

**Taxon:** *Fatoua villosa* (Thunb.) Nakai

**Family:** Moraceae

**Common Name(s):** hairy crabweed  
mulberry-weed

**Synonym(s):** *Urtica villosa* Thunb.

**Assessor:** Chuck Chimera

**Status:** Assessor Approved

**End Date:** 24 Jan 2018

**WRA Score:** 9.0

**Designation:** H(HPWRA)

**Rating:** High Risk

**Keywords:** Annual Herb, Nursery Weed, Shade-Tolerant, Contaminant, Ballistic Dispersal

| Qsn # | Question  | Answer Option                                      | Answer |
|-------|---|--|--------|
| 101   | Is the species highly domesticated?   | y=-3, n=0  | n      |
| 102   | Has the species become naturalized where grown?   |  |        |
| 103   | Does the species have weedy races?  |  |        |
| 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)   | High   |
| 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   | y      |
| 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)             | y      |
| 304   | Environmental weed  | n=0, y = 2*multiplier (see Appendix 2)             | n      |
| 305   | Congeneric weed   | n=0, y = 1*multiplier (see Appendix 2)             | n      |
| 401   | Produces spines, thorns or burrs  | y=1, n=0   | n      |
| 402   | Allelopathic  |  |        |
| 403   | Parasitic   | y=1, n=0   | n      |
| 404   | Unpalatable to grazing animals  |  |        |
| 405   | Toxic to animals  | y=1, n=0   | n      |
| 406   | Host for recognized pests and pathogens   |  |        |
| 407   | Causes allergies or is otherwise toxic to humans  |  |        |
| 408   | Creates a fire hazard in natural ecosystems   | y=1, n=0   | n      |
| 409   | Is a shade tolerant plant at some stage of its life cycle   | y=1, n=0   | y      |

| Qsn # | Question   | Answer Option                               | Answer |
|-------|--|---|--------|
| 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                                    | n      |
| 412   | Forms dense thickets   |   |        |
| 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   |   |        |
| 604   | Self-compatible or apomictic   |   |        |
| 605   | Requires specialist pollinators  | y=-1, n=0                                   | n      |
| 606   | Reproduction by vegetative fragmentation   | y=1, n=-1                                   | n      |
| 607   | Minimum generative time (years)  | 1 year = 1, 2 or 3 years = 0, 4+ years = -1 | 1      |
| 701   | Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas) |   |        |
| 702   | Propagules dispersed intentionally by people   | y=1, n=-1                                   | n      |
| 703   | Propagules likely to disperse as a produce contaminant   | y=1, n=-1                                   | y      |
| 704   | Propagules adapted to wind dispersal   |   |        |
| 705   | Propagules water dispersed   |   |        |
| 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                                   | n      |
| 801   | Prolific seed production (>1000/m2)  |   |        |
| 802   | Evidence that a persistent propagule bank is formed (>1 yr)                                    | y=1, n=-1                                   | y      |
| 803   | Well controlled by herbicides  | y=-1, n=1                                   | y      |
| 804   | Tolerates, or benefits from, mutilation, cultivation, or fire                                  | y=1, n=-1                                   | n      |
| 805   | Effective natural enemies present locally (e.g. introduced biocontrol agents)                  |   |        |

**Supporting Data:**

| Qsn # | Question   | Answer   |
|-------|--|--|
| 101   | Is the species highly domesticated?  | n  |
|       | Source(s)  | Notes  |
|       | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | [No evidence of domestication] "F. villosa occurs from Japan and China to Vietnam, Taiwan, the Philippines, Sulawesi, Java, the Lesser Sunda Islands, the Moluccas, New Guinea, the Solomon Islands, New Caledonia and northern Australia. It has escaped from cultivation and naturalized in the United States, where it is likely to become a weed." |

|     |   |       |
|-----|---|-------|
| 102 | Has the species become naturalized where grown? |       |
|     | Source(s)                                       | Notes |
|     | WRA Specialist. 2018. Personal Communication    | NA    |

|     |  |       |
|-----|--|-------|
| 103 | Does the species have weedy races?           |       |
|     | Source(s)                                    | Notes |
|     | WRA Specialist. 2018. Personal Communication | NA    |

|     |  |  |
|-----|--|--|
| 201 | Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"  | High   |
|     | Source(s)  | Notes  |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | "F. villosa occurs from Japan and China to Vietnam, Taiwan, the Philippines, Sulawesi, Java, the Lesser Sunda Islands, the Moluccas, New Guinea, the Solomon Islands, New Caledonia and northern Australia." |

|     |  |       |
|-----|--|-------|
| 202 | Quality of climate match data  | High  |
|     | Source(s)  | Notes |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands |       |

| Qsn # | Question   | Answer  |
|-------|--|---|
| 203   | <b>Broad climate suitability (environmental versatility)</b>   | <b>y</b>  |
|       | <b>Source(s)</b>   | <b>Notes</b>  |
|       | de Padua, L.S., Bunyapraphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands  | "F. villosa occurs in dry thickets, grassy places, on walls, stony sites and cliffs at 0-1200 m altitude. It may form a carpet in light secondary forest." [Elevation range exceeds 1000 m, demonstrating environmental versatility]                    |
|       | Marble, C. & Steed, S. 2015. Biology and Management of Mulberry Weed ( <i>Fatoua villosa</i> ) in Ornamental Crop Production. ENH1256. IFAS, University of Florida. <a href="http://edis.ifas.ufl.edu">http://edis.ifas.ufl.edu</a> . [Accessed 24 Jan 2018] | "Mulberry weed has naturalized throughout much of the eastern United States and is found from Texas to Florida and north to Michigan and Delaware. It also occurs along the west coast from California into Washington (Gregory 2014; USDA NRCS 2014)." |

|     |   |  |
|-----|---|--|
| 204 | <b>Native or naturalized in regions with tropical or subtropical climates</b>   | <b>y</b>   |
|     | <b>Source(s)</b>  | <b>Notes</b>   |
|     | de Padua, L.S., Bunyapraphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | "F. villosa occurs from Japan and China to Vietnam, Taiwan, the Philippines, Sulawesi, Java, the Lesser Sunda Islands, the Moluccas, New Guinea, the Solomon Islands, New Caledonia and northern Australia." |

|     |   |  |
|-----|---|--|
| 205 | <b>Does the species have a history of repeated introductions outside its natural range?</b>   | <b>y</b>   |
|     | <b>Source(s)</b>  | <b>Notes</b>   |
|     | USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 24 Jan 2018] | "Naturalized:<br>Northern America<br>North-Central U.S.A.: United States - Missouri, - Oklahoma<br>Northeastern U.S.A.: United States - Ohio, - West Virginia<br>South-Central U.S.A.: United States - Texas<br>Southeastern U.S.A.: United States - Alabama, - Arkansas, - Florida, - Georgia, - Kentucky, - Louisiana, - Maryland, - Mississippi, - North Carolina, - South Carolina, - Tennessee, - Virginia<br>Southern America<br>Caribbean: Bahamas" |

|     |  |  |
|-----|--|--|
| 301 | <b>Naturalized beyond native range</b>   | <b>y</b>   |
|     | <b>Source(s)</b>   | <b>Notes</b>   |
|     | Wagner, W.L. & Herbst, D.R. (1995). Contributions to the flora of Hawaii. IV. New records and name changes. Bishop Museum Occasional Paper 42: 13-27 | " <i>Fatoua villosa</i> (Thunb.) Nakai This is a new state record for <i>Fatoua villosa</i> . This Old World species is at least locally naturalized in the vicinity of Foster Botanic Garden and Lyon Arboretum. It can be distinguished from other Moraceae in the Hawaiian Islands by its diminutive herbaceous habit and the fruit an achene. Other characters that will differentiate this monoecious species from herbaceous members of the closely related Urticaceae include nonstinging hairs, the densely flowered cymose inflorescence, staminate flowers 4-merous, pistillate flowers 6-merous, and pendulous ovules. Material examined. Oahu: Foster Botanic Garden. A weed growing in pots, in a slat house, 16 May 1986, Lau 2403 (BISH); Lyon Arboretum, weed in holding area outside greenhouse, hairs not stinging, 29 Oct 1986, K. Nagata 3566 (BISH)." |

| Qsn # | Question   | Answer   |
|-------|--|--|
|       | de Padua, L.S., Bunyapraphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands          | "It has escaped from cultivation and naturalized in the United States, where it is likely to become a weed."   |
|       | Kral, R. (1981). Some Distributional Reports of Weedy or Naturalized Foreign Species of Vascular Plants for the Southern States, Particularly Alabama and Middle Tennessee. <i>Castanea</i> , 46(4), 334-339 | "This Asian adventive is being reported from most of the Gulf southeastern states, now being known from Florida, Georgia, Alabama, Mississippi, Louisiana, and is probably everywhere being introduced with nursery stock. This Tennessee report is to indicate its persistence and spread as a weed." |

| 302 | Garden/amenity/disturbance weed   | y   |
|-----|---|---|
|     | Source(s)   | Notes   |
|     | Dave's Garden. 2018. Hairy Crabweed, Mulberry Weed - <i>Fatoua villosa</i> . <a href="https://davesgarden.com/guides/pf/go/140237/">https://davesgarden.com/guides/pf/go/140237/</a> . [Accessed 24 Jan 2018] | "On May 30, 2017, LisaTWade from Alabaster, AL (Zone 7b) wrote: This plant has perfected the art of taking over garden beds. I've been trying to get rid of this weed for several years now. It shows up all over my yard. Can't stand it." ... "On Jun 9, 2011, coadydog from Simpsonville, SC wrote: This plant grows like wild fire in my mulch beds. I hate it!! Be careful if you try to cut it back with a weedeater/weedwacker. I did this two weeks ago and got it on my legs and arms. Within a few days I broke out in a terrible rash that itched like you wouldn't believe." ... "On May 23, 2011, gludington from Dunkirk, MD wrote: Arrived in a batch of bad mulch three years ago and I've been yanking it out ever since (grrrrr!) Only thing I've found that really works is starving it of light, i.e. 2-3 inches of mulch wherever it pops up. Each plant will generate hundreds of seeds, so cover or pull BEFORE it generates seed, which is when it's a two-leaf tiny seedling. Grows anywhere, in any soil. My heartfelt sympathy to those who've had the misfortune to get stuck with this horrible little plant." |
|     | Bryson, C. (1996). The Role of United States Department of Agriculture, Agricultural Research Service in the Control of Introduced Weeds. <i>Castanea</i> , 61(3), 261-270                                    | "Since its initial introduction, <i>F. villosa</i> has spread northward into Tennessee and Mississippi (Carter et al. 1990) and eastward to Georgia. This weed is found predominantly in lawns and flower beds and has not posed a major threat to pastures, forests, or croplands."  |

| Qsn # | Question   | Answer   |
|-------|--|--|
| 303   | <b>Agricultural/forestry/horticultural weed</b>  | <b>y</b>   |
|       | <b>Source(s)</b>   | <b>Notes</b>   |
|       | Bryson, C. (1996). The Role of United States Department of Agriculture, Agricultural Research Service in the Control of Introduced Weeds. <i>Castanea</i> , 61(3), 261-270   | "Little attention has been placed on weed species that have not become major weeds of agricultural situations. One example is watersnake hemp [ <i>Fatoua villosa</i> (Thunb.) Nakai (Moraceae)], an introduction from Asia, first reported from the New Orleans (Thieret 1964). Since its initial introduction, <i>F. villosa</i> has spread northward into Tennessee and Mississippi (Carter et al. 1990) and eastward to Georgia. This weed is found predominantly in lawns and flower beds and has not posed a major threat to pastures, forests, or croplands." |
|       | Marble, C. & Steed, S. 2015. Biology and Management of Mulberry Weed ( <i>Fatoua villosa</i> ) in Ornamental Crop Production. ENH1256. IFAS, University of Florida. <a href="http://edis.ifas.ufl.edu">http://edis.ifas.ufl.edu</a> . [Accessed 24 Jan 2018] | [Horticultural weed] "Mulberry weed prefers moist soil conditions, but reducing irrigation is often impractical in a container nursery setting. Due to the fast growth and prolific seed production, control efforts should focus on prevention and sanitation. Regularly scout container beds, greenhouses, propagation areas, and non-crop areas for presence of this weed."   |

|     |  |  |
|-----|--|--|
| 304 | <b>Environmental weed</b>  | <b>n</b>   |
|     | <b>Source(s)</b>   | <b>Notes</b>   |
|     | Bryson, C. (1996). The Role of United States Department of Agriculture, Agricultural Research Service in the Control of Introduced Weeds. <i>Castanea</i> , 61(3), 261-270 | "This weed is found predominantly in lawns and flower beds and has not posed a major threat to pastures, forests, or croplands." |
|     | Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall  | No evidence  |

|     |   |              |
|-----|---|--------------|
| 305 | <b>Congeneric weed</b>  | <b>n</b>     |
|     | <b>Source(s)</b>  | <b>Notes</b> |
|     | Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall | No evidence  |

|     |  |   |
|-----|--|---|
| 401 | <b>Produces spines, thorns or burrs</b>  | <b>n</b>  |
|     | <b>Source(s)</b>   | <b>Notes</b>  |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | [No evidence] "Description A monoecious, annual or perennial, ascending or erect, often half-woody herb up to 100 cm tall, without latex; stem with hooked hairs. Leaves alternate, simple, ovate to broadly ovate, 4-11 cm x 2-6 cm, cordate to cuneate at base, acute to acuminate at apex, margin dentate, hirsute, long-petioled; stipules free, lateral. Inflorescence an axillary, peduncled, bisexual, capitate cyme." |

|     |  |                            |
|-----|--|----------------------------|
| 402 | <b>Allelopathic</b>                          |                            |
|     | <b>Source(s)</b>                             | <b>Notes</b>               |
|     | WRA Specialist. 2018. Personal Communication | Unknown. No evidence found |

|     |                  |          |
|-----|------------------|----------|
| 403 | <b>Parasitic</b> | <b>n</b> |
|-----|------------------|----------|

| Qsn # | Question  | Answer  |
|-------|---|---|
|       | <b>Source(s)</b>  | <b>Notes</b>  |
|       | de Padua, L.S., Bunyapraphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | "Description A monoecious, annual or perennial, ascending or erect, often half-woody herb up to 100 cm tall, without latex; stem with hooked hairs. Leaves alternate, simple, ovate to broadly ovate, 4-11 cm x 2-6 cm, cordate to cuneate at base, acute to acuminate at apex, margin dentate, hirsute, long-petioled; stipules free, lateral. Inflorescence an axillary, peduncled, bisexual, capitate cyme." [Moraceae. No evidence] |

| 404 | Unpalatable to grazing animals               |              |
|-----|--|--------------|
|     | <b>Source(s)</b>                             | <b>Notes</b> |
|     | WRA Specialist. 2018. Personal Communication | Unknown      |

| 405 | Toxic to animals  | n            |
|-----|---|--------------|
|     | <b>Source(s)</b>  | <b>Notes</b> |
|     | Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL | No evidence  |

| 406 | Host for recognized pests and pathogens  |  |
|-----|--|--|
|     | <b>Source(s)</b>   | <b>Notes</b>   |
|     | Lehman, P. S. (1980). Weeds as reservoirs for nematodes that threaten field crops and nursery plants. Nematology Circular No.66. Division of Plant Industry, Florida Department of Agriculture and Consumer Services | [Potentially Yes] "Abstract : The importance of weeds as transitional hosts for nematodes is discussed. Examples of weeds in Florida, USA, which can harbour nematodes include Saururus cernuus and <i>Fatoua villosa</i> infected by <i>Meloidogyne incognita</i> , <i>Digitaria sanguinalis</i> and <i>Oxalis corniculata</i> infected by <i>Pratylenchus penetrans</i> , and <i>O. stricta</i> and <i>Phyllanthus amarus</i> infected by <i>Radopholus similis</i> . Guidelines are given for survey and detection. " |

| 407 | Causes allergies or is otherwise toxic to humans  |  |
|-----|---|--|
|     | <b>Source(s)</b>  | <b>Notes</b>   |
|     | von Reis Altschul, S. 1973. Drugs and Foods from Little-Known Plants. Notes in Harvard University Herbaria. Harvard University Press, Cambridge, Massachusetts  | " <i>Fatoua villosa</i> Japan / E. Elliott 146 / '46 / "Food use: Young plant well cooked and eaten in time of scarcity"   |
|     | Dave's Garden. 2018. Hairy Crabweed, Mulberry Weed - <i>Fatoua villosa</i> . <a href="https://davesgarden.com/guides/pf/go/140237/">https://davesgarden.com/guides/pf/go/140237/</a> . [Accessed 24 Jan 2018] | [Anecdotal reports of skin irritation] "On Jun 9, 2011, coadydog from Simpsonville, SC wrote: This plant grows like wild fire in my mulch beds. I hate it!! Be careful if you try to cut it back with a weedeater/weedwacker. I did this two weeks ago and got it on my legs and arms. Within a few days I broke out in a terrible rash that itched like you wouldn't believe. " |

| Qsn # | Question  | Answer   |
|-------|---|--|
|       | de Padua, L.S., Bunyapraphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | [Used medicinally] "In Indonesia, the ground yellow roots of <i>F. villosa</i> , known as 'greges otot', used to be smeared on the legs of children with weak legs. In the Philippines, a decoction of the roots is given against fevers and is effective for swollen gums when used as a gargle. An infusion of the roots is prescribed for irregular menstruation and as a diuretic. In Taiwan, the chewed leaf is considered a remedy against stomach-ache. In Indo-China, the crushed and roasted roots are used to prepare a depurative medicine for women after childbirth." |
|       | Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL                           | No evidence  |

| 408 | Creates a fire hazard in natural ecosystems  | n   |
|-----|--|---|
|     | Source(s)  | Notes   |
|     | Marble, C. & Steed, S. 2015. Biology and Management of Mulberry Weed ( <i>Fatoua villosa</i> ) in Ornamental Crop Production. ENH1256. IFAS, University of Florida. <a href="http://edis.ifas.ufl.edu">http://edis.ifas.ufl.edu</a> . [Accessed 24 Jan 2018] | [No evidence. Annual weed that does not occur in fire prone habitats] "Habitat: Occurs in disturbed areas and wetlands; often found growing in landscapes, greenhouses, container pads, and in nursery pots. It prefers to grow in irrigated or moist shaded areas."      |
|     | NC State Extension. 2016. Mulberryweed ( <i>Fatoua villosa</i> ). <a href="https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa">https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa</a> . [Accessed 24 Jan 2018]                                   | [No evidence. Does not occur in fire prone areas] "It is typically found in moist, shady areas. In North Carolina it is almost exclusively a weed of container nurseries and landscape plantings. However, naturalized populations in moist woodlands have been reported" |

| 409 | Is a shade tolerant plant at some stage of its life cycle  | y  |
|-----|--|--|
|     | Source(s)  | Notes  |
|     | Lamont, E. E., & Young, S. M. (2006). Noteworthy plants reported from the Torrey Range—2004 and 2005. <i>The Journal of the Torrey Botanical Society</i> , 133(4), 648-659   | " <i>Fatoua villosa</i> ... By 2004, hundreds of <i>Fatoua</i> plants had colonized shady, relatively moist areas of the front and back yards, including a native fern garden with <i>Adiantum pedatum</i> , <i>Asplenium platyneuron</i> , <i>Botrychium dissectum</i> forma <i>obliquum</i> , <i>Cystopteris fragilis</i> , <i>Onoclea sensibilis</i> , <i>Osmunda claytoniana</i> , <i>Phegopteris connectilis</i> , and <i>Polystichum acrostichoides</i> ." |
|     | NC State Extension. 2016. Mulberryweed ( <i>Fatoua villosa</i> ). <a href="https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa">https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa</a> . [Accessed 24 Jan 2018] | "It is typically found in moist, shady areas. In North Carolina it is almost exclusively a weed of container nurseries and landscape plantings. However, naturalized populations in moist woodlands have been reported"  |
|     | Dave's Garden. 2018. Hairy Crabweed, Mulberry Weed - <i>Fatoua villosa</i> . <a href="https://davesgarden.com/guides/pf/go/140237/">https://davesgarden.com/guides/pf/go/140237/</a> . [Accessed 24 Jan 2018]              | "Sun Exposure:<br>Full Sun<br>Sun to Partial Shade<br>Light Shade"   |

| 410 | Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island) | y     |
|-----|--|-------|
|     | Source(s)  | Notes |
|     |  |       |



| Qsn # | Question  | Answer  |
|-------|---|---|
|       | Dave's Garden. 2018. Hairy Crabweed, Mulberry Weed - <i>Fatoua villosa</i> .<br><a href="https://davesgarden.com/guides/pf/go/140237/">https://davesgarden.com/guides/pf/go/140237/</a> .<br>[Accessed 24 Jan 2018] | "Soil pH requirements:<br>6.1 to 6.5 (mildly acidic)<br>6.6 to 7.5 (neutral)<br>7.6 to 7.8 (mildly alkaline)"<br><br>"On May 23, 2011, gludington from Dunkirk, MD wrote: ... Grows anywhere, in any soil." |

| 411 | Climbing or smothering growth habit  | n   |
|-----|--|---|
|     | Source(s)  | Notes   |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | "Description A monoecious, annual or perennial, ascending or erect, often half-woody herb up to 100 cm tall, without latex; stem with hooked hairs. Leaves alternate, simple, ovate to broadly ovate, 4-11 cm x 2-6 cm, cordate to cuneate at base, acute to acuminate at apex, margin dentate, hirsute, long-petioled; stipules free, lateral. Inflorescence an axillary, peduncled, bisexual, capitate cyme." |

| 412 | Forms dense thickets   | n  |
|-----|--|--|
|     | Source(s)  | Notes  |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | "It may form a carpet in light secondary forest." [Unknown if carpet of plants can exclude other vegetation] |

| 501 | Aquatic  | n  |
|-----|--|--|
|     | Source(s)  | Notes  |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | [Terrestrial] " <i>F. villosa</i> occurs in dry thickets, grassy places, on walls, stony sites and cliffs at 0-1200 m altitude. It may form a carpet in light secondary forest." |

| 502 | Grass   | n                                 |
|-----|---|-----------------------------------|
|     | Source(s)   | Notes                             |
|     | USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 22 Jan 2018] | Family: Moraceae<br>Tribe: Moreae |

| 503 | Nitrogen fixing woody plant   | n                                 |
|-----|---|-----------------------------------|
|     | Source(s)   | Notes                             |
|     | USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 22 Jan 2018] | Family: Moraceae<br>Tribe: Moreae |

| Qsn # | Question   | Answer   |
|-------|--|--|
| 504   | <b>Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)</b>  | n  |
|       | <b>Source(s)</b>   | <b>Notes</b>   |
|       | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | "A monoecious, annual or perennial, ascending or erect, often half-woody herb up to 100 cm tall, without latex; stem with hooked hairs." |

|     |  |   |
|-----|--|---|
| 601 | <b>Evidence of substantial reproductive failure in native habitat</b>  | n   |
|     | <b>Source(s)</b>   | <b>Notes</b>  |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | " <i>F. villosa</i> is common in its area of distribution and is found in various anthropogenic habitats. The risk of genetic erosion appears to be limited, in view of its rather weedy nature." |

|     |  |   |
|-----|--|---|
| 602 | <b>Produces viable seed</b>  | y   |
|     | <b>Source(s)</b>   | <b>Notes</b>  |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | "Fruit a warty, achene-like drupe, asymmetrically globular to ovoid, enclosed by the enlarged but not fleshy perianth. Seed with endosperm."  |
|     | Penny, G. M., & Neal, J. (2003). Light, Temperature, Seed Burial, and Mulch Effects on Mulberry Weed ( <i>Fatoua villosa</i> ) Seed Germination. <i>Weed Technology</i> , 17(2), 213-218         | "Mulberry weed reproduces by seeds produced in feathery inflorescences borne sessile in the leaf axils (Vincent 1993). Seeds (achenes) are light tan, oval, and about 1 mm in diameter (Wunderlin 1997). At least some of the seeds are explosively dehiscent and can be thrown as far as 1.2 m from the mother plant." |

|     |  |  |
|-----|--|--|
| 603 | <b>Hybridizes naturally</b>  |  |
|     | <b>Source(s)</b>   | <b>Notes</b>   |
|     | Kubitzki, K., Rohwer, J.G. & Bittrich, V. (eds.). 1993. The Families and Genera of Vascular Plants: Volume II. Flowering Plants. Dicotyledons: Magnoliid, Hamamelid and Caryophyllid Families. Springer-Verlag, Berlin, Heidelberg, New York | "Two spp., one from Japan to New Caledonia, the other in Madagascar." [Unknown. No evidence found] |

|     |  |  |
|-----|--|--|
| 604 | <b>Self-compatible or apomictic</b>  |  |
|     | <b>Source(s)</b>   | <b>Notes</b>   |
|     | de Padua, L.S., Bunyaphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands | "Female flowers of <i>F. villosa</i> predominate in inflorescences positioned in the lower and middle parts of the stem, male ones in those of the upper parts." [Unknown]   |
|     | Flora of North America Editorial Committee, eds. 1997. <i>Flora of North America: Volume 3: Magnoliophyta: Magnoliidae and Hamamelidae</i> . Oxford University Press, Oxford, UK                 | "Flowers light green, staminate and pistillate in same cyme. Staminate flowers: calyx campanulate; stamens exerted. Pistillate flowers: calyx boat-shaped; ovary globose, puberulent, somewhat depressed in axis; style reddish purple, filiform." |

| Qsn # | Question  | Answer   |
|-------|---|--|
|       | Dave's Garden. 2018. Hairy Crabweed, Mulberry Weed - <i>Fatoua villosa</i> .<br><a href="https://davesgarden.com/guides/pf/go/140237/">https://davesgarden.com/guides/pf/go/140237/</a> .<br>[Accessed 24 Jan 2018] | "Self-sows freely; deadhead if you do not want volunteer seedlings next season" [Possibly Yes] |

| 605 | Requires specialist pollinators  | n  |
|-----|--|--|
|     | Source(s)  | Notes  |
|     | Kubitzki, K., Rohwer, J.G. & Bittrich, V. (eds.). 1993. The Families and Genera of Vascular Plants: Volume II. Flowering Plants. Dicotyledons: Magnoliid, Hamamelid and Caryophyllid Families. Springer-Verlag, Berlin, Heidelberg, New York | "Remarkably little is known about the pollination of all other Moraceae. The genera with "urticaceous" stamens are almost certainly wind-pollinated, as the pollen is thrown into the air by the explosive mechanism. In other genera the evidence is less conclusive."  |
|     | Corlett, R. T. (2004). Flower visitors and pollination in the Oriental (Indomalayan) Region. <i>Biological Reviews</i> , 79(3), 497-532  | "Spontaneous, ballistic release of pollen into the air, by stamens held under tension until anthesis, occurs in the Urticaceae and in one tribe of the closely related Moraceae, which includes the Oriental genera <i>Morus</i> , <i>Broussonetia</i> , <i>Maclura</i> , <i>Malaisia</i> , <i>Streblus</i> , <i>Bleekrodea</i> and <i>Fatoua</i> (Friis, 1993; Rohwer, 1993). Although bees occasionally visit the flowers of many of these species, the automatic release of clouds of tiny (mostly <20 μm; Tanaka, 2000) pollen grains makes most sense as an aid to wind-pollination (Williams & Adam, 1993)." |

| 606 | Reproduction by vegetative fragmentation   | n   |
|-----|--|---|
|     | Source(s)  | Notes   |
|     | Penny, G. M., & Neal, J. (2003). Light, Temperature, Seed Burial, and Mulch Effects on Mulberry Weed ( <i>Fatoua villosa</i> ) Seed Germination. <i>Weed Technology</i> , 17(2), 213-218 | "Mulberry weed reproduces by seeds produced in feathery inflorescences borne sessile in the leaf axils (Vincent 1993). Seeds (achenes) are light tan, oval, and about 1 mm in diameter (Wunderlin 1997). At least some of the seeds are explosively dehiscent and can be thrown as far as 1.2 m from the mother plant." [No evidence] |

| 607 | Minimum generative time (years)  | 1  |
|-----|--|--|
|     | Source(s)  | Notes  |
|     | Marble, C. & Steed, S. 2015. Biology and Management of Mulberry Weed ( <i>Fatoua villosa</i> ) in Ornamental Crop Production. ENH1256. IFAS, University of Florida. <a href="http://edis.ifas.ufl.edu">http://edis.ifas.ufl.edu</a> . [Accessed 24 Jan 2018] | "Seedlings may flower and fruit within 12 days of reaching the two-leaf growth stage (Neal and Derr 2005)."  |
|     | de Padua, L.S., Bunyapraphatsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands  | [Annual or perennial] "A monoecious, annual or perennial, ascending or erect, often half-woody herb up to 100 cm tall, without latex; stem with hooked hairs." |

| Qsn # | Question  | Answer   |
|-------|---|--|
| 701   | <b>Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)</b>   |  |
|       | <b>Source(s)</b>  | <b>Notes</b>   |
|       | Dave's Garden. 2018. Hairy Crabweed, Mulberry Weed - <i>Fatoua villosa</i> .<br><a href="https://davesgarden.com/guides/pf/go/140237/">https://davesgarden.com/guides/pf/go/140237/</a> .<br>[Accessed 24 Jan 2018] | "On Sep 21, 2006, lwhalliday from Pittsboro, NC (Zone 7a) wrote: ... The leaves and stems are hairy, and it sticks to clothing and gardening gloves, hence my own nickname for it - "velcro plant".<br>[Unknown if viable propagules can be dispersed in this way] |

| 702 | Propagules dispersed intentionally by people  | n  |
|-----|---|--|
|     | Source(s)   | Notes  |
|     | NC State Extension. 2016. Mulberryweed ( <i>Fatoua villosa</i> ).<br><a href="https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa">https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa</a> . [Accessed 24 Jan 2018] | "Seed are mostly dropped near the mother plant, but some seed are explosively dehiscent -- that is, they can be thrown up to four feet away. Long distance transport occurs in contaminated nursery stock." [No evidence of intentional dispersal] |

| 703 | Propagules likely to disperse as a produce contaminant   | y  |
|-----|--|--|
|     | Source(s)  | Notes  |
|     | Penny, G. M., & Neal, J. (2003). Light, Temperature, Seed Burial, and Mulch Effects on Mulberry Weed ( <i>Fatoua villosa</i> ) Seed Germination. <i>Weed Technology</i> , 17(2), 213-218 | "In North Carolina, it is almost exclusively a weed of container nurseries and landscape plantings."   |
|     | Murphy, M. 2018. Plant Pono Specialist. BIISC Early Detection Technician. personal communication. 10 January   | "We found it growing near some Pikake plants, which were purchased from a local nursery. The pikake had been in the ground for less than a month when we found fruiting adults. We go back every few weeks, there are always little babies that are fertile (like 1 inch tall)." |

| 704 | Propagules adapted to wind dispersal   |   |
|-----|--|---|
|     | Source(s)  | Notes   |
|     | Penny, G. M., & Neal, J. (2003). Light, Temperature, Seed Burial, and Mulch Effects on Mulberry Weed ( <i>Fatoua villosa</i> ) Seed Germination. <i>Weed Technology</i> , 17(2), 213-218 | "Seeds (achenes) are light tan, oval, and about 1 mm in diameter (Wunderlin 1997). At least some of the seeds are explosively dehiscent and can be thrown as far as 1.2 m from the mother plant." |

| 705 | Propagules water dispersed   |  |
|-----|--|--|
|     | Source(s)  | Notes  |
|     | Penny, G. M., & Neal, J. (2003). Light, Temperature, Seed Burial, and Mulch Effects on Mulberry Weed ( <i>Fatoua villosa</i> ) Seed Germination. <i>Weed Technology</i> , 17(2), 213-218 | "Mulberry weed reproduces by seeds produced in feathery inflorescences borne sessile in the leaf axils (Vincent 1993). Seeds (achenes) are light tan, oval, and about 1 mm in diameter (Wunderlin 1997). At least some of the seeds are explosively dehiscent and can be thrown as far as 1.2 m from the mother plant."<br>[Seeds small enough that they could probably be dispersed by water if growing near streams, or by rainfall and overland flow] |

| 706 | Propagules bird dispersed | n |
|-----|---------------------------|---|
|-----|---------------------------|---|

| Qsn # | Question   | Answer  |
|-------|--|---|
|       | <b>Source(s)</b>   | <b>Notes</b>  |
|       | Penny, G. M., & Neal, J. (2003). Light, Temperature, Seed Burial, and Mulch Effects on Mulberry Weed ( <i>Fatoua villosa</i> ) Seed Germination. <i>Weed Technology</i> , 17(2), 213-218 | [No evidence] "Seeds (achenes) are light tan, oval, and about 1 mm in diameter (Wunderlin 1997). At least some of the seeds are explosively dehiscent and can be thrown as far as 1.2 m from the mother plant." |

| 707 | Propagules dispersed by other animals (externally)   | n  |
|-----|--|--|
|     | <b>Source(s)</b>   | <b>Notes</b>   |
|     | Flora of North America Editorial Committee, eds. 1997. <i>Flora of North America: Volume 3: Magnoliophyta: Magnoliidae and Hamamelidae</i> . Oxford University Press, Oxford, UK | [Primarily dispersed by human activities. No means of external attachment] "Achenes white, oval, 3-angled, ca. 1 mm, minutely muricate, with 2 triangular, membranous appendages. Seeds explosively expelled." ... "It has become widespread in the eastern and lower midwestern states where it often occurs as a weed in greenhouses and disturbed sites. Apparently it spreads from the distribution of horticultural materials." |

| 708 | Propagules survive passage through the gut   | n   |
|-----|--|---|
|     | <b>Source(s)</b>   | <b>Notes</b>  |
|     | Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. <i>Plant Protection Quarterly</i> , 25(2): 56-74 | "Answer 'no' where the taxon is unlikely to be eaten by animals or if seeds are not viable following passage through the gut."  |
|     | Penny, G. M., & Neal, J. (2003). Light, Temperature, Seed Burial, and Mulch Effects on Mulberry Weed ( <i>Fatoua villosa</i> ) Seed Germination. <i>Weed Technology</i> , 17(2), 213-218   | "Mulberry weed reproduces by seeds produced in feathery inflorescences borne sessile in the leaf axils (Vincent 1993). Seeds (achenes) are light tan, oval, and about 1 mm in diameter (Wunderlin 1997). At least some of the seeds are explosively dehiscent and can be thrown as far as 1.2 m from the mother plant."<br>[No evidence of ingestion] |

| 801 | Prolific seed production (>1000/m2)  | n   |
|-----|--|---|
|     | <b>Source(s)</b>   | <b>Notes</b>  |
|     | Dave's Garden. 2018. Hairy Crabweed, Mulberry Weed - <i>Fatoua villosa</i> . <a href="https://davesgarden.com/guides/pf/go/140237/">https://davesgarden.com/guides/pf/go/140237/</a> . [Accessed 24 Jan 2018]  | "On May 23, 2011, gludington from Dunkirk, MD wrote: ... Each plant will generate hundreds of seeds, so cover or pull BEFORE it generates seed, which is when it's a two-leaf tiny seedling."   |
|     | NC State Extension. 2016. Mulberryweed ( <i>Fatoua villosa</i> ). <a href="https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa">https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa</a> . [Accessed 24 Jan 2018]                                   | "Plants reproduce by seed and are prolific seed producers. Flowering may be initiated when plants are quite young -- by the three-leaf stage of growth. Seed apparently require a short after-ripening time of less than 30 days before they will germinate." |
|     | Marble, C. & Steed, S. 2015. Biology and Management of Mulberry Weed ( <i>Fatoua villosa</i> ) in Ornamental Crop Production. ENH1256. IFAS, University of Florida. <a href="http://edis.ifas.ufl.edu">http://edis.ifas.ufl.edu</a> . [Accessed 24 Jan 2018] | [Densities unspecified] "Due to the fast growth and prolific seed production, control efforts should focus on prevention and sanitation."   |

| 802 | Evidence that a persistent propagule bank is formed (>1 yr) | y |
|-----|---|---|
|     |   |   |

| Qsn # | Question  | Answer   |
|-------|---|--|
|       | Source(s)   | Notes  |
|       | Takabayashi, M., & Nakayama, K. (1981). The seasonal change in seed dormancy of main upland weeds. <i>Weed Research</i> , Japan, 26(3), 249-253 | [No secondary dormancy] "Abstract : Seeds of 10 upland weed species were buried in soil 5 cm deep in Nov. 1979, dug up in Feb., May, Aug. and Oct. the following year and submitted to germination tests in a growth chamber maintained at 20-30 deg C. The germination percentage of <i>Portulaca oleracea</i> and <i>Amaranthus lividus</i> was consistently high, while all species showed high germination in Feb. and May. <i>Digitaria adscendens</i> , <i>Echinochloa crus-galli</i> var. <i>praticola</i> , <i>Chenopodium album</i> and <i>Polygonum lapathifolium</i> showed low germination in the summer, suggesting secondary dormancy. No secondary dormancy was shown by <i>Cyperus microiria</i> , <i>P. oleracea</i> , <i>A. lividus</i> and <i>Fatoua villosa</i> . The germination percentage of all species was higher under light conditions than in the dark; <i>C. microiria</i> and <i>P. oleracea</i> did not germinate at all in the dark. " |
|       | Takabayashi, M., & Nakayama, K. (1978). Longevity of buried weed seeds in soil. <i>Weed Research</i> , Japan, 23(1), 32-36                      | [Some seeds (<10%) remain viable for 2 1/2 years] "Two-hundred seeds of 10 weed species were mixed with sterilized soil, and buried in plastic cylinders 20 cm in the soil in 1971; samples were recovered periodically for 4 1/2 years to determine viability." ... " <i>Digitaria adscendens</i> , <i>Echinochloa crus-galli</i> var. <i>praticola</i> and <i>Fatoua villosa</i> showed under 10% emergence after 2 1/2 years. It is concluded that the seeds of the main upland weeds, except for grasses, possess considerable longevity."   |

| 803 | Well controlled by herbicides   | y  |
|-----|---|--|
|     | Source(s)   | Notes  |
|     | Marble, C. & Steed, S. 2015. <i>Biology and Management of Mulberry Weed (Fatoua villosa) in Ornamental Crop Production</i> . ENH1256. IFAS, University of Florida. <a href="http://edis.ifas.ufl.edu">http://edis.ifas.ufl.edu</a> . [Accessed 24 Jan 2018] | "Mulberry weed is effectively controlled with many preemergence herbicides but continues to be a problematic weed due to fast growth and prolific seed production. A list of preemergence herbicides labeled for use in and around ornamentals in nurseries and landscapes which can be used for mulberry weed control is provided in Table 1." ... "Many different postemergence herbicides will control mulberry weed, although these herbicides can be applied as only a directed application. Contact herbicides such as diquat (Reward®), and pelargonic acid (Scythe®) and systemic herbicides such as glyphosate (RoundUp®) will control mulberry weed, but these products are most effective when weeds are less than 4 inches tall and actively growing. When applying these herbicides, ensure that the herbicide spray does not drift or come in contact with any part of the ornamental plants." |
|     | NC State Extension. 2016. <i>Mulberryweed (Fatoua villosa)</i> . <a href="https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa">https://content.ces.ncsu.edu/mulberryweed-fatoua-villosa</a> . [Accessed 24 Jan 2018]                                   | "Where mulches do not provide adequate control, mulberryweed is well controlled by several of the broad-spectrum preemergence herbicides commonly used in nurseries and landscape plantings, but due to continued germination throughout the growing season, there are often "escaped" weeds. Remove the "escaped" weeds when they are very young to prevent flowering, seed production and more mulberryweed."  |

|     |   |   |
|-----|---|---|
| 804 | Tolerates, or benefits from, mutilation, cultivation, or fire | n |
|-----|---|---|

| Qsn # | Question   | Answer  |
|-------|--|---|
|       | Source(s)  | Notes   |
|       | Marble, C. & Steed, S. 2015. Biology and Management of Mulberry Weed ( <i>Fatoua villosa</i> ) in Ornamental Crop Production. ENH1256. IFAS, University of Florida. <a href="http://edis.ifas.ufl.edu">http://edis.ifas.ufl.edu</a> . [Accessed 24 Jan 2018] | "Due to the fast growth and prolific seed production, control efforts should focus on prevention and sanitation. Regularly scout container beds, greenhouses, propagation areas, and non-crop areas for presence of this weed. Closely inspect new plant shipments for presence of weeds. Hand pull mulberry weed as quickly as possible before it flowers. Remove pulled weeds from production areas or landscape beds and dispose of them, as seed can continue to be spread from pulled weed material if left on the soil. Mulberry weed germination is stimulated by light, therefore mulch materials placed on top of container media or in the landscape can significantly reduce seed germination. Pine bark nuggets applied at depths of 1.5 inches or more have been shown to provide up to 90 percent control (Penny and Neal 2003)." |

|     |   |         |
|-----|---|---------|
| 805 | Effective natural enemies present locally (e.g. introduced biocontrol agents) |         |
|     | Source(s)   | Notes   |
|     | WRA Specialist. 2018. Personal Communication                                  | Unknown |

**Summary of Risk Traits:**

## High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Naturalized in locations with tropical climates
- Widely naturalized (including Oahu & possibly Hawaii Island)
- Lawn, garden & disturbance weed
- Horticultural weed of nurseries & potted plants
- Shade tolerant
- Tolerates many soil types
- Reproduces by seeds
- Quickly reaches maturity
- Seeds dispersed by explosive dehiscence & accidentally as a contaminant of soil & media in nurseries & potted plants
- Prolific seed production (densities unspecified)

## Low Risk Traits

- Not reported as a weed of crops or natural environment
- Unarmed (no spines, thorns, or burrs)
- Ornamental
- Not reported to spread vegetatively
- Herbicides provide effective control
- Mechanical control methods can be effective