

Australia/New Zealand Weed Risk Assessment adapted for Florida.

Data used for analysis published in: Gordon, D.R., D.A. Onderdonk, A.M. Fox, R.K. Stocker, and C. Gantz. 2008. Predicting Invasive Plants in Florida using the Australian Weed Risk Assessment. Invasive Plant Science and Management 1: 178-195.

| <i>Bauhinia variegata (orchid tree)</i> | | | |
|---|--|--------|-------|
| Question number | Question | Answer | Score |
| 1.01 | Is the species highly domesticated? | n | 0 |
| 1.02 | Has the species become naturalised where grown? | | |
| 1.03 | Does the species have weedy races? | | |
| 2.01 | Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high) | 2 | |
| 2.02 | Quality of climate match data (0-low; 1-intermediate; 2-high) | 2 | |
| 2.03 | Broad climate suitability (environmental versatility) | | |
| 2.04 | Native or naturalized in habitats with periodic inundation | | |
| 2.05 | Does the species have a history of repeated introductions outside its natural range? | y | |
| 3.01 | Naturalized beyond native range | y | 0 |
| 3.02 | Garden/amenity/disturbance weed | n | 0 |
| 3.03 | Weed of agriculture | n | 0 |
| 3.04 | Environmental weed | y | 0 |
| 3.05 | Congeneric weed | y | 0 |
| 4.01 | Produces spines, thorns or burrs | n | 0 |
| 4.02 | Allelopathic | y | 1 |
| 4.03 | Parasitic | n | 0 |
| 4.04 | Unpalatable to grazing animals | | |
| 4.05 | Toxic to animals | n | 0 |
| 4.06 | Host for recognised pests and pathogens | | |
| 4.07 | Causes allergies or is otherwise toxic to humans | n | 0 |
| 4.08 | Creates a fire hazard in natural ecosystems | n | 0 |
| 4.09 | Is a shade tolerant plant at some stage of its life cycle | ? | |
| 4.1 | Grows on infertile soils (oligotrophic, limerock, or excessively draining soils) | n | 0 |
| 4.11 | Climbing or smothering growth habit | n | 0 |
| 4.12 | Forms dense thickets | n | 0 |
| 5.01 | Aquatic | n | 0 |

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|--------------------|--|----|----------|
| 5.02 | Grass | n | 0 |
| 5.03 | Nitrogen fixing woody plant | n | 0 |
| 5.04 | Geophyte | | |
| 6.01 | Evidence of substantial reproductive failure in native habitat | | |
| 6.02 | Produces viable seed | y | 1 |
| 6.03 | Hybridizes naturally | y? | 1 |
| 6.04 | Self-compatible or apomictic | y | 1 |
| 6.05 | Requires specialist pollinators | n | 0 |
| 6.06 | Reproduction by vegetative fragmentation | | |
| 6.07 | Minimum generative time (years) | 3 | 0 |
| 7.01 | Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas) | | |
| 7.02 | Propagules dispersed intentionally by people | y | 1 |
| 7.03 | Propagules likely to disperse as a produce contaminant | n | -1 |
| 7.04 | Propagules adapted to wind dispersal | n | -1 |
| 7.05 | Propagules water dispersed | n | -1 |
| 7.06 | Propagules bird dispersed | n | -1 |
| 7.07 | Propagules dispersed by other animals (externally) | n | -1 |
| 7.08 | Propagules dispersed by other animals (internally) | n | -1 |
| 8.01 | Prolific seed production | | |
| 8.02 | Evidence that a persistent propagule bank is formed (>1 yr) | y | 1 |
| 8.03 | Well controlled by herbicides | y | -1 |
| 8.04 | Tolerates, or benefits from, mutilation or cultivation | | |
| 8.05 | Effective natural enemies present in Florida, or east of the continental divide | | |
| Total Score | | | 7 |

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| Outcome | Reject* |
|----------------|----------------|

*Used secondary screen from: Daehler, C. C., J.L. Denslow, S. Ansari, and H. Kuo. 2004. A risk assessment system for screening out harmful invasive pest plants from Hawaii's and other Pacific islands. *Conserv. Biol.* 18: 360-368.

| section | # questions answered | satisfy minimum? |
|---------|----------------------|------------------|
| A | 6 | yes |
| B | 9 | yes |
| C | 17 | yes |
| total | 32 | yes |

Data collected 2006-2007

| Question number | Reference | Source data |
|-----------------|--|---|
| 1.01 | | cultivated, but no evidence of selection for reduced weediness |
| 1.02 | | |
| 1.03 | | |
| 2.01 | | |
| 2.02 | | |
| 2.03 | | |
| 2.04 | | |
| 2.05 | Langeland and Burks, eds. (1998) Identification and Biology of Nonnative Plants in Florida's Natural Areas. University of Florida. | "Widely planted in the tropics and warm regions of the world" |
| 3.01 | 1. Henderson (2001) Alien Weeds and Invasive Plants: a Complete Guide to Declared Weeds and Invaders in South Africa. Plant Protection Research Institute Handbook No. 12. 2. Kairo, Ali, Cheesman, Haysom, and Murphy (2003) Invasive Species Threats in the Caribbean Region. Report to the Nature Conservancy. 3. Connor (2003) <i>Bauhinia variegata</i> L. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources (http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1948/file). | 1. naturalized in South Africa 2. naturalized in the Bahamas and Puerto Rico 3. "the species has escaped and naturalized in the southern foothills of Puerto Rico and throughout the West Indies" |
| 3.02 | | no evidence |
| 3.03 | | no evidence |
| 3.04 | 1. Henderson (2001) Alien Weeds and Invasive Plants: a Complete Guide to Declared Weeds and Invaders in South Africa. Plant Protection Research Institute Handbook No. 12. 2. Kairo, Ali, Cheesman, Haysom, and Murphy (2003) Invasive Species Threats in the Caribbean Region. Report to the Nature Conservancy. | 1. Considered a category 3 invader in South Africa - invades savanna, coastal bush, riverbanks, urban open space. 2. Considered naturalized and invasive in the Bahamas. |
| 3.05 | Henderson (2001) Alien Weeds and Invasive Plants: a Complete Guide to Declared Weeds and Invaders in South Africa. Plant Protection Research Institute Handbook No. 12. | <i>B. purpurea</i> is a category 3 invader in South Africa. |
| 4.01 | Connor (2003) <i>Bauhinia variegata</i> L. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources (http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1948/file). | no description of these traits |
| 4.02 | Dhawan, Poonam-Dhawan, and Gupta (2001) Allelopathic potential of leguminous plant species towards <i>Parthenium</i> | "Aqueous leachates (100%) from leaves of all tested |

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| | <i>hysterophorus</i> L. - effect of aqueous foliar leachates. Legume Research 24: 256-259. | species [including <i>Bauhinia variegata</i>]...decreased seed germination and vigour index of <i>Parthenium hysterophorus</i> ." |
| 4.03 | Connor (2003) <i>Bauhinia variegata</i> L. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources (http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1948/file). | no description of this |
| 4.04 | | |
| 4.05 | 1. Henderson (2001) Alien Weeds and Invasive Plants: a Complete Guide to Declared Weeds and Invaders in South Africa. Plant Protection Research Institute Handbook No. 12. 2. Singh (2001) Leaf morphology and leaf area of fodder trees of NEH region. Range Management and Agroforestry 22: 85-93. | 1. not indicated to be poisonous 2. is an important fodder species in India |
| 4.06 | | |
| 4.07 | 1. Hortocopia 4.0 2. Henderson (2001) Alien Weeds and Invasive Plants: a Complete Guide to Declared Weeds and Invaders in South Africa. Plant Protection Research Institute Handbook No. 12. | 1. "This plant is considered mostly allergy free" 2. not indicated to be poisonous or an irritant |
| 4.08 | | no evidence |
| 4.09 | | 1. full sun to partial shade 2. partial shade or partial sun to full sun (BUT "should be grown in full sun") |
| 4.1 | Connor (2003) <i>Bauhinia variegata</i> L. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources (http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1948/file). | "The species grows well in soils of medium fertility that are either droughty or moist; it is not tolerant of nutrient-poor sites." |
| 4.11 | USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. | growth habit: tree/shrub |
| 4.12 | | no evidence |
| 5.01 | | terrestrial |
| 5.02 | USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. | Fabaceae |
| 5.03 | Pokhriyal, Bhandari, Negi, Chaukiyal, and Gupta (1990) Identification of some fast growing leguminous tree species for nitrogen fixation studies. Indian Forester 116: 504-507. | <i>Bauhinia variegata</i> not found to produce nodules. |
| 5.04 | | |
| 6.01 | | |
| 6.02 | 1. Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida. 2. Hortocopia 4.0 | 1. propagation by seed 2. "abundant seedlings...may germinate in the landscape" |
| 6.03 | Lau, Ramsden, and Saunders (2005) Hybrid origin of " <i>Bauhinia blakeana</i> " (Leguminosae:Caesalpinioideae), | " <i>Bauhinia blakeana</i> ...is shown here to be the result |

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| | inferred using morphological, reproductive, and molecular data. American Journal of Botany 92: 525-533. | of hybridization between the largely sympatric species, <i>B. purpurea</i> and <i>B. variegata</i> ." Hybridization "probably natural" - paper demonstrates that it is feasible for the two species to interbreed. |
| 6.04 | Lau, Ramsden, and Saunders (2005) Hybrid origin of " <i>Bauhinia blakeana</i> " (Leguminosae:Caesalpinioideae), inferred using morphological, reproductive, and molecular data. American Journal of Botany 92: 525-533. | <i>B. variegata</i> set fruit when self-pollinated (both with pollen from the same flower and pollen from another flower of the same individual), though xenogamy is promoted. |
| 6.05 | Lau, Ramsden, and Saunders (2005) Hybrid origin of " <i>Bauhinia blakeana</i> " (Leguminosae:Caesalpinioideae), inferred using morphological, reproductive, and molecular data. American Journal of Botany 92: 525-533. | <i>B. variegata</i> pollinated by bees and butterflies (pollen observed adhering to the bodies of the pollinators). |
| 6.06 | | |
| 6.07 | Connor (2003) <i>Bauhinia variegata</i> L. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources (http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1948/file). | " <i>Bauhinia</i> spp. bloom within 3 to 4 years." |
| 7.01 | | |
| 7.02 | Connor (2003) <i>Bauhinia variegata</i> L. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources (http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1948/file). | "It is one of the most commonly cultivated small trees in India...A popular planting in...Hawaii" |
| 7.03 | | no evidence |
| 7.04 | Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida. | fruit is a woody pod |
| 7.05 | | no evidence |
| 7.06 | Gilman and Watson (1993) <i>Bauhinia variegata</i> 'Candida': 'Candida' variegated orchid-tree. University of Florida, IFAS Extension (http://edis.ifas.ufl.edu/ST092). | fruit is a dry, elongated pod; does not attract wildlife |
| 7.07 | Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida. | no description of any means of attachment |
| 7.08 | Gilman and Watson (1993) <i>Bauhinia variegata</i> 'Candida': 'Candida' variegated orchid-tree. University of Florida, IFAS Extension (http://edis.ifas.ufl.edu/ST092). | fruit is a dry, elongated pod; does not attract wildlife |
| 8.01 | Langeland and Burks, eds. (1998) Identification and Biology of Nonnative Plants in Florida's Natural Areas. University of Florida. | 10-15 seeds per pod |
| 8.02 | 1. Connor (2003) <i>Bauhinia variegata</i> L. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and | 1. hard-seeded legume 2. "A fast-growing tree with seeds that remain viable for |

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| | <p>Genetics Resources (http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1948/file). 2. Langeland and Burks, eds. (1998) Identification and Biology of Nonnative Plants in Florida's Natural Areas. University of Florida.</p> | <p>more than a year." [not clear whether in soil or not]</p> |
| 8.03 | <p>Langeland and Stocker (2001) Control of non-native plants in natural areas of Florida. University of Florida, IFAS Extension, SP 242 (http://edis.ifas.ufl.edu/pdffiles/WG/WG20900.pdf).</p> | <p>"Basal bark application of 10% Garlon 4 or application of 50% Garlon 3A to cut stump...All methods listed have been found effective under certain circumstances."</p> |
| 8.04 | | |
| 8.05 | | |