

# 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>	Senecio jacobaea
<b>Synonyms:</b>	enter text here
<b>Common names:</b>	tansy ragwort, stinking willie, stavewort, kettle-dock, felonweed, Fairies' horse, tansy butterweed, staggerwort
<b>Evaluation date (mm/dd/yy):</b>	8/10/2004
<b>Evaluator #1 Name/Title:</b>	Brianna Richardson, Project Manager
<b>Affiliation:</b>	California Invasive Plant Council
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<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, Alison Stanton, Peter Warner, John Randall, Jake Sigg, Cynthia Roye
<b>Committee review date:</b>	8/27/2004
<b>List date:</b>	enter text here
<b>Re-evaluation date(s):</b>	enter text here

**General comments on this assessment:**

enter text here

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

<a href="#">1.1</a>	Impact on abiotic ecosystem processes	<b>C</b>	<b>Other Pub. Mat'l</b>
<a href="#">1.2</a>	Impact on plant community	<b>C</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>C</b>	<b>Other Pub. Mat'l</b>

**Impact**

*Enter four characters from Q1.1-1.4 below:*

**CCBC**

*Using matrix, determine score and enter below:*

**C**

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

**Invasiveness**

*Enter the sum total of all points for Q2.1-2.7 below:*

**12**

*Use matrix to determine score and enter below:*

**B**

**Plant Score**

*Using matrix, determine Overall Score and Alert Status from the three section scores and enter below:*

**Low**  
**No Alert**

<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>C</b>	<b>No Information</b>

**Distribution**

*Using matrix, determine score and enter below:*

**B**

**Table 3. Documentation**

<p><b>Question 1.1</b> Impact on abiotic ecosystem processes</p>	<p>C Other Pub. Mat'l <a href="#">back</a></p>
<p>Identify ecosystem processes impacted: Dense infestations can increase soil erosion. May increase productivity among some pasture species. This in turn, may reduce microbial biomass in the soil.</p>	
<p>Rationale: Only one source identified the ability of ragwort to increase soil erosion. Microbial biomass decreases appear to be a concern primarily in pastures.</p>	
<p>Sources of information: Coombs, EM, PB McEvoy, CE Turner. 1999. Tansy ragwort. In: Biology and Management of Noxious Rangeland Weeds. Sheley, RL, JK Petroff (eds.)</p> <p>Wardle, DA. 1987. The ecology of ragwort (<i>Senecio jacobaea</i> L.)--A review. <i>New Zealand Journal of Ecology</i>. V.10: 67-76.</p>	
<p><b>Question 1.2</b> Impact on plant community composition, structure, and interactions</p>	<p>C Other Pub. Mat'l <a href="#">back</a></p>
<p>Identify type of impact or alteration: Can crowd out desirable forage species. Can form dense infestations when disturbance occurs. Pristine plant communities are generally resistant to ragwort infestation. Micro-disturbances in the soil created by rodent burrows and deer tracks can provide sufficient habitat for ragwort to invade and maintain its presence in less disturbed plant communities. Once established, ragwort can compete with grasses and clover. The dead rosette opens a space for germination of the seeds. Ragwort can dominate in highly disturbed plant communities. In OR, populations of the rare <i>Sidalcea hirtipes</i> increased &gt;40% after ragwort biocontrols were released. Ragwort has been shown to inhibit seed germination and seedling emergence and growth of <i>Lolium perenne</i> and several legumes through allelopathy. Legumes were more affected by this. However, ragwort may increase productivity among some pasture species. Ragwort acts as a ruderal, colonizing after disturbance and relatively transient during periods of stability. More competitive at the rosette stage.</p>	
<p>Rationale: Most literature focuses on the agricultural impacts of ragwort. Little evidence is available to support the idea that it can significantly threaten native plants. Though, it has impacted them in OR, no data was available for CA.</p>	
<p>Sources of information: Mitich, LW. 1995. Intriguing world of weeds: Tansy ragwort. <i>Weed Technology</i>. V.9: 402-404.<a href="#">here</a></p> <p>Coombs, EM, PB McEvoy, CE Turner. 1999. Tansy ragwort. In: Biology and Management of Noxious Rangeland Weeds. Sheley, RL, JK Petroff (eds.)</p> <p>Bain, JF. 1991. The biology of Canadian weeds. 96. <i>Senecio jacobaea</i> L. <i>Canadian Journal of Plant Science</i>. V.71: 127-140.</p> <p>Ahmed, M., DA Wardle. 1994. Allelopathic potential of vegetative and flowering ragwort (<i>Senecio jacobaea</i> L.) plants against associated pasture species. <i>Plant and Soil</i>. V.164: 61-68.</p> <p>Wardle, DA. 1987. The ecology of ragwort (<i>Senecio jacobaea</i> L.)--A review. <i>New Zealand Journal of Ecology</i>. V.10: 67-76.</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: Contains pyrrolizidine alkaloids and is toxic to livestock and deer when grazed in a single large quantity or in small quantities over time. Has caused serious livestock losses in PNW. May be accidentally ingested by animals in the seedling stage. Young livestock is 2-3 times more susceptible to poisoning than older animals. Adult animals must eat 5-7% of their body weight to die. Many animals prefer</p>	

<p>other forage over tansy ragwort. Numerous insects pollinate it. In OR, ragwort provides an additional nectar source for the threatened <i>Speyeria zerene hippolyta</i> butterfly.</p>	
<p>Rationale: May be a poisoning threat to deer.</p>	
<p>Sources of information: DiTomaso, J., E. Healy. Weeds of California and Other Western States. Not yet published.</p> <p>Coombs, E., C. Mallory-Smith, LC Burrill, RH Callahan, R. Parker, H. Radtke. 1997. Weeds: Tansy ragwort (<i>Senecio jacobaea</i> L.). Pacific Northwest Weed Notes. Oregon State University Extension Service publication.</p> <p>Mitich, LW. 1995. Intriguing world of weeds: Tansy ragwort. Weed Technology. V.9: 402-404.</p>	
<p><b>Question 1.4</b> Impact on genetic integrity</p>	<p>C Other Pub. Mat'l <a href="#">back</a></p>
<p>Identify impacts: No hybrids have been reported from North America. Many native <i>Senecios</i> exist.</p>	
<p>Rationale: Does coexist w/native, potential exists, but has not been documented. Possible a pollen swamping situation exists on the Medocino coast with the native, rare <i>S. bolanderi</i>.</p>	
<p>Sources of information: Bain, JF. 1991. The biology of Canadian weeds. 96. <i>Senecio jacobaea</i> L. Canadian Journal of Plant Science. V.71: 127-140.</p> <p>PW, JD</p>	
<p><b>Question 2.1</b> Role of anthropogenic and natural disturbance in establishment</p>	<p>C Other Pub. Mat'l <a href="#">back</a></p>
<p>Describe role of disturbance: Open areas result in better seedling establishment. One of the first plants to colonize cut-over forests. Rodent mounding and scratching can create ideal establishment conditions. Most references indicate that disturbance is required for ragwort establishment. Disturbance is required for germination of dormant, buried seeds.</p>	
<p>Rationale: All literature notes that establishment requires disturbance.</p>	
<p>Sources of information: DiTomaso, J., E. Healy. Weeds of California and Other Western States. Not yet published.</p> <p>Coombs, E., C. Mallory-Smith, LC Burrill, RH Callahan, R. Parker, H. Radtke. 1997. Weeds: Tansy ragwort (<i>Senecio jacobaea</i> L.). Pacific Northwest Weed Notes. Oregon State University Extension Service publication.</p> <p>Coombs, EM, PB McEvoy, CE Turner. 1999. Tansy ragwort. In: Biology and Management of Noxious Rangeland Weeds. Sheley, RL, JK Petroff (eds.)</p> <p>Wardle, DA. 1987. The ecology of ragwort (<i>Senecio jacobaea</i> L.)--A review. New Zealand Journal of Ecology. V.10: 67-76.</p>	
<p><b>Question 2.2</b> Local rate of spread with no management</p>	<p>A Other Pub. Mat'l <a href="#">back</a></p>
<p>Describe rate of spread: In MT, one infestation has "expanded exponentially" since it was first discovered in 1993 (in 1997 it covered 1500 net acres over 150 sq.miles.) Ragwort can dominate an area in less than 10 years</p>	

if disturbance occurs (ex. overgrazing, logging).	
Rationale: Can double in less than 10 years if appropriate habitat is available.	
Sources of information: Mott, Gary. 1997. Tansy ragwort ( <i>Senecio jacobaea</i> ) briefing paper. Western Area Weed Council. (This is a memo or email)	
Coombs, EM, PB McEvoy, CE Turner. 1999. Tansy ragwort. In: <i>Biology and Management of Noxious Rangeland Weeds</i> . Sheley, RL, JK Petroff (eds.)	
<b>Question 2.3</b> Recent trend in total area infested within state	D Other Pub. Mat'l <a href="#">back</a>
Describe trend: Populations have been dramatically reduced in CA and OR since the introduction of two biocontrols ( <i>Tyria jacobaeae</i> , <i>Longitarsus jacobaeae</i> ).	
Rationale: Biocontrols have greatly reduced populations of ragwort.	
Sources of information: DiTomaso, J., E. Healy. <i>Weeds of California and Other Western States</i> . Not yet published.	
<b>Question 2.4</b> Innate reproductive potential	A Other Pub. Mat'l <a href="#">back</a>
Describe key reproductive characteristics: Annual, biennial, or perennial. Behaves as a short-lived perennial when mowed, grazed or injured. Develops many spreading lateral roots, which can send up new shoots in response to injury; and which can produce new shoots if fragmented. Flowers July-September. Each shoot produces 20-60 flower heads with numerous disk and ray flowers on each head. Seeds typically remain viable in the soil for 6 years, may remain viable for up to 20 yrs. A single plant can produce 5,000-200,000 seeds over a 4-6 week period.	
Rationale: 9 points.	
Sources of information: DiTomaso, J., E. Healy. <i>Weeds of California and Other Western States</i> . Not yet published.	
Coombs, E., C. Mallory-Smith, LC Burrill, RH Callahan, R. Parker, H. Radtke. 1997. <i>Weeds: Tansy ragwort (<i>Senecio jacobaea</i> L.)</i> . Pacific Northwest Weed Notes. Oregon State University Extension Service publication.	
Mitich, LW. 1995. Intriguing world of weeds: Tansy ragwort. <i>Weed Technology</i> . V.9: 402-404.	
Wardle, DA. 1987. The ecology of ragwort ( <i>Senecio jacobaea</i> L.)--A review. <i>New Zealand Journal of Ecology</i> . V.10: 67-76.	
PW, JD, JR	
<b>Question 2.5</b> Potential for human-caused dispersal	B Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: Spread by agricultural equipment, human activity, on the tires of vehicles, and on the shoes and clothes of people. Can be spread in contaminated hay or straw. Seeds may be spread in the manure of livestock. Can be spread by fire-fighting activity.	

Rationale: Human dispersal is unintentional but does occur.	
Sources of information: DiTomaso, J., E. Healy. Weeds of California and Other Western States. Not yet published. Coombs, E., C. Mallory-Smith, LC Burrill, RH Callahan, R. Parker, H. Radtke. 1997. Weeds: Tansy ragwort ( <i>Senecio jacobaea</i> L.). Pacific Northwest Weed Notes. Oregon State University Extension Service publication. Mott, Gary. 1997. Tansy ragwort ( <i>Senecio jacobaea</i> ) briefing paper. Western Area Weed Council. (This is a memo or email)	
<b>Question 2.6</b> Potential for natural long-distance dispersal	B Other Pub. Mat'l <a href="#">back</a>
Identify dispersal mechanisms: Seeds can be dispersed a short distance (a few meters) by wind. While not verified, very strong winds may be able to blow seeds many kilometers, but only if they are pulled into the atmosphere. Water dispersal is likely. Also dispersed by clinging to the fur, feathers, and feet of animals. Seeds may survive ingestion by birds, but some experiments have found this unlikely.	
Rationale: Occasionally dispersed long distances by animals and water.	
Sources of information: DiTomaso, J., E. Healy. Weeds of California and Other Western States. Not yet published. Wardle, DA. 1987. The ecology of ragwort ( <i>Senecio jacobaea</i> L.)--A review. New Zealand Journal of Ecology. V.10: 67-76.	
<b>Question 2.7</b> Other regions invaded	C Other Pub. Mat'l <a href="#">back</a>
Identify other regions: State-listed noxious weed in AZ, CO, ID, OR, WA. Distribution includes ID, MT, OR, WA to British Columbia, IL, MI, some northeastern states. Naturalized in India, Africa, Canada, Argentina, Australia, and New Zealand. Occurs along beaches in OR.	
Rationale: Same ecotypes as in CA.	
Sources of information: DiTomaso, J., E. Healy. Weeds of California and Other Western States. Not yet published. Mitich, LW. 1995. Intriguing world of weeds: Tansy ragwort. Weed Technology. V.9: 402-404. Coombs, EM, PB McEvoy, CE Turner. 1999. Tansy ragwort. In: Biology and Management of Noxious Rangeland Weeds. Sheley, RL, JK Petroff (eds.)	
<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: First reported in OR in 1922. Disturbed sites, waste places, roadsides, pastures, fields, rangeland, near riparian areas, forested areas. Inhabits grassland, woodland, and dunes in its native range. Often found in grasslands, cut-over forests, nonirrigated pastures, and woodland pastures in PNW.	

Rationale: Inhabits at least 3 major ecotypes and 6 minor in CA.	
Sources of information: DiTomaso, J., E. Healy. Weeds of California and Other Western States. Not yet published. Coombs, E., C. Mallory-Smith, LC Burrill, RH Callahan, R. Parker, H. Radtke. 1997. Weeds: Tansy ragwort ( <i>Senecio jacobaea</i> L.). Pacific Northwest Weed Notes. Oregon State University Extension Service publication. Bain, JF. 1991. The biology of Canadian weeds. 96. <i>Senecio jacobaea</i> L. Canadian Journal of Plant Science. V.71: 127-140.	
<b>Question 3.2</b> Distribution/Peak frequency	C Other Pub. Mat'l <a href="#">back</a>
Describe distribution: North Coast, western Klamath Ranges, southwestern Cascade Range, northern Sierra Nevada, northern Sacramento Valley, San Francisco Bay region. Requires areas of sufficient rainfall. Infests 3 million acres in the PNW including northern CA. Requires a climate similar to central Europe, cooler and wetter than much of California. Dry summer months greatly inhibit seedling establishment.	
Rationale: present in at least 6-20% of north coast coniferous forest	
Sources of information: DiTomaso, J., E. Healy. Weeds of California and Other Western States. Not yet published. Mitich, LW. 1995. Intriguing world of weeds: Tansy ragwort. Weed Technology. V.9: 402-404. Coombs, EM, PB McEvoy, CE Turner. 1999. Tansy ragwort. In: Biology and Management of Noxious Rangeland Weeds. Sheley, RL, JK Petroff (eds.) Wardle, DA. 1987. The ecology of ragwort ( <i>Senecio jacobaea</i> L.)--A review. New Zealand Journal of Ecology. V.10: 67-76. Observational, List Committee, 8/2004.	

**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>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>9 pts      Total Unknowns</b>
	<b>A (6+ pts)</b>
<b>Note any related traits:</b> 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	score
	estuaries	score
<b>Dunes</b>	coastal	D. presen
	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	D. presen
	valley and foothill grassland	score
	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	D. presen
	riparian woodland	D. presen
	riparian scrub (incl. desert washes)	score
<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	C. 5-20%
	closed cone coniferous forest	score
	lower montane coniferous forest	D. presen
	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).