**Taxon:** Plectranthus scutellarioides (L.) R. Br. **Family:** Lamiaceae

**Common Name(s):** coleus
painted nettle
painted-leaf plant
variegated coleus

**Synonym(s):** Coleus blumei Benth.
Coleus scutellarioides (L.) Benth.
Ocimum scutellarioides L.
Solenostemon blumei (Benth.) M.
Solenostemon scutellarioides (L.)
Stenogyne fauriei H. Lév.

**Assessor:** Chuck Chimera **Status:** Assessor Approved **End Date:** 22 Feb 2021

**WRA Score:** 8.0 **Designation:** H(HPWRA) **Rating:** High Risk

**Keywords:** Perennial Herb, Minor Weed, Contact Allergenicity, Shade Tolerant, Seeds Freely

| Qsn # | Question | Answer Option | Answer |
|---|---|---|---|
| 101 | Is the species highly domesticated? | y=-3, n=0 | n |
| 102 | Has the species become naturalized where grown? | | |
| 103 | Does the species have weedy races? | | |
| 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 | y |
| 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 | y |
| 301 | Naturalized beyond native range | y = 1*multiplier (see Appendix 2), n= question 205 | y |
| 302 | Garden/amenity/disturbance weed | | |
| 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) | y |
| 401 | Produces spines, thorns or burrs | y=1, n=0 | n |
| 402 | Allelopathic | | |
| 403 | Parasitic | y=1, n=0 | n |
| 404 | Unpalatable to grazing animals | | |
| 405 | Toxic to animals | | |
| 406 | Host for recognized pests and pathogens | | |

| Qsn # | Question | Answer Option | Answer |
|---|---|---|---|
| 407 | Causes allergies or is otherwise toxic to humans | | |
| 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 | y |
| 410 | Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island) | y=1, n=0 | y |
| 411 | Climbing or smothering growth habit | y=1, n=0 | n |
| 412 | Forms dense thickets | | |
| 501 | Aquatic | y=5, n=0 | n |
| 502 | Grass | y=1, n=0 | n |
| 503 | Nitrogen fixing woody plant | y=1, n=0 | n |
| 504 | Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers) | y=1, n=0 | n |
| 601 | Evidence of substantial reproductive failure in native habitat | y=1, n=0 | n |
| 602 | Produces viable seed | y=1, n=-1 | y |
| 603 | Hybridizes naturally | | |
| 604 | Self-compatible or apomictic | | |
| 605 | Requires specialist pollinators | y=-1, n=0 | n |
| 606 | Reproduction by vegetative fragmentation | y=1, n=-1 | y |
| 607 | Minimum generative time (years) | 1 year = 1, 2 or 3 years = 0, 4+ years = -1 | 1 |
| 701 | Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas) | y=1, n=-1 | y |
| 702 | Propagules dispersed intentionally by people | y=1, n=-1 | y |
| 703 | Propagules likely to disperse as a produce contaminant | y=1, n=-1 | n |
| 704 | Propagules adapted to wind dispersal | y=1, n=-1 | n |
| 705 | Propagules water dispersed | | |
| 706 | Propagules bird dispersed | y=1, n=-1 | n |
| 707 | Propagules dispersed by other animals (externally) | y=1, n=-1 | n |
| 708 | Propagules survive passage through the gut | y=1, n=-1 | n |
| 801 | Prolific seed production (>1000/m2) | | |
| 802 | Evidence that a persistent propagule bank is formed (>1 yr) | | |
| 803 | Well controlled by herbicides | | |
| 804 | Tolerates, or benefits from, mutilation, cultivation, or fire | | |
| 805 | Effective natural enemies present locally (e.g. introduced biocontrol agents) | | |

**Supporting Data:**

| Qsn # | Question | Answer |
|---|---|---|
| **101** | **Is the species highly domesticated?** | **n** |
| | **Source(s)** | **Notes** |
| | Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI | [Assessment is of naturalized plant. It may be possible that certain cultivars possess traits which make them more, or less, likely to establish and potentially have negative impacts] "Between 60 and 200 named cultivars of coleus have been I developed in horticulture. Plant size varies from large and shrubby to dwarf herbs and even some trailing cultivars. Leaf shape and size are also extremely variable, as are blade texture (flat vs. undulate, ruffled, or puckered) and degree of incision along the blade margin. Perhaps the most notable feature of coleus cultivars, however, is the variation in color, intensity, and patterning of the foliage, which afford the gardener a rich palette of landscaping choices." |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | [Cultivars exist, but are not highly domesticated] "Native to eastern Asia and Malesia, now pantropical through cultivation; in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i." |

| 102 | **Has the species become naturalized where grown?** | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | WRA Specialist. (2021). Personal Communication | NA |

| 103 | **Does the species have weedy races?** | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | WRA Specialist. (2021). Personal Communication | NA |

| 201 | **Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"** | **High** |
|---|---|---|
| | **Source(s)** | **Notes** |
| | USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 17 Feb 2021] | "Native<br>Asia-Temperate<br>CHINA: China [Fujian Sheng, Guangdong Sheng, Guangxi Zhuangzu Zizhiqu]<br>EASTERN ASIA: Taiwan<br>Asia-Tropical<br>INDIAN SUBCONTINENT: India, Sri Lanka<br>PAPUASIA: Papua New Guinea, Solomon Islands<br>INDO-CHINA: Cambodia, Laos, Myanmar, Thailand, Vietnam<br>MALESIA: Indonesia, Malaysia, Philippines<br>Australasia<br>AUSTRALIA: Australia [Queensland (n.), Western Australia (n.), Northern Territory (n.)]" |

| Qsn # | Question | Answer |
|---|---|---|
| 202 | **Quality of climate match data** | **High** |
| | **Source(s)** | **Notes** |
| | USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 17 Feb 2021] | |

| 203 | **Broad climate suitability (environmental versatility)** | **y** |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. 2008. A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY | "Habitat: Cultivated in tropical and temperate regions. Altitude: Widely cultivated." |
| | Missouri Botanical Garden. (2021). Plectranthus scutellarioides. http://www.missouribotanicalgarden.org. [Accessed 19 Feb 2021] | "Zone: 10 to 11" |
| | Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414 | [Potential elevation range exceeds 1000 m] "DISTRIBUTION. India, Himalaya, Sri Lanka, China, Burma, Thailand, Laos, Vietnam, Malaysia, Indonesia, Australia, and widely cultivated in other tropical regions. Map 5. ECOLOGY. Cultivated and sometimes naturalised; 100 - 1600 m. Flowering & fruiting all year round." |

| 204 | **Native or naturalized in regions with tropical or subtropical climates** | **y** |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414 | "DISTRIBUTION. India, Himalaya, Sri Lanka, China, Burma, Thailand, Laos, Vietnam, Malaysia, Indonesia, Australia, and widely cultivated in other tropical regions." |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Native to eastern Asia and Malesia, now pantropical through cultivation; in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i. Cultivated on O'ahu as early as 1890 (Brigham s.n., BISH)." |
| | Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. 2008. A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY | "Range: Native to SE Asia and New Guinea. Naturalized in the tropics worldwide, invasive in some places. Notes: This is the only species of Plectranthus in Costa Rica." |

| 205 | **Does the species have a history of repeated introductions outside its natural range?** | **y** |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414 | "DISTRIBUTION. India, Himalaya, Sri Lanka, China, Burma, Thailand, Laos, Vietnam, Malaysia, Indonesia, Australia, and widely cultivated in other tropical regions." |

| Qsn # | Question | Answer |
|---|---|---|
| | Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. 2008. A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY | "Habitat: Cultivated in tropical and temperate regions. Altitude: Widely cultivated. Range: Native to SE Asia and New Guinea. Naturalized in the tropics worldwide, invasive in some places. Notes: This is the only species of Plectranthus in Costa Rica." |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Native to eastern Asia and Malesia, now pantropical through cultivation; in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i." |

| 301 | Naturalized beyond native range | y |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Native to eastern Asia and Malesia, now pantropical through cultivation; in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i. Cultivated on O'ahu as early as 1890 (Brigham s.n., BISH)." |
| | Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. 2008. A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY | "Range: Native to SE Asia and New Guinea. Naturalized in the tropics worldwide, invasive in some places. Notes: This is the only species of Plectranthus in Costa Rica." |
| | Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall | [Naturalized and weedy elsewhere] "References: Federated States of Micronesia-N-230, Puerto Rico-CW-261, southeast Asia-W-191, Pacific-W-3, Italy-U-251, United States of America-N-1292, Europe-W-1325, French Polynesia-N-1514, Global-CD-1611, Eastern Caribbean-N-1742, Belize-N-1796, Nicaragua-N-1796, Colombia-N-1856, Italy-U-1887, -I-, -I-, South Africa-N-1991, Australia-W-1977, Bangladesh-W-1977, Barbados-W-1977, Belize-W-1977, Chile-W-1977, Cook Islands-W-1977, Costa Rica-W-1977, Cuba-W-1977, Fiji-W-1977, Guinea-W-1977, India-W-1977, Italy-W-1977, Jamaica-W-1977, Kiribati-W-1977, Marshall Islands-W-1977, Micronesia (Federated States of)-W-1977, Niue-W-1977, Palau-W-1977, Papua New Guinea-W-1977, Rwanda-W-1977, Saint Vicent and the Grenadines-W-1977, Samoa-W-1977, Solomon Islands-W-1977, South Africa-W-1977, Tonga-W-1977, Global--1324." |

| 302 | Garden/amenity/disturbance weed | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | CABI. (2021). Plectranthus scutellarioides. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc | "Research is needed on its impact on ecosystems, as it currently appears to be a minor pest rather than a seriously damaging weed." |

| Qsn # | Question | Answer |
|---|---|---|
| **303** | **Agricultural/forestry/horticultural weed** | **n** |
| | **Source(s)** | **Notes** |
| | CABI. (2021). Plectranthus scutellarioides. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc | "Research is needed on its impact on ecosystems, as it currently appears to be a minor pest rather than a seriously damaging weed." |
| | Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall | No evidence |

| | | |
|---|---|---|
| **304** | **Environmental weed** | **n** |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i." |
| | CABI. (2021). Plectranthus scutellarioides. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc | "Research is needed on its impact on ecosystems, as it currently appears to be a minor pest rather than a seriously damaging weed." |
| | Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall | No evidence |

| | | |
|---|---|---|
| **305** | **Congeneric weed** | **y** |
| | **Source(s)** | **Notes** |
| | Macdonald, I.A.W., Reaser, J.K., Bright, C., Neville, L.E., Howard, G.W., Murphy, S.J. & Preston, G. (eds.) 2003. Invasive alien species in southern Africa: national reports & directory of resources. Global Invasive Species Programme, Cape Town, South Africa | "Plectranthus comosus: Category 3 (Declared invader): … No further plantings allowed (except with special permission) … No trade of propagative material … Existing plants may remain but must be prevented from spreading … Prohibited within 30 m of the 1:50 year floodline of watercourses or wetlands unless authorization obtained" |

| | | |
|---|---|---|
| **401** | **Produces spines, thorns or burrs** | **n** |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | [No evidence] "Erect perennial herbs; stems fleshy, 5-15 dm long, sparsely to moderately puberulent. Leaves variously colored green, red, purple, yellow, or variegated, membranous, ovate-deltate to broadly ovate, (7-) 10-21 cm long, 2.5-10 cm wide, upper surface sparsely to densely scabrid to hirtellous or strigillose, lower surface glandular punctate and hirtellous, especially on veins, petioles 2-5.5 cm long, strigillose. Flowers in verticillasters or irregularly branched cymes 5-10(-25) cm long, bracts ovate, caducous; calyx 2-2.5 mm long, enlarging to 4-6 mm long in fruit, hirtellous and glandular punctate, the glands black, upper lip broadly ovate, becoming recurved in fruit, apex acute, lower lip 4-toothed, the teeth distinctly unequal, lateral ones very short, truncate to rounded, median ones sharply pointed; corolla blue or violet, tube whitish, lower lip boat-shaped, longer than upper lip, 8-13 mm long; stamens nearly included in corolla tube. Nutlets brown, shiny, broadly ovoid to lenticular, 1-1.2 mm long." |

| Qsn # | Question | Answer |
|---|---|---|
| 402 | **Allelopathic** | |
| | **Source(s)** | **Notes** |
| | WRA Specialist. (2021). Personal Communication | Unknown. No evidence found |

| 403 | **Parasitic** | **n** |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Erect perennial herbs; stems fleshy, 5-15 dm long, sparsely to moderately puberulent." [ Lamiaceae (alt. Labiatae). No evidence] |

| 404 | **Unpalatable to grazing animals** | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | NC State Extension. (2021). Coleus scutellarioides. https://plants.ces.ncsu.edu/plants/coleus-scutellarioides/. [Accessed 19 Feb 2021] | [Probably unpalatable] "Resistance To Challenges: Deer" |

| 405 | **Toxic to animals** | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL | "Contact allergenicity." [Affects humans. Possible has similar effects on animals that come in contact with leaves] |
| | Ourhouseplants.com. (2021). Plectranthus scutellarioides (Coleus blumei). https://www.ourhouseplants.com/plants/coleus. [Accessed 19 Feb 2021] | [Possibly sickens animals that consumes leaves. May avoid it due to oils] "Is Coleus Poisonous? A lot of the hybrids are okay to have around both people and pets, however some varieties still have more of the "natural" qualities from the older plants. These tend to have higher levels of essential oils within the leaves, which when consumed in large quantities can cause vomiting and diarrhea." |

| 406 | **Host for recognized pests and pathogens** | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Suva, M. A., Patel, A. M., & Sharma, N. (2015). Coleus species: Solenostemon scutellarioides. Inventi Rapid: Planta Activa, 2015(2): ISSN 2278-411X | "Diseases that can affect coleus are downy mildew, necrotic spot virus, Mealy bugs, scale insects and whiteflies." |
| | Missouri Botanical Garden. (2021). Plectranthus scutellarioides. http://www.missouribotanicalgarden.org. [Accessed 19 Feb 2021] | "No serious insect or disease problems. Watch for aphids, spider mites and whiteflies, particularly on indoor plants." |
| | Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI | "Pests include slugs and snails, which may be removed by hand at night or treated with a commercial bait placed around the plants. Mealybugs and aphids may attack the foliage and can be removed with a strong spray of water or an insecticidal soap solution." |

| 407 | **Causes allergies or is otherwise toxic to humans** | |
|---|---|---|

| Qsn # | Question | Answer |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Suva, M. A., Patel, A. M., & Sharma, N. (2015). Coleus species: Solenostemon scutellarioides. Inventi Rapid: Planta Activa, 2015(2): ISSN 2278-411X | "Coleus blumei (Solenostemon scutellarioides) reported to have mild relaxing and hallucinogenic effects. However, it is not known what psychoactive chemicals exist in the Coleus blumei plant as there has been very little research on the subject." |
| | Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL | "Contact allergenicity." |
| | Tropical Plants Database, Ken Fern. (2021). Plectranthus scutellarioides. http://tropical.theferns.info/viewtropical.php?id=Plectranthus+scutellarioides. [Accessed 22 Feb 2021] | "Known Hazards - None known" |
| | NC State Extension. (2021). Coleus scutellarioides. https://plants.ces.ncsu.edu/plants/coleus-scutellarioides/. [Accessed 19 Feb 2021] | "Poison Severity:<br>Low<br>Poison Symptoms:<br>SKIN IRRITATION MINOR OR LASTING ONLY FOR A FEW MINUTES. Allergic dermatitis with red rash after repeated and frequent contact.<br>Poison Toxic Principle:<br>Diterpene coleonol, coleon O<br>Causes Contact Dermatitis:<br>Yes<br>Poison Part:<br>Leaves" |
| | WRA Specialist. (2021). Personal Communication | Possibly allergenic upon contact with sap, but may only affect susceptible individuals. |

| 408 | Creates a fire hazard in natural ecosystems | n |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | [No evidence. Unlikely based on fleshy habit and wet habitat] "Erect perennial herbs; stems fleshy, 5-15 dm long, sparsely to moderately puberulent." … "now naturalized in disturbed parts of mesic to wet forest" |

| 409 | Is a shade tolerant plant at some stage of its life cycle | y |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI | "Coleus thrives in partial shade or filtered sun; full sun may cause bleaching or fading of foliage color." |
| | NC State Extension. (2021). Coleus scutellarioides. https://plants.ces.ncsu.edu/plants/coleus-scutellarioides/. [Accessed 19 Feb 2021] | "Light:<br>Deep shade (Less than 2 hours to no direct sunlight)<br>Full sun (6 or more hours of direct sunlight a day)<br>Partial Shade (Direct sunlight only part of the day, 2-6 hours)" |
| | Missouri Botanical Garden. (2021). Plectranthus scutellarioides. http://www.missouribotanicalgarden.org. [Accessed 19 Feb 2021] | "Sun: Part shade to full shade" |

| Qsn # | Question | Answer |
|---|---|---|
| **410** | **Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)** | **y** |
| | **Source(s)** | **Notes** |
| | Shoot Gardening. (2021). Solenostemon scutellarioides (Common coleus). https://www.shootgardening.co.uk/plant/solenostemon-scutellarioides. [Accessed 19 Feb 2021] | "Soil type - Chalky, Clay, Loamy, Sandy (will tolerate most soil types)<br>Soil drainage - Moist but well-drained, Well-drained<br>Soil pH - Acid, Alkaline, Neutral" |

| 411 | Climbing or smothering growth habit | n |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Erect perennial herbs; stems fleshy, 5-15 dm long, sparsely to moderately puberulent." |

| 412 | Forms dense thickets | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Yuncker, T. G. (1943). The flora of Niue Island. Bernice P. Bishop Museum Bulletin 178. Bishop Museum Press, Honolulu | "Forming dense patches occasionally along roadsides" [Coleus blumei. Synonym of Plectranthus scutellarioides] |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i." [Unspecified] |

| 501 | Aquatic | n |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | [Terrestrial] "in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i." |

| 502 | Grass | n |
|---|---|---|
| | **Source(s)** | **Notes** |
| | USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 17 Feb 2021] | Family: Lamiaceae<br>Subfamily: Nepetoideae<br>Tribe: Ocimeae<br>Subtribe: Plectranthinae |

| Qsn # | Question | Answer |
|---|---|---|
| **503** | **Nitrogen fixing woody plant** | **n** |
| | **Source(s)** | **Notes** |
| | USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 17 Feb 2021] | Family: Lamiaceae<br>Subfamily: Nepetoideae<br>Tribe: Ocimeae<br>Subtribe: Plectranthinae |

| | | |
|---|---|---|
| **504** | **Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)** | **n** |
| | **Source(s)** | **Notes** |
| | Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414 | "Erect or ascending annual or short-lived perennial herbs up to 1 m tall. Stems succulent, much-branched, round-quadrangular, pubescent, with sessile glands." [No evidence] |

| | | |
|---|---|---|
| **601** | **Evidence of substantial reproductive failure in native habitat** | **n** |
| | **Source(s)** | **Notes** |
| | USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 19 Feb 2021] | [No evidence] "Native<br>Asia-Temperate<br>CHINA: China [Fujian Sheng, Guangdong Sheng, Guangxi Zhuangzu Zizhiqu]<br>EASTERN ASIA: Taiwan<br>Asia-Tropical<br>INDIAN SUBCONTINENT: India, Sri Lanka<br>PAPUASIA: Papua New Guinea, Solomon Islands<br>INDO-CHINA: Cambodia, Laos, Myanmar, Thailand, Vietnam<br>MALESIA: Indonesia, Malaysia, Philippines<br>Australasia<br>AUSTRALIA: Australia [Queensland (n.), Western Australia (n.), Northern Territory (n.)]<br>Cultivated (widely cult. in tropics)" |

| Qsn # | Question | Answer |
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| **602** | **Produces viable seed** | **y** |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Nutlets brown, shiny, broadly ovoid to lenticular, 1-1.2 mm long." |
| | Whistler, W.A. 2000. Tropical Ornamentals: A Guide. Timber Press, Portland, OR | "Propagate by cuttings, which easily root in water, or seeds, often obtained in seed packets." |
| | Missouri Botanical Garden. (2021). Plectranthus scutellarioides. http://www.missouribotanicalgarden.org. [Accessed 19 Feb 2021] | "Seed cultivars can be started indoors from seed 8-12 weeks before last frost date. Inexpensive starter plants (in small pots or flats) can be purchased from most nurseries in spring for beds and containers." |
| | Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI | "Seed is available from garden shops, though seedlings may not come true to type; for this reason named cultivars are propagated vegetatively to maintain their desirable colors and patterns." |

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| **603** | **Hybridizes naturally** | |
| | **Source(s)** | **Notes** |
| | WRA Specialist. (2021). Personal Communication | Unknown. Hybrids reported in genus |

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| **604** | **Self-compatible or apomictic** | |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | [Unknown] "Flowers in verticillasters or irregularly branched cymes 5-10(-25) cm long, bracts ovate, caducous; calyx 2-2.5 mm long, enlarging to 4-6 mm long in fruit, hirtellous and glandular punctate, the glands black, upper lip broadly ovate, becoming recurved in fruit, apex acute, lower lip 4-toothed, the teeth distinctly unequal, lateral ones very short, truncate to rounded, median ones sharply pointed; corolla blue or violet, tube whitish, lower lip boat-shaped, longer than upper lip, 8-13 mm long; stamens nearly included in corolla tube." |

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| **605** | **Requires specialist pollinators** | **n** |
| | **Source(s)** | **Notes** |
| | Tropical Plants Database, Ken Fern. (2021). Plectranthus scutellarioides. http://tropical.theferns.info/viewtropical.php?id=Plectranthus+scutellarioides. [Accessed 22 Feb 2021] | "Pollinators - Insects" |
| | Potgieter, C., Edwards, T., Miller, R., & Van Staden, J. (1999). Pollination of seven Plectranthus spp. (Lamiaceae) in southern Natal, South Africa. Plant Systematics and Evolution, 218(1/2), 99-112 | [Genus pollinated by a variety of insects] "In summary the documented insect visitors to Plectranthus belong to the families Anthophoridae, Apidae and Megachilidae (Hymenoptera); Syrphidae, Bombyliidae and Conopidae (Diptera) and Sphingidae and other Lepidoptera." |

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| **606** | **Reproduction by vegetative fragmentation** | **y** |
| | **Source(s)** | **Notes** |

| Qsn # | Question | Answer |
|---|---|---|
| | Suva, M. A., Patel, A. M., & Sharma, N. (2015). Coleus species: Solenostemon scutellarioides. Inventi Rapid: Planta Activa, 2015(2): ISSN 2278-411X | "cuttings can be taken and cuttings root readily in plain water without addition of rooting hormone." |
| | Tropical Plants Database, Ken Fern. (2021). Plectranthus scutellarioides. http://tropical.theferns.info/viewtropical.php?id=Plectranthus+scutellarioides. [Accessed 22 Feb 2021] | "Cuttings of Plectranthus species generally root easily - soft tips root faster than semi-hardwood growth. The cuttings are best taken 60 - 100mm long with three or four nodes, making the cut just below a node." |
| | Plant Pono (2021). Personal Communication from site user. 14 Feb | "I have observed that some of the other people who were gifted infant plants have pulled the giants and tossed them in the empty lot behind or next to them - where they have happily established themselves." |

| 607 | Minimum generative time (years) | 1 |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI | "Although grown as an annual in temperate climates, coleus is a perennial in the tropics; the plants are not, however, long-lived, and they should be repropagated every tow or three years." |
| | Suddee, S., Paton, A. J., & Parnell, J. A. N. 2004. A taxonomic revision of tribe Ocimeae Dumort.(Lamiaceae) in continental South East Asia II. Plectranthinae. Kew Bulletin, 59(3): 379-414 | "Erect or ascending annual or short-lived perennial herbs up to 1 m tall." |

| 701 | Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas) | y |
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| | **Source(s)** | **Notes** |
| | Plant Pono (2021). Personal Communication from site user. 14 Feb | [Can be spread via dumped cuttings and green waste] "I have observed that some of the other people who were gifted infant plants have pulled the giants and tossed them in the empty lot behind or next to them - where they have happily established themselves." |

| 702 | Propagules dispersed intentionally by people | y |
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| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Native to eastern Asia and Malesia, now pantropical through cultivation; in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i." |
| | Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI | "Widespread in Asia and the western Pacific and popular the world over for its colorful foliage and easy cultivation" |

| 703 | Propagules likely to disperse as a produce contaminant | n |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall | "Dispersed by: Humans, Escapee" [No evidence of produce contamination] |

| Qsn # | Question | Answer |
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| **704** | **Propagules adapted to wind dispersal** | **n** |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Nutlets brown, shiny, broadly ovoid to lenticular, 1-1.2 mm long." [Seeds small and possibly moved by wind for short distances, but otherwise lack adaptations for wind dispersal] |

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| **705** | **Propagules water dispersed** | |
| | **Source(s)** | **Notes** |
| | WRA Specialist. (2021). Personal Communication | Unknown. Seeds and/or vegetative fragments might be moved by water if growing near streams or other riparian areas. |

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| **706** | **Propagules bird dispersed** | **n** |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Nutlets brown, shiny, broadly ovoid to lenticular, 1-1.2 mm long." [No evidence. Not fleshy-fruited] |

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| **707** | **Propagules dispersed by other animals (externally)** | **n** |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Nutlets brown, shiny, broadly ovoid to lenticular, 1-1.2 mm long." [No evidence, and no specialized means of external attachment] |

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| **708** | **Propagules survive passage through the gut** | **n** |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Nutlets brown, shiny, broadly ovoid to lenticular, 1-1.2 mm long." [No evidence, and unlikely to be internally dispersed due to evidence of plant avoidance by browsing animals] |

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| **801** | **Prolific seed production (>1000/m2)** | |
| | **Source(s)** | **Notes** |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | "Nutlets brown, shiny, broadly ovoid to lenticular, 1-1.2 mm long." [Densities unknown] |
| | Suva, M. A., Patel, A. M., & Sharma, N. (2015). Coleus species: Solenostemon scutellarioides. Inventi Rapid: Planta Activa, 2015(2): ISSN 2278-411X | [Numbers produced not specified] "Coleus can be propagated by two ways either by planting seeds or by cut roots. Propagation by seeds is very easy as seeds are easily obtainable and even inexpensive. For germination seeds are sprinkled on the soil surface and pressed down and covering of the seeds are avoided as it requires light to germinate." |

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| **802** | **Evidence that a persistent propagule bank is formed (>1 yr)** | |

| Qsn # | Question | Answer |
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| | **Source(s)** | **Notes** |
| | Royal Botanic Gardens Kew. (2021) Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ . [Accessed ] | "Storage Behaviour: No data available for species. Of 55 known taxa of genus Plectranthus, 98.18% Orthodox(p/?), 1.82% Uncertain" |

| 803 | Well controlled by herbicides | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Plant Pono (2021). Personal Communication from site user. 14 Feb | "It does succumb to roundup." |
| | WRA Specialist. (2021). Personal Communication | Possibly. Other than personal communication, no information found on herbicide efficacy or chemical control of this species |

| 804 | Tolerates, or benefits from, mutilation, cultivation, or fire | |
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| | **Source(s)** | **Notes** |
| | Plant Pono (2021). Personal Communication from site user. 14 Feb | "The stems refuse to die. Where we piled up the stems - babies are popping up. Babies are just about covering the ground again where we uprooted the parent plants. I put a bunch of the plants I pulled on a sheet of tin roofing - in the hope that the sun would cook them. Nope. After a month of laying in the sun they are alive and just waiting for the opportunity to flourish again. This is in HPP - so, lots of water. I have observed that some of the other people who were gifted infant plants have pulled the giants and tossed them in the empty lot behind or next to them - where they have happily established themselves." |

| 805 | Effective natural enemies present locally (e.g. introduced biocontrol agents) | |
|---|---|---|
| | **Source(s)** | **Notes** |
| | Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI | "Pests include slugs and snails, which may be removed by hand at night or treated with a commercial bait placed around the plants. Mealybugs and aphids may attack the foliage and can be removed with a strong spray of water or an insecticidal soap solution." |
| | Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. | [Unknown, but limiting factors have not prevented its naturalization] "in Hawai'i various forms are cultivated, some of which are now naturalized in disturbed parts of mesic to wet forest, 30-300 m, at least on Kaua'i, O'ahu, Maui, and Hawai'i." |

**Summary of Risk Traits:**

High Risk / Undesirable Traits
• Broad climate suitability
• Able to grow and spread in regions with tropical climates
• Naturalized on Kauai, Oahu, Maui and Hawaii (Hawaiian Islands) and elsewhere
• Other Plectranthus species are weeds
• Possibly causes contact dermatitis to susceptible individuals
• Shade tolerant
• Tolerates many soil types
• May form dense cover that could outcompete other vegetation
• Reproduces by seeds and vegetatively by cuttings and rooting fragments
• Able to reach maturity in one growing season
• Can be spread accidentally by dumped green waste
• Can be spread by seeds which apparently lack specific dispersal mechanisms
• May be difficult to control mechanically (anecdotal observations)

Low Risk Traits
• Generally regarded as a minor pest rather than a seriously damaging weed
• Unarmed (no spines, thorns, or burrs)
• Certain herbicides may provide effective control (anecdotal observation)