

# Part IV. Plant Assessment Form

For use with “Criteria for Categorizing Invasive Non-Native Plants that Threaten Wildlands”  
by the California Exotic Pest Plant Council and the Southwest Vegetation Management Association

Electronic version, February 28, 2003

**Table 1. Species and Evaluator Information**

|                                       |  |
|---------------------------------------|--|
| <b>Species name (Latin binomial):</b> | Chrysanthemum coronarium               |
| <b>Synonyms:</b>                      | Glebionis coronarium                   |
| <b>Common names:</b>                  | Crown Daisy, Garland                   |
| <b>Evaluation date (mm/dd/yy):</b>    | 11/23/07                               |
| <b>Evaluator #1 Name/Title:</b>       | Robert Steers                          |
| <b>Affiliation:</b>                   | UC Riverside                           |
| <b>Phone numbers:</b>                 | (951) 505-2168                         |
| <b>Email address:</b>                 | rstee001@ucr.edu                       |
| <b>Address:</b>                       | 375 Central Ave. #179, Riverside, CA   |
| <b>Evaluator #2 Name/Title:</b>       | Cindy Burrascano                       |
| <b>Affiliation:</b>                   | California Native Plant Society        |
| <b>Phone numbers:</b>                 | (858) 578-8040                         |
| <b>Email address:</b>                 | cindyburrascano@cox.net                |
| <b>Address:</b>                       | 11195 Kelowna #83, San Diego, CA 92126 |

Section below for list committee use—please leave blank

|                                |   |
|--------------------------------|---|
| <b>List committee members:</b> | Joe DiTomaso, Cynthia Roye, Peter Warner, Joanna Clines, Mike Kelly |
| <b>Committee review date:</b>  | 1/24/08   |
| <b>List date:</b>              |   |
| <b>Re-evaluation date(s):</b>  |   |

**General comments on this assessment:**

This is a revision of the PAF originally completed in 2005.

This plant is primarily found in disturbed coastal areas where it can form monocultures. The ability of this plant to invade "undisturbed" habitat appears moderate at this time, but based on its success in disturbed locales and its ability to colonize out from those disturbances, it may pose a much greater threat to California ecosystems in the future. Unfortunately, most information about this plant is observational.

**Table 2. Criteria, Section, and Overall Scores**

|                     |                                       |          |                          |
|---------------------|---------------------------------------|----------|--------------------------|
| <a href="#">1.1</a> | Impact on abiotic ecosystem processes | <b>U</b> | <b>Observational</b>     |
| <a href="#">1.2</a> | Impact on plant community             | <b>B</b> | <b>Other Pub. Mat'l</b>  |
| <a href="#">1.3</a> | Impact on higher trophic levels       | <b>B</b> | <b>Other Pub. Mat'l</b>  |
| <a href="#">1.4</a> | Impact on genetic integrity           | <b>D</b> | <b>Rev'd, Sci. Pub'n</b> |

|   |
|---|
| <p><b>Impact</b></p> <p><i>Enter four characters from Q1.1-1.4 below:</i></p> <p><b>UBBD</b></p> <p><i>Using matrix, determine score and enter below:</i></p> <p><b>B</b></p> |
|---|

|                     |   |                  |                          |
|---------------------|---|------------------|--------------------------|
| <a href="#">2.1</a> | Role of anthropogenic and natural disturbance         | <b>3 (2 pts)</b> | <b>Rev'd, Sci. Pub'n</b> |
| <a href="#">2.2</a> | Local rate of spread with no management               | <b>3 (3 pts)</b> | <b>Rev'd, Sci. Pub'n</b> |
| <a href="#">2.3</a> | Recent trend in total area infested within state      | <b>0 (0 pts)</b> | <b>No Information</b>    |
| <a href="#">2.4</a> | Innate reproductive potential <a href="#">Wksht A</a> | <b>2 (2 pts)</b> | <b>Observational</b>     |
| <a href="#">2.5</a> | Potential for human-caused dispersal                  | <b>2 (2 pts)</b> | <b>Rev'd, Sci. Pub'n</b> |
| <a href="#">2.6</a> | Potential for natural long-distance dispersal         | <b>2 (2 pts)</b> | <b>Observational</b>     |
| <a href="#">2.7</a> | Other regions invaded                                 | <b>1 (1 pt)</b>  | <b>Rev'd, Sci. Pub'n</b> |

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| <p><b>Invasiveness</b></p> <p><i>Enter the sum total of all points for Q2.1-2.7 below:</i></p> <p><b>12</b></p> <p><i>Use matrix to determine score and enter below:</i></p> <p><b>B</b></p> |
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|---|
| <p><b>Plant Score</b></p> <p><i>Using matrix, determine Overall Score and Alert Status from the three section scores and enter below:</i></p> <p><b>Medium</b></p> <p><b>No Alert</b></p> |
|---|

|                     |   |          |                         |
|---------------------|---|----------|-------------------------|
| <a href="#">3.1</a> | Ecological amplitude/Range                          | <b>A</b> | <b>Other Pub. Mat'l</b> |
| <a href="#">3.2</a> | Distribution/Peak frequency <a href="#">Wksht C</a> | <b>D</b> | <b>Observational</b>    |

|   |
|---|
| <p><b>Distribution</b></p> <p><i>Using matrix, determine score and enter below:</i></p> <p><b>B</b></p> |
|---|

**Table 3. Documentation**

|   |  |
|---|--|
| <p><b>Question 1.1</b> Impact on abiotic ecosystem processes</p>  | <p>U Observational <a href="#">back</a></p>    |
| <p>Identify ecosystem processes impacted: Forms thick stands that approach monocultures. Reduces light intensity at ground level and likely limits water availability for other plants, or alters geochemistry.</p>   |  |
| <p>Rationale: Committee believes processes identified above are not abiotic impacts and are too speculative to warrant scoring this question beyond "unknown." More conclusive data needed.</p>   |  |
| <p>Sources of information:</p> <p>(2) Bowler, P. A. and M. A. Elvin. 2004. Vascular plant checklist for the University of California Natural Reserve System's San Joaquin Freshwater Marsh Reserve. <i>Crossosoma</i> 29:1-22.</p> <p>(3) Harper, B. 2007. Forrestral ecological reserve trail monitoring report. Palos Verdes Peninsula Land Conservancy. <a href="http://www.pvplc.org">http://www.pvplc.org</a>.</p>   |  |
| <p><b>Question 1.2</b> Impact on plant community composition, structure, and interactions</p>   | <p>B Other Pub. Mat'l <a href="#">back</a></p> |
| <p>Identify type of impact or alteration: Direct competition</p>  |  |
| <p>Rationale: Appears to strongly compete with native coastal sage scrub species and is an important weed to control in restoration efforts (1). Has contributed to the decline of Willowy monardella and Lotus nuttallianus, rate plant species, through competition (2).</p>  |  |
| <p>Sources of information:</p> <p>(1) Harper, B. 2007. Forrestral ecological reserve trail monitoring report. Palos Verdes Peninsula Land Conservancy. <a href="http://www.pvplc.org">http://www.pvplc.org</a>.</p> <p>(2) Burrascano, C. Personal observation of Lopez Canyon population of Willowy monardella in San Diego (2001-2007) and Hospitality Point in San Diego (2003-2007).</p>  |  |
| <p><b>Question 1.3</b> Impact on higher trophic levels</p>  | <p>B Other Pub. Mat'l <a href="#">back</a></p> |
| <p>Identify type of impact or alteration: Indirect impact on federally endangered Palos Verdes Blue Butterfly, federally threatened California Gnatcatcher, and federally endangered Least tern..</p>   |  |
| <p>Rationale: This plant is an invasive species in the last known habitat of the Palos Verdes Blue Butterfly (1) and is managed for to improve habit restoration efforts for the Palos Verdes blue butterfly (2) and the California gnatcatcher. The plant is also frequently controlled in Least tern nesting sites in San Diego County (3).</p>   |  |
| <p>Sources of information:</p> <p>(1) San Diego State University, Soil Ecology and Research Group. 2004. Restoration plan for the development of coastal sage scrub habitat at the defense fuel support point (DFSP), San Pedro, California in support of the Palos Verdes blue butterfly (<i>Glaucopsyche lygdamus palosverdesensis</i>) and California gnatcatcher (<i>Polioptila californica californica</i>). <a href="http://www.sic.sdsu.edu/SERG">http://www.sic.sdsu.edu/SERG</a></p> <p>(2) Mattoni, R. 2002. Status and trends; Habitat restoration and the endangered Palos Verdes blue butterfly at the</p> |  |

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| <p>defense fuel support point, San Pedro, California. <a href="http://www.urbanwildlands.org">http://www.urbanwildlands.org</a>.</p> <p>(3) Burrascano, C. Personal observation at Mariner's Point and Dog Beach in San Diego, D Street Fill in Chula Vista and Silver Strand in Coronado.</p>  |   |
| <p><b>Question 1.4</b> Impact on genetic integrity</p>  | <p>D Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Identify impacts: None</p>   |   |
| <p>Rationale: No native members of genus <i>Chrysanthemum</i> in CA (1).</p>  |   |
| <p>Sources of information:</p> <p>(1) Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA.</p>  |   |
| <p><b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment</p>   | <p>B Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Describe role of disturbance: Where it occurs, the plant seems highly associated with disturbances but is also capable of colonizing relatively undisturbed habitat. Invades areas such as riparian habitat and dunes that receive natural disturbance. Does not invade undisturbed coastal sage scrub (5).</p>  |   |
| <p>Rationale:</p> <p>Found as common roadside weed in Canary Islands (1). found on dikes in San Joaquin Freshwater Marsh (2). Common along hiking trails where it then colonizes into relatively undisturbed wildlands on the Palos Verdes Peninsula, Los Angeles County (3). Major areas of Tijuana Estuary Refuge are covered in the species with significant control efforts being conducted (4). Many infested locations are associated with the railroad.</p>  |   |
| <p>Sources of information:</p> <p>(1) Arevalo, J. R., J. D. Delgado, R. Otto, A. Naranjo, M. Salos, and J. M. Fernandez-Palacios. 2005. Distribution of alien vs. native plant species in roadside communities along an altitudinal gradient in Tenerife and Gran Canaria (Canary Islands). <i>Perspectives in Plant Ecology, Evolution and Systematics</i> 7:185-202.</p> <p>(2) Bowler, P. A. and M. A. Elvin. 2004. Vascular plant checklist for the University of California Natural Reserve System's San Joaquin Freshwater Marsh Reserve. <i>Crossosoma</i> 29:1-22.</p> <p>(3) Steers, R. J. Personal Observation during winter of 2003 when volunteering for the Palos Verdes Peninsula Land Conservancy.</p> <p>(4) Burrascano, C. Personal observation of Tijuana Estuary and uplands in San Diego 2002. Observations in Marian Bear Park and Sorrento Valley.</p> <p>(5) Michael O'Brien, landscape architect, pers. comm.</p> |   |
| <p><b>Question 2.2</b> Local rate of spread with no management</p>  | <p>A Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Describe rate of spread: Rapid rate of spread.</p>   |   |
| <p>Rationale: In San Joaquin Fresh Water Marsh the plant formed large stands within ten years or less (1). In Lopez Canyon, a seasonal drainage in San Diego, the species went from a few plants to coloring the bottom of the canyon with yellow when in bloom in less than ten years (2). Expanding in San Diego County (1). Expanding</p>  |   |

|   |   |
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| <p>rapidly at Malibu Bluffs State Park (3) and at Lopez Canyon in San Diego County (4).</p>   |   |
| <p>Sources of information:</p> <p>(1) Bowler, P. A. and M. A. Elvin. 2004. Vascular plant checklist for the University of California Natural Reserve System's San Joaquin Freshwater Marsh Reserve. <i>Crossosoma</i> 29:1-22.</p> <p>(2) Burrascano, C. Personal observation of Lopez Canyon in San Diego 1999 to 2007.</p> <p>(3). Mike Kelly, California Native Plant Society, San Diego. pers. comm.</p> <p>(4) Michael O'Brien, landscape architect, pers. comm.</p>   |   |
| <p><b>Question 2.3</b> Recent trend in total area infested within state</p>   | <p>B Observational <a href="#">back</a></p>     |
| <p>Describe trend: Increasing</p>   |   |
| <p>Rationale:</p>   |   |
| <p>Sources of information: Joe DiTomaso, UC Davis, observational</p>  |   |
| <p><b>Question 2.4</b> Innate reproductive potential</p>  | <p>B Observational <a href="#">back</a></p>     |
| <p>Describe key reproductive characteristics: moderately high reproductive potential</p>  |   |
| <p>Rationale: The plant is an annual in the composite family that produces many flower heads and seeds in one growing season.</p>   |   |
| <p>Sources of information:</p>  |   |
| <p><b>Question 2.5</b> Potential for human-caused dispersal</p>   | <p>B Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Identify dispersal mechanisms: Some human-caused dispersal but most is not long-distance.</p>  |   |
| <p>Rationale: Plant is commonly found along roadways (1) and trails (2) and may be dispersed by automobile, bike, foot, or other type of traffic. Plant is also an ornamental and is sold in wildflower mixes (3). Varieties are also edible and used in asian dishes (4).</p>  |   |
| <p>Sources of information:</p> <p>(1) Arevalo, J. R., J. D. Delgado, R. Otto, A. Naranjo, M. Salos, and J. M. Fernandez-Palacios. 2005. Distribution of alien vs. native plant species in roadside communities along an altitudinal gradient in Tenerife and Gran Canaria (Canary Islands). <i>Perspectives in Plant Ecology, Evolution and Systematics</i> 7:185-202.</p> <p>(2) Steers, R. J. Personal Observation during winter of 2003 when volunteering for the Palos Verdes Peninsula Land Conservancy.</p> <p>(3) New England Natural. see <a href="http://www.newenglandnatural.co/wildflower-seed.html">http://www.newenglandnatural.co/wildflower-seed.html</a></p> |   |

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| (4) Stephens, J. M. 2007. Chrysanthemum, Edible -- Chrysanthemum coronarium. Internet Website: <a href="http://edis.ifas.ufl.edu/MV049">http://edis.ifas.ufl.edu/MV049</a>   |  |
| <b>Question 2.6</b> Potential for natural long-distance dispersal  | C No Information <a href="#">back</a>    |
| Identify dispersal mechanisms: Transport via riparian streams is the most common form of long-distance transport.  |  |
| Rationale: Plant spread along San Diego Creek in Orange County, so dispersal by water may be possible (1). Plant spread throughout the canyon bottom of Lopez Canyon to the extent that waters cover the bottom of the drainage (2).   |  |
| Sources of information:<br>(1) Bowler, P. A. and M. A. Elvin. 2004. Vascular plant checklist for the University of California Natural Reserve System's San Joaquin Freshwater Marsh Reserve. <i>Crossosoma</i> 29:1-22.<br>(2) Burrascano, C. Personal observation in Lopez Canyon 1999 to 2007.<br>(3) Mike Kelly, Kelly and Associates, observational  |  |
| <b>Question 2.7</b> Other regions invaded  | C Rev'd, Sci. Pub'n <a href="#">back</a> |
| Identify other regions: Canary Islands (1), Chile (2), Mexico (3)<br>Native to southern Europe. Present in Oregon, Arizona, Alaska, some northeastern and southeastern states (4).   |  |
| Rationale:   |  |
| Sources of information:<br>(1) Arevalo, J. R., J. D. Delgado, R. Otto, A. Naranjo, M. Salos, and J. M. Fernandez-Palacios. 2005. Distribution of alien vs. native plant species in roadside communities along an altitudinal gradient in Tenerife and Gran Canaria (Canary Islands). <i>Perspectives in Plant Ecology, Evolution and Systematics</i> 7:185-202.<br>(2) Bioseguridad en Chile. Dr. Mary T Kalin Arroyo. Biodiversidad y estudios de casos de exespecies exóticas; Modelos actuales, predicciones futuras y recomendaciones generales.<br>(3) Villasenor, J.L. and J. Espinosa-Garcia F. 2004. The alien flowering plants of Mexico. <i>Diversity and Distributions</i> 10:113-123.<br>(4) USDA, NRCS. 2005. The PLANTS Database, Version 3.5 ( <a href="http://plants.usda.gov">http://plants.usda.gov</a> ). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. |  |
| <b>Question 3.1</b> Ecological amplitude/Range   | A Other Pub. Mat'l <a href="#">back</a>  |
| Describe ecological amplitude, identifying date of source information and approximate date of introduction to the state, if known: Occurs in coastal shrublands and dunes on the central and southern coastline of California (CW, SW) and is expected elsewhere (1). Also reported along a stream in Orange County (2). Has been observed in exotic annual grassland (valley and foothill grassland) though type converted from coastal scrub (3)   |  |
| Rationale: Earliest reported occurrence found in Cal Flora (4): M. B. Dunkle reported it in 1939 on Santa Cruz Island, Santa Barbara County. It may have been introduced much earlier as it was important ingredient in Asian  |  |

dishes (5).

Sources of information:

(1) Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA.

(2) Bowler, P. A. and M. A. Elvin. 2004. Vascular plant checklist for the University of California Natural Reserve System's San Joaquin Freshwater Marsh Reserve. *Crossosoma* 29:1-22.

(3) Steers, R. J. Personal Observation during winter of 2003 when volunteering for the Palos Verdes Peninsula Land Conservancy.

(4) Cal Flora. 2007. *Chrysanthemum coronarium*. Internet website: <http://www.calflora.org>

(5) Stephens, J. M. 2007. *Chrysanthemum*, Edible -- *Chrysanthemum coronarium*. Internet Website: <http://edis.ifas.ufl.edu/MV049>

**Question 3.2** Distribution/Peak frequency

D Observational [back](#)

Describe distribution: Mostly on immediate coast from San Francisco County south to B.C. norte Mex. (1). Cal Flora: documented from Plumas Coutny but not vouchered (2).

Rationale:

Sources of information:

(1) Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA.

(2) Cal Flora. 2007. *Chrysanthemum coronarium*. Internet website: <http://www.calflora.org>

**Worksheet A**[back](#)

|  |                              |
|--|------------------------------|
| Reaches reproductive maturity in 2 years or less   | <b>Yes: 1 pt</b>             |
| Dense infestations produce >1,000 viable seed per square meter                             | <b>Yes: 2 pts</b>            |
| Populations of this species produce seeds every year.                                      | <b>Yes: 1 pt</b>             |
| Seed production sustained over 3 or more months within a population annually               | <b>No: 0 pt</b>              |
| Seeds remain viable in soil for three or more years  | <b>Unknown: 0 pts</b>        |
| Viable seed produced with <i>both</i> self-pollination and cross-pollination               | <b>Unknown: 0 pts</b>        |
| Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes | <b>No: 0 pt</b>              |
| Fragments easily and fragments can become established elsewhere                            | <b>No: 0 pts</b>             |
| Resprouts readily when cut, grazed, or burned  | <b>No: 0 pt</b>              |
|  | <b>4 pts      2 unknowns</b> |
|  | <b>B (4-5 pts)</b>           |
| <b>Note any related traits:</b> enter text here  |                              |

## Worksheet C - California Ecological Types

[back](#)

(*sensu* Holland 1986)

| Major Ecological Types   | Minor Ecological Types                             | Code*      |
|--|--|------------|
| <b>Marine Systems</b>  | marine systems                                     | score      |
| <b>Freshwater and Estuarine Aquatic Systems</b>                      | lakes, ponds, reservoirs                           | score      |
|  | rivers, streams, canals                            | score      |
|  | estuaries  | D. present |
| <b>Dunes</b>   | coastal  | D. present |
|  | desert   | score      |
|  | interior   | score      |
| <b>Scrub and Chaparral</b>   | coastal bluff scrub                                | D. present |
|  | coastal scrub                                      | D. present |
|  | Sonoran desert scrub                               | score      |
|  | Mojavean desert scrub (incl. Joshua tree woodland) | score      |
|  | Great Basin scrub                                  | score      |
|  | chenopod scrub                                     | score      |
|  | montane dwarf scrub                                | score      |
|  | Upper Sonoran subshrub scrub                       | score      |
|  | chaparral  | D. present |
| <b>Grasslands, Vernal Pools, Meadows, and other Herb Communities</b> | coastal prairie                                    | Unknown    |
|  | valley and foothill grassland                      | D. present |
|  | Great Basin grassland                              | score      |
|  | vernal pool  | score      |
|  | meadow and seep                                    | score      |
|  | alkali playa                                       | score      |
|  | pebble plain                                       | score      |
| <b>Bog and Marsh</b>   | bog and fen  | score      |
|  | marsh and swamp                                    | score      |
| <b>Riparian and Bottomland</b>                                       | riparian forest                                    | score      |
|  | riparian woodland                                  | score      |
|  | riparian scrub (incl. desert washes)               | D. present |
| <b>Woodland</b>  | cismontane woodland                                | score      |
|  | piñon and juniper woodland                         | score      |
|  | Sonoran thorn woodland                             | score      |
| <b>Forest</b>  | broadleaved upland forest                          | score      |
|  | North Coast coniferous forest                      | score      |
|  | closed cone coniferous forest                      | score      |
|  | lower montane coniferous forest                    | score      |
|  | upper montane coniferous forest                    | score      |
|  | subalpine coniferous forest                        | score      |
| <b>Alpine Habitats</b>   | alpine boulder and rock field                      | score      |
|  | alpine dwarf scrub                                 | score      |

\* A. means >50% of type occurrences are invaded; B means >20% to 50%; C. means >5% to 20%; D. means present but ≤5%; U. means unknown (unable to estimate percentage of occurrences invaded).