***Family:*** ***Ranunculaceae***

***Taxon:*** ***Clematis terniflora***

***Synonym:*** *Clematis flammula var. robusta Carrière*
*Clematis mandshurica Rupr.*
*Clematis maximowicziana Franch. & Sav.*
*Clematis paniculata Thunb.*

***Common Name:*** sweet autumn clematis
yam leaf clematis
sweet autumn virginsbower
Japanese clematis

**Questionaire :** current 20090513 **Assessor:** Assessor **Designation:** H(HPWRA)
**Status:** Assessor Approved **Data Entry Person:** Assessor **WRA Score 13**

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|---|---|---|---|
| **101** | **Is the species highly domesticated?** | **y=-3, n=0** | **n** |
| **102** | **Has the species become naturalized where grown?** | **y=1, n=-1** | |
| **103** | **Does the species have weedy races?** | **y=1, n=-1** | |
| **201** | **Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"** | **(0-low; 1-intermediate; 2-high) (See Appendix 2)** | **Intermediate** |
| **202** | **Quality of climate match data** | **(0-low; 1-intermediate; 2-high) (See Appendix 2)** | **High** |
| **203** | **Broad climate suitability (environmental versatility)** | **y=1, n=0** | **y** |
| **204** | **Native or naturalized in regions with tropical or subtropical climates** | **y=1, n=0** | **n** |
| **205** | **Does the species have a history of repeated introductions outside its natural range?** | **y=-2, ?=-1, n=0** | **y** |
| **301** | **Naturalized beyond native range** | **y = 1*multiplier (see Appendix 2), n= question 205** | **y** |
| **302** | **Garden/amenity/disturbance weed** | **n=0, y = 1*multiplier (see Appendix 2)** | **y** |
| **303** | **Agricultural/forestry/horticultural weed** | **n=0, y = 2*multiplier (see Appendix 2)** | **n** |
| **304** | **Environmental weed** | **n=0, y = 2*multiplier (see Appendix 2)** | **y** |
| **305** | **Congeneric weed** | **n=0, y = 1*multiplier (see Appendix 2)** | **y** |
| **401** | **Produces spines, thorns or burrs** | **y=1, n=0** | **n** |
| **402** | **Allelopathic** | **y=1, n=0** | |
| **403** | **Parasitic** | **y=1, n=0** | **n** |
| **404** | **Unpalatable to grazing animals** | **y=1, n=-1** | **y** |
| **405** | **Toxic to animals** | **y=1, n=0** | **y** |
| **406** | **Host for recognized pests and pathogens** | **y=1, n=0** | **n** |
| **407** | **Causes allergies or is otherwise toxic to humans** | **y=1, n=0** | |
| **408** | **Creates a fire hazard in natural ecosystems** | **y=1, n=0** | |
| **409** | **Is a shade tolerant plant at some stage of its life cycle** | **y=1, n=0** | **y** |

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| **410** | **Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)** | **y=1, n=0** | **y** |
| **411** | **Climbing or smothering growth habit** | **y=1, n=0** | **y** |
| **412** | **Forms dense thickets** | **y=1, n=0** | **n** |
| **501** | **Aquatic** | **y=5, n=0** | **n** |
| **502** | **Grass** | **y=1, n=0** | **n** |
| **503** | **Nitrogen fixing woody plant** | **y=1, n=0** | **n** |
| **504** | **Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)** | **y=1, n=0** | **n** |
| **601** | **Evidence of substantial reproductive failure in native habitat** | **y=1, n=0** | **n** |
| **602** | **Produces viable seed** | **y=1, n=-1** | **y** |
| **603** | **Hybridizes naturally** | **y=1, n=-1** | |
| **604** | **Self-compatible or apomictic** | **y=1, n=-1** | |
| **605** | **Requires specialist pollinators** | **y=-1, n=0** | **n** |
| **606** | **Reproduction by vegetative fragmentation** | **y=1, n=-1** | |
| **607** | **Minimum generative time (years)** | **1 year = 1, 2 or 3 years = 0, 4+ years = -1** | **2** |
| **701** | **Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)** | **y=1, n=-1** | |
| **702** | **Propagules dispersed intentionally by people** | **y=1, n=-1** | **y** |
| **703** | **Propagules likely to disperse as a produce contaminant** | **y=1, n=-1** | **y** |
| **704** | **Propagules adapted to wind dispersal** | **y=1, n=-1** | **y** |
| **705** | **Propagules water dispersed** | **y=1, n=-1** | |
| **706** | **Propagules bird dispersed** | **y=1, n=-1** | **n** |
| **707** | **Propagules dispersed by other animals (externally)** | **y=1, n=-1** | **n** |
| **708** | **Propagules survive passage through the gut** | **y=1, n=-1** | |
| **801** | **Prolific seed production (>1000/m2)** | **y=1, n=-1** | |
| **802** | **Evidence that a persistent propagule bank is formed (>1 yr)** | **y=1, n=-1** | |
| **803** | **Well controlled by herbicides** | **y=-1, n=1** | **y** |
| **804** | **Tolerates, or benefits from, mutilation, cultivation, or fire** | **y=1, n=-1** | **y** |
| **805** | **Effective natural enemies present locally (e.g. introduced biocontrol agents)** | **y=-1, n=1** | |

**Designation:** H(HPWRA) **WRA Score** **13**

**Supporting Data:**

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|---|---|---|
| 101 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Is the species highly domesticated? No evidence] |
| 102 | 2013. WRA Specialist. Personal Communication. | NA |
| 103 | 2013. WRA Specialist. Personal Communication. | NA |
| 201 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Species suited to tropical or subtropical climate(s) 1-Intermediate] "Japanese clematis, a herbaceous to woody vine native to Asia, has been widely used for landscaping in the southeastern United States and is now a naturalized and invasive in Florida." … "This species has become widely naturalized in the eastern United States and is found west through Nebraska, south through Florida, and east through New Hampshire Moreno and Essig 1997)." |
| 201 | 2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl | [Species suited to tropical or subtropical climate(s) 1-Intermediate] "Native: ASIA-TEMPERATE Mongolia: Mongolia Russian Far East: Russian Federation - Amur, Primorye China: China - Anhui, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Monggol, Shaanxi, Shanxi, Zhejiang Eastern Asia: Japan - Hokkaido, Honshu, Kyushu, Shikoku; Korea; Taiwan" [Invasive in Central & Northern Florida. Marginally subtropical] |
| 202 | 2013. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl | [Quality of climate match data? 2-High] |
| 203 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Broad climate suitability (environmental versatility)? Yes. Can grow in 5 hardiness zones] "It has been recommended for ornamental use in all USDA cold hardy zones of 5– 10B (Broschat and Meerow 1991)." |
| 203 | 2013. Dave's Garden. PlantFiles: Sweet Autumn Clematis, Sweet Autumn Virgin's Bower, Japanese Clematis - Clematis terniflora. http://davesgarden.com/guides/pf/go/683/ [Accessed 04 Oct 2013] | [Broad climate suitability (environmental versatility)? Yes] "Hardiness:<br>USDA Zone 4a: to -34.4 °C (-30 °F)<br>USDA Zone 4b: to -31.6 °C (-25 °F)<br>USDA Zone 5a: to -28.8 °C (-20 °F)<br>USDA Zone 5b: to -26.1 °C (-15 °F)<br>USDA Zone 6a: to -23.3 °C (-10 °F)<br>USDA Zone 6b: to -20.5 °C (-5 °F)<br>USDA Zone 7a: to -17.7 °C (0 °F)<br>USDA Zone 7b: to -14.9 °C (5 °F)<br>USDA Zone 8a: to -12.2 °C (10 °F)<br>USDA Zone 8b: to -9.4 °C (15 °F)<br>USDA Zone 9a: to -6.6 °C (20 °F)<br>USDA Zone 9b: to -3.8 °C (25 °F)" |
| 204 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Native or naturalized in regions with tropical or subtropical climates? No. Marginal] "Japanese clematis occurs in Florida's northern counties south to the central peninsula (Wunderlin and Hansen 2003)." |
| 205 | 1941. Thaanum, D.. Specimen Details for Clematis maximovicziana Franch. & Sav. [BISH 770155]. Bishop Museum, http://nsdb.bishopmuseum.org/2873CF83-06E9-48D0-A02A-B3D15BEA940F | [Does the species have a history of repeated introductions outside its natural range? Oahu] "USA - Hawaii - Oahu - Honolulu: Manoa Valley" [Collected as Clematis maximovicziana Franch. & Sav. Syn: Clematis terniflora] |
| 205 | 1985. Lau, J.. Specimen Details for Clematis maximovicziana Franch. & Sav. [BISH 500048]. Bishop Museum, http://nsdb.bishopmuseum.org/F045811E-72B0-4AF1-B64D-3177723DBE78 | [Does the species have a history of repeated introductions outside its natural range? Oahu] "USA - Hawaii - Oahu - U.H.Campus, Sherman Laboratory" [Collected as Clematis maximovicziana Franch. & Sav. Syn: Clematis terniflora] |
| 205 | 2005. Imada, C.T./Staples, G.W./Herbst, D.R.. Annotated Checklist of Cultivated Plants of Hawai'i. The Bishop Museum, http://www2.bishopmuseum.org/HBS/botany/cultivatedplants/ | [Does the species have a history of repeated introductions outside its natural range? Hawaii Island] "Clematis maximovicziana Franchet & Savatier" … "First Collected: 1941 Locations: Hilo Forestry Arboretum, Hilo, Hawai'i " [Syn. of Clematis terniflora] |

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| 301 | 2008. Ashton, I.W./Lerdau, M.T.. Tolerance to herbivory, and not resistance, may explain differential success of invasive, naturalized, and native North American temperate vines. Diversity and Distributions. 14: 169–178. | [Naturalized beyond native range? Yes] "Table 1. The 12 temperate vine species used in this study. Invasive vines as those listed as invasive species in the USDA national plants database (USDA-NRCS, 2001). We follow the terminology of Pysek et al. (2004)." [Clematis terniflora = Invasive] |
| 301 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Naturalized beyond native range? Yes] "Japanese clematis, a herbaceous to woody vine native to Asia, has been widely used for landscaping in the southeastern United States and is now a naturalized and invasive in Florida." … "This species has become widely naturalized in the eastern United States and is found west through Nebraska, south through Florida, and east through New Hampshire Moreno and Essig 1997)." |
| 302 | 2013. Dave's Garden. PlantFiles: Sweet Autumn Clematis, Sweet Autumn Virgin's Bower, Japanese Clematis - Clematis terniflora. http://davesgarden.com/guides/pf/go/683/ [Accessed 04 Oct 2013] | [Garden/amenity/disturbance weed? Yes] "On Sep 24, 2013, tsemple from Broken Arrow, OK wrote: I made the horrible mistake of planting this nasty plant on an arbor about four years ago. It bloomed beautifully. The next year I had it sprouting (from seed) over my entire yard which is 80% garden. Unfortunately, they mostly aren't noticed until they have grown up inside a shrub or plant. If you pull them, they break off at the ground, then grow right back. It's always windy in Oklahoma, so using a spray herbicide is iffy most days, because of the danger of killing desirable plants. This weed makes me crazy and if you value your sanity, do NOT plant it. Invasive is much too nice a term for it." |
| 303 | 2013. WRA Specialist. Personal Communication. | [Agricultural/forestry/horticultural weed? No] A garden and environmental weed |
| 304 | 2002. Bowen, B./Johnson, K./Franklin, S./Call, G./Webber, M.. Invasive Exotic Pest Plants in Tennessee. Journal of the Tennessee Academy of Science. 77(2): 45-48. | [Environmental weed? Potentially Yes] 'Rank 2 - Significant Threat. Exotic plant species that possess characteristics of invasive species but are not presently considered to spread as easily into native plant communities as those species listed as Rank 1." [Includes Clematis terniflora] |
| 304 | 2008. Central Jersey Invasive Species Strike Team. Invasive Plant Fact Sheet - Japanese Clematis (Clematis terniflora). http://www.fohvos.org/pdfs/factsheets/Clematis%20terniflora_Invasive%20Plants%20Fact%20Sheet.pdf | [Environmental weed? Yes] "Japanese clematis can quickly overtop shrubs and trees, completely shading them from the sun. Its dense growth crowds out native plants. In the absence of vegetation or other structures to climb, Japanese clematis will create will create dense mats that suppress the growth of other plant life." |
| 304 | 2008. Meisenburg, M./Langeland, K./Vollmer, K.. Japanese clematis, Clematis terniflora (D.C.) Ranunculaceae. SS AGR 309. University of Florida, IFAS, Gainesville, FL | [Environmental weed? Yes] "By contrast, Japanese clematis is considered invasive by exotic/invasive plant councils in Alabama, Georgia, Tennessee, South Carolina, and the Mid-Atlantic, as well as in Florida. Given the invasive designation these councils have assigned to Japanese clematis, and considering, as well, the plant's tendency to escape cultivation and invade intact natural areas, it would be prudent not to cultivate this plant in Florida" |
| 304 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Environmental weed? Yes] "It has invaded natural areas of Florida, and was added to the Florida Exotic Pest Plant Council Category II list of invasive plant species in 2005 (Florida Exotic Pest Plant Council 2005). Plants are placed on this list if they are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives." … "New populations of Japanese clematis have been occurring with increased frequency in Gainesville, FL (Alachua County) for several years, and this species is an increasing problem in natural areas of the city (G. Parks, personal communication 2005)." … "Japanese clematis has sufficient impacts on native plant communities in natural areas of Gainesville that in 2005, Gainesville's Nature Operations Division implemented control measures in natural areas." |
| 305 | 2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK | [Congeneric weed? Yes] "Clematis vitalba" … "It is invasive because it forms a dense smothering blanket over native trees, impeding their growth and increasing wind and ice damage." |
| 305 | 2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia | [Congeneric weed? Yes. Multiple species listed] |
| 401 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Produces spines, thorns or burrs? No] "Vines woody. Branches shallowly 4–10 grooved, puberulous or only nodes puberulous. Leaves pinnate, 5(–7)-foliolate; petiole 2.5–4.5 cm; leaflet blades ovate to narrowly ovate, sometimes ovate lanceolate, 2.5–8 × 1–4.2 cm, papery to subleathery, both surfaces sparsely puberulous, glabrescent, base rounded, subcordate, or broadly cuneate, margin entire, apex acute to obtuse; basal veins abaxially ± prominent to nearly flat. Cymes axillary or terminal, usually many flowered; peduncle 1–7 cm; bracts linear, elliptic, or oblong, 0.8–3.5(–5) cm." |
| 402 | 2013. WRA Specialist. Personal Communication. | [Allelopathic? Unknown] |

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|---|---|---|
| 403 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Parasitic? No] "Vines woody." [Ranunculaceae] |
| 404 | 2000. Jayasekara, P./Takatsuki, S.. Seasonal food habits of a sika deer population in the warm temperate forest of the westernmost part of Honshu, Japan. Ecological Research. 15: 153–157. | [Unpalatable to grazing animals? Palatable to sika seed] "The material recovered from the rumen contents of the sika deer contained: leaves of bamboo (Pleioblastus chino Makino), monocotyledonous herbs (Ophiopogon spp.), forbs (Polygala spp., Clematis terniflora DC. Phaseolus sp.), shrubs…" |
| 404 | 2010. Male-Brune, R.. Deer resistance rating for landscape plants. http://www.gardeningindeercountry.com/plant-table.php | [Unpalatable to grazing animals? Possibly Yes] "Deer Resistance Table" … "Clematis terniflora" … "Never Browsed" |
| 404 | 2013. Hilty, J.. Weedy Wildflowers of Illinois - Autumn Clematis - Clematis terniflora. http://www.illinoiswildflowers.info/weeds/plants/aut_clematis.htm [Accessed 04 Oct 2013] | [Unpalatable to grazing animals? Yes] "Because the foliage of Autumn Clematis is toxic, it is not eaten by mammalian herbivores." |
| 404 | 2013. Missouri Botanical Gardens. Clematis terniflora. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a300 [Accessed 04 Oct 2013] | [Unpalatable to grazing animals? Possibly] "Tolerate: Deer, Black Walnut" |
| 405 | 2013. Hilty, J.. Weedy Wildflowers of Illinois - Autumn Clematis - Clematis terniflora. http://www.illinoiswildflowers.info/weeds/plants/aut_clematis.htm [Accessed 04 Oct 2013] | [Toxic to animals? Yes] "Because the foliage of Autumn Clematis is toxic, it is not eaten by mammalian herbivores." |
| 406 | 2013. Missouri Botanical Gardens. Clematis terniflora. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a300 [Accessed 04 Oct 2013] | [Host for recognized pests and pathogens? No] "Problems: No serious insect or disease problems. Spreading, sometimes hard-to-control vine" |
| 407 | 2011. HedgerowRose. Growing Clematis terniflora 'Paniculata' or Sweet Autumn Clematis. http://hedgerowrose.com/annuals-perennials/2011/09/30/growing-clematis-terniflora-paniculata-or-sweet-autumn-clematis/ [Accessed 04 Oct 2013] | [Causes allergies or is otherwise toxic to humans? Possibly] "Clematis terniflora is poisonous if ingested and some have experienced skin irritation when handling the plant. Obviously I have never poisoned myself with it, and we have an older child we aren't worrying about popping seeds into her mouth. I have never experienced skin irritation, nor has my husband, but it wouldn't hurt to wear a pair of gardening gloves if you have sensitive skin." |
| 408 | 2008. Mahala, M.. Kentucky Terrestrial Nuisance Species Management Plan. Kentucky Department of Fish and Wildlife Resources, Frankfort, KY | [Creates a fire hazard in natural ecosystems? Possibly could act as a fuel ladder] "Widely cultivated and escaped; prolific seeder; will establish in open or closed habitats if stem can reach light; High climber and can choke tree vegetation; will grow on ground in grassland; fire sets back does not kill, may promote germination; wind dispersed; will grow in open forest or woodland" |
| 409 | 2008. Meisenburg, M./Langeland, K./Vollmer, K.. Japanese clematis, Clematis terniflora (D.C.) Ranunculaceae. SS AGR 309. University of Florida, IFAS, Gainesville, FL | [Is a shade tolerant plant at some stage of its life cycle? Yes] "In natural areas, Japanese clematis typically invades along roadsides and thickets, as well as along the edges of woods near creeks. It also grows well in the well shaded understory of forests." |
| 409 | 2013. Missouri Botanical Gardens. Clematis terniflora. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a300 [Accessed 04 Oct 2013] | [Is a shade tolerant plant at some stage of its life cycle? Yes] "Unlike almost all other species of clematis, this plant will thrive and bloom well in considerable shade. Blooms on new growth." |
| 410 | 2007. Gartin, P.J.. Some Like It Hot: Flowers That Thrive in Hot Humid Weather. Gibbs Smith, Layton, Utah | [Tolerates a wide range of soil conditions? Yes] "Sweet autumn clematis is not choosy about soil type." |
| 411 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Climbing or smothering growth habit? Yes] "Vines woody." |
| 411 | 2010. Global Invasive Species Database. Clematis terniflora. http://issg.org/database/species/ecology.asp?si=1224&fr=1&sts= [Accessed 04 Oct 2013] | [Climbing or smothering growth habit? Yes] "Clematis terniflora is a perennial vine that is frequently used as a landscaping plant. It is invasive, however, and displays aggressive growth in many areas of North America. C. terniflora can climb nearly 10 metres high, smothering trees and pulling down telephone poles." |

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| 412 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Forms dense thickets? No. Smothering habit] "Japanese clematis is a herbaceous to woody (older portions) vine that climbs over shrubs and into small trees" |
| 501 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Aquatic? No] "Forest margins, scrub on slopes, grassy areas on hills, among rocks in coastal areas; near sea level to 800 m." |
| 502 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Grass? No] "Vines woody." [Ranunculaceae] |
| 503 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Nitrogen fixing woody plant? No] "Vines woody." [Ranunculaceae] |
| 504 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No evidence] "Vines woody." |
| 601 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Evidence of substantial reproductive failure in native habitat? No evidence] |
| 602 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Produces viable seed? Yes] "Seeds are small and brown with a white feathery plume. Mature seeds can germinate anywhere between 1 to 9 mo after maturing." |
| 602 | 2013. Floridata. Clematis terniflora. http://www.floridata.com/ref/c/clem_ter.cfm [Accessed 06 Oct 2013] | [Produces viable seed? Yes] "Sweet autumn clematis is probably the easiest clematis to grow. It thrives on neglect and can even become a nuisance, engulfing less robust plants and self-seeding itself all over the place." |
| 603 | 2006. Do, K.F.. A Determination of Phylogeny and Hybridization History Within Clematis L.(Ranunculaceae) Using Actin and Nitrate Reductase Intron Sequences. PhD Dissertation. University of South Florida, Tampa, FL | [Hybridizes naturally? Unknown] "Clematis is a common garden ornamental, which gives this genus scientific and economic importance. One of the reasons that Clematis is such a popular garden plant is the relative ease of hybridization within the genus, especially between closely related species." |
| 604 | 2010. Jiang, N./Yu, W.B./Li, H.Z./Guan, K.Y.. Floral traits, pollination ecology and breeding system of three Clematis species (Ranunculaceae) in Yunnan province, southwestern China. Australian Journal of Botany. 58(2): 115-123. | [Self-compatible or apomictic? Possibly. Other Clematis species are self-compatible] "The two hand-pollination treatments indicated that all three Clematis species were self-compatible. The autonomous selfing indices of C. chrysocoma, C. akebioides and C. rehderiana were 0.29, 0.97 and 0.80 for fruit-set, respectively, and 0.23, 0.76 and 0.84 for seed production, respectively." |
| 604 | 2013. Missouri Botanical Gardens. Clematis terniflora. http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a300 [Accessed 04 Oct 2013] | [Self-compatible or apomictic? Possibly] "Sweet autumn clematis can aggressively self seed in the landscape, and has escaped cultivation and naturalized in many parts of the U.S." |
| 605 | 2013. Plants for a Future Database. Clematis terniflora. http://www.pfaf.org/user/Plant.aspx?LatinName=Clematis+terniflora [Accessed 04 Oct 2013] | [Requires specialist pollinators? No] "The flowers are hermaphrodite (have both male and female organs) and are pollinated by Bees, flies." |
| 606 | 2013. Floridata. Clematis terniflora. http://www.floridata.com/ref/c/clem_ter.cfm [Accessed 06 Oct 2013] | [Reproduction by vegetative fragmentation? Unknown. "Sweet autumn clematis can be grown from seed; plant as soon as ripe. It also can be started from cuttings taken in early summer, and by layering in late winter or early spring. " |
| 607 | 2013. Shoot Gardening. Clematis terniflora (Sweet autumn clematis). http://www.shootgardening.co.uk/plant/clematis-terniflora [Accessed 06 Oct 2013] | [Minimum generative time (years)? 2+] "2-5 years To maturity" |
| 701 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Possibly Yes] "It is found along roadsides, thickets, and other secondary sites, and along edges of woods near creeks." |

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| 702 | 2010. Global Invasive Species Database. Clematis terniflora. http://issg.org/database/species/ecology.asp?si=1224&fr=1&sts= [Accessed 04 Oct 2013] | [Propagules dispersed intentionally by people? Yes] "Clematis terniflora is used as a landscape ornamental, although its popularity is decreasing as landscapers realize its invasive potential. " |
| 703 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Propagules likely to disperse as a produce contaminant? Yes. Mulch could be considered as a type of produce] "Long-distance dispersal of the plant might result from movement of seeds in mulch provided by the city to homeowners in a yard waste mulching program (E. Smith, personal communication 2005)." … "Although Japanese clematis was introduced into the United States over 100 yr ago, its increased recent proliferation in Gainesville, FL should be heeded as a warning of its potential invasiveness, especially if dispersal is aided by anthropogenic activities such as distribution of contaminated mulch." |
| 704 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Propagules adapted to wind dispersal? Yes] "Seeds are small and brown with a white feathery plume." … "Although the plant is a prolific seed producer and seed is probably dispersed by wind, the rather short-winged appendages and fairly large seed size suggest that most seeds are probably not dispersed far from the parents. This might explain why the plant is very abundant where it occurs." |
| 704 | 2013. Dave's Garden. PlantFiles: Sweet Autumn Clematis, Sweet Autumn Virgin's Bower, Japanese Clematis - Clematis terniflora. http://davesgarden.com/guides/pf/go/683/ [Accessed 04 Oct 2013] | [Propagules adapted to wind dispersal? Yes] "On Oct 1, 2007, claypa from West Pottsgrove, PA (Zone 6b) wrote: I find this plant growing in protected wetlands in Maryland, roadsides, hedgerows, fences… Yet another non-native invasive, causing ecological damage to our countryside, for some "fragrance". Kudzu is fragrant, too. It spreads by seeds, and the wind blows the seeds far and wide, so unless you deadhead every flower, "containing" this plant is a fantasy." |
| 705 | 2012. Kaufman, S.R./Kaufman, W.. Invasive Plants: A Guide to Identification and the Impacts and Control of Common North American Species. Second Edition, Revised and Updated. Stackpole Books, Mechanicsburg, PA | [Propagules water dispersed? Possibly] "Found along stream banks and in thickets and moist woods from New England south to Florida, and west to Nebraska and Texas." [Although adapted for wind dispersal, occurrence along streams may facilitate spread] |
| 706 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Propagules bird dispersed? No] "Seeds are small and brown with a white feathery plume." … "Although the plant is a prolific seed producer and seed is probably dispersed by wind, the rather short-winged appendages and fairly large seed size suggest that most seeds are probably not dispersed far from the parents. This might explain why the plant is very abundant where it occurs." |
| 707 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Propagules dispersed by other animals (externally)? No] "Seeds are small and brown with a white feathery plume." [Adapted for wind dispersal, although plumes could possibly get caught in fur or feathers and be occasionally dispersed by animals] |
| 708 | 2001. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 6 (Caryophyllaceae through Lardizabalaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis | [Propagules survive passage through the gut? Unknown. Unlikely to be consumed] "Achenes orange-yellow, broadly elliptic to obovate, 4–9 × 2.5–6 mm, appressed pubescent; persistent style 1.2– 4 cm, plumose." |
| 801 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Prolific seed production (>1000/m2)? Unknown] "Although the plant is a prolific seed producer and seed is probably dispersed by wind, the rather short-winged appendages and fairly large seed size suggest that most seeds are probably not dispersed far from the parents." |
| 802 | 2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ | [Evidence that a persistent propagule bank is formed (>1 yr)? Unknown for C. terniflora. Several Clematis species have orthodox seeds] |
| 802 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "Mature seeds can germinate anywhere between 1 to 9 mo after maturing." |

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| 803 | 2009. Langeland, K./Meisenburg, M.. Herbicide Evaluation to Control Clematis terniflora Invading Natural Areas in Gainesville, Florida. Invasive Plant Science and Management. 2(1): 70-73. | [Well controlled by herbicides? Yes] "Japanese clematis, a herbaceous to woody vine native to Asia, has been widely used for landscaping in the southeastern United States and is now a naturalized and invasive in Florida. Herbicides that contain the active ingredients fluroxypyr, glyphosate, imazapic, metsulfuron, or triclopyr, applied alone or in combination on a sprayto- wet basis, were evaluated for their effectiveness to control the plant in a natural area of Gainesville, FL. All herbicide treatments provided some level of control 30, 60, and 90 d after application. The most effective herbicide treatments, imazapic 0.6 g ae/L, glyphosate as low as 3.6 g ae/L, triclopyr as low as 3.6 g ae/L, metsulfuron 0.07 g ai/L, and fluroxypyr as low as 1.8 g ae/L, resulted in 72% to 99% control 90 d after application, but were not significantly different from each other. Natural area managers throughout the range of Japanese clematis should be vigilant for this species and remove it whenever encountered. Our results indicate that it can be controlled by foliar application of several herbicides commonly used for management of pest plants in natural areas, but repeat applications will be necessary." |
| 804 | 2008. Meisenburg, M./Langeland, K./Vollmer, K.. Japanese clematis, Clematis terniflora (D.C.) Ranunculaceae. SS AGR 309. University of Florida, IFAS, Gainesville, FL | [Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Mechanical. Seedlings may be hand-pulled or mowed. Mature plants can be cut by hand or mowed. Plants must be cut back enough and dug up to ensure complete removal." [Suggests that without complete removal, plants will resprout from the roots] |
| 804 | 2013. Dave's Garden. PlantFiles: Sweet Autumn Clematis, Sweet Autumn Virgin's Bower, Japanese Clematis - Clematis terniflora. http://davesgarden.com/guides/pf/go/683/ [Accessed 04 Oct 2013] | [Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "If you pull them, they break off at the ground, then grow right back." |
| 804 | 2013. Floridata. Clematis terniflora. http://www.floridata.com/ref/c/clem_ter.cfm [Accessed 06 Oct 2013] | [Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "All climbing clematis vines should be pruned hard after the first year of growth to encourage branching and bushiness. Cut back to a pair of strong buds about a foot above ground level." |
| 805 | 2008. Meisenburg, M./Langeland, K./Vollmer, K.. Japanese clematis, Clematis terniflora (D.C.) Ranunculaceae. SS AGR 309. University of Florida, IFAS, Gainesville, FL | [Effective natural enemies present locally (e.g. introduced biocontrol agents)? Yes] "Biological. To date no biological control exists for this species. However, leaf damage is occasionally observed (Figure 2) perhaps because Japanese clematis shares its range with several native Clematis" |

**Summary of Risk Traits**

**High Risk / Undesirable Traits**

- Temperate vine (marginal in subtropics)
- Broad climate suitability (in temperate areas)
- Widely naturalized
- Landscaping and garden weed
- An environmental weed
- Many Clematis species have become invasive
- Unpalatable & presumably toxic to animals
- Tolerates many soil types
- Shade tolerant
- Overtops & smothers other vegetation
- Wind-dispersed seeds
- Seeds may be dispersed as a contaminant of mulch
- Reaches maturity in 2+ years
- Tolerates & resprouts after repeated cutting

**Low Risk Traits**

- Temperate climate; may only be a threat to higher elevation areas in tropical islands
- Showy flowers
- Herbicides may provide effective control