

# 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> | Elaeagnus angustifolia L.                 |
| <b>Synonyms:</b>                      | Elaeagnus angustifolius                   |
| <b>Common names:</b>                  | Russian olive, oleaster                   |
| <b>Evaluation date (mm/dd/yy):</b>    | 2/9/05                                    |
| <b>Evaluator #1 Name/Title:</b>       | Elizabeth Brusati, project manager        |
| <b>Affiliation:</b>                   | California Invasive Plant Council         |
| <b>Phone numbers:</b>                 | 510-843-3902                              |
| <b>Email address:</b>                 | edbrusati@cal-ipc.org                     |
| <b>Address:</b>                       | 1442A Walnut St. #462, Berkeley, CA 94709 |
| <b>Evaluator #2 Name/Title:</b>       | enter text here                           |
| <b>Affiliation:</b>                   | enter text here                           |
| <b>Phone numbers:</b>                 | enter text here                           |
| <b>Email address:</b>                 | enter text here                           |
| <b>Address:</b>                       | enter text here                           |

Section below for list committee use—please leave blank

|                                |   |
|--------------------------------|---|
| <b>List committee members:</b> | Joe DiTomaso, John Randall, Carla Bossard |
| <b>Committee review date:</b>  | 3/11/05                                   |
| <b>List date:</b>              | enter text here                           |
| <b>Re-evaluation date(s):</b>  | enter text here                           |

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|--|
| <p><b>General comments on this assessment:</b><br/>enter text here</p> |
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**Table 2. Criteria, Section, and Overall Scores**

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

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|---|
| <p><b>Impact</b></p> <p><i>Enter four characters from Q1.1-1.4 below:</i></p> <p><b>BABD</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>A (3 pts)</b> | <b>Rev'd, Sci. Pub'n</b> |
| <a href="#">2.2</a> | Local rate of spread with no management               | <b>A (3 pts)</b> | <b>Rev'd, Sci. Pub'n</b> |
| <a href="#">2.3</a> | Recent trend in total area infested within state      | <b>B (2 pts)</b> | <b>Doc'n level</b>       |
| <a href="#">2.4</a> | Innate reproductive potential <a href="#">Wksht A</a> | <b>A (3 pts)</b> | <b>Doc'n level</b>       |
| <a href="#">2.5</a> | Potential for human-caused dispersal                  | <b>A (3 pts)</b> | <b>Doc'n level</b>       |
| <a href="#">2.6</a> | Potential for natural long-distance dispersal         | <b>A (3 pts)</b> | <b>Doc'n level</b>       |
| <a href="#">2.7</a> | Other regions invaded                                 | <b>C (1 pt)</b>  | <b>Doc'n level</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>18</b></p> <p><i>Use matrix to determine score and enter below:</i></p> <p><b>A</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>Doc'n level</b> |
| <a href="#">3.2</a> | Distribution/Peak frequency <a href="#">Wksht C</a> | <b>D</b> | <b>Doc'n level</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>B Other Pub. Mat'l <a href="#">back</a></p>  |
| <p>Identify ecosystem processes impacted: Alters nutrient cycling and system hydrology by spreading throughout woodland, connecting lowland riparian forests with more open, upland areas. High rate of evapotranspiration increases water loss compared to native trees. Eventually changes riparian sites into dry uplands. Dense thickets of Russian olive can increase fuel loads for wildfire (1).</p>  |   |
| <p>Rationale: enter text here</p>  |   |
| <p>Sources of information: 1. Tu, M. 2003. Element Stewardship Abstract: <i>Eleagnus angustifolia</i>. The Nature Conservancy, Arlington, VA. Accessed online: <a href="http://tncweeds.ucdavis.edu">http://tncweeds.ucdavis.edu</a></p>   |   |
| <p><b>Question 1.2</b> Impact on plant community composition, structure, and interactions</p>  | <p>A Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Identify type of impact or alteration: Forms dense monocultures. Shades out cottonwood seedlings. Over time, will replace tall cottonwood trees with shorter olive trees. Can establish over a wider range of sites than cottonwood (1). Alters the course of plant succession (2).</p>   |   |
| <p>Rationale: enter text here</p>  |   |
| <p>Sources of information: 1. Shafroth, P. B., G. T. Auble, and M. L. Scott. 1995. Germination and establishment of the native plains cottonwood (<i>Populus deltoides</i> Marshall subsp. <i>monilifera</i>) and the exotic Russian-olive (<i>Elaeagnus angustifolia</i> L.) <i>Conservation Biology</i>. 9:1169-1175<br/>2. Tu 2003</p>  |   |
| <p><b>Question 1.3</b> Impact on higher trophic levels</p>   | <p>B Rev'd, Sci. Pub'n <a href="#">back</a></p> |
| <p>Identify type of impact or alteration: Has both positive and negative impacts on wildlife. Provides food and cover for some species (1, 2). In the Rocky Mountains, some riparian birds occurred frequently in monotypic Russian olive stands, but species that are obligate residents of lowland riparian tracts (northern flicker, house wren, cedar waxwing, warbling vireo, black-headed grosbeak) were absent from Russian olive stands (2). Russian olive stands supported avian communities intermediate in species richness and alpha diversity to native riparian and upslope areas (2).</p> |   |
| <p>Rationale: enter text here</p>  |   |
| <p>Sources of information: 1. Olson, T. E., and F. L. Knopf. 1986. Naturalization of Russian-olive in the western United States. <i>Western Journal of Applied Forestry</i>. 1: 65-69<br/>2. Knopf, F. L., and T. E. Olson. 1984. Naturalization of Russian-olive: Implications to Rocky Mountain wildlife. <i>Wildl. Soc. Bull.</i> 12 289-298.</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>  |   |

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| Rationale: No native Eleagnus in California.  |  |
| Sources of information: Hickman, J. C. (ed.) 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA enter text here   |  |
| <b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment  | A Rev'd, Sci. Pub'n <a href="#">back</a> |
| Describe role of disturbance: Does not appear to require disturbance to establish because seeds can germinate on undisturbed soils.   |  |
| Rationale: enter text here  |  |
| Sources of information: 1. Lesica and Miles 1999  |  |
| <b>Question 2.2</b> Local rate of spread with no management   | A Rev'd, Sci. Pub'n <a href="#">back</a> |
| Describe rate of spread: Can spread rapidly.  |  |
| Rationale: In Canyon de Chelly National Monument, AZ, it was planted in 1964 and within a decade became one of the dominant trees of canyon bottoms. Has also spread in other southwestern states.  |  |
| Sources of information: 1. Olson and Knopf. 1986.   |  |
| <b>Question 2.3</b> Recent trend in total area infested within state  | B Observational <a href="#">back</a>     |
| Describe trend: Not spreading as fast as in southwestern states.  |  |
| Rationale: enter text here  |  |
| Sources of information: John Randall, The Nature Conservancy, Invasive Species Initiative, pers. obs.<br>Joe DiTomaso, Weed Science program, UC-Davis, pers. obs.   |  |
| <b>Question 2.4</b> Innate reproductive potential   | A Other Pub. Mat'l <a href="#">back</a>  |
| Describe key reproductive characteristics: Long-lived tree. Bears fruit at three to five years. Seeds can germinate anytime between fall and spring, and remain viable for up to three years. Can reproduce sexually or vegetatively. Seedlings are shade-tolerant. Numerous root suckers are produced at the root crown after disturbance or damage to aboveground tree from fire, cutting, or girdling (1). |  |
| Rationale: enter text here  |  |
| Sources of information: 1. Tu 2003  |  |

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| <b>Question 2.5</b> Potential for human-caused dispersal  | A Rev'd, Sci. Pub'n <a href="#">back</a> |
| Identify dispersal mechanisms: Planted as a windbreak tree and for wildlife enhancement (1), as well as for erosion control and highway beautification (2). Found in Cal-IPC nursery survey 2004.   |  |
| Rationale: enter text here  |  |
| Sources of information: 1. Lesica, P., and S. Miles. 1999 Russian olive invasion into cottonwood forests along a regulated river in north-central Montana. <i>Canadian Journal of Botany</i> . 77:1077-1083.  |  |
| 2. Olson and Knopf 1986   |  |
| <b>Question 2.6</b> Potential for natural long-distance dispersal   | A Rev'd, Sci. Pub'n <a href="#">back</a> |
| Identify dispersal mechanisms: Fruits dispersed by birds (1), but transport by water is probably more important because this is a riparian species (2).   |  |
| Rationale: enter text here  |  |
| Sources of information: 1. Lesica and Miles 1999  |  |
| 2. Joe DiTomaso, UC Davis, pers. obs.   |  |
| <b>Question 2.7</b> Other regions invaded   | C Rev'd, Sci. Pub'n <a href="#">back</a> |
| Identify other regions: Naturalized in riparian areas throughout the U.S (1), primarily in western states (2). Can invade both upland and riparian bottomlands (3).   |  |
| Rationale: enter text here  |  |
| Sources of information: 1. Lesica and Miles 1999  |  |
| 2. Olson and Knopf 1986   |  |
| 3. Tu 2003  |  |
| <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: Present in Inyo, Tulare, and San Diego Counties (1). Riparian areas, flood plains, grasslands, roadsides, fencerows, seasonally moist pastures, ditches, and other disturbed sites. Often inhabits seasonally moist areas and sites near farmlands. Grows under a wide range of environmental conditions, including clay, sandy, and fairly alkaline or saline soils. Grows best in inland areas with warm summers and cold winters. Tolerates drought, high water tables, and temperatures well below freezing (to -45 degrees C or -50 degrees F) to as high as 46 degrees C (115 degrees F). San Joaquin Valley, San Francisco Bay region, eastern Sierra Nevada, Mojave Desert, mostly to 1500 m. Western states, central states, most northeastern and eastern states, a few southern states (2). |  |

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| Rationale: enter text here  |  |
| Sources of information: 1. USDA, NRCS. 2004. 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 |  |
| 2. DiTomaso, J., and E. Healy. Weeds of California and Other Western States. in prep..  |  |
| <b>Question 3.2</b> Distribution/Peak frequency   | score Doc'n level <a href="#">back</a> |
| Describe distribution: enter text here  |  |
| Rationale: enter text here  |  |
| Sources of information: enter text here   |  |

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|  |                                  |
|--|----------------------------------|
| Reaches reproductive maturity in 2 years or less   | <b>No: 0 pt</b>                  |
| Dense infestations produce >1,000 viable seed per square meter                             | <b>No: 0 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>Yes: 2 pts</b>                |
| Viable seed produced with <i>both</i> self-pollination and cross-pollination               | <b>Yes: 1 pt</b>                 |
| Has quickly spreading vegetative structures (rhizomes, roots, etc.) that may root at nodes | <b>Yes: 1 pt</b>                 |
| Fragments easily and fragments can become established elsewhere                            | <b>No: 0 pts</b>                 |
| Resprouts readily when cut, grazed, or burned  | <b>Yes: 1 pt</b>                 |
|  | <b>6 pts      Total Unknowns</b> |
|  | <b>A (6+ pts)</b>                |

**Note any related traits:** enter text here

## Worksheet C - California Ecological Types

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(*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                            | D. present |
|  | estuaries  | score      |
| <b>Dunes</b>   | coastal  | score      |
|  | desert   | score      |
|  | interior   | score      |
| <b>Scrub and Chaparral</b>   | coastal bluff scrub                                | score      |
|  | coastal scrub                                      | score      |
|  | Sonoran desert scrub                               | score      |
|  | Mojavean desert scrub (incl. Joshua tree woodland) | score      |
|  | Great Basin scrub                                  | score      |
|  | chenopod scrub                                     | score      |
|  | montane dwarf scrub                                | score      |
|  | Upper Sonoran subshrub scrub                       | score      |
|  | chaparral  | score      |
| <b>Grasslands, Vernal Pools, Meadows, and other Herb Communities</b> | coastal prairie                                    | score      |
|  | valley and foothill grassland                      | score      |
|  | Great Basin grassland                              | D. present |
|  | vernal pool  | score      |
|  | meadow and seep                                    | D. present |
|  | alkali playa                                       | D. present |
|  | 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).