**Family:** Rutaceae  
**Taxon:** Melicope elleryana  
**Synonym:** Euodia elleryana F. Muell.  
**Common Name:** Saruwa  
Pink Flowered Doughwood  
Evodia

<table>
<thead>
<tr>
<th>Questionaire :</th>
<th>Status:</th>
<th>Assessor:</th>
<th>Data Entry Person:</th>
<th>Designation:</th>
<th>WRA Score</th>
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<tr>
<td>current 20090513</td>
<td>Assessor Approved</td>
<td>Chuck Chimera</td>
<td>Chuck Chimera</td>
<td>EVALUATE</td>
<td>4</td>
</tr>
</tbody>
</table>

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)  
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  
n
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  
n
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)  
n
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)  
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  
y=1, n=0  
n
403 Parasitic  
y=1, n=0  
n
404 Unpalatable to grazing animals  
y=1, n=-1  

405 Toxic to animals  
y=1, n=0  

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  
n
409 Is a shade tolerant plant at some stage of its life cycle  
y=1, n=0  

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


[Is the species highly domesticated? No] No evidence

102 2011. WRA Specialist. Personal Communication. NA

103 2011. WRA Specialist. Personal Communication. NA


[Species suited to tropical or subtropical climate(s) 2-high] "Distribution and occurrence: Grows in subtropical rainforest and swamp forest north from the Clarence R. Often cultivated as an ornamental tree. NSW subdivisions: NC"


[Quality of climate match data? 2-high] "Distribution and occurrence: Grows in subtropical rainforest and swamp forest north from the Clarence R. Often cultivated as an ornamental tree. NSW subdivisions: NC"


[Broad climate suitability (environmental versatility)? No] Hardiness:

USDA Zone 9a: to -6.6 °C (20 °F)
USDA Zone 9b: to -3.8 °C (25 °F)
USDA Zone 10a: to -1.1 °C (30 °F)
USDA Zone 10b: to 1.7 °C (35 °F)
USDA Zone 11: above 4.5 °C (40 °F)


[Native or naturalized in regions with tropical or subtropical climates? Yes] "Habitat. A common species found mainly in secondary forest in both low and high altitude. Distribution. Distributed in all regions of Papua New Guinea."


[Native or naturalized in regions with tropical or subtropical climates? Yes] "Occurs in WA, NT, CYP, NEQ and southwards to north-eastern New South Wales. Altitudinal range from near sea level to 800 m. Grows in well developed rain forest on a variety of sites. This species is favoured by disturbance. Also occurs in New Guinea."


[Native or naturalized in regions with tropical or subtropical climates? Yes] "Distribution and occurrence: Grows in subtropical rainforest and swamp forest north from the Clarence R. Often cultivated as an ornamental tree. NSW subdivisions: NC"

205 2011. WRA Specialist. Personal Communication. [Does the species have a history of repeated introductions outside its natural range? No evidence]


[Naturalized beyond native range? Yes] "Often cultivated as an ornamental tree and spread by birds as a garden escape." [Tree native to Queensland, spreading within Australia New South Wales]


[Naturalized beyond native range? Not evidence in Singapore] "Melicope elleryana F. Muell.; Rutaceae; cultivated only"


[Naturalized beyond native range? Yes] "In some cases, these translocations can be problematic even over small geographic distances of kilometres. This is the case with the horticulturally popular Pink Euodia Melicope elleryana, which is a native of the coast but a rampant weed just inland where it has been widely planted in people's gardens (Nicholson and Nicholson 2004). The causes of non-indigenous natives becoming weeds can be many-fold, and is thought to result partly from the horticultural translocation of plant material not including the subject plant's suite of biological controls."
<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Source</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>302</td>
<td>2010. Peel, B.. Rainforest Restoration Manual for South-Eastern Australia. CSIRO Publishing, Collingwood, Australia</td>
<td>[Garden/amenity/disturbance weed? Potentially. Native weed outside natural range] &quot;In some cases, these translocations can be problematic even over small geographic distances of kilometres. This is the case with the horticulturally popular Pink Euodia Melicope elleryana, which is a native of the coast but a rampant weed just inland where it has been widely planted in people's gardens (Nicholson and Nicholson 2004). The causes of non-indigenous natives becoming weeds can be many-fold, and is thought to result partly from the horticultural translocation of plant material not including the subject plant's suite of biological controls.&quot; [No other references found to corroborate this report]</td>
<td></td>
</tr>
<tr>
<td>401</td>
<td>2011. PlantNET. New South Wales Flora Online - Melicope elleryana (F.Muell.) T.G.Hartley. Royal Botanic Gardens &amp; Domain Trust, Sydney <a href="http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSSWfl.pl?page=nswfl&amp;lvl=sp&amp;name=Melicope-elleryana">http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSSWfl.pl?page=nswfl&amp;lvl=sp&amp;name=Melicope-elleryana</a></td>
<td>[Produces spines, thorns or burrs? No] &quot;Description: Tree up to 25 m high, glabrous or sometimes with sparsely hairy leaflets and branchlets. Leaves 3-foliate; leaflets elliptic, ± ovate or obovate, 5.5–20 cm long, 3.5–8 cm wide, apex abruptly acuminate or obtuse, base cuneate or sometimes slightly asymmetric, ± sparsely hairy, oil dots numerous but small; petiole 2.5–11 cm long; lateral petiolules 1–6 mm long, terminal petiolule 2–10 mm long.&quot;</td>
<td></td>
</tr>
<tr>
<td>404</td>
<td>2011. WRA Specialist. Personal Communication.</td>
<td>[Unpalatable to grazing animals? Unknown]</td>
<td></td>
</tr>
<tr>
<td>405</td>
<td>2006. Wiart, C.. Medicinal plants of Asia and the Pacific. CRC Press, Boca Raton, FL</td>
<td>[Toxic to animals? Unknown] &quot;The sap of Euodia elleryana F. Muell var. teragona (K. Sch.) W.D. Francis, or Pink Euodia, is applied in Papua New Guinea to promote the healing of sores, where the young green fruits are known as poisonous…The healing property is probably owed to antibacterial effects.&quot; [Poisoning with green fruits is possible, if unlikely]</td>
<td></td>
</tr>
<tr>
<td>406</td>
<td>2005. Bellis, G./Hollis, D./Jacobson, S.. Australian Journal of Entomology. 44: 68–70.</td>
<td>[Host for recognized pests and pathogens? No evidence] &quot;The only rutaceous plants growing in native vegetation in the area were Melicope elleryana, which is not a recognised host of D. citri, and no psyllids were found on the 13 plants inspected.&quot;</td>
<td></td>
</tr>
<tr>
<td>407</td>
<td>2006. Wiart, C.. Medicinal plants of Asia and the Pacific. CRC Press, Boca Raton, FL</td>
<td>[Causes allergies or is otherwise toxic to humans? Potentially] &quot;The sap of Euodia elleryana F. Muell var. teragona (K. Sch.) W.D. Francis, or Pink Euodia, is applied in Papua New Guinea to promote the healing of sores, where the young green fruits are known as poisonous…The healing property is probably owed to antibacterial effects.&quot; [Poisoning with green fruits is possible, if unlikely]</td>
<td></td>
</tr>
<tr>
<td>407</td>
<td>2009. World Health Organization. Medicinal Plants in Papua New Guinea. WHO, Regional Office for the Western Pacific, Manila, Philippines</td>
<td>[Causes allergies or is otherwise toxic to humans? Potentially. Medicinal properties] &quot;Decoction prepared from the dried bark is used for malaria. The juice squeezed from the fresh bark is mixed with water and taken as a contraceptive for a few days; contraceptive effect is strong and reported to last 2-3 years. A patient with fever is washed with the leaves mashed in water.&quot;</td>
<td></td>
</tr>
</tbody>
</table>
408 2006. Wiart, C. Medicinal plants of Asia and the Pacific. CRC Press, Boca Raton, FL

[Creates a fire hazard in natural ecosystems? No] "... a riparian tree that grows to a height of 30m in coastal riverine rain forests and streambanks of Australia and Papua New Guinea." [Unlikely, given rain forest habitat]


[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Full Sun, Part Shade"


[Tolerates a wide range of soil conditions? Yes] "Euodia elleryana is not a commonly seen tree, but given its tolerance to a wide range of conditions, will become more popular. Although it is very adaptable to a range of soils, they should be well drained."


[Climbing or smothering growth habit? No] "Description. Large, fast growing, spreading tree with a light coloured trunk, straight, smooth, covered with deciduous white bark, 15-20 m tall; leaves dark green trifoliate arranged in decussate; leaflets elliptic to oblong, entire, shortly acuminate, 10-20 x 5 10 cm, mostly with sinuate margin. Flowers in many-branched, dense panicles arising on the leafless twigs; sepals rounded; petals dark-red (similar to the flowers of Syzygium malaccense).The wood is soft, white, and has an unpleasant musty smell."


[Climbing or smothering growth habit? No] "Description: Tree up to 25 m high, glabrous or sometimes with sparsely hairy leaflets and branchlets."


[Forms dense thickets? No evidence from native range]


[Aquatic? No] "Tree up to 25 m high...Grows in subtropical rainforest and swamp forest north from the Clarence R." [Terrestrial]


[Grass? No] Rutaceae


[Nitrogen fixing woody plant? No] Rutaceae


[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Tree up to 25 m high, glabrous or sometimes with sparsely hairy leaflets and branchlets."


[Evidence of substantial reproductive failure in native habitat? No] "Conservation Status: Not threatened"

[Produces viable seed? Yes] "Cocci ovoid, 7–8 mm long, grey to brown; seeds shiny, black."


[Hybridizes naturally? Unknown]


[Self-compatible or apomictic? Unknown] "Appendix. Reproductive and population size characteristics of 137 common rain forest species in the Northern Territory, Australia" [Sexual type: C = Cosexual individuals (i.e., monoeocious, hermaphrodite...]


[Requires specialist pollinators? No] "Other gap species such as pink euodia Melicope elleryana produce large flower sets on an annual basis, attracting very large numbers of moths and butterflies."


[Requires specialist pollinators? No] "A fast growing, evergreen, large shrub or small to medium tree, forming a broad, spreading canopy which is excellent for shade. Masses of delicate pink flowers appear along the branches in summer, attracting many species of birds and butterflies."


[Minimum generative time (years)? 4+ years] "First seeds: 6-10 years""


[Minimum generative time (years)? 3 years] "Although seedlings grow fast, and can flower after three years, germination is very sporadic and can take up to one year."

http://www.pngplants.org/PNGtrees/

[Propagules likely to be dispersed unintentionally? No] "Fruits: Infrutescence arranged on branched axis, fruit 7.0-8.0 mm long, 10.0-12.0 mm diam., brownish black, grey, or brown, not spiny, non-fleshy, simple or aggregate (carpels joined at base), indehiscent (fruit splits incompletely into dehiscent parts - mericarps), schizocarp; seeds 4 (glossy, black, 1 per carpel), about 10 mm long (7-8 mm long), not winged, narrow (longer than wide), seed 1-10 mm diam. (c. 3 mm diam.)." [No evidence, and no means of external attachment]


[Propagules dispersed intentionally by people? Yes] "Often cultivated as an ornamental tree..."

http://www.pngplants.org/PNGtrees/

[Propagules likely to disperse as a produce contaminant? No] "Fruits: Infrutescence arranged on branched axis, fruit 7.0-8.0 mm long, 10.0-12.0 mm diam., brownish black, grey, or brown, not spiny, non-fleshy, simple or aggregate (carpels joined at base), indehiscent (fruit splits incompletely into dehiscent parts - mericarps), schizocarp; seeds 4 (glossy, black, 1 per carpel), about 10 mm long (7-8 mm long), not winged, narrow (longer than wide), seed 1-10 mm diam. (c. 3 mm diam.)." [No evidence, and not likely to be grown with commercial produce]


[Propagules adapted to wind dispersal? No] "Cocci ovoid, 7-8 mm long, grey to brown; seeds shiny, black."
704 2005. Conn, B.J./Damas, K.Q.. Guide to trees of Papua New Guinea. http://www.pngplants.org/PNGtrees/ [Propagules adapted to wind dispersal? No] "Fruits: Infrutescence arranged on branched axis, fruit 7.0-8.0 mm long, 10.0-12.0 mm diam., brownish black, grey, or brown, not spiny, non-fleshy, simple or aggregate (carpels joined at base), indehiscent (fruit splits incompletely into dehiscent parts - mericarps), schizocarp; seeds 4 (glossy, black, 1 per carpel), about 10 mm long (7-8 mm long), not winged, narrow (longer than wide), seed 1-10 mm diam. (c. 3 mm diam.)."


707 2005. Conn, B.J./Damas, K.Q.. Guide to trees of Papua New Guinea. http://www.pngplants.org/PNGtrees/ [Propagules dispersed by other animals (externally)? No] "Fruits: Infrutescence arranged on branched axis, fruit 7.0-8.0 mm long, 10.0-12.0 mm diam., brownish black, grey, or brown, not spiny, non-fleshy, simple or aggregate (carpels joined at base), indehiscent (fruit splits incompletely into dehiscent parts - mericarps), schizocarp; seeds 4 (glossy, black, 1 per carpel), about 10 mm long (7-8 mm long), not winged, narrow (longer than wide), seed 1-10 mm diam. (c. 3 mm diam.)." [No evidence, and no means of external attachment]


801 2011. WRA Specialist. Personal Communication. [Prolific seed production (>1000/m2)? Unknown]

802 2008. Smith, N.J.C./Zahid, D.M./Ashwath, N./Midmore, D.J.. Seed ecology and successional status of 27 tropical rainforest cabinet timber species from Queensland. Forest Ecology and Management. 256: 1031–1038. [Evidence that a persistent propagule bank is formed (>1 yr)? Unknown. Delayed germination may indicate some seed bank development] "Two early secondary successional species (Euodia elleryana, P. venulosum) have seeds that mature in winter. Germination staggered over many weeks (Fig. 3) is likely to ensure that some seeds encounter favourable conditions for germination and growth."

803 2011. WRA Specialist. Personal Communication. [Well controlled by herbicides? Unknown] No information found on chemical control or herbicide efficacy for this species


804 2011. Williams, P.R./Parsons, M./Jensen, R./Tran, C.. Mechanisms of rainforest persistence and recruitment in frequently burnt wet tropical eucalypt forests. Austral Ecology. doi: 10.1111/j.1442-9993.2011.02271.x. [Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Of the 30 rainforest seedlings followed at Wallaman Plot 7, 11 (i.e. 37%) survived being burnt 2 years after germination by coppicing at the base of the stem from sub-soil buds. These resprouters were: 1 out 3 Guioa acutifolia, 3 out of 11 Melicope elleryana, 5 out 9 Polyscias ellegans and 2 out of 7 Solanum viridifolium seedlings."

805 2011. WRA Specialist. Personal Communication. [Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]