

Australia/New Zealand Weed Risk Assessment adapted for United States.

Data used for analysis published in: Gordon, D.R. and C.A. Gantz. 2008. Potential impacts on the horticultural industry of screening new plants for invasiveness. Conservation Letters 1: 227-235. Available at: <http://www3.interscience.wiley.com/cgi-bin/fulltext/121448369/PDFSTART>

| <i>Pittosporum rubiginosum</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 U.S. climates (USDA hardiness 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 regions with an average of 11-60 inches of annual precipitation | n | 0 |
| 2.05 | Does the species have a history of repeated introductions outside its natural range? | ? | |
| 3.01 | Naturalized beyond native range | n | -1 |
| 3.02 | Garden/amenity/disturbance weed | n | 0 |
| 3.03 | Weed of agriculture | n | 0 |
| 3.04 | Environmental weed | n | 0 |
| 3.05 | Congeneric weed | | |
| 4.01 | Produces spines, thorns or burrs | ? | |
| 4.02 | Allelopathic | | |
| 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 | | |
| 4.09 | Is a shade tolerant plant at some stage of its life cycle | ? | |
| 4.1 | Grows on one or more of the following soil types: alfisols, entisols, or mollisols | y | 1 |
| 4.11 | Climbing or smothering growth habit | n | 0 |
| 4.12 | Forms dense thickets | | |
| 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 | n | 0 |
| 6.02 | Produces viable seed | | |
| 6.03 | Hybridizes naturally | | |
| 6.04 | Self-compatible or apomictic | | |
| 6.05 | Requires specialist pollinators | | |
| 6.06 | Reproduction by vegetative fragmentation | | |
| 6.07 | Minimum generative time (years) | | |
| 7.01 | Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas) | | |
| 7.02 | Propagules dispersed intentionally by people | ? | |
| 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 | | |
| 7.06 | Propagules bird dispersed | ? | |
| 7.07 | Propagules dispersed by other animals (externally) | n | -1 |
| 7.08 | Propagules dispersed by other animals (internally) | | |
| 8.01 | Prolific seed production | | |
| 8.02 | Evidence that a persistent propagule bank is formed (>1 yr) | | |
| 8.03 | Well controlled by herbicides | | |
| 8.04 | Tolerates, or benefits from, mutilation or cultivation | | |
| 8.05 | Effective natural enemies present in U.S. | | |
| Total Score | | | -3 |

| | |
|----------------|---------------|
| Outcome | Accept |
|----------------|---------------|

| section | # questions answered | satisfy minimum? |
|----------------|-----------------------------|-------------------------|
| A | 8 | Yes |
| B | 5 | Yes |
| C | 8 | Yes |
| total | 21 | yes |

Data collected 2008

| Question number | Reference | Source data |
|-----------------|---|--|
| 1.01 | | used horticulturally, but no evidence of significant modification |
| 1.02 | | |
| 1.03 | | |
| 2.01 | <p>1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20gnd.tif). 2. Cooper, RC (1956) The Australian and New Zealand species of <i>Pittosporum</i>. <i>Annals of the Missouri Botanical Garden</i> 43(2): 87-170. 3. Global Biodiversity Information Facility (http://data.gbif.org/species/15738151). 4. Cayzer, LW, Crisp, MD, and Telford, IRH (2000) Revision of <i>Pittosporum</i> (Pittosporaceae) in Australia. <i>Australian Systematic Botany</i> 13: 845-902.</p> | <p>1. Global hardiness zones 9-12. 2. Queensland. 3. Distribution in Queensland, Australia. 4. "Endemic in north-eastern Queensland".</p> |
| 2.02 | | |
| 2.03 | <p>1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Cooper, RC (1956) The Australian and New Zealand species of <i>Pittosporum</i>. <i>Annals of the Missouri Botanical Garden</i> 43(2): 87-170. 3. Global Biodiversity Information Facility (http://data.gbif.org/species/15738151). 4. Cayzer, LW, Crisp, MD, and Telford, IRH (2000) Revision of <i>Pittosporum</i> (Pittosporaceae) in Australia. <i>Australian Systematic Botany</i> 13: 845-902.</p> | <p>1. Distribution range is uncertain -- possibly 2-3 climatic regions. 2. Queensland. 3. Distribution in Queensland, Australia. 4. "Endemic in north-eastern Queensland".</p> |
| 2.04 | <p>Microsoft Encarta World Precipitation and Average Rainfall (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1).</p> | <p>For Queensland, the average annual precipitation is over 80 inches/year.</p> |
| 2.05 | <p>Harden, GJ (Editor) (1990) <i>Flora of New South Wales</i>. Volume 3. NSWU Press, Kensington, New South Wales.</p> | <p>"Several species are cultivated as ornamentals" [genus description].</p> |
| 3.01 | | no evidence |
| 3.02 | | no evidence |
| 3.03 | | no evidence |

| | | |
|------|--|---|
| 3.04 | | no evidence |
| 3.05 | | |
| 4.01 | Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. | "Occasionally the smaller branches spiny" [genus description]; no other description of these traits. |
| 4.02 | | |
| 4.03 | Cooper, RC (1956) The Australian and New Zealand species of <i>Pittosporum</i> . Annals of the Missouri Botanical Garden 43(2): 87-170. | no description of parasitism |
| 4.04 | | |
| 4.05 | Community for Coastal and Cassowary Conservation Inc. (http://www.cassowaryconservation.asn.au/CassowaryFoodTrees.PDF). | Cassowary food tree [and no other evidence of toxicity]. |
| 4.06 | | |
| 4.07 | Cooper, RC (1956) The Australian and New Zealand species of <i>Pittosporum</i> . Annals of the Missouri Botanical Garden 43(2): 87-170. | no evidence |
| 4.08 | | |
| 4.09 | Cayzer, LW, Crisp, MD, and Telford, IRH (2000) Revision of <i>Pittosporum</i> (<i>Pittosporaceae</i>) in Australia. Australian Systematic Botany 13: 845-902. | "Shaded woods on the sides of Mt. Cook". |
| 4.1 | USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html). | Australia, Queensland (NE): the region of origin contains aridisols, entisols, and ultisols (and also oxisols). |
| 4.11 | 1. Cooper, RC (1956) The Australian and New Zealand species of <i>Pittosporum</i> . Annals of the Missouri Botanical Garden 43(2): 87-170. 2. Cayzer, LW, Crisp, MD, and Telford, IRH (2000) Revision of <i>Pittosporum</i> (<i>Pittosporaceae</i>) in Australia. Australian Systematic Botany 13: 845-902. 3. Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. 4. Wheeler, JR, Rye, BL, Koch, BL, and Wilson, AJG (1992) Flora of the Kimberley Region. Western Australian Herbarium, Department of Conservation and Land Management, Como, Western Australia. | 1. "Shrubs 1.5-6.0 meters tall". 2. "Very polymorphic shrubs usually <3 m tall, sparsely branched". 3. "Trees or erect shrubs" [genus description]. 4. "Shrubs or trees" [genus description]. |
| 4.12 | | |

| | | |
|------|--|---|
| 5.01 | | terrestrial |
| 5.02 | 1. Cooper, RC (1956) The Australian and New Zealand species of Pittosporum. Annals of the Missouri Botanical Garden 43(2): 87-170. 2. Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. 3. Wheeler, JR, Rye, BL, Koch, BL, and Wilson, AJG (1992) Flora of the Kimberley Region. Western Australian Herbarium, Department of Conservation and Land Management, Como, Western Australia. | Pittosporaceae |
| 5.03 | 1. Cooper, RC (1956) The Australian and New Zealand species of Pittosporum. Annals of the Missouri Botanical Garden 43(2): 87-170. 2. Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. 3. Wheeler, JR, Rye, BL, Koch, BL, and Wilson, AJG (1992) Flora of the Kimberley Region. Western Australian Herbarium, Department of Conservation and Land Management, Como, Western Australia. | Pittosporaceae |
| 5.04 | 1. Cooper, RC (1956) The Australian and New Zealand species of Pittosporum. Annals of the Missouri Botanical Garden 43(2): 87-170. 2. Cayzer, LW, Crisp, MD, and Telford, IRH (2000) Revision of Pittosporum (Pittosporaceae) in Australia. Australian Systematic Botany 13: 845-902. 3. Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. 4. Wheeler, JR, Rye, BL, Koch, BL, and Wilson, AJG (1992) Flora of the Kimberley Region. Western Australian Herbarium, Department of Conservation and Land Management, Como, Western Australia. | 1. "Shrubs 1.5-6.0 meters tall". 2. "Very polymorphic shrubs usually <3 m tall, sparsely branched". 3. "Trees or erect shrubs" [genus description]. 4. "Shrubs or trees" [genus description]. |
| 6.01 | 1. Cooper, RC (1956) The Australian and New Zealand species of Pittosporum. Annals of the Missouri Botanical Garden 43(2): 87-170. 2. Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. 3. Wheeler, JR, Rye, BL, Koch, BL, and Wilson, AJG (1992) Flora of the Kimberley Region. Western Australian Herbarium, Department of Conservation and Land Management, Como, Western Australia. | no evidence |

| | | |
|------|--|---|
| 6.02 | | |
| 6.03 | | |
| 6.04 | | |
| 6.05 | | |
| 6.06 | | |
| 6.07 | | |
| 7.01 | | |
| 7.02 | Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. | "Several species are cultivated as ornamentals" [genus description]. |
| 7.03 | | no evidence |
| 7.04 | 1. Cooper, RC (1956) The Australian and New Zealand species of Pittosporum. Annals of the Missouri Botanical Garden 43(2): 87-170. 2. Cayzer, LW, Crisp, MD, and Telford, IRH (2000) Revision of Pittosporum (Pittosporaceae) in Australia. Australian Systematic Botany 13: 845-902. 3. Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. 4. Wheeler, JR, Rye, BL, Koch, BL, and Wilson, AJG (1992) Flora of the Kimberley Region. Western Australian Herbarium, Department of Conservation and Land Management, Como, Western Australia. | 1. "Capsules ellipsoid to ovoid, 2-, or rarely 3-, valved, 1.3-2.1 cm. long, 6-15 mm. broad...seeds 3-14, dark rusty-red to red, irregular" [species description]. 2. "Fruit dehiscent, ellipsoid, 12 x 8 mm, bright yellow...cartilaginous rather than woody; surface bullate; style persisting...Seeds 1-3 each side, chunky-angular, 7 x 5 x 5 mm, red-brown, rugulose, slightly ridged at margins". 3. "Fruit a capsule, 1-locular, ovoid to globose or obovoid, often +/- compressed, initially somewhat fleshy and often resinous, dehiscent loculicidally; valves 2-5, hard, remaining fused at base, bearing the placentas along their centre; seeds often angular, not winged, immersed in a resinous viscid fluid." [genus description]. 4. "Fruit a loculicidal capsule, usually opening by 2 valves, woody or coriaceous, 1-celled. Seeds 1 to many, variable in size and shape, often in a viscous liquid" [genus description]. [no evidence of adaptations to wind dispersal] |
| 7.05 | | |
| 7.06 | Cayzer, LW, Crisp, MD, and Telford, IRH (2000) Revision of Pittosporum (Pittosporaceae) in Australia. Australian Systematic Botany 13: 845-902. | "Fruit dehiscent, ellipsoid, 12 x 8 mm, bright yellow...cartilaginous rather than woody; surface bullate; style persisting...Seeds 1-3 each side, chunky-angular, 7 x 5 x 5 mm, red-brown, rugulose, slightly ridged at |

| | | |
|------|---|---|
| | | margins". |
| 7.07 | <p>1. Cooper, RC (1956) The Australian and New Zealand species of Pittosporum. Annals of the Missouri Botanical Garden 43(2): 87-170. 2. Cayzer, LW, Crisp, MD, and Telford, IRH (2000) Revision of Pittosporum (Pittosporaceae) in Australia. Australian Systematic Botany 13: 845-902. 3. Harden, GJ (Editor) (1990) Flora of New South Wales. Volume 3. NSWU Press, Kensington, New South Wales. 4. Wheeler, JR, Rye, BL, Koch, BL, and Wilson, AJG (1992) Flora of the Kimberley Region. Western Australian Herbarium, Department of Conservation and Land Management, Como, Western Australia.</p> | <p>1. "Capsules ellipsoid to ovoid, 2-, or rarely 3-, valved, 1.3-2.1 cm. long, 6-15 mm. broad...seeds 3-14, dark rusty-red to red, irregular" [species description]. 2. Fruit dehiscent, ellipsoid, 12 x 8 mm, bright yellow...cartilaginous rather than woody; surface bullate; style persisting...Seeds 1-3 each side, chunky-angular, 7 x 5 x 5 mm, red-brown, rugulose, slightly ridged at margins". 3. "Fruit a capsule, 1-locular, ovoid to globose or obovoid, often +/- compressed, initially somewhat fleshy and often resinous, dehiscent loculicidally; valves 2-5, hard, remaining fused at base, bearing the placentas along their centre; seeds often angular, not winged, immersed in a resinous viscid fluid." [genus description]. 4. "Fruit a loculicidal capsule, usually opening by 2 valves, woody or coriaceous, 1-celled. Seeds 1 to many, variable in size and shape, often in a viscous liquid" [genus description]. [no evidence of adaptations to external dispersal]</p> |
| 7.08 | | |
| 8.01 | | |
| 8.02 | | |
| 8.03 | | |
| 8.04 | | |
| 8.05 | | |