

Chinese Tallow-tree (*Triadica sebifera*)

Element National ID: 204193
Scientific Name: *Triadica sebifera*; Synonym(s) *Sapium sebiferum*
Common Name: Chinese Tallow-tree
I-Rank Review Date: 2004-02-27
Evaluator: Maybury, K.

I-Rank: **High**

I-Rank Reasons Summary: Aggressive weed tree of the southeastern U.S. and now also spreading in California. Capable of transforming important natural communities ranging from coastal prairies, marshes, and bottomland forests, into monospecific Chinese tallow forests. Alters soil chemistry such that the species may be self-perpetuating once established.

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| Subrank I - Ecological Impact: | High |
| Subrank II - Current Distribution/Abundance: | Medium |
| Subrank III - Trend in Distribution/Abundance: | High/Medium |
| Subrank IV - Management Difficulty: | High/Medium |

Native Range: China and Japan

Screening Questions

S-1. Established outside cultivation as a non-native?

Yes

Comments: This species is a non-native that is established outside of cultivation (Kartesz 1999).

S-2. Present in conservation areas or other native species habitats?

Yes

Comments: Occurs in woodlands as well as marshes and wet prairies that are habitat for bird species (LSU, not dated). Invades bottomland forests, coastal prairies and riparian areas and capable of spreading into undisturbed areas (Remaley, not dated).

Section I. Ecological Impact

1. Impact on Ecosystem Processes and System-Wide Parameters

B—Moderate significance

Comments: Can alter soil nutrients/chemistry because of the high tannin content of its leaves (Bogler 2000, TNC 2002). Specifically, large amounts of autumn leaf litter and rapid leaf decomposition may alter nutrient release cycles and change concentrations of nitrate, phosphorus and other nutrients (Cameron and Spencer 1989 and Harcombe et al. 1993, as cited in Bruce et al. 1995, Conway et al. 2002). Such changes are presumably reversible if the tree is removed.

2. *Impact on Ecological Community Structure*

A—High significance

Comments: Can dramatically transform graminoid- and forb-dominated marshes and coastal prairies into forested communities (Bruce et al. 1995, LSU, not dated).

3. *Impact on Ecological Community Composition*

A—High significance

Comments: Replaces native communities with virtually monospecific stands (Bruce et al. 1995, Bogler 2000).

4. *Impact on Individual Native Plant or Animal Species*

C—Low significance

Comments: Long suspected of producing allelopathic compounds that inhibit germination of other species. However, recent work by Conway et al. (2002) indicates that, rather than specifically inhibiting the establishment of other species, Chinese tallow promotes its own growth and survival through changes in soil nutrient availability or release cycles.

5. *Conservation Significance of the Communities and Native Species Threatened*

A—High significance

Comments: Replaces chenier woodlands as well as marshes and wet prairies that are habitat for bird species (LSU, not dated). Invades bottomland forests, coastal prairies and riparian areas and capable of spreading into undisturbed areas (Remaley, not dated).

Section II. Current Distribution And Abundance

6. *Current Range Size in Region*

B—Moderate significance

Comments: North Carolina to central Florida and west to east Texas (Kartesz 1999, Bogler 2000, TNC 2002) and recently discovered in riparian areas in a few areas of central California (TNC 2002).

7. *Proportion of Current Range Where The Species Is Negatively Impacting Biodiversity*

B—Moderate significance

Comments: Low-lying coastal areas and streams and also uplands near towns (i.e., with disturbance?) (Bruce et al. 1995; LSU, not dated).

8. *Proportion of Region's Biogeographic Units Invaded*

C—Low significance

Comments: Eight - twelve U.S. ecoregions based on Kartesz (1999) and TNC (2001).

9. *Diversity of Habitats or Ecological Systems Invaded in Region*

AB—High or Moderate significance

Comments: Wide tolerances for soil salinity, pH, soil moisture (Bogler 2000; LSU, not dated). Colonizes open sites and closed-canopy forests; shade tolerant (Remaley, not dated; LSU, not dated).

Section III. Trend in Distribution and Abundance

10. *Current Trend in Total Range Within the Region*

AB—High or Moderate significance

Comments: Recently detected in California and described as "spreading" there by Bogler (2000).

11. Proportion of Potential Range Currently Occupied

C—Low significance

Comments: Most gardening sources indicate that this tree is only hardy to USDA zone 8 so most of its potential range in the southeastern U.S. has been invaded. In California and the Pacific Northwest, however, much potential habitat would seem to exist. Staples et al. (2000, as cited in PIER, not dated) indicates that this species, now in cultivation in Hawaii, is potentially invasive there as well.

12. Long-Distance Dispersal Potential Within Region

A—High significance

Comments: Still widely sold as an ornamental. (Seeds are also bird and water dispersed [LSU, not dated; Remaley, not dated].)

13. Local Range Expansion or Change in Abundance

BC—Moderate or Low significance

Comments: Possibly spreading in California; probably only slowly expanding in some areas of the southeast.

14. Inherent Ability to Invade Conservation Areas and Other Native Species Habitats

AB—High or Moderate significance

Comments: Does not require disturbance; invades undisturbed as well as disturbed areas (Remaley, not dated). Can invade closed-canopy forests (LSU, not dated).

15. Similar Habitats Invaded Elsewhere

CD—Low significance or Insignificant

Comments: Possibly naturalized on Taiwan (PIER, not dated).

16. Reproductive Characteristics

A—High significance

Comments: Based on Remaley (not dated): Reaches sexual maturity quickly; each tree may produce 100,000 seeds annually; resprouts after cutting.

Section IV. Management Difficulty

17. General Management Difficulty

AB—High or Moderate significance

Comments: Major restoration and eradication efforts needed once trees are established (Bogler 2000).

18. Minimum Time Commitment

AB—High or Moderate significance

Comments: Once this species has become well-established, large-scale restoration is difficult (Bolger 2000). Seed viability at one year of 50% has been demonstrated and trees can fruit when only three years old (Bolger 2000), so adequate control will presumably require vigilance over a long period of time, including hand-pulling of new seedlings after mature trees are cut and herbicide applied to the cut stumps.

19. Impacts of Management on Native Species

C—Low significance

Comments: Bark and stump applications of herbicide are the most effective method of control (Bogler 2000); effects should be selective.

20. Accessibility of Invaded Areas

A—High significance

Comments: Still widely used as an ornamental; seeds are easily dispersed and will invade.

References:

Bogler, D. J. 2000. Element stewardship abstract for *Sapium sebiferum*. The Nature Conservancy, Arlington, VA.

Bruce, K. A., G. N. Cameron, and P. A. Harcombe. 1995. Initiation of a new woodland type on the Texas coastal prairie by the Chinese tallow tree (*Sapium sebiferum* (L.) Roxb.) Bulletin of the Torrey Botanical Club 122: 215-225.

Cameron, G. N. and S. R. Spencer. 1989. Rapid leaf decay and nutrient release in Chinese tallow forest. Oecologia 80: 222-228.

Conway, W. C., L. M. Smith, and J. F. Bergan. 2002. Potential allelopathic interference by the exotic Chinese tallow tree (*Sapium sebiferum*). American Midland Naturalist 148: 43-53.

Harcombe, P. A., G. N. Cameron, and E. G. Glumac. 1993. Above-ground net primary productivity in adjacent grassland and woodland on the coastal prairie of Texas, U.S.A. Journal of Vegetation Science 4: 521-530.

Kartesz, J.T. 1999. A synonymized checklist and atlas with biological attributes for the vascular flora of the United States, Canada, and Greenland. First edition. In: Kartesz, J.T., and C.A. Meacham. Synthesis of the North American Flora, Version 1.0. North Carolina Botanical Garden, Chapel Hill, N.C.

LSU (Louisiana State University). Not dated. Louisiana invasive plants: *Triadica sebifera* (L.) Small. Available online at: <http://www.lsuagcenter.com/invasive/chinesetallow.asp>. Accessed 2004.

PIER (Pacific Island Ecosystems at Risk). Not dated. *Triadica sebifera*. Available at: http://www.hear.org/pier/species/triadica_sebifera.htm. Accessed 2004.

Remaley, T. No Date. Southeast exotic pest plant council invasive plant manual. Available: <http://www.se-eppc.org/manual/>. (Accessed 2004).

Staples, G. W., D. Herbst, and C. T. Imada. 2000. Survey of invasive or potentially invasive cultivated plants on Hawai'i. Bishop Museum Occasional Papers. 65: 21.

TNC (The Nature Conservancy). 2001. Map: TNC Ecoregions of the United States. Modification of Bailey Ecoregions. Online <ftp://ftp.tnc.org/data/national/usa/tnc_us_eco2001.zip>. Accessed 2003

TNC (The Nature Conservancy). 2002. Weed Alert! Available online at: <http://tncweeds.ucdavis.edu/alert/alrtsapi.html>. Accessed 2004.

Kudzu (*Pueraria montana*)

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|----------------------------|--|
| Element National ID | 241913 |
| Synonym(s): | <i>Pueraria montana</i> ; Synonym(s) <i>Pueraria lobata</i> , <i>P. montana</i> var. <i>lobata</i> , <i>P. thunbergiana</i> |
| Common Name: | Kudzu |
| I-Rank Review Date: | 2004-03-28 |
| Evaluator: | Lu, S. |

I-Rank: Medium

I-Rank Reasons Summary: This species is notorious for forming dense canopies that smother and shade out all vegetation underneath it. It also fixes nitrogen, and therefore may alter nutrient dynamics. Although widespread throughout southeastern U.S., and also found in parts of the northeast and in Hawaii, kudzu is rarely significant in areas of high conservation value. It is typically but, not exclusively, found in low quality disturbed areas, such as roadsides and abandoned fields. Its impacts in natural riparian areas, forest edges, and its ability to spread into areas such as the Everglades should continue to be monitored. Kudzu's ability to spread is currently somewhat limited by lack of pollinators. This species is very hard to manage, but repeated herbicide application or mechanical controls can control it.

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| Subrank I - Ecological Impact: | Medium |
| Subrank II - Current Distribution/Abundance: | High |
| Subrank III - Trend in Distribution/Abundance: | Medium |
| Subrank IV - Management Difficulty: | Medium/Low |

Native Range: Native to southeastern Asia from India, China, and Japan, perhaps also Malesia (Starr et al. 1999).

Screening Questions

S-1. Established outside cultivation as a non-native?

Yes

Comments: This species is a non-native that is established outside of cultivation (Kartesz 1999).

S-2. Present in conservation areas or other native species habitats?

Yes

Comments: Invades natural areas in Florida (Langeland and Craddock Burks 1998).

Section I. Ecological Impact: Impact on Ecosystem Processes, Communities, and Native Species

1. Impact on Ecosystem Processes and System-Wide Parameters

AB—High or Moderate significance

Comments: Fixes nitrogen (Weber 2003).

2. Impact on Ecological Community Structure

A—High significance

Comments: Forms mats that may be more than 2 m thick (Weber 2003). Blankets trees with a dense canopy through which little light can penetrate (Van Driesche et al. 2002).

3. Impact on Ecological Community Composition

A—High significance

Comments: Can quickly cover shrubs and trees with a dense tangle of stems, smothering and shading out the other vegetation. Able to smother trees up to 35 m tall. (Weber 2003) Kills or degrades other plants by smothering them under a solid blanket of leaves, girdling woody stems and tree trunks, and breaking branches or uprooting entire trees and shrubs through the sheer force of its weight (Bergmann and Swearingen 1997).

4. Impact on Individual Native Plant or Animal Species

D—Insignificant

Comments: No reported impacts.

5. Conservation Significance of the Communities and Native Species Threatened

C—Low

Comments: Usually inhabits low quality disturbed areas, such as abandoned fields, roadsides, and disturbed areas where sunlight is abundant (Bergmann and Swearingen 1997). It is found in many old, collapsed southern homesteads, in ravines, in former cotton fields and pasture lands (Van Driesche et al. 2002), agricultural areas, disturbed areas, planted forests, and urban areas (ISSG 2004). However, it also impacts natural riparian areas, natural forests, range/grasslands, scrub/shrublands (ISSG 2004).

Section II. Current Range Size in Region

6. Current Range Size in Region

A—High significance

Comments: Common throughout the southeastern US and has been found as far north as Pennsylvania (Bergmann and Swearingen 1997). Rarely occurs in the northeastern US, but is occasionally found from Connecticut to Illinois. (Van Driesche et al. 2002) Estimated to infest at least two million acres in the eastern US (ISSG 2004). Recently found in southern Florida where it has begun to invade the Everglades (VNPS and VDCR 2003).

7. Proportion of Current Range Where The Species Is Negatively Impacting Biodiversity

A—High significance

Comments: The most severe infestations occur in the piedmont regions of Mississippi, Alabama, and Georgia (Van Driesche et al. 2002). Extremely invasive in the southeastern US (Starr et al. 1999). Recently found in southern Florida where it has begun to invade the Everglades (VNPS and VDCR 2003).

8. Proportion of Region's Biogeographic Units Invaded

A—High significance

Comments: Established in at least 35 TNC ecoregions (Inference using data from Kartesz 1999 and TNC Ecoregion 2001 map).

9. Diversity of Habitats or Ecological Systems Invaded in Region

AB—High or Moderate significance

Comments: Invades riparian habitats, forest edges, and woodland (Weber 2003). Preferred habitats include forest edges, abandoned fields, roadsides, and disturbed areas where sunlight is abundant (Bergmann and Swearingen 1997). Found in many old, collapsed southern homesteads, in ravines, in former cotton fields and pasture lands (Van Driesche et al. 2002). Infests natural forests, range/grasslands, riparian zones, scrub/shrublands, agricultural areas, disturbed areas, planted forests, and urban areas (ISSG 2004).

Section III. Trend in Distribution and Abundance

10. Current Trend in Total Range Within the Region

B—Moderate significance

Comments: Most spread is slow (Van Driesche et al. 2002). Introduced into the US in 1976, planted by farmers to control erosion from 1935 to the mid-1950s, and the Civilian Conservation Corps planted it widely for many years. USDA recognized this plant as a pest weed in 1953 and removed it from its list of permissible cover plants. (Bergmann and Swearingen 1997) Kudzu colonies in southern Illinois were found producing large numbers of viable seed in the summer of 1997. If kudzu begin to seed more often, it could begin to spread much more rapidly (Starr et al. 1999).

11. Proportion of Potential Range Currently Occupied

C—Low significance

Comments: May spread further in New England (Mehrhoff et al. 2003). Grows well under a wide range of conditions and in most soil types. Grows best where winters are mild, summer temperatures are above 80 degrees F, and annual rainfall is 40 inches or more. (Bergmann and Swearingen 1997) Inhabits temperate zones or higher altitudes in the tropics, and can be found growing in almost all eco-types from the driest flatwoods to the margins of permanent bodies of water, but not in periodically flooded soils (ISSG 2004).

12. Long-Distance Dispersal Potential Within Region

B—Moderate significance

Comments: Seeds are dispersed by birds and mammals (Weber 2003). Slow spread through local movement of infested soil (Van Driesche et al. 2002). Long-distance dispersal mechanisms include internet sales and road vehicles, while local dispersal includes translocation of machinery, road vehicles, digest/excretion, and water currents (ISSG 2004).

13. Local Range Expansion or Change in Abundance

B—Moderate significance

Comments: Recently found in southern Florida where it has begun to invade the Everglades (VNPS and VDCR 2003). In Maui, should kudzu begin to set seed, it could begin to spread much more rapidly (Starr et al. 1999).

14. Inherent Ability to Invade Conservation Areas and Other Native Species Habitats

B—Moderate significance

Comments: Mostly invades habitats with disturbance. Invades riparian habitats, forest edges, and woodland (Weber 2003). Preferred habitats include forest edges, abandoned fields, roadsides, and disturbed areas where sunlight is abundant (Bergmann and Swearingen 1997). Because it was formerly planted as an ornamental and for erosion control, it is now found in many old, collapsed southern homesteads, and in ravines (Van Driesche et al. 2002). Infests natural forests, range/grasslands, riparian zones, scrub/shrublands, agricultural areas, disturbed areas, planted forests, and urban areas (ISSG 2004).

15. Similar Habitats Invaded Elsewhere

AC—High, Moderate, or Low significance

Comments: Invasive in southern Europe, southern Africa, and Mexico (Weber 2003). Established as a non-native in Australia, South America, and Switzerland, however only considered a serious pest in the US (Van Driesche et al. 2002).

16. Reproductive Characteristics

A—High significance

Comments: Fast-growing, stems easily root at nodes, resprouts when cut (Weber 2003). Grows rapidly (about one foot a day), spreads mainly by vegetative growth, but does have some seed spread in areas where a pollinator, the giant resin bee, occurs. (Bergmann and Swearingen 1997; Swearingen et al. 2002) Seeds are low in viability (ISSG 2004). Kudzu colonies in southern Illinois were found producing large numbers of viable seed in the summer of 1997 (Starr et al. 1999).

Section IV. Management Difficulty

17. General Management Difficulty

B—Moderate significance

Comments: Once established, this plant is difficult to control. Control includes grazing by goats, persistent weeding or mowing, and chemical control. (Weber 2003) To control this species, the extensive root system must be destroyed and no root crowns left. This can be accomplished through using systemic herbicides, cutting vines, or close mowing every month for two growing seasons (Bergmann and Swearingen 1997; Swearingen et al. 2002). Also can be controlled by flaming to defoliate the plant (Starr et al. 1999).

18. Minimum Time Commitment

BC—Moderate or Low significance

Comments: Can take up to ten years to control well-established stands of this plant. Herbicide use can take up to five years to control this plant. (VNPS and VDCR 2003). Close mowing every month for two growing seasons can also control this plant (Bergmann and Swearingen 1997).

19. Impacts of Management on Native Species

C—Low significance

Comments: Glyphosate is the recommended herbicide to control kudzu, however it is non-selective and may harm native plants if not applied carefully (VNPS and VDCR 2003).

20. Accessibility of Invaded Areas

BC—Moderate or Low significance

Comments: Difficult access in some areas.

References:

Bergmann, C. and J.M. Swearingen. 1997. Kudzu - *Pueraria montana* var. *lobata*. Plant Conservation Alliance Alien Plant Working Group (PCA APWG) Weeds Gone Wild Factsheets. Available: <http://www.nps.gov/plants/alien/fact/pulo1.htm>. (Accessed 2004).

Invasive Species Specialist Group (ISSG). 2004. Global Invasive Species Database. Online. Available: <http://www.issg.org/database> (accessed 2004).

Kartesz, J.T. 1999. A synonymized checklist and atlas with biological attributes for the vascular flora of the United States, Canada, and Greenland. First edition. In: Kartesz, J.T., and C.A. Meacham. Synthesis of the North American Flora, Version 1.0. North Carolina Botanical Garden, Chapel Hill, N.C.

Examples of Completed U.S. Assessments

Langeland, K.A. and Craddock Burks, K. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. 165 pp. Available: <http://aquat1.ifas.ufl.edu/identif.html>. (Accessed 2004).

Mehrhoff, L.J., J.A. Silander, Jr., S.A. Leicht and E. Mosher. 2003. IPANE: Invasive Plant Atlas of New England. Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, CT. Online. Available: <http://invasives.eeb.uconn.edu/ipane/>.

Starr, F. K. Martz, and L. Loope. 1999. Kudzu - *Pueraria lobata*: an alien plant report. USGS Biological Resources Division. Available: http://www.hear.org/species/reports/puelob_fskm_awwa_report.pdf. (Accessed 2004).

Swearingen, J., K. Reshetiloff, B. Slattery, and S. Zwicker. 2002. Plant Invaders of Mid-Atlantic Natural Areas. National Park Service and U.S. Fish & Wildlife Service, 82 pp.

The Nature Conservancy. 2001. Map: TNC Ecoregions of the United States. Modification of Bailey Ecoregions. Online <ftp://ftp.tnc.org/data/national/usa/tnc_us_eco2001.zip>. Accessed 2003.

Van Driesche, R., S. Lyon, B. Blossey, M. Hoddle, and R. Reardon. 2002. Biological control of invasive plants in the eastern United States. USDA Forest Service Publication FHTET-2002-04. Available: <http://www.invasive.org/eastern/biocontrol/>. (Accessed 2004).

Virginia Native Plant Society (VNPS) and Virginia Department of Conservation and Recreation (VDCR). 2003. September-last update. List of invasive alien plant species of Virginia. Available: <http://www.vnps.org/invasive.html>. (Accessed 2004).

Weber, E. 2003. Invasive plant species of the world: a reference guide to environmental weeds. CABI Publishing, Cambridge, MA. 548 pp.

Tansy Ragwort (*Senecio jacobaea*)

Element National ID: 205799
Scientific Name: *Senecio jacobaea*
Common Name: Tansy Ragwort
I-Rank Review Date: 2004-02-02
Evaluator: Maybury, K.

I-Rank: **Low**

I-Rank Reasons Summary: Primarily a weed of western grasslands (highest impacts are west of the Cascades). This is a species that primarily invades very disturbed, low quality habitats such as roadsides, clearcuts, abandoned fields, pastures; primarily a rangeland pest, with significant impacts because it is toxic and can poison livestock, but with fairly low biodiversity impacts.

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| Subrank I - Ecological Impact: | Low/Insignificant |
| Subrank II - Current Distribution/Abundance: | Medium |
| Subrank III - Trend in Distribution/Abundance: | Medium/Low |
| Subrank IV - Management Difficulty: | Medium/Low |

Native Range: Europe, North Africa, and western Asia

Screening Questions

S-1. Established outside cultivation as a non-native?

Yes

Comments: This species is a non-native that is established outside of cultivation (Kartesz 1999).

S-2. Present in conservation areas or other native species habitats?

Yes

Comments: At least six ecological systems: Coastal grasslands in the northeast and Pacific coasts, many types of forest systems (usu. following clearcutting), interior grasslands, dunes.

Section I. Ecological Impact

1. Impact on Ecosystem Processes and System-Wide Parameters

CD—Low significance or Insignificant

Comments: No impacts reported.

2. Impact on Ecological Community Structure

CD— Low significance or Insignificant

Comments: Can rapidly colonize disturbed areas, perhaps moderately increasing the total density of the herbaceous layer.

3. Impact on Ecological Community Composition

BC—Moderate or Low significance

Comments: Outcompetes native and naturalized grasses and forbs (Bossard et al. 2000).

4. Impact on Individual Native Plant or Animal Species

D—Insignificant

Comments: No specific impacts noted.

5. Conservation Significance of the Communities and Native Species Threatened

CD— Low significance or Insignificant

Comments: This is a species that primarily invades very disturbed, low quality habitats such as roadsides, clearcuts, abandoned fields, and pastures. It could potentially affect rare plants that require disturbance such as those that occur in power line rights-of-way, but I could find no specific evidence that this occurs. Macdonald and Russo (1989) reported that this species was found in shallow-soiled steep slopes and in cliff crevices in Cascade Head Preserve, Oregon, so otherwise sparsely vegetated (barrens) soils may be more at risk. In general, however, *Senecio jacobaea* is primarily a rangeland pest, with significant impacts because it is toxic and can poison livestock and contaminate milk. As of March 2004 it was listed as a "watch" species in New England by IPANE, meaning the species is viewed as a potential threat even though occurrences are few so far.

Section II. Current Range and Size in Region

6. Current Range Size in Region

B—Moderate significance

Comments: Northern California, Oregon, Washington, Idaho, Montana, Illinois, Michigan, Pennsylvania, New York, New Jersey, Maine, and Massachusetts (Kartesz 1999, IPANE 2001).

7. Proportion of Current Range Where The Species Is Negatively Impacting Biodiversity

BC—Moderate or Low significance

Comments: In California, along the coast and in the Klamath and Cascade ranges (Bossard et al. 2000). In the Pacific Northwest, widespread west of the Cascades, but only present "to some extent" in eastern Oregon and Washington (Burrill et al. 1994). Apparently not at all common in Idaho or Montana. In the east, it is mostly a threat in coastal grasslands, but is thus far not become as much of a problem as in the West (IPANE 2001).

8. Proportion of Region's Biogeographic Units Invaded

B—Moderate significance

Comments: About 18 TNC ecoregions out of 64 based on the TNC (2001) map.

9. Diversity of Habitats or Ecological Systems Invaded in Region

A—High significance

Comments: At least six ecological systems: Coastal grasslands in the northeast and Pacific coasts, many types of forest systems (usu. following clearcutting), interior grasslands, dunes.

Section III. Trend in Distribution and Abundance

10. Current Trend in Total Range Within the Region

BC—Moderate or Low significance

Comments: Does not seem to be spreading rapidly to other areas or to have a decreasing range. Possibly some spread into New England(?)..

11. Proportion of Potential Range Currently Occupied

BC—Moderate or Low significance

Comments: It seems that this species could have the potential to spread to other parts of New England, the Midwest, the Southeast. Native to a wide area in Eurasia and can survive under most soil moisture conditions, even very hot, dry conditions (Burrill et al. 1994).

12. Long-Distance Dispersal Potential Within Region

C—Low significance

Comments: Seeds are wind dispersed but most travel less than 10 feet from the plant (Burrill 1994, Poole and Cairns 1940 as cited in Macdonald and Russo 1989). Found along roadsides, so could be spread by adhering to vehicles/tires (Washington State Noxious Weed Control Board 2003); spread by contaminated hay & straw and by wool spread on fields as fertilizer has been reported (Burrill 1994, IPANE 2001).

13. Local Range Expansion or Change in Abundance

CD—Low significance or Insignificant

Comments: Dramatic declines were seen in the past due to the introduction of native biological control agents. Aggressive biological controls in the 1970s caused cases of tansy ragwort poisoning to decline twentyfold (Burrill 1994) in western Oregon. Biological controls were introduced in California as early as 1959 (Washington State Noxious Weed Control Board 2003). Current trends are unknown.

14. Inherent Ability to Invade Conservation Areas and Other Native Species Habitats

C—Low significance

Comments: Early seral, disturbance species.

15. Similar Habitats Invaded Elsewhere

BC—Moderate or Low significance

Comments: Also escaped in Canada, Australia and New Zealand, South Africa, and at least Argentina in South America (IPANE 2001; Bossard et al. 2000).

16. Reproductive Characteristics

B—Moderate significance

Comments: Prolific seed production. Plants usually produce 60,000 - 70,000 seeds per year and large plants have been reported to produce 150,000 to a quarter million seeds per year (Burrill 1994, IPANE 2001). Seeds remain viable for as long as 15 years (Burrill 1994).

Section IV. Management Difficulty

17. General Management Difficulty

BC—Moderate or Low significance

Comments: Based on Burrill (1994); biological controls that were useful west of the Cascades do not establish well on the eastern slope. Herbicides can be very effective (e.g., California Dept. of Food and Agriculture, not dated).

18. Minimum Time Commitment

B—Moderate significance

Comments: Seeds remain viable for long periods. Establishment of biological controls (where possible) may take up to five years (California Dept. of Food and Agriculture, not dated).

19. Impacts of Management on Native Species

CD— Low significance or Insignificant

Comments: Herbicide application would affect native species, but tansy ragwort is primarily found in areas that are not high quality native species habitats. Biological controls are presumably relatively benign.

20. Accessibility of Invaded Areas

BC—Moderate or Low significance

Comments: Many plants will persist on private lands, vacant lots, etc., but accessibility problems in conservation areas should be rare.

References:

Bossard, C.C., J.M. Randall, and M. Hoshovsky. (eds.) 2000. *Invasive Plants of California's Wildlands*. University of California Press, Berkeley, CA.

Burrill, L. C., R. H. Callihan, R. Parker, E. Coombs, and H. Radtke. 1994. Tansy ragwort (*Senecio jacobaea* L.). Available at: <http://forages.oregonstate.edu/main.cfm?PageID=219>. (Accessed 2004).

California Dept. of Food and Agriculture. 2003. Last updated December 13, 2003. *EncycloWeedia: Notes on identification, biology, and management of plants defined as Noxious Weeds by California law*. Available at: http://www.cdffa.ca.gov/phpps/ipc/encycloveedia/encycloveedia_hp.htm. (Accessed 2004).

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Poole, A. L. and D. Cairns. 1940. Botanical aspects of ragwort (*SENECIO JACOBAEA* L.) control. *Bull. Dept. Sci. Indust. Res.* 82: 1-61.

The Nature Conservancy. 2001. Map: TNC Ecoregions of the United States. Modification of Bailey Ecoregions. Online <ftp://ftp.tnc.org/data/national/usa/tnc_us_eco2001.zip>. Accessed 2003.

Washington State Noxious Weed Control Board. 2003. Written findings of the State Noxious Weed Control Board. Available at: http://www.nwcb.wa.gov/weed_info/contents.html. (Accessed 2004).

Common Lilac (*Syringa vulgaris*)

Element National ID: 214386
Scientific Name: *Syringa vulgaris*
Common Name: Common Lilac
I-Rank Review Date: 2004-05-05
Evaluator: Lu, S.

I-Rank: Insignificant

I-Rank Reasons Summary: Long-persisting ornamental shrub, reportedly spreading in cooler areas, but only rarely if at all reported as impacting significant native plants or habitats. (L. Morse, pers. comm., 2001). As indicated above, this species sometimes persists but rarely spreads to new areas - apparently by seed. At least in part because of this, it rarely if ever has significant negative impacts on natural areas. Despite the fact that it is widely planted as an ornamental, it persists and sparingly spreads only in a part of the U.S. mainland where it is cultivated. Individuals and small, scattered clones can be eradicated with relative ease when removal is desired. (J. Randall, pers. comm., 2001).

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|---|---------------|
| Subrank I - Ecological Impact: | Insignificant |
| Subrank II - Current Distribution/Abundance: | Low |
| Subrank III - Trend in Distribution/Abundance: | Low |
| Subrank IV - Management Difficulty: | Insignificant |

Native Range: Native to southeastern Europe-north-central Romania to central Albania and northeastern Greece (Tutin et al. 1972). Native to Albania, Bulgaria, Greece, Romania, Yugoslavia (GRIN/NPGS 1994).

Screening Questions

S-1. Established outside cultivation as a non-native?

Yes

Comments: This species is a non-native that is established outside of cultivation (Kartesz 1999).

S-2. Present in conservation areas or other native species habitats?

Yes

Comments: Present at many old homesites, including those at sites now considered "wildlands" (L. Morse, pers. obs., 2001).

Section I. Ecological Impact: Impact on Ecosystem Processes, Communities, and Native Species

1. Impact on Ecosystem Processes and System-Wide Parameters

D—Insignificant

Comments: Little if any impact on ecosystem processes obvious (L. Morse, pers. comm., 2001). So rarely invades new areas that it appears to have little impact (J. Randall, pers. comm., 2001).

2. Impact on Ecological Community Structure

D—Insignificant

Comments: Areas with persisting lilac typically have various other understory shrubs present as well (L. Morse, pers. obs., 2001).

3. Impact on Ecological Community Composition

D—Insignificant

Comments: Long-persistent, thus precluding (on a one-on-one basis) replacement of other flora at its sites (L. Morse, pers. comm., 2001).

4. Impact on Individual Native Plant or Animal Species

D—Insignificant

Comments: Very rarely reported as a problem by natural area managers (J. Randall, pers. comm., 2001).

5. Conservation Significance of the Communities and Native Species Threatened

D—Insignificant

Comments: Generally considered to occur in successional woods at old homesites. At one W. Va. site it is established in otherwise generally native limestone-cliff vegetation that may include small numbers of state-rare if not globally rare plants. (L. Morse, pers. obs., 2001). J. Randall (pers. comm., 2001) knows this species only from old homesteads and other previously developed sites where it has persisted after the development was abandoned; the only negative impacts this species may have in these instances is slowing or halting recovery of native plants in the area.

Section II. Current Range Size in Region

6. Current Range Size in Region

A—High significance

Comments: Found persisting across a large area of the northeastern US and adjacent southeastern Canada but almost exclusively in isolated areas according to Gleason and Cronquist 1991, Voss 1996, Roland and Smith 1969, Rhoads and Block 2000, and Swink and Wilhelm 1994. Scattered reports, from many states, are generally of tiny stands of small numbers of individuals. Total area involved small (Morse, pers. comm., 2001). Widespread but scattered as an escape (Kartesz 1999; L. Morse, pers. comm., 2003).

7. Proportion of Current Range Where The Species Is Negatively Impacting Biodiversity

D—Insignificant

Comments: Not generally considered a problem by land managers (J. Randall, pers. comm., 2001). Rarely reported as invasive, more often merely long-persisting from former cultivation. Widely cultivated, and probably persisting without cultivation in many more counties (and perhaps even a few more states) than formally reported in floristic literature such as Kartesz' 1999 Synthesis.

8. Proportion of Region's Biogeographic Units Invaded

C—Low significance

Comments: Scattered distribution, so in only some TNC ecological regions.

9. Diversity of Habitats or Ecological Systems Invaded in Region

D—Insignificant

Comments: Few if any habitats where it is actually invasive; persists in a variety of habitats involving old home sites, roadsides, etc. (cf. Rhoads and Block, 2000, with regard to Pennsylvania).

Section III. Trend in Distribution and Abundance

10. Current Trend in Total Range Within the Region

C—Low significance

Comments: Has been widely planted for many decades in most/all of suitable horticultural range (L. Morse, pers. comm., 2001); mostly persists in areas where planted with some spread by root suckers, rare reports of spread to new areas apparently by seed (J. Randall, pers. comm., 2001).

11. Proportion of Potential Range Currently Occupied

C—Low significance

Comments: Widely cultivated, occasionally persisting already in almost all of cultivated range, rarely spreading, hardly if ever reproducing (L. Morse, pers. comm., 2003).

12. Long-Distance Dispersal Potential Within Region

A—High significance

Comments: Ornamental plantings very frequent; widely used horticulturally (L. Morse, pers. comm., 2001); widely planted as an ornamental, often used in parts of the country where it has never been recorded as persisting or spreading, e.g., California, Oregon, Washington (J. Randall, pers. comm., 2001).

13. Local Range Expansion or Change in Abundance

D—Insignificant

Comments: Spread beyond mere persistence very slow if at all (L. Morse, pers. comm., 2003); I have never seen more than scattered lilac plants (J. Randall, pers. comm., 2001)

14. Inherent Ability to Invade Conservation Areas and Other Native Species Habitats

D—Insignificant

Comments: In the US, primarily persisting from old plantings (e.g., at old home sites as forest succession occurs.) One site in W. Va. may have some plants established from seed from nearby plantings, but even there it is not clear that these could not have spread vegetatively in the past. Sometimes present in current conservation lands due to persistence from former cultivation, esp. at abandoned homesites (L. Morse, pers. obs., 2001); lilac "spreads" in Michigan. (Voss 1996); May spread by root suckers and rare instances are reported of spread from seed into new areas (J. Randall, pers. comm., 2001).

15. Similar Habitats Invaded Elsewhere

B—Moderate significance

Comments: Canada (Kartesz 1999). In a survey-based study White et al. (1993) found that there were occasional reports of lilac persisting in natural habitats in Canada. Persists and spreads sparingly in parts of central and western Europe beyond its native range but it is not truly regarded as invasive in there (Tutin et al. 1972).

16. Reproductive Characteristics

C—Low significance

Comments: Resprouts readily when cut. Long-persisting, but only very slowly spreading, northward in USA. May be dispersing and establishing by seed as well (Voss 1996).

Section IV. Management Difficulty

17. General Management Difficulty

C—Low significance

Comments: Presumably relatively easy to remove if determined to be a local problem (L. Morse, pers. comm., 2001); cutting and treating the stems with herbicide will generally eliminate this species in the few instances where it is troublesome (J. Randall, pers. comm., 2001).

18. Minimum Time Commitment

C—Low significance

Comments: Ability to sprout from root fragments suggests repeated (but brief) control efforts needed (L. Morse, pers. comm., 2003).

19. Impacts of Management on Native Species

D—Insignificant

Comments: Minimal management impacts on native species (L. Morse, pers. comm., 2003).

20. Accessibility of Invaded Areas

D—Insignificant

Comments: Generally at old home sites, so usually in accessible areas (L. Morse, pers. comm., 2003).

References:

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Kartesz, J.T. 1999. A synonymized checklist and atlas with biological attributes for the vascular flora of the United States, Canada, and Greenland. First edition. In: Kartesz, J.T., and C.A. Meacham. Synthesis of the North American Flora, Version 1.0. North Carolina Botanical Garden, Chapel Hill, N.C.

Rhoads, A.F., and T.A. Block. 2000. The plants of Pennsylvania: An illustrated manual. Univ. Pennsylvania Press, Philadelphia. 1061 pp.

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Swink, F., and G. Wilhelm. 1994. Plants of the Chicago Region. The Morton Arboretum, Lisle, Illinois. 922 pp.

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Voss, E.G. 1996. Michigan Flora. Part III. Dicots (Pyrolaceae-Compositae). Cranbrook Institute of Science Bulletin 61 and Univ. Michigan Herbarium. Ann Arbor, Michigan. 622 pp.

White, D. J., E. Haber and C. Keddy. 1993. Invasive plants of natural habitats in Canada: An integrated review of wetland and upland species and legislation governing their control. Canadian Wildlife Service, Ottawa, Ontario, Canada. 121p.

No Common Name (*Acanthospermum xanthioides*)

Element National ID: 237445
Scientific Name: *Acanthospermum xanthioides*
Common Name: None
I-Rank Review Date: 2004-04-15
Evaluator: Maybury, K.

I_Rank: **Not Applicable**

I-Rank Reasons Summary: *Acanthospermum* is a small genus of tropical America (Weakley 2004). The single U.S. report for *A. xanthioides* is from New York State, probably a waif that was introduced via ballast.

Native Range: Tropical Americas.

Screening Questions

S-1. Established outside cultivation as a non-native?

No

Comments: *Acanthospermum* is a small genus of tropical America (Weakley 2004). The single U.S. report is from New York State, probably a waif introduced via ballast.

References:

Weakley, A. S. Flora of the Carolinas, Virginia, and Georgia. Draft as of March 2004. UNC Herbarium, North Carolina Botanical Garden, Chapel Hill. Available online: <http://www.herbarium.unc.edu/flora.htm>. Accessed 2004.