**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**

| *Ilex guayusa* | | | |
|---|---|---|---|
| **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) | 1 | |
| 2.03 | Broad climate suitability (environmental versatility) | ? | |
| 2.04 | Native or naturalized in regions with an average of 11-60 inches of annual precipitation | y | 1 |
| 2.05 | Does the species have a history of repeated introductions outside its natural range? | y | |
| 3.01 | Naturalized beyond native range | n | -2 |
| 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 | y | 2 |
| 4.01 | Produces spines, thorns or burrs | n | 0 |
| 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 | | |

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|---|---|---|---|
| 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 | 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 | | |
| 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 | | | 0 |

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| **Outcome** | **Accept** |

| **section** | **# questions answered** | **satisfy minimum?** |
|---|---|---|
| A | 10 | Yes |
| B | 6 | Yes |
| C | 9 | Yes |
| total | 25 | yes |

Data collected 2008

| Question number | Reference | Source data |
|---|---|---|
| 1.01 | | cultivated, but no evidence of significant modification |
| 1.02 | | |
| 1.03 | | |
| 2.01 | 1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif). 2. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?411941). 3. Lewis, WH, EJ Kennelly, GN Bass, HJ Wedner, MP Elvin-Lewis, and D Fast W (1991) Ritualistic use of the holly *Ilex guayusa* by Amazonian Jivaro Indians. Journal of Ethnopharmacology 33: 25-30. | 1. Global hardiness zones (7-8?-)9-13. 2. Distribution: Brazil, Colombia, Ecuador, Peru. 3. From southern Colombia to northern Peru (see Fig. 1). |
| 2.02 | | |
| 2.03 | 1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?411941). 3. Lewis, WH, EJ Kennelly, GN Bass, HJ Wedner, MP Elvin-Lewis, and D Fast W (1991) Ritualistic use of the holly *Ilex guayusa* by Amazonian Jivaro Indians. Journal of Ethnopharmacology 33: 25-30. | 1. Distribution range is not specific enough to determine; possibly three climatic regions. 2. Distribution: Brazil, Colombia, Ecuador, Peru. 3. From southern Colombia to northern Peru (see Fig. 1). |
| 2.04 | 1. Brazil: Atlapedia Online (http://www.atlapedia.com/online/countries/brazil.htm). 2. Colombia: World Trade Press (http://www.worldtradepress.com/Precipitation_Map_Colombia.html). 3. Ecuador: World Trade Press | 1. For Brazil: "the nationwide average annual precipitation varies between 1,010 mm (40 inches) and 2,030 mm (80 inches)." 2. Most of Colombia receives between 49.2 and 98.4 inches of rainfall per year, depending upon the region. 3. For Ecuador: average annual |

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| | (http://www.worldtradepress.com/Precipitation_Map_Ecuador.html). 4. Peru: Atlapedia Online (http://www.atlapedia.com/online/countries/peru.htm). | precipitation ranges from 3.9 in/yr to greater than 98.4 in/yr. 4. For Peru: average annual precipitation varies from 2,540 mm (100 inches) to 3,960 mm (156 inches) depending on the region. |
| 2.05 | Maya Ethnobotanicals (http://www.maya-ethnobotanicals.com/product_info.phtml/herbid_045). | For sale online. |
| 3.01 | | no evidence |
| 3.02 | | no evidence |
| 3.03 | | no evidence |
| 3.04 | | no evidence |
| 3.05 | Weber, E (2003) Invasive Plant Species of the World. CAB International, Oxon, United Kingdom. | *I. aquifolium* considered invasive in Australia. |
| 4.01 | 1. Crescent Bloom (http://www.crescentbloom.com/Plants/Specimen/II/Ilex%20guayusa.htm). 2. Macbride, JF (1951) Flora of Peru. Botanical Series, Field Museum of Natural History, Vol. XIII, Part IIIA, Number 1. | 1. does not cause mechanical injury 2. no description of these traits |
| 4.02 | | |
| 4.03 | Macbride, JF (1951) Flora of Peru. Botanical Series, Field Museum of Natural History, Vol. XIII, Part IIIA, Number 1. | no description of this |
| 4.04 | | |
| 4.05 | Crescent Bloom (http://www.crescentbloom.com/Plants/Specimen/II/Ilex%20guayusa.htm). | livestock poison: no |
| 4.06 | | |
| 4.07 | Crescent Bloom (http://www.crescentbloom.com/Plants/Specimen/II/Ilex%20guayusa.htm). | not an internal or dermatologic poison |
| 4.08 | | |
| 4.09 | Crescent Bloom (http://www.crescentbloom.com/Plants/Specimen/II/Ilex%20guayusa.htm). | Sunshine: various. |
| 4.1 | USDA, National Resources Conservation Services (NRCS), Soil Survey Division, | Colombia (southern): almost entirely oxisols, but there is a small amount of alfisols, |

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|---|---|---|
| | World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html). | mollisols, inceptisols, and ultisols (and a small amount of andisols); Ecuador: primarily andisols and oxisols, but there are also small amounts of entisols, inceptisols, mollisols and ultisols, mostly along the west coast; Brazil (western): entirely oxisols and ultisols; Peru (northern): primarily oxisols and ultisols, with some entisols, inceptisols, and mollisols (and some of the "rocky land" soil order type). |
| 4.11 | Lewis, WH, EJ Kennelly, GN Bass, HJ Wedner, MP Elvin-Lewis, and D Fast W (1991) Ritualistic use of the holly *Ilex guayusa* by Amazonian Jivaro Indians. Journal of Ethnopharmacology 33: 25-30. | Shrub or small tree. |
| 4.12 | | |
| 5.01 | | terrestrial |
| 5.02 | USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?411941). | Aquifoliaceae |
| 5.03 | USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?411941). | Aquifoliaceae |
| 5.04 | Lewis, WH, EJ Kennelly, GN Bass, HJ Wedner, MP Elvin-Lewis, and D Fast W (1991) Ritualistic use of the holly *Ilex guayusa* by Amazonian Jivaro Indians. Journal of Ethnopharmacology 33: 25-30. | Woody (shrub or small tree). |
| 6.01 | | no evidence |
| 6.02 | | |
| 6.03 | | |
| 6.04 | | |
| 6.05 | | |
| 6.06 | | |
| 6.07 | | |
| 7.01 | | |

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|---|---|---|
| 7.02 | 1. Lewis, WH, EJ Kennelly, GN Bass, HJ Wedner, MP Elvin-Lewis, and D Fast W (1991) Ritualistic use of the holly Ilex guayusa by Amazonian Jivaro Indians. Journal of Ethnopharmacology 33: 25-30. 2. Patiño, VM (1968) Guayusa, a neglected stimulant from the eastern Andean foothills. Economic Botany 22: 311-316. | 1. "Known almost exclusively from cultivation". 2. Guayusa grows both wild and under cultivation. |
| 7.03 | | no evidence |
| 7.04 | 1. Macbride, JF (1951) Flora of Peru. Botanical Series, Field Museum of Natural History, Vol. XIII, Part IIIA, Number 1. 2. Garcia Barriga, H (1992) Flora Medicinal de Colombia. Tercer Mundo Editores. | 1. Fruits are globose or ellipsoid drupes [genus description]. 2. Fruit globose. |
| 7.05 | | |
| 7.06 | 1. Macbride, JF (1951) Flora of Peru. Botanical Series, Field Museum of Natural History, Vol. XIII, Part IIIA, Number 1. 2. Garcia Barriga, H (1992) Flora Medicinal de Colombia. Tercer Mundo Editores. | 1. Fruits are globose or ellipsoid drupes [genus description]. 2. Fruit globose [size?]. |
| 7.07 | 1. Macbride, JF (1951) Flora of Peru. Botanical Series, Field Museum of Natural History, Vol. XIII, Part IIIA, Number 1. 2. Garcia Barriga, H (1992) Flora Medicinal de Colombia. Tercer Mundo Editores. | 1. Fruits are globose or ellipsoid drupes [genus description]. 2. Fruit globose. |
| 7.08 | 1. Macbride, JF (1951) Flora of Peru. Botanical Series, Field Museum of Natural History, Vol. XIII, Part IIIA, Number 1. 2. Garcia Barriga, H (1992) Flora Medicinal de Colombia. Tercer Mundo Editores. | 1. Fruits are globose or ellipsoid drupes [genus description]. 2. Fruit globose. |
| 8.01 | | |
| 8.02 | | |
| 8.03 | | |
| 8.04 | | |
| 8.05 | | |