

Buddleja madagascariensis

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Scrophulariales	Buddlejaceae

Common name smoke bush (English), Madagascar buddleia (English), butterfly bush (English), buddleia bush (English), Madagascar butterfly bush (English)

Synonym *Buddleya madagascarienses*, Lam.
Buddleia madagascarienses, Lam.
Adenoplea madagascariensis, Lam.
Buddleja heterophylla, Lindl.
Buddleja nicodemia
Buddleja madagascariensis
Nicodemia madagascariensis

Similar species *Buddleja davidii*, *Buddleja asiatica*, *Buddleja dyssophylla*

Summary *Buddleja madagascariensis* commonly known as smokebush, is a shrub native to Madagascar; it has been introduced outside its native range as an ornamental plant. Easily dispersed bird or wind-borne seeds and the ability to regenerate from stem fragments has led to the naturalisation of *B. madagascariensis* in many tropical and sub-tropical areas. As *B. madagascariensis* forms thick, impenetrable thickets, native vegetation can be smothered and excluded. As well as this, *B. madagascariensis* can cause throat allergies and coughing, nose swelling and eyelid blisters when dry. The sap of *B. madagascariensis* is also known to be toxic, potentially causing burning rashes and blisters. The need to exclude livestock from *B. madagascariensis* has resulted in an economic impact in some areas, especially as it is difficult to control.



[view this species on IUCN Red List](#)

Species Description

Buddleja madagascariensis is a sprawling shrub that grows to 2 -3 m tall with stems densely tomentose. Leaves are opposite and narrowly ovate between 7 - 12 cm in length and 2 - 4.5 cm wide. The upper surface of the leaves is glabrous, while the lower surface is densely tomentose. Petioles are between 1.5 and 2.5 cm long. Flowers grow in terminal, thyrsoid cymes and calyx is campanulate or bell-shaped. They are densely tomentose and are roughly 3 mm long with lobes about 0.5 mm long. Corolla is orange and densely tomentose externally while glabrous internally. Ovary is pubescent. Fruits are fleshy and spherical, appearing white while becoming bluish-purple at maturity. Fruit are indehiscent with ellipsoid seeds about 1 mm in length (Wagner *et al.*, 1999; in PIER, 2008). Each fruit may contain hundreds of seeds with propellers that aid in wind dispersal (Hawaii Early Detection Network, 2010). Please follow this link for images of smokebush [Starr & Starr, 2008](#).

Uses

Cultivated as an ornamental plant. Grown in Australia for rubber production (Hawaii Early Detection Network, 2010).

Habitat Description

Buddleja madagascariensis is known to grow as a weed in forests and on roadsides in Hawaii (Motooka *et al.*, 2003; in PIER, 2008) and Australia (FloraBase, 2010). In Australia, *B. madagascariensis* grows amongst tall trees (in *Eucalyptus patens* woodland); in gravelly soil, loam, sand (over limestone); occupying flats, limestone cliffs, steep slopes and river valleys (FloraBase, 2010). It is also capable of growing in disturbed natural vegetation and in gardens (FloraBase, 2010).

B. madagascariensis is known as an aggressive invader of disturbed areas in Hawaii, especially at low to mid elevations including open range, stream beds, and gulches (Hawaii Invasive Species, 2010). Also invades mesic to humid forests in Hawaii (Motooka *et al.*, 2003; in PIER, 2008), becoming naturalised in mesic areas between 900 and 1200 m above sea level (Wagner *et al.*, 1999; in PIER, 2008). In New Zealand, it occurs on sand dunes and coastal cliffs (Webb *et al.*, 1988; in PIER, 2008).

Reproduction

Buddleja madagascariensis can reproduce from stem fragments and is capable of resprouting quickly after a fire (FloraBase, 2010). Fruit are appealing to frugivorous birds, who then locally disperse seeds across the landscape (Hawaii Early Detection Network, 2010). 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 (Stock & Wild, 2002, FloraBase, 2010). Flowers in April, July and August in Australia (FloraBase, 2010).

General Impacts

Buddleja madagascariensis forms dense impenetrable thickets that can smother and exclude native vegetation (FloraBase, 2010). Additionally, leaf litter accumulation does not impede regeneration of broken stems (FloraBase, 2010).

B. madagascariensis can cause throat allergies in some people (FloraBase, 2010) and when dry, a powdery dust can emerge which may cause coughing, nose swelling and eyelid blisters (Hawaii Early Detection Network, 2010). The milky white sap can also cause burning rashes and blisters (Hawaii Early Detection Network, 2010).

B. madagascariensis has had an economic impact on ranchers in Australia, as it has a toxic effect on cattle and horses and must be kept away at the rancher's expense (Hawaii Early Detection Network, 2010).

Management Info

Preventive measures: A [Risk Assessment of *Buddleja madagascariensis*](#) for Hawai'i and other Pacific islands was prepared by Dr. Curtis Daehler (UH Botany) with funding from the Kaulunani Urban Forestry Program and US Forest Service. The alien plant screening system is derived from Pheloung *et al.* (1999) with minor modifications for use in Pacific islands (Daehler *et al.*, 2004). The result is a score of 7 and a recommendation of: "Likely to cause significant ecological or economic harm in Hawai'i and on other Pacific Islands as determined by a high WRA score, which is based on published sources describing species biology and behaviour in Hawai'i and/or other parts of the world."

Chemical: "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" (Motooka *et al.*, 2003; in PIER, 2008). FloraBase (2010) suggests that 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.

Physical: Smaller plants (< 7 cm diameter) can be hand pulled, making sure to remove all stem material (FloraBase, 2010).

Pathway

Planted in Australia for rubber production (Hawaii Early Detection Network, 2010). Often cultivated as an ornamental plant (Hawaii Early Detection Network, 2010).

Principal source:

Compiler: IUCN SSC Invasive Species Specialist Group (ISSG) with support from the Overseas Territories Environmental Programme (OTEP) project XOT603, a joint project with the Cayman Islands Government - Department of Environment

Review:

Publication date: 2010-06-01

ALIEN RANGE

[3] AUSTRALIA

[1] FIJI

[1] NEW ZEALAND

[4] SAINT HELENA

[5] UNITED STATES

[1] BERMUDA

[2] NEW CALEDONIA

[1] PUERTO RICO

[1] SOUTH AFRICA

Red List assessed species 6: EX = 3; CR = 2; EN = 1;

[Acalypha rubrinervis](#) **EX**

[Lachanodes arborea](#) **CR**

[Sium burchellii](#) **EN**

[Dryopteris ascensionis](#) **EX**

[Nesiotia elliptica](#) **EX**

[Wahlenbergia linifolia](#) **CR**

BIBLIOGRAPHY

90 references found for *Buddleja madagascariensis*

Managment information

[Alfonso Ortega, J., J. Miguel Avila, Eduardo A. Gonzalez, Miguel A. Gonzalez, 2007. Grazing Intensity and Nitrogen Fertilization to Manage Invasive Kleberg Bluestem on Pangolagrass Pastures in Northern Mexico. The Texas Journal of Agriculture and Natural Resource 20:109-115 \(2007\)](#)

Summary: Available from: [http://www.tarleton.edu/Departments/txjanr/Volumes/Vol%2020%20-%202007/\(109-115\)%202007-06_Art13.pdf](http://www.tarleton.edu/Departments/txjanr/Volumes/Vol%2020%20-%202007/(109-115)%202007-06_Art13.pdf) [Accessed 3 April 2010]

[Anguilla National Trust 29th May 2007 Anguilla Invasive Species Workshop Report](#)

Summary: Available from: http://www.bu.edu/scscb/working_groups/resources/invasives-workshop-report-anguilla.pdf [Accessed 3 April 2010]

[Bomford, M. 2003. Risk Assessment for the Import and Keeping of Exotic Vertebrates in Australia. Bureau of Rural Sciences, Canberra.](#)

Summary: Available from: <http://www.feral.org.au/wp-content/uploads/2010/03/PC12803.pdf> [Accessed August 19 2010]

[Bomford, M. 2008. Risk assessment models for establishment of exotic vertebrates in Australia and New Zealand. Invasive Animals Cooperative Research Centre, Canberra.](#)

Summary: Available from: http://www.feral.org.au/wp-content/uploads/2010/03/Risk_Assess_Models_2008_FINAL.pdf [Accessed 19 August 2010]

[Cowie, I. D. & P. A. Werner, 1993. Alien plant species invasive in Kakadu National Park, tropical Northern Australia. Biological Conservation Volume 63, Issue 2, 1993, Pages 127-135](#)

Summary: Available from: <http://www-naweb.iaea.org/nafa/aph/public/1-the-need-permin.pdf> [Accessed 3 April 2010]

[Dawson, Wayne; Ahmed S. Mndolwa; David F. R. P. Burslem and Philip E. Hulme, 2008. Assessing the risks of plant invasions arising from collections in tropical botanical gardens. Biodivers Conserv \(2008\) 17:1979-1995](#)

[Department of Conservation \(DOC\), New Zealand, 2010. Weedbusters Olea europaea subspecies cuspidata](#)

Summary: Available from: http://weedbusters.co.nz/weed_info/detail.asp?WeedID=68 [Accessed 3 April 2010]

[Department of Environment and Rural Affairs \(DEFRA\), 2007. UK National Control Programme for Salmonella in Layers \(Gallus gallus\)](#)

Summary: Available from: <http://www.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/zoonoses/documents/salmonella-layers.pdf> [Accessed 3 April 2010]

[Department of Environment, Climate Change and Water, \(DECCW\) New South Wales, 2010. Invasion of Native Plant Communities by African Olive Olea europaea L. subsp. cuspidata \(Wall ex G. Don Ciferri\) - proposed key threatening process listing. NSW Scientific Committee - preliminary determinations](#)

Summary: Available from: <http://www.environment.nsw.gov.au/determinations/africanolivePD.htm> [Accessed 3 April 2010]

[Dubey, J. P., 2009. Toxoplasma gondii Infections in Chickens \(Gallus domesticus\): Prevalence, Clinical Disease, Diagnosis and Public Health Significance. Zoonoses and Public Health Volume 57 Issue 1, Pages 60 - 73](#)

[Duncan, Richard P., Mary Bomford, David M. Forsyth, Louise Conibear, 2001. High Predictability in Introduction Outcomes and the Geographical Range Size of Introduced Australian Birds: A Role for Climate. Journal of Animal Ecology, Vol. 70, No. 4 \(Jul., 2001\), pp. 621-632](#)

[Early Detection & Distribution Mapping System \(EDDMapS\), 2009. smokebush Buddleja madagascariensis Lam.](#)

Summary: Available from: <http://www.eddmaps.org/distribution/usstate.cfm?sub=13944> [Accessed 3 April 2010]

[Fassbinder-Orth; Carol A. Hofmeister, Erik K.; Weeks-Levy, Carolyn; Karasov, William H., 2009. Oral and Parenteral Immunization of Chickens \(Gallus gallus\) Against West Nile Virus with Recombinant Envelope Protein. Avian Diseases. 53\(4\). DEC 2009. 502-509](#)

[FloraBase, Western Australian Flora, 2010. *Buddleja madagascariensis* Lam. Encycl. 1:513 \(1785\)](#)

Summary: Available from: <http://florabase.calm.wa.gov.au/browse/profile/6537> [Accessed 3 April 2010]

[Global Compendium of Weeds \(GCW\), 2007. *Buddleja madagascariensis* \(Buddlejaceae\)](#)

Summary: Available from: http://www.hear.org/gcw/species/buddleja_madagascariensis/ [Accessed 3 April 2010]

Gottdenker, Nicole L.; Timothy Walsh; Hernan Vargas; Jane Merkel; Gustavo U. Jimenez; R. Eric Miller; Murray Dailey; Patricia G. Parker, 2005. Assessing the risks of introduced chickens and their pathogens to native birds in the Galapagos Archipelago. *Biological Conservation* 126 (2005) 429-439

[Greenway International, 2008. National Survey on Biological, Ecological, Socio-Economic, Political, Legal and Institutional Aspects for Mauritius. \(Western Indian Ocean Marine Protected Areas Network\) 2008 Final Report](#)

Summary: Available from: <http://www.amp-coi.org/fileadmin/files/documents/Maurice/Report-text-mauritius-GWY-WWF.pdf> [Accessed 3 April 2010]

[Hawaii Invasive Species Council \(HISC\), 2008. Smoke bush \(*Buddleja madagascariensis*\) \(Buddleiaceae\)](#)

Summary: Available from: <http://www.hawaiiinvasivespecies.org/pests/smokebush.html> [Accessed 3 April 2010]

[Howell, Clayson, 2008. Consolidated list of environmental weeds in New Zealand. DOC Research & Development Series 292](#)

Summary: Available from: <http://www.doc.govt.nz/upload/documents/science-and-technical/drds292.pdf> [Accessed 3 April 2010]

[IUCN/SSC Invasive Species Specialist Group \(ISSG\), 2010. A Compilation of Information Sources for Conservation Managers.](#)

Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.

[KEW, 2010. St. Helena: Progress in implementing the Global Strategy for Plant Conservation](#)

Summary: Available from: <http://dps.plants.ox.ac.uk/bol/helena> [Accessed 3 April 2010]

Lawes, R. A. & A. C. Grice, 2010. War of the weeds: Competition hierarchies in invasive species. *Austral Ecology* (2010)

Summary: Available from: <http://www.naweb.iaea.org/nafa/aph/public/1-the-need-permin.pdf> [Accessed 3 April 2010]

[McNair, Douglas, B., and Amy Mackay, 2005. Population Estimates and Management of *Ameiva polops* \(Cope\) at Ruth Island, United States Virgin Islands. Caribbean Journal of Science, Vol. 41, No. 2, 352-357](#)

Summary: Available from: <http://bcrc.bio.umass.edu/vifishandwildlife/PeerReviewedPubs/Ameiva/RuthCayPop.pdf> [Accessed 3 April 2010]

[McNair, Douglas, B., and Claudia D. Lombard, 2004. Population Estimates, Habitat Associations, and Management of *Ameiva polops* \(Cope\) at Green Cay, United States Virgin Islands. Caribbean Journal of Science, Vol. 40, No. 3, 353-361, 2004](#)

Summary: Available from: http://caribjsci.org/dec04/40_353-361.pdf [Accessed 3 April 2010]

[Miller, E., Parker P., Duncan M., Merkel J., Padi l la L., Vargas H., Snel l H., 2003. Developing an Early Warning System to Monitor Avian Health in the Gallapagos Islands. Verh.ber. Erkr. Zootiere \(2003\) 41.](#)

Summary: Available from:

<http://library.vetmed.fu-berlin.de/resources/global/contents/VET164623/IZW/Rome%20PDF/Microsoft%20Word%20-%20Miller.pdf> [Accessed 3 April 2010]

[Motooka, P., L. Castro, D. Nelson, G. Nagai, and L. Ching, 2003. Olea europaea. Wild olive: Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide](#)

Summary: Available from: http://www.ctahr.hawaii.edu/invweed/WeedsHI/W_Olea_europaea.pdf [Accessed 3 April 2010]

[National Biological Information Infrastructure \(NBII\) Pacific Basin, 2010. Have you seen Smoke Bush \(*Buddleja madagascariensis*\)? Hawaii Early Detection Network Priority Pest for the Big Island of Hawaii](#)

Summary: Available from: <http://pbin.nbii.org/reportapest/pestlist/budmad.htm> [Accessed 3 April 2010]

[O Connor, Rhon, 2008. Anguilla Invasive Species strategy \(2008\) draft](#)

Summary: Available from: [http://www.gov.ai/documents/Anguilla%20Invasive%20Species%20Strategy%202008%20\(2\).pdf](http://www.gov.ai/documents/Anguilla%20Invasive%20Species%20Strategy%202008%20(2).pdf) [Accessed 3 April 2010]

[Pacific Islands Ecosystems at Risk \(PIER\), 2008. *Bothriochloa pertusa* \(L.\) A.Camus, Poaceae](#)

Summary: Available from: http://www.hear.org/pier/species/bothriochloa_pertusa.htm [Accessed 3 April 2010]

[Pacific Islands Ecosystems at Risk \(PIER\), 2008. *Buddleja madagascariensis*](#)

Summary: Available from: http://www.hear.org/Pier/species/buddleja_madagascariensis.htm [Accessed 3 April 2010]

[Pacific Islands Ecosystems at Risk \(PIER\), 2008. Risk Assessment: *Buddleja madagascariensis*](#)

Summary: Available from: http://www.hear.org/Pier/wra/pacific/buddleja_madagascariensis_htmlwra.htm [Accessed 3 April 2010]

[Pacific Islands Ecosystems at Risk \(PIER\), 2010. *Olea europaea* L., Oleaceae Risk Assessment for Australia](#)

Summary: Available from: <http://www.hear.org/pier/wra/australia/oleur-wra.htm> [Accessed 3 April 2010]

[Pacific Islands Ecosystems at Risk \(PIER\), 2010. *Olea europaea* L., Oleaceae Risk Assessment for the Pacific](#)

Summary: Available from: http://www.hear.org/pier/wra/pacific/olea_europaea_htmlwra.htm [Accessed 3 April 2010]

[Permin, A., and G. Pedersen, undated. The need for a holistic view on disease problems in free-range chickens. Network for Smallholder Poultry Development The Royal Veterinary and Agricultural University Frederiksberg, Denmark](#)

Summary: Available from: <http://www.naweb.iaea.org/nafa/aph/public/1-the-need-permin.pdf> [Accessed 3 April 2010]

Rauw, Fabienne; Gardin, Yannick; van den Berg, Thierry; Lambrecht, Benedicte, 2009. Vaccination against Newcastle disease in chickens.. *Biotechnologie Agronomie Societe et Environnement*. 13(4). 2009. 587-596.

[Smith, Doug, 1996. A Rescue Plan for the Threatened Tree Fern Thicket of Diana s Peak National Park, St Helena in BGCI News Volume 2 Number 7 - December 1996](#)

Summary: Available from: <http://www.bgci.org/worldwide/article/173/> [Accessed 3 April 2010]

Sol, Daniel and Louis Lefebvre, 2000. Behavioural Flexibility Predicts Invasion Success in Birds Introduced to New Zealand *Oikos*, Vol. 90, No. 3 (Sep., 2000), pp. 599-605

[Starr, Forest; Kim Starr, and Lloyd Loope, 2003a. *Olea europaea* subsp. *cuspidata* African olive Oleaceae](#)

Summary: Available from: http://www.hear.org/Pier/pdf/pohreports/olea_europaea_subsp_cuspidata.pdf [Accessed 3 April 2010]

[Starr, Forest; Kim Starr, and Lloyd Loope, 2003b. *Olea europaea* subsp. *europaea* European olive Oleaceae](#)

Summary: Available from: http://www.hear.org/pier/pdf/pohreports/olea_europaea_subsp_europaea.pdf [Accessed 3 April 2010]

[Starr, Forest; Kim Starr, and Lloyd Loope, 2003. *Buddleja madagascariensis* Smoke bush Buddleiaceae](#)

Summary: Available from: http://www.hear.org/Pier/pdf/pohreports/buddleia_madagascariensis.pdf [Accessed 3 April 2010]

[UK Overseas Territories Conservation Forum \(UKOTCF\), 2005. Strategy for Action to Implement St Helena's Commitments under its Environment Charter](#)

Summary: Available from: <http://www.ukotcf.org/pdf/charters/XStrategyWithAnnexes.pdf> [Accessed 3 April 2010]

[UK Overseas Territories Conservation Forum \(UKOTCF\), 2010. A Protected Area Plan for St Helena s Central Peaks \(OTEP STH003\)](#)

Summary: Available from:

<http://www.ukotcf.org/infoDB/infoSourcesDetail2.cfm?refID=153&searchStem=&hiliteSearch=%3Cb%3E%3Cfont%20color=%27green%27%3E%3C/b%3E%3Cfont%3E> [Accessed 3 April 2010]

von Richter L, Little D, Benson DH (2005) Effects of low intensity fire on the resprouting of the weed African Olive (*Olea europaea* subsp. *cuspidata*) in Cumberland Plain Woodland, Western Sydney. *Ecological Management and Restoration* 6, 230-232.

Summary: Available from: <http://www.nature.com/hdy/journal/v99/n6/pdf/6801037a.pdf> [Accessed 3 April 2010]

[Werren, Garry., 2001. Environmental Weeds of the Wet Tropics Bioregion: Risk Assessment & Priority Ranking. Report prepared for the Wet Tropics Management Authority, Cairns](#)

Summary: Available from: <http://www.wet Tropics.gov.au/res/downloads/Weeds.pdf> [Accessed 3 April 2010]

General information

Anderson, Atholl, 2009. The rat and the octopus: initial human colonization and the prehistoric introduction of domestic animals to Remote Oceania. *Biological Invasions*. 11(7). AUG 2009. 1503-1519.

[Avibase, 2003. Red Junglefowl \(*Gallus gallus*\) \(Linnaeus, 1758\)](#)

Summary: Available from: <http://avibase.bsc-eoc.org/species.jsp?avibaseid=3749777E14C923E9> [Accessed 3 April 2010]

[Bergman, David L., Monte D. Chandler and Adrienne Locklear, undated. The Economic Impacts of Invasive Species to Wildlife Service Cooperators. Human Conflicts with Wildlife: Economic Considerations](#)

Summary: Available from: http://168.68.129.70/wildlife_damage/nwrc/symposia/economics_symposium/bergmanHR.pdf [Accessed 3 April 2010]

[Besnard, G., P Henry, L Wille, D Cooke and E Chapuis, 2007. On the origin of the invasive olives \(*Olea europaea* L., Oleaceae\). *Heredity* \(2007\) 99, 608-619; doi:10.1038/sj.hdy.6801037; published online 8 August 2007](#)

Summary: Available from: <http://www.nature.com/hdy/journal/v99/n6/pdf/6801037a.pdf> [Accessed 3 April 2010]

Big Island Invasive Species Committee (BIISC), 2009. Smoke bush (*Buddleja madagascariensis*)

Summary: Available from: <http://www.caymanbiodiversity.com/wp-content/uploads/2007/10/redlist.pdf> [Accessed 3 April 2010]

[BirdLife International 2009. *Gallus gallus*. In: IUCN 2010. IUCN Red List of Threatened Species.](#)

Summary: Available from: <http://www.iucnredlist.org/apps/redlist/details/141319/0> [Accessed 3 April 2010]

[Burton F.J. 2007a. Vegetation Classification for the Cayman Islands. In: Burton, F.J. 2007. Threatened Plants of the Cayman Islands. Kew Publishers, London.](#)

Summary: Available from: http://www.cyclura.com/mkern/VC%20Test%20PDF/VC_Cayman_Mst-1_3.pdf [Accessed 3 April 2010]

[Burton, F. J. 2007b. Cayman Islands Government, Department of Environment, Red List Assessment of Cayman Islands Native Flora for Legislation and Conservation Planning. This project was jointly funded by the Overseas Territories Environment Programme \(OTEP\) and the Cayman Islands Government Department of Environment, 2006.](#)

Summary: Available from: <http://www.caymanbiodiversity.com/wp-content/uploads/2007/10/redlist.pdf> [Accessed 3 April 2010]

[Cook Islands Biodiversity & Natural Heritage, 2007. Species Page *Gallus gallus* Moa / Moa Rere-vao Domestic Fowl](#)

Summary: Available from: <http://cookislands.bishopmuseum.org/species.asp?id=8486> [Accessed 3 April 2010]

[Cornielle, Andrea Pena & Miren Onaindia Olalde, 2005. Plant Diversity in Endemic Pine Forests of *Pinus occidentalis* Sw. in the Nizao Basin, Dominican Republic. *Caribbean Journal of Science*, Vol. 41, No. 4, 849-856, 2005](#)

Summary: Available from: http://caribjsci.org/dec05/41_849-856.pdf [Accessed 3 April 2010]

Cronk, Q. C. B., 1980. Extinction and Survival in the Endemic Vascular Flora of Ascension Island. *Biological Conservation* 17 (1980) 207-219

[Cronk, Q. C. B., 1986. The decline of the St Helena gumwood *Commidendrum robustum* Biological Conservation Volume 35, Issue 2, 1986, Pages 173-186](#)

Summary: Available from: <http://www.nature.com/hdy/journal/v99/n6/pdf/6801037a.pdf> [Accessed 3 April 2010]

Cuneo, P (2008) African Olive invasion a landscape scale conservation threat. *Australasian Plant Conservation* 16, 20-21.

Summary: Available from: <http://www.nature.com/hdy/journal/v99/n6/pdf/6801037a.pdf> [Accessed 3 April 2010]

Cuneo P, Jacobson CR, Leishman MR (2009) Landscape scale detection and mapping of invasive African Olive in SW Sydney, Australia using satellite remote sensing. *Applied Vegetation Science* 12, 145-154.

Summary: Available from: <http://www.nature.com/hdy/journal/v99/n6/pdf/6801037a.pdf> [Accessed 3 April 2010]

Cuneo P, Leishman MR (2006) African Olive (*Olea europaea* subsp. *cuspidata*) as an environmental weed in eastern Australia: a review. *Cunninghamia* 9, 545-577.

Summary: Available from: <http://www.nature.com/hdy/journal/v99/n6/pdf/6801037a.pdf> [Accessed 3 April 2010]

Fitzpatrick, Scott M. & Richard Callaghan, 2009. Examining dispersal mechanisms for the translocation of chicken (*Gallus gallus*) from Polynesia to South America. *Journal of Archaeological Science* Volume 36, Issue 2, February 2009, Pages 214-223

[Freid, Ethan & Michael Vincent, 2007. Additions to the Flora of Mayaguana. *Bahamas Naturalist & Journal of Science* February 2007 Volume 2 Issue 1](#)

Summary: Available from: http://www.bahamasmedia.com/resources/Download/BNJOS_vol2.pdf [Accessed 3 April 2010]

[Global Biodiversity Information Facility \(GBIF\), 2010. Species: *Buddleja madagascariensis* Lam.](#)

Summary: Available from: <http://data.gbif.org/species/13756933> [Accessed 15 June 2010]

Gray, Alan; Tara Pelembe and Stedson Stroud, 2005. The conservation of the endemic vascular flora of Ascension Island and threats from alien species *Oryx* Vol. 39 No 4 October 2005

Summary: Available from: <http://www.ascensionconservation.org.ac/pdf/13-G-Gray-Pelembe-Stroud.pdf> [Accessed 3 April 2010]
Hall, T. J.; Walker, R. W., 1994. Selection of perennial grasses as a component of legume-based pastures on light-textured soils in the dry tropics of Queensland. *Australian Journal of Experimental Agriculture*. 34(3). 1994. 355-365

Henderson, L., 2007. Invasive, naturalized and casual alien plants in southern Africa: a summary based on the Southern African Plant Invaders Atlas (SAPIA). *Bothalia* 37.2: 215-248 (2007)

Summary: Available from: <http://www.dwaf.gov.za/wfw/docs/Henderson,2007.pdf> [Accessed 16 November 2009]
Integrated Taxonomic Information System (ITIS), 2010. Buddleja madagascariensis Lam.

Summary: Available from: [Accessed 3 April 2010]
Integrated Taxonomic Information System (ITIS), 2010. Gallus gallus (Linnaeus, 1758)

Summary: Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=176086 [Accessed 3 April 2010]

Jones, R. J., 1997. Steer gains, pasture yield and pasture composition on native pasture and on native pasture oversown with Indian couch (*Bothriochloa pertusa*) at three stocking rates. *Australian Journal of Experimental Agriculture*. 37(7). 1997. 755-765.

Lawes, Roger and Anthony Grice, 2008. Exotic invasions of the Burdekin catchment, North Queensland. *Sixteenth Australian Weeds Conference*

Summary: Available from: <http://www.caws.org.au/awc/2008/awc200811221.pdf> [Accessed 3 April 2010]

Lindsay, Kevel and Bruce Horwith, 1999. A Vegetation Classification of St. Kitts and Nevis: Implications for Conservation. prepared for Nevis Historical and Conservation Society St. Christopher Heritage Society funded by UNDP/GEF Small Grants Programme Bridgetown, Barbados

Summary: Available from: <http://bio-diversity-nevis.org/Documents/Vegetation%20Classification%20of%20SKN.pdf> [Accessed 3 April 2010]
Lord Howe Island Board 2009, Draft Lord Howe Island Rodent Eradication Plan, Lord Howe Island Board, Lord Howe Island.

Summary: Available from: <http://www.environment.nsw.gov.au/resources/pestsweeds/draftLHlrodentplan.pdf> [Accessed 3 April 2010]
Martin, George C., 2003. Olea europaea L. olive

Summary: Available from: <http://nsl.fs.fed.us/wpsm/Olea.pdf> [Accessed 3 April 2010]

McIvor, J. G.; Singh, V.; Corfield, J. P.; Jones, R. J., 1996. Seed production by native and naturalised grasses in north-east Queensland: Effects of stocking rate and season. *Tropical Grasslands*. 30(2). 1996. 262-269.

Mironov, S. V.; Perez, T. M.; Palma, R. L., 2009. A New Genus of Feather Mite of the Family Pterolichidae (Acari: Stigmata) from *Gallus gallus* (Galliformes: Phasianidae) in the Galapagos Islands. *Acarina*. 17(1). 2009. 57-64.

Pyle, R.L., and P. Pyle, 2009. The Birds of the Hawaiian Islands: Occurrence, History, Distribution, and Status. B.P. Bishop Museum, Honolulu, HI, U.S.A. Version 1 (31 December 2009)

Summary: Available from: <http://hbs.bishopmuseum.org/birds/rlp-monograph/pdfs/02-Galliformes-Procariiformes/REJU.pdf> [Accessed 3 April 2010]

Spaggiari, J. & M. De Garine-Wichatitsky, 2006. Home range and habitat use of introduced rusa deer (*Cervus timorensis russa*) in a mosaic of savannah and native sclerophyll forest of New Caledonia. *New Zealand Journal of Zoology*, 2006, Vol. 33: 175-183

Starr, Forest and Kim Starr, 2008. Plants of Hawaii Images Poaceae Bothriochloa pertusa Pitted beardgrass

Summary: Available from: <http://www.hear.org/starr/plants/images/species/?q=bothriochloa+pertusa> [Accessed 3 April 2010]

Starr, Forest; Kim Starr, and Ken Wood, 2006. Lanai Offshore Islets Botanical Survey. Prepared for: Department of Land and Natural Resources, Division of Forestry and Wildlife and Offshore Islet Restoration Committee

Summary: Available from: http://hear.org/starr/publications/2006_lanai_islets_botanical_survey.pdf [Accessed 3 April 2010]

Starr, Forest; Martz, Kim, 1999. Records of the Hawaii Biological Survey for 1999 Part 2: Notes

Summary: Available from: http://www.hear.org/starr/publications/2000_new_plant_records_midway-op64.pdf [Accessed 3 April 2010]

Starr, Forest; Martz, Kim, 2000. New plant records from Midway Atoll for 1999. Bishop Museum Occasional Papers.(64). 15 September, 2000. 10-12.

Summary: Available from: http://www.hear.org/starr/publications/botanical_survey_of_midway_text.pdf [Accessed 3 April 2010]

Starr, Kim And Forest Starr, 2008. Plants of Hawaii. Images: Buddleja madagascariensis

Summary: Available from: <http://www.caymanbiodiversity.com/wp-content/uploads/2007/10/redlist.pdf> [Accessed 3 April 2010]

Stock, D. H., Wild, C. H. 2002. Natural propagation of orange buddleia (*Buddleja madagascariensis* Lamarck) in eastern Australia In 13th Australian Weeds Conference: weeds threats now and forever? , Sheraton Perth Hotel, Perth, Western Australia, 8-13 September 2002: papers and proceedings Eds. Jacob, H. S., Dodd, J., Moore, J. H.

Summary: 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.

The Environmental Conservation Section, Agriculture and Forestry Department, St Helena, 1999. A Potted History of the Flora of St. Helena Island and its Conservation.

Summary: Available from: <http://home.swipnet.se/~w-17282/endemic/flora.html> [Accessed 3 April 2010]

Theuerkauf, Jörn; Herve Jourdan; Sophie Rouys; Roman Gula; Marta Gajewska; Katarzyna Unrug; Ralph Kuehn, 2010. Inventory of alien birds and mammals in the Wallis and Futuna Archipelago. Biol Invasions

Summary: Available from: http://www.sprep.org/att/irc/ecopies/countries/wallis_and_futuna/6.pdf [Accessed 3 April 2010]

Townsend Peterson, A., and I. Lehr Brisbin, Jr., 1999. Genetic Endangerment of wild Red Junglefowl *Gallus gallus*? *Bird Conservation International* (1999) 9: 387-394

Townsend Peterson, A., and I. Lehr Brisbin, Jr., 2005. Phenotypic status of red Junglefowl *Gallus gallus* populations introduced on Pacific Islands. Bull. B.O.C 2005 125 (1)

USDA, ARS. 2010. Taxon: *Buddleja madagascariensis* Lam. National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database].

Summary: Available from: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?8098> [Accessed 3 April 2010]

USDA, NRCS. 2010. *Buddleja madagascariensis* Lam. Smokebush The PLANTS Database (<http://plants.usda.gov>, 4 April 2010). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Summary: Available from: <http://plants.usda.gov/java/profile?symbol=BUMA80> [Accessed 3 April 2010]

Walker, B & E. J. Weston, 1990. Pasture Development in Queensland- A Success Story. Tropical Grasslands (1990) Volume 24, 257-268

Summary: Available from:

http://www.tropicalgrasslands.asn.au/Tropical%20Grasslands%20Journal%20archive/PDFs/Vol_24_1990/Vol_24_04_90_pp257_268.pdf [Accessed 3 April 2010]

Williams, J.K. 2010. Additions to the alien vascular flora of Mexico, with comments on the shared species of Texas, Mexico, and Belize. Phytoneuron 2010-3: 1-7. (10 March)

Summary: Available from: <http://phytoneuron.net/PhytoN-Additionsnonnative.pdf> [Accessed 3 April 2010]