and its reproductive biology and other attributes result in low to moderate rates of invasion. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.⁵

Methods of invading natural areas:

Seed and vegetative growth, roots also sprout adventitiously; individual plants can produce 500,000 tiny seeds per year, which are easily dispersed by wind and water.

Locations where it invades:

Disturbed areas, riparian, wetlands and desert areas.

Where invasive in San Diego:

Borrego Valley, Pine Valley, Coyote Creek, Carrizo Stage Station, La Jolla, Escondido, Jamacha, Pine Valley, Otay Ranch, Mission Valley, San Luis Rey, Buckman Springs⁶

Invasive varieties include:

Varieties not known to be invasive:

All members of the listed species.

Alternative plants to consider:

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Native Species:

Ornamental species:

¹ *Invasive Plants of California's Wildlands*, Bossard et.al., 2000.

² Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html>.

³ Exotic Pest Plants of Greatest Ecological Concern. Accessed January 23, 2005 on the World Wide Web at http://groups.ucanr.org/ceppc/1999_Cal-IPC_list/

⁴ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *T. ramosissima*
<http://ucce.ucdavis.edu/files/filelibrary/5319/10642.pdf>.

⁵ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *T. aphylla*
<http://ucce.ucdavis.edu/files/filelibrary/5319/18694.pdf>.

⁶ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986, p. 82.

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BOTANICAL NAME:
Tropaeolum majus

COMMON NAMES:
Garden Nasturtium

FAMILY: Tropaeolaceae

ORIGIN: South America.



Photo © 2006 Carolyn Martus

Reason for listing as invasive species:

This species spreads easily on shady, north-facing slopes, primarily in coastal and riparian areas. Once established on north-facing slopes or in wet shady areas, it will directly compete with native plants and dominate the landscape.¹ *Tropaeolum majus* is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."² Once established in natural areas it continues to persist by re-seeding itself.¹ It grows easily from seed with little sunlight or water.³

Methods of invading natural areas:

Used extensively in gardens where the seeds then spread to natural areas by, presumably, birds, mammals, wind, and storm drains.

Locations where it invades:

riparian or wetland areas generally near the coast in shady areas or on north facing slopes.

Where invasive in San Diego:

La Jolla, Paradise Hills,⁴ Buena Vista Lagoon, Agua Hedionda Lagoon, San Elijo Lagoon¹, many San Diego urban Canyons⁵

Invasive varieties include:

All members of the species *Tropaeolum majus*

Varieties not known to be invasive:

Alternative plants to consider:

Native Species:

Eschscholzia californica
Lasthenia californica

California Poppy
California Goldfields

Ornamental species:

¹ Field observation, Carolyn Martus, consulting biologist, c_martus@yahoo.com.

² Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html> .

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³ *Sunset Western Garden Book*, 2001 Edition. ² *Sunset Western Garden Book*, 2001 Edition.

⁴ Beauchamp, R. Mitchel, *A Flora of San Diego County*, 1986.

⁵ Dr. Jon P. Rebman, Botanical Curator San Diego Natural History Museum, personal communication January 15th, 2006.

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BOTANICAL NAME:
Washingtonia robusta

COMMON NAMES:
Mexican Fan Palm

FAMILY: Arecaceae
(=Palmae)

ORIGIN: Northwestern
Mexico



Photo © 2006 Carolyn Martus

Reason for listing as invasive species:

Washingtonia robusta is extremely drought tolerant, grows quickly and produces copious amounts of seed.¹ It is established in many canyons, wetlands and riparian areas throughout San Diego County and directly competes with native riparian trees.² Once established in natural areas, it grows quickly out-competing native plants and quickly forming dense thickets of palm trees with untrimmed fronds.²

Washingtonia robusta is categorized in the Checklist of Vascular Plants of San Diego County as "A taxon that is non-native to the county, but has become naturalized, meaning that the taxon is persisting or spreading in natural, non-cultivated areas."³ *Washingtonia robusta* is on the 2005 Cal-IPC Invasive Plant Inventory as 'moderate.' This species has substantial and apparent ecological impacts on ecosystems, plant and animal communities, and vegetational structure. Its reproductive biology and other attributes are conducive to moderate to high rates of dispersal. Ecological amplitude and distribution may range from limited to widespread.⁴

Methods of invading natural areas:

Humans have dispersed this plant globally for landscaping and cultivation. Seeds then travel over shorter distances from initial plantings through gravity, birds, mammals, and storm drains.

Locations where it invades:

wetlands, riparian

Where invasive in San Diego:

Coastal watersheds from San Ysidro to Camp Pendleton, inland including upper San Luis Rey watershed and upper Escondido Creek.²

Invasive varieties include:

All members of the species *Washingtonia robusta*

Varieties not known to be invasive:

None known

Alternative plants to consider:

California Native Species:

Ornamental species:

Brahea edulis
Brahea armata

Guadalupe Palm
Mexican Blue Palm

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This Guide is a living document and requires feedback to ensure the accuracy of the information. Please contact us with information on new invasive plants or with disagreements concerning plant species within the Guide at www.asla-sandiego.org.

Butia capitata
Chamaerops humilis

Jubaea chilensis

Pindo Palm
Mediterranean Fan
Palm
Chilean Wine Palm

¹ *Sunset Western Garden Book*, 2001 Edition.

² Personal observation, Carolyn Martus, c_martus@yahoo.com .

³ Checklist of the Vascular Plants of San Diego County. Accessed September 1, 2004 on the World Wide Web at <http://www.sdnhm.org/research/botany/sdplants.html> .

⁴ Cal-IPC 2005 Invasive Plant Inventory Plant Assessment Form for *W. robusta*
<http://ucce.ucdavis.edu/files/filelibrary/5319/18695.pdf>

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