

**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>Ficus microcarpa (laurel fig)</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                           | y      | 1     |
| 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   | n      | 0     |
| 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)     | y      | 1     |
| 4.11                                 | Climbing or smothering growth habit  | y      | 1     |
| 4.12                                 | Forms dense thickets   | y      | 1     |
| 5.01                                 | Aquatic  | n      | 0     |

|                    |  |    |           |
|--------------------|--|----|-----------|
| 5.02               | Grass  | n  | 0         |
| 5.03               | Nitrogen fixing woody plant  | n  | 0         |
| 5.04               | Geophyte   | n  | 0         |
| 6.01               | Evidence of substantial reproductive failure in native habitat                                 |    |           |
| 6.02               | Produces viable seed   | y  | 1         |
| 6.03               | Hybridizes naturally   | n  | -1        |
| 6.04               | Self-compatible or apomictic   |    |           |
| 6.05               | Requires specialist pollinators  | y  | -1        |
| 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  | y  | 1         |
| 7.07               | Propagules dispersed by other animals (externally)   | y  | 1         |
| 7.08               | Propagules dispersed by other animals (internally)   | y  | 1         |
| 8.01               | Prolific seed production   | y? | 1         |
| 8.02               | Evidence that a persistent propagule bank is formed (>1 yr)                                    |    |           |
| 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                |    |           |
| <b>Total Score</b> |  |    | <b>12</b> |

|                |                |
|----------------|----------------|
| <b>Outcome</b> | <b>Reject*</b> |
|----------------|----------------|

\*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       | 7                    | yes              |
| B       | 9                    | yes              |
| C       | 17                   | yes              |
| total   | 33                   | 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            | Weber (2003) Invasive Plant Species of the World. CABI Publishing.  | "Where native, the tree grows in lowland rain forest, riverbanks, tidal floodplains, exposed rocky coasts, and in swamps."                            |
| 2.05            | Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.  | "widely cultivated as a shade or park tree"   |
| 3.01            | 1. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 2. Figueiredo, Motta, and Vasconcellos (1995) Pollination, seed dispersal, seed germination and establishment of seedlings of <i>Ficus microcarpa</i> , Moraceae, in southeastern Brazil. Revista Brasileira de Biologia 55: 233-239. | an environmental weed in Hawaii (1) and naturalized in Brazil (2)   |
| 3.02            |   | no evidence   |
| 3.03            |   | no evidence   |
| 3.04            | 1. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 2. Kairo, Ali, Cheesman, Haysom, and Murphy (2003) Invasive Species Threats in the Caribbean Region. Report to the Nature Conservancy.  | <i>F. microcarpa</i> considered an environmental weed in Hawaii and the southeastern U.S. (1) and considered naturalized and invasive in Bermuda (2). |
| 3.05            | Weber (2003) Invasive Plant Species of the World. CABI Publishing.  | <i>Ficus carica</i> considered an environmental weed in Australia and the western US.   |
| 4.01            | Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.   | no description of these traits  |
| 4.02            |   | no evidence   |
| 4.03            |   | no evidence   |
| 4.04            |   |   |
| 4.05            |   | no evidence   |
| 4.06            |   |   |
| 4.07            |   | no mention of toxicity in horticultural   |

|      |  |   |
|------|--|---|
|      |  | or toxicity references  |
| 4.08 |  | no evidence   |
| 4.09 | Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.  | full sun to partial shade   |
| 4.1  | 1. Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.<br>2. Padua, Bunyaphatsara, and Lemmens, eds. (1999) Plant Resources of South-East Asia. No. 12. Medicinal and poisonous plants 1. Backhuys Publishers, Leiden. | 1. various well-drained soils 2. " <i>F. microcarpa</i> grows in widely varying locations, from rocky sea coasts to limestone hills"  |
| 4.11 | Weber (2003) Invasive Plant Species of the World. CABI Publishing.   | grows as epiphyte or as tree; "seeds often germinate in the forks of trees, growing as epiphytes and sending aerial roots to the ground. Host trees may be killed due to the constricting roots and competition for light and nutrients." |
| 4.12 | Weber (2003) Invasive Plant Species of the World. CABI Publishing.   | "Large individuals form impenetrable thickets due to the hanging aerial roots, shading out all other plants."   |
| 5.01 |  | terrestrial   |
| 5.02 | Weber (2003) Invasive Plant Species of the World. CABI Publishing.   | Moraceae  |
| 5.03 | Weber (2003) Invasive Plant Species of the World. CABI Publishing.   | Moraceae  |
| 5.04 | Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.   | "an epiphytic shrub when young that forms hanging aerial roots"   |
| 6.01 |  |   |
| 6.02 | 1. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 2. Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.  | 1. "seeds often germinate in the forks of trees" 2. propagate by seeds  |
| 6.03 |  | prevented by specificity of pollinator  |
| 6.04 |  |   |
| 6.05 | Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.  | Each fig species pollinated by a different species of gall wasp; <i>F. microcarpa</i> pollinated by <i>Euprestina verticillata</i> .  |
| 6.06 |  |   |
| 6.07 | 1. Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.<br>2. Weber (2003) Invasive Plant Species of the World. CABI Publishing. 3. Hortocopia 4.0  | 1. "to 50 feet; rapid growth rate" 2. "It grows fast" 3. fast growth rate   |
| 7.01 |  |   |
| 7.02 | Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.   | "widely cultivated as a shade or park tree"   |
| 7.03 |  | no evidence   |
| 7.04 | Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.  | fruit is a round syconium   |
| 7.05 |  | no evidence   |
| 7.06 | Figueiredo, Motta, and Vasconcellos (1995) Pollination, seed dispersal, seed germination and establishment of seedlings of <i>Ficus microcarpa</i> ,   | "we recorded 31 bird species...feeding on <i>F. microcarpa</i> "; seeds "from vertebrate feces had a faster germination"  |

|      |  |   |
|------|--|---|
|      | Moraceae, in southeastern Brazil. Revista Brasileira de Biologia 55: 233-239.  |   |
| 7.07 | Kaufmann, McKey, Hossaert-McKey, and Horvitz (1991) Adaptations for a two-phase seed dispersal system involving vertebrates and ants in a hemiepiphytic fig ( <i>Ficus microcarpa</i> : Moraceae). American Journal of Botany 78: 971-977. | "Here we provide experimental evidence that the exocarp of a species of fig functions as an ant-attracting elaiosome...We have shown that seeds are attractive to ants following the passage of fruits through a vertebrate gut and that seeds bear a specialized structure for this function." |
| 7.08 | Figueiredo, Motta, and Vasconcellos (1995) Pollination, seed dispersal, seed germination and establishment of seedlings of <i>Ficus microcarpa</i> , Moraceae, in southeastern Brazil. Revista Brasileira de Biologia 55: 233-239.         | "The syconia were also consumed by phyllostomid bats." Seeds "from vertebrate feces had a faster germination".  |
| 8.01 |  |   |
| 8.02 |  |   |
| 8.03 | Weber (2003) Invasive Plant Species of the World. CABI Publishing.   | "Fig trees are very sensitive to triclopyr herbicides which are best applied as a basal or cut stump treatment."  |
| 8.04 |  |   |
| 8.05 |  |   |