Family: ***Buddlejaceae***

Taxon: ***Buddleja madagascariensis***

Synonym: *Adenoplea madagascariensis (Lam.) Eastw.*
Buddleja heterophylla Lindl.
Nicodemia madagascariensis (Lam.) R. Parke

Common Name: Smoke bush
butterfly bush

Questionaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** H(HPWRA)
Status: Assessor Approved **Data Entry Person:** Chuck Chimera **WRA Score 21**

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**	**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**	**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)**	**y**
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**	**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**	**n**
406	**Host for recognized pests and pathogens**	**y=1, n=0**	**y**
407	**Causes allergies or is otherwise toxic to humans**	**y=1, n=0**	**n**
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**	**y**
412	**Forms dense thickets**	**y=1, n=0**	**y**
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**	**y=1, n=-1**	
604	**Self-compatible or apomictic**	**y=1, n=-1**	
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**	
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**	**y=1, n=-1**	**y**
706	**Propagules bird dispersed**	**y=1, n=-1**	**y**
707	**Propagules dispersed by other animals (externally)**	**y=1, n=-1**	**y**
708	**Propagules survive passage through the gut**	**y=1, n=-1**	**y**
801	**Prolific seed production (>1000/m2)**	**y=1, n=-1**	**n**
802	**Evidence that a persistent propagule bank is formed (>1 yr)**	**y=1, n=-1**	
803	**Well controlled by herbicides**	**y=-1, n=1**	**y**
804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	**y=1, n=-1**	**y**
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	**y=-1, n=1**	**n**

Designation: H(HPWRA) **WRA Score** **21**

Supporting Data:

101	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Is the species highly domesticated? No] No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Species suited to tropical or subtropical climate(s) 2 - high] "Native to Madagascar, widely cultivated and often becoming naturalized in tropical and subtropical regions"
202	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Quality of climate match data? 2 - high] "Native to Madagascar, widely cultivated and often becoming naturalized in tropical and subtropical regions"
203	2006. Stuart, D.D.. Buddlejas: Royal Horticultural Society plant collector guide. Timber Press, Portland, OR	[Broad climate suitability (environmental versatility)? Yes] "The plant grows among bush scrub in mountains at elevations of 600-2000 m (2000-6500 ft), where it is a vigorous, loose, lax semi-evergreen to evergreen shrub to 4 m…" [Although restricted primarily to tropical regions, the elevation range exceeds 1000 m, demonstrating some environmental versatility]
203	2008. Weed Society of Victoria Inc.. Victorian Alert Weed: Smoke bush (Buddleja madagascariensis). Weedscene. 19(3): 7.	[Broad climate suitability (environmental versatility)? Yes] "Smoke bush plants have invaded dense tropical rainforest stands and can survive and persist under a completely closed tree canopy. Plants are adapted to growing in a wide variety of conditions, from coastal belts to mountain ranges with the potential to invade in most regions of Victoria."
204	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Native to Madagascar, widely cultivated and often becoming naturalized in tropical and subtropical regions"
205	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Does the species have a history of repeated introductions outside its natural range? Yes] "Native to Madagascar, widely cultivated and often becoming naturalized in tropical and subtropical regions"
301	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Naturalized beyond native range? Yes] "Native to Madagascar, widely cultivated and often becoming naturalized in tropical and subtropical regions; in Hawaii cultivated and recently becoming naturalized in mesic areas, 900-1,200 m, at least near Volcano transfer dump, Hawaii. First naturalized collection made on Hawaii in 1984 (K. Nagata 2936, BISH), but collected earlier from cultivated or escaped plants: in 1931 on Oahu (Neal s.n., BISH), in 1972, Hana Highway, Maui (Ishikawa 201, BISH, HLA) and in 1975 at Volcano transfer dump (Herbst & Ishikawa 5526, BISH, HLA)."
301	2000. Liogier, A.H./ Martorell, L.F.. Flora of Puerto Rico and adjacent islands: a systematic synopsis. La Editorial, UPR, San Juan, Puerto Rico	[Naturalized beyond native range? Yes] "…an escape from cultivation…"
301	2000. Oppenheimer, H.L./Bartlett, R.T.. New plant records from Maui, O'ahu, and the Hawai'i Islands. Bishop Museum Occasional Papers. 64: 1-10.	[Naturalized beyond native range? Yes] "One of the specimens cited here was made along the Häna Hwy from a population that does not appear to be cultivated or escaped, being well removed from any residence and over a half-mile from the nearest State Park. Plants were observed on both sides of the road. It has also recently been documented by Lorence & Flynn (1999: 4) as occurring on Kaua'i. Material examined: MAUI: East Maui, Hana District, East of Pua'aka'a State Park on the South side of Häna Hwy, 366 m, 14 Jun 1999, Oppenheimer H69911; Makawao District, Waiakoa, along Kula Hwy, south of Copp Rd, both sides of Hwy, on the east side growing down in a gully with all non-native taxa, 872 m, 1 Aug 1999, Oppenheimer H89908; Waiakoa, along Upper Kula Hwy, near the 8 mile marker, 1067 m, 28 Aug 1999, Oppenheimer & Perlman H89942."
301	2006. Howell, C.J./Sawyer, J.W.D.. New Zealand naturalised vascular plant checklist. New Zealand Plant Conservation Network, Wellington, NZ www.nzpcn.org.nz	[Naturalized beyond native range? Yes. New Zealand] "Buddleja madagascariensis...Fully naturalised"

301	2006. Stuart, D.D.. Buddlejas: Royal Horticultural Society plant collector guide. Timber Press, Portland, OR	[Naturalized beyond native range? Yes] "Buddleja madagascariensis has become naturalized in Fujian, Guangdong, and Guangxi Provinces in China, is in cultivation throughout tropical and subtropical Asia, and has become naturalized along the Mediterranean coast of France."
301	2007. Schneider, A.A.. The naturalized flora of Rio Grande do Sul State, Brazil; subspontaneous herbaceous plants. Biociencias. 15(2): 257-268.	[Naturalized beyond native range? Yes. Brazil] "Table 1. Value of herbaceous naturalized species found in the state of Rio Grande do Sul, Brazil" [Translated from Portuguese. Table lists B. madagascariensis as naturalized]
302	2007. Randall, R.P.. Global Compendium of Weeds - Buddleja madagascariensis [Online Database]. http://www.hear.org/gcw/species/buddleja_madagascariensis/	[Garden/amenity/disturbance weed? No] No evidence
303	2007. Randall, R.P.. Global Compendium of Weeds - Buddleja madagascariensis [Online Database]. http://www.hear.org/gcw/species/buddleja_madagascariensis/	[Agricultural/forestry/horticultural weed? No] No evidence
304	2002. Stock, D.H./Wild, C.H.. Natural propagation of orange buddleia (Buddleja madagascariensis Lamarck) in eastern Australia. Pp. 120-123 in Jacob, H.S. et al. (eds) 13th Australian Weeds Conference: weeds "threats now & forever?". CABI, Wallingford, UK	[Environmental weed? Yes] "The exotic ornamental scrambling bramble orange buddleia, B. madagascariensis, forms dense impenetrable thickets in various forest types in eastern Australia. The plant is widespread throughout the world and weedy in many locations. In Australia, it is found growing in patches in the national parks of the Border Ranges between Queensland and New South Wales where it is of great concern for the damage it might do to the rain forest where it grows. B. madagascariensis is sterile in Australia and no seeds have been seen on the plant despite extensive searches of plants in eastern Australia nor reported in the literature. It is therefore curious that the plant is able to establish and grow in the midst of national parks apparently distant from any source of infestation. This study investigates the hypothesis that B. madagascariensis can be spread by stem sections that may be carried by birds, water, or perhaps people, and that simply casting them upon the ground is sufficient to allow them to root and grow. Stems of B. madagascariensis were placed on the ground in rain forest under various circumstances and it was found that a small proportion of stems can root and grow under a wide range of conditions."
304	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching,L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI http://www.ctahr.hawaii.edu/invweed/weedsHi.html	[Environmental weed? Yes] "A weed of forests and roadsides...invading mesic to humid forests"
305	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Congeneric weed? Yes] "Buddleja davidii…It is invasive because it quickly displaces primary native colonizers on fresh alluvial plains and accelerates succession to forests."
401	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Produces spines, thorns or burrs? No] "Sprawling shrubs 2-3 (-8) m tall; stems densely tomentose. Leaves opposite, narrowly ovate, 7-12 cm long, 2-4.5 cm wide, upper surface glabrous, lower surface densely tomentose, margins entire, petioles 1.5-2.5 cm long."
402	2010. Global Invasive Species Database. Buddleja madagascariensis. National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG), http://www.issg.org/database/species/ecology.asp?si=1577&fr=1&sts=&lang=EN	[Allelopathic? No] No evidence
403	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Parasitic? No] "Sprawling shrubs 2-3 (-8) m tall" [Buddlejaceae]
404	2011. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown]
405	2006. Stuart, D.D.. Buddlejas: Royal Horticultural Society plant collector guide. Timber Press, Portland, OR	[Toxic to animals? No] No evidence

406	2001. Poole, M.C. et al.. Categorisation of Pests of stone fruit from Eastern Australia; Final State Import Risk Analysis of cherry fruit (Prunus avium) from South Australia into Western Australia. The Western Australian Department of Agriculture, Canning	[Host for recognized pests and pathogens? Yes] "Citrophilus Mealybug. Scientific name: Pseudococcus calceolariae (Maskell) [Hemiptera Pseudococcidae]"
407	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Causes allergies or is otherwise toxic to humans? No] No evidence
408	2002. Stock, D.H./Wild, C.H.. Natural propagation of orange buddleia (Buddleja madagascariensis Lamarck) in eastern Australia. Pp. 120-123 in Jacob, H.S. et al. (eds) 13th Australian Weeds Conference: weeds "threats now & forever?". CABI, Wallingford, UK	[Creates a fire hazard in natural ecosystems? No] "B. madagascariensis, forms dense impenetrable thickets in various forest types in eastern Australia." [but no mention of increased fire risk in these areas]
408	2010. Global Invasive Species Database. Buddleja madagascariensis. National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG), http://www.issg.org/database/species/ecology.asp?si=1577&fr=1&sts=&lang=EN	[Creates a fire hazard in natural ecosystems? No] Not listed among detrimental impacts of this species
409	2008. Weed Society of Victoria Inc.. Victorian Alert Weed: Smoke bush (Buddleja madagascariensis). Weedscene. 19(3): 7.	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Smoke bush plants have invaded dense tropical rainforest stands and can survive and persist under a completely closed tree canopy." [suggests plants are tolerant of dense shade]
410	2011. Western Australian Herbarium. FloraBase - The Western Australian Flora - Buddleja madagascariensis. Department of Environment and Conservation, http://florabase.calm.wa.gov.au/browse/profile/6537	[Tolerates a wide range of soil conditions? Yes] "...in gravelly soil, loam, sand (over limestone); occupying flats, limestone cliffs, steep slopes, river valleys; growing in disturbed natural vegetation, in gardens (in old settlement site; on roadsides)."
411	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Climbing or smothering growth habit? Yes] "Sprawling shrubs 2-3 (-8) m tall; stems densely tomentose." [sprawling shrubs that form dense thickets. See 4.12]
411	2003. Starr, F./Starr, K./Loope, L.L.. Buddleia madagascariensis - Smoke bush - Buddleiaceae. USGS - Biological Resources Haleakala Field Station Maui, http://www.hear.org/starr/hiplants/reports/pdf/buddleia_madagascariensis.pdf	[Climbing or smothering growth habit? Yes] "B. madagascariensis invades disturbed areas and creates dense thickets capable of smothering other plants in the way … Large dense patches of B. madagascariensis can be seen in this area, sprawling in gulches, along roads, and in waste areas. Along the Hana Hwy., B. madagascariensis was observed growing up into a native koa tree (Acacia koa). Eventually, the koa gave way to the weight of the B. madagascariensis, fell over and died."
412	2002. Stock, D.H./Wild, C.H.. Natural propagation of orange buddleia (Buddleja madagascariensis Lamarck) in eastern Australia. Pp. 120-123 in Jacob, H.S. et al. (eds) 13th Australian Weeds Conference: weeds "threats now & forever?". CABI, Wallingford, UK	[Forms dense thickets? Yes] "B. madagascariensis, forms dense impenetrable thickets in various forest types in eastern Australia."
412	2011. Western Australian Herbarium. FloraBase - The Western Australian Flora - Buddleja madagascariensis. Department of Environment and Conservation, http://florabase.calm.wa.gov.au/browse/profile/6537	[Forms dense thickets? Yes] "Forms dense impenetrable thickets and can smother native vegetation. Leaf litter accumulation does not impede regeneration of broken stems."
501	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Aquatic? No] "Sprawling shrubs 2-3 (-8) m tall" [Terrestrial]
502	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Grass? No] Buddlejaceae
503	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Nitrogen fixing woody plant? No] Buddlejaceae

504	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Sprawling shrubs 2-3 (-8) m tall; stems densely tomentose. Leaves opposite, narrowly ovate, 7-12 cm long, 2-4.5 cm wide, upper surface glabrous, lower surface densely tomentose, margins entire, petioles 1.5-2.5 cm long."
601	2006. Stuart, D.D.. Buddlejas: Royal Horticultural Society plant collector guide. Timber Press, Portland, OR	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Produces viable seed? Yes] "Seeds ellipsoid, ca. 1 mm long"
602	2002. Stock, D.H./Wild, C.H.. Natural propagation of orange buddleia (Buddleja madagascariensis Lamarck) in eastern Australia. Pp. 120-123 in Jacob, H.S. et al. (eds) 13th Australian Weeds Conference: weeds "threats now & forever?". CABI, Wallingford, UK	[Produces viable seed? Not in Australia as of 2002] "B. madagascariensis is sterile in Australia and no seeds have been seen on the plant despite extensive searches of plants in eastern Australia nor reported in the literature."
603	2000. Norman, E.M.. Buddlejaceae. Flora Neotropica. 81: 1-224.	[Hybridizes naturally? Unknown] "Leeuwenberg (1979) indicates the presence of six putative natural hybrids among Old World taxa, and only one of these is African. Many artificial hybrids have been synthesized, primarily by Moore (1949, 1960). He was successful in hybridizing the capsular fruited species, B. asiatica and B. crispa, with the berry-fruited species, B. madagascariensis."
604	2004. Kubitzki, K./Kadereit, J.W. (ed.). The families and genera of vascular plants: Volume VII. Flowering plants, Dicotyledons. Lamiales (except Acanthaceae including Avicenniaceae). Springer-Verlag, Berlin, Heidelberg, New York	[Self-compatible or apomictic? Unknown] "Most American species of Buddleja are functionally dioecious (Norman 2000 and references therein). Some taxa are polygamous, i.e. hermaphroditic plants exist together with the unisexual ones." [Unknown for B. madagascariensis]
605	2004. Kubitzki, K./Kadereit, J.W. (ed.). The families and genera of vascular plants: Volume VII. Flowering plants, Dicotyledons. Lamiales (except Acanthaceae including Avicenniaceae). Springer-Verlag, Berlin, Heidelberg, New York	[Requires specialist pollinators? No] "Norman (2000) reported small bees, honey bees, flies, syrphids, bumble bees, wasps, butterflies, and hummingbirds as visitors of neotropical Buddleja. The butterfly bush, Buddleja davidii, received its English name because of the ability to attract butterflies." [floral morphology of B. madagascariensis suggests that it would also be effectively pollinated by a range of generalist pollinators]
606	2000. Norman, E.M.. Buddlejaceae. Flora Neotropica. 81: 1-224.	[Reproduction by vegetative fragmentation? Yes] "In some species, notably B. crotonoides, B. scordioides, and B. incana, basal branches may root and the plants can spread vegetatively some distance from the parent stock. An extreme of this phenomenon may be seen in the African B. madagascariensis, often grown in tropical and sub-tropical regions, which forms thickets."
606	2008. Weed Society of Victoria Inc.. Victorian Alert Weed: Smoke bush (Buddleja madagascariensis). Weedscene. 19(3): 7.	[Reproduction by vegetative fragmentation? Yes] "Despite the fact that Australian smoke bush varieties are reported to be sterile and do not produce viable seed, populations have escaped from gardens, establishing in isolated pockets far north Queensland, south through to Bega in New South Wales. Plants can readily re shoot from damaged root matter or will form new roots from discarded stems…"
606	2011. Western Australian Herbarium. FloraBase - The Western Australian Flora - Buddleja madagascariensis. Department of Environment and Conservation, http://florabase.calm.wa.gov.au/browse/profile/6537	[Reproduction by vegetative fragmentation? Yes] "Reproduction. Stem fragments. Dispersal. Water, garden refuse...Vegetative regeneration strategy. Resprouts, produces root suckers, stem layering, broken stems."
607	2011. Western Australian Herbarium. FloraBase - The Western Australian Flora - Buddleja madagascariensis. Department of Environment and Conservation, http://florabase.calm.wa.gov.au/browse/profile/6537	[Minimum generative time (years)? Unknown] "Reproduction. Stem fragments. Dispersal. Water, garden refuse...Vegetative regeneration strategy. Resprouts, produces root suckers, stem layering, broken stems." [ability to reproduce vegetatively may allow plant to propagate at an early age, regardless of whether or not I has flowered]
607	2011. WRA Specialist. Personal Communication.	[Minimum generative time (years)? Unknown].
701	2011. Western Australian Herbarium. FloraBase - The Western Australian Flora - Buddleja madagascariensis. Department of Environment and Conservation, http://florabase.calm.wa.gov.au/browse/profile/6537	[Propagules likely to be dispersed unintentionally? Yes] "Reproduction. Stem fragments. Dispersal. Water, garden refuse."

702	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Propagules dispersed intentionally by people? Yes] "…smoke bush was introduced to cultivation in Great Britain around 1825 and is now widely cultivated in war-temperate areas worldwide, including southern California and other mild-climate areas of the southern U.S."
703	2010. Global Invasive Species Database. Buddleja madagascariensis. National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG), http://www.issg.org/database/species/ecology.asp?si=1577&fr=1&sts=&lang=EN	[Propagules likely to disperse as a produce contaminant? No] No evidence
704	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules adapted to wind dispersal? No] "Fruit white, becoming bluish purple at maturity, fleshy, globose, indehiscent, ca. 2.5 mm in diameter. Seeds ellipsoid, ca. 1 mm long" [fleshy-fruited]
704	2000. Norman, E.M.. Buddlejaceae. Flora Neotropica. 81: 1-224.	[Propagules adapted to wind dispersal? No] "Berry 2.5-5 mm diam. Seeds ovoid or ellipsoid, 0.6-0.9 x 0.5-0.6 mm, minutely reticulate, wingless. 2n = 38." [wingless. Not adapted for wind dispersal]
705	2011. Western Australian Herbarium. FloraBase - The Western Australian Flora - Buddleja madagascariensis. Department of Environment and Conservation, http://florabase.calm.wa.gov.au/browse/profile/6537	[Propagules water dispersed? Yes] "Reproduction. Stem fragments. Dispersal. Water, garden refuse."
706	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules bird dispersed? Yes] "Fruit white, becoming bluish purple at maturity, fleshy, globose, indehiscent, ca. 2.5 mm in diameter. Seeds ellipsoid, ca. 1 mm long" [fleshy-fruited]
707	2010. Global Invasive Species Database. Buddleja madagascariensis. National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG), http://www.issg.org/database/species/ecology.asp?si=1577&fr=1&sts=&lang=EN	[Propagules dispersed by other animals (externally)? Yes] "Known to be dispersed in Australia through mud sticking to machinery and animals"
708	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules survive passage through the gut? Yes] "Fruit white, becoming bluish purple at maturity, fleshy, globose, indehiscent, ca. 2.5 mm in diameter. Seeds ellipsoid, ca. 1 mm long" [fleshy-fruited]
801	2010. Global Invasive Species Database. Buddleja madagascariensis. National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG), http://www.issg.org/database/species/ecology.asp?si=1577&fr=1&sts=&lang=EN	[Prolific seed production (>1000/m2)? No] "While seeds are not produced in Australia, the ability to regenerate from stem fragments allows dispersal to distant locations as stems may be carried by birds humans or waterways…"
802	2011. WRA Specialist. Personal Communication.	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown]
803	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching,L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI http://www.ctahr.hawaii.edu/invweed/weedsHi.html	[Well controlled by herbicides? Yes] "Katie Cassel of the Kōke'e Natural History Museum (Kōke'e Museum) reported good control of stems <3 inches diameter with triclopyr ester at 20% in crop oil applied to basal bark and to larger stems that were frilled"
803	2011. Western Australian Herbarium. FloraBase - The Western Australian Flora - Buddleja madagascariensis. Department of Environment and Conservation, http://florabase.calm.wa.gov.au/browse/profile/6537	[Well controlled by herbicides? Yes] "Hand pull small plants removing all stem material. For stems greater than 7 cm diameter, apply 250 ml Access® in 15 L of diesel to basal 50 cm of stem (basal bark) or cut and paint with 50% glyphosate."
804	2009. Kubiak, P.J.. Fire responses of bushland plants after the January 1994 wildfires in northern Sydney. Cunninghamia. 11(1): 131-165.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Appendix 1. Observations on fire responses (after 100% leaf scorch) of vascular plants in the Lane Cove River (LCR) (observations mainly Jan 1994 – Oct 1999) and Narrabeen Lagoon (NL) (Mar – Oct 1994) catchments, following the fires of January1994." [Buddleja madagascariensis: Fire Response R = majority of adult plants resprouted after the fires]

804	2011. Western Australian Herbarium. FloraBase - The Western Australian Flora - Buddleja madagascariensis. Department of Environment and Conservation, http://florabase.calm.wa.gov.au/browse/profile/6537	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Vegetative regeneration strategy. Resprouts, produces root suckers, stem layering, broken stems."
805	2003. Starr, F./Starr, K./Loope, L.L.. Buddleia madagascariensis - Smoke bush - Buddleiaceae. USGS - Biological Resources Haleakala Field Station Maui, http://www.hear.org/starr/hiplants/reports/pdf/buddleia_madagascariensis.pdf	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? No] "Biological control: There are no known biological control programs currently for B. madagascariensis. There are very few pest on Maui that affect B. madagascariensis and plants are typically healthy and undamaged."