

Solanum mauritianum  [简体中文](#) [正體中文](#)

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Solanales	Solanaceae

Common name *pula* (English, Tonga), wild tobacco (English), *pua nana honua* (English, Hawaii), woolly nightshade (English, New Zealand), bugweed (English), flannel weed (English, New Zealand), kerosene plant (English, New Zealand), *rau 'ava'ava* (English, Cook Islands), tobacco weed (English, New Zealand), *igayintombi* (Zulu), tree tobacco (English), *umbanga banga* (Zulu), groot bitterappel (Afrikaans), *isigwayana* (Zulu), *luisboom* (Afrikaans)

Synonym *Solanum auriculatum*, Aiton 1789
Solanum carterianum, Rock 1913
Solanum tabaccifolium, Vell. 1829
Solanum verbascifolium, L. var. *auriculatum* (Aiton) Kuntze 1891
Solanum verbascifolium, L. ssp. *auriculatum* (Aiton) Hassl. 1918
Solanum verbascifolium, L. forma *typicum* Hassl. 1918

Similar species *Solanum stelligerum*, *Solanum densevestitum*

Summary *Solanum mauritianum* is a widespread invasive weed belonging to the nightshade family. It has the ability to crowd out native plants if growing densely, but, if occurring sparsely, it may act as a nursery crop. All parts of *Solanum mauritianum* plant are poisonous to humans, especially the berries. This plant is dispersed by birds, with the fruit being especially favoured by some species. Biological control of this species has been undertaken in South Africa.



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

Species Description

Shrubs or small trees 2-10m tall, branched above to form a rounded canopy, unarmed, all parts densely pubescent with sessile to long-stalked stellate hairs, loose and floccose on young growth. Leaves paler on lower surface, simple, alternate, elliptic, up to 10 cm long and 12cm wide on young vigorous growth, usually ca 8 cm long and ca 7cm wide, on mature stems. When crushed they give off a smell of diesel fuel. Margins entire, apex acuminate, base cuneate, often oblique, petioles 3-9cm long, each with 1-2 smaller auriculate leaves in axils, these sessile, rounded, sometime absent from weak or distal shoots. Flowers perfect, actinomorphic, numerous in branched corymbs, peduncles up to 15cm long to first fork, pedicels 2-3mm long; calyx tube short, 2-3mm long, the lobes narrowly triangular, 2-3mm long; corolla lilac blue with a pale star-shaped area at base, stellate, 1.5-2.5cm in diameter; stamens 5, inserted low on corolla tube; filaments ca 1mm long; anthers oblong, 2-3.5mm long, opening by terminal pores; ovary densely pubescent; style pubescent in lower part, 5-7mm long; stigma green, terminal. Berries green, ripening to dull yellow, succulent, globose, 1-1.5cm in diameter, pubescent at least in early stages. Seeds numerous, flattened, 1.5-2mm long, testa minutely reticulate. Self-compatible. (Wagner *et al.*, 1999, in PIER, 2002)



Lifecycle Stages

Flowers and fruits all year round (Wildy, 2002). Germination of seeds stored in soil is stimulated by fire (ESC, 2003). Seedlings that become established in summer can flower by autumn. Plants can grow to a height of several metres within 2-3 years. Mature plants begin to die after 15 years (Haley, 1997).

Uses

Can be used as a nursery crop in countries where it is less invasive than elsewhere (e.g. Australia). This is because it can provide a protective environment for native vegetation to germinate and grow underneath. This is dependent on the situation though, as it will not be effective if *S. mauritianum* is so thick that it shades out plants growing beneath it. The fruit may be a valuable food source for native bird species, although these tend to facilitate long-distance dispersal and further invasion (CGC, 2003; T. Olckers, pers. comm.).

Habitat Description

In Hawai'i, naturalized on slopes and ridges in disturbed wet forest (Wagner et. al. 1999 in PIER, 2002). A coloniser of disturbed sites (KZN Wildlife). Tolerates various soil types and is shade-tolerant to a certain degree (Haley, 1997). In South Africa, the plant invades riparian zones, forestry plantations, natural forest, agricultural lands, urban open space and any other disturbed areas (e.g. along roadsides, powerlines etc.), particularly in the eastern, higher rainfall regions of the country (Henderson, 2001).

Reproduction

Seed. Some 20-80 berries are borne on each inflorescence, each of which contains about 150 seeds (T. Olckers, pers. comm.).

General Impacts

Can invade urban areas, native forest margins and pastoral land. May form dense stands that inhibit the growth of other species through overcrowding and shading (Haley, 1997). Can retard the growth of young pine trees (*Pinus* spp.) (Wildy, 2002). All parts of the plant are poisonous to humans, especially the green berries (ESC, 2003). These berries also provide winter food for the Mediterranean and KwaZulu-Natal fruit flies, which are horticultural pests. The fine hairs on the leaves can be an irritant, especially when they are dislodged during removal operations (Wildy, 2002).

Management Info

Chemical: Easily killed with herbicides. In South Africa, several chemicals (e.g. glyphosate, triclopyr, imazapyr) are registered as foliar, basal stem or cut stump applications. Manual control involves ring-barking trees or removing seedlings by hand (Wildy, 2002).

Biological: Biological control has been instituted in South Africa, with the release of a sap-sucking lace bug (*Gargaphia decoris*) in 1999 (Olckers, 1999, 2000). However, this insect has proved ineffective to date. Permission for the release of the flowerbud weevil (*Anthonomus santacruzi*) that prevents fruiting is currently being sought in South Africa (T. Olckers, pers. comm.).

Pathway

Introduced to New Zealand as a garden plant. (Mather, 1998). Introduced for flowers and to attract fruit-feeding birds (T. Olckers, pers. comm.). Invaded rangelands (T. Olckers, pers. comm.). Invaded plantations (T. Olckers, pers. comm.).

Principal source:

Compiler: IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Dr. Terry Olckers, ARC - Plant Protection Research Institute, South Africa.

Publication date: 2006-02-22

ALIEN RANGE

[3] AUSTRALIA

[1] FIJI

[1] INDIA

[1] NEW CALEDONIA

[1] NORFOLK ISLAND

[2] SAINT HELENA

[8] SOUTH AFRICA

[4] TONGA

[2] COOK ISLANDS

[1] FRENCH POLYNESIA

[1] MAYOTTE

[12] NEW ZEALAND

[1] REUNION

[1] SOLOMON ISLANDS

[2] SWAZILAND

[1] UNITED STATES

BIBLIOGRAPHY

34 references found for *Solanum mauritianum*

Management information

[Agricultural Research Council, 2002. The Bugweed Lace Bug. Agricultural Research Council, South Africa.](#)

Summary: A useful one-page document with information on *Gargaphia decoris*, a biological control agent for *S. mauritianum*. Contains contact details for further information.

Available from: <http://www.dwaf.pwv.gov.za/wfw/Control/BioDossiers/04.%20Bugweed%20lace%20bug.pdf> [Accessed 22 November 2002].

Environment Waikato. 2002. Woolly Nightshade (*Solanum mauritianum*)

[Haley, N. 1997. *Solanum mauritianum* webpage. Environment B.O.P. \(Bay of Plenty\).](#)

Summary: Contains information on identification, habitat, impacts and dispersal, as well as a tiny amount on management. Contains a broken link to an excellent fact sheet on chemical control.

Available from: <http://www.envbop.govt.nz/publications/PDF/FactSheets/Pp0198.pdf>.

Hivert, J. 2003. Plantes exotiques envahissantes - Etat des m^othodes de lutte mise en oeuvre par l'Office National des For^ots de La R^ounion. ONF R^ounion.

Summary: Synth^ose des m^othodes de lutte employ^oes par l'ONF de la R^ounion contre une vingtaine de plantes exotiques envahissantes.

[Landcare Research, 2001. What's new in biological control of weeds? No. 17 February \(page 6\)](#)

Summary: A short article on biological control of *Solanum mauritianum* in South Africa.

Available from: <http://www.landcareresearch.co.nz/publications/newsletters/weeds/wtsnew17.pdf> [Accessed 7 April 2003].

Mather, J. 1998. Fact Sheet PP01/98, Environment B.O.P (Bay of Plenty).

McGregor, P.G. 1999. Prospects for biological control of woolly nightshade, *Solanum mauritianum* (Solanaceae: Solanoideae). Landcare Research Contract Report: LC9900/035. 15 pp.

Summary: An unpublished report which outlines the status, current control options and prospects for biological control of *S. mauritianum* in New Zealand.

[Olckers, T. 1998. Biology and host range of *Platyphora semiviridis*, a leaf beetle evaluated as a potential biological control agent for *Solanum mauritianum* in South Africa. *Biocontrol* 43: 225-239](#)

Summary: A paper outlining the evaluation process for a potential biological control agent in South Africa. This particular species was determined to be unsuitable for release in South Africa.

Olckers, T. 1999. Biological control of *Solanum mauritianum* Scopoli (Solanaceae) in South Africa: a review of candidate agents, progress and future prospects. *African Entomology Memoir* No. 1: 65-73.

Summary: A paper which reviews the biological control programme launched against *S. mauritianum* in South Africa and the prospects for success.

Olckers, T. 2000. Biology, host specificity and risk assessment of *Gargaphia decoris*, the first agent to be released in South Africa for the biological control of the invasive tree *Solanum mauritianum*. *BioControl* 45: 373-388.

Summary: A paper outlining the evaluation process for a potential biological control agent in South Africa. This particular species was determined to be suitable for release in South Africa and was subsequently released in 1999.

[PIER \(Pacific Island Ecosystems at Risk\), 2002. *Solanum mauritianum*.](#)

Summary: Ecology, synonyms, common names, distributions (Pacific as well as global), management and impact information.

Available from: http://www.hear.org/pier/species/solanum_mauritianum.htm [Accessed 18 November 2002]

Swaziland's Alien Plants Database., Undated. *Solanum mauritianum*

Summary: A database of Swaziland's alien plant species.

Tasman District Council (TDC) 2001. Tasman-Nelson Regional Pest Management Strategy

[Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.](#)

Summary: This database compiles information on alien species from British Overseas Territories.

Available from: <http://www.jncc.gov.uk/page-3660> [Accessed 10 November 2009]

Withers, T.M., Olckers, T. & S.V. Fowler. 2002. The risk to *Solanum* spp. in New Zealand from *Gargaphia decoris* (Hem.: Tingidae), a potential biocontrol agent against woolly nightshade, *S. mauritianum* New Zealand Plant Protection 55: 90-94.

Summary: A paper outlining the prospects for obtaining permission to release *Gargaphia decoris* for the biological control of *S. mauritianum* in New Zealand.

General information

[Agricultural Research Council. *S. mauritianum*. An illustrated guide to selected alien invasive plants in South Africa - National Department of Agriculture & Agricultural Research Council, South Africa.](#)

Summary: Good images, limited information.

Available from: <http://www.ru.ac.za/institutes/rgi/mark/weeds/solmau.htm> [Accessed 18 November 2002].

[Atlas of Florida Vascular Plants, 2002. Institute for Systematic Botany.](#)

Summary: Synonyms of the plant.

Available from: <http://www.plantatlas.usf.edu/main.asp?plantID=258> [Accessed 18 November 2002].

Baret, S., Rouget, M., Richardson, D. M., Laverigne, C., Egoh, B., Dupont, J., & Strasberg, D. 2006. Current distribution and potential extent of the most invasive alien plant species on La Réunion (Indian Ocean, Mascarene islands). *Austral Ecology*, 31, 747-758.

Summary: L'objectif de ce papier est d'identifier les zones prioritaires en matière de gestion des invasions biologiques. La Réunion en modélisant la distribution actuelle et potentielle d'une sélection de plantes parmi les plus envahissantes.

Barthelat, F. 2005. Note sur les espèces exotiques envahissantes. Mayotte. Direction de l'Agriculture et de la Forêt. 30p

Summary: Tableau synthétique des plantes exotiques de Mayotte classées en fonction de leur niveau d'envahissement.

[CGC \(Community Greening Centre\), 2003. Newcastle City Council.](#)

Summary: A small amount of information about the use of *Solanum mauritianum* as a nursery plant.

Available from: http://www.newcastle.nsw.gov.au/services/environment/greening/plants.cfm?inc=wild_tobacco [Accessed 14 May 2003].

[Conservatoire Botanique National De Mascarin \(BOULLET V. coord.\) 2007. - *Solanum mauritianum* Index de la flore vasculaire de la Réunion \(Trachophytes\) : statuts, menaces et protections. - Version 2007.1](#)

Summary: Base de données sur la flore de la Réunion. De nombreuses informations très utiles.

Available from: <http://flore.cbnm.org/index2.php?page=taxon&num=d2a2c1da2acde3ed27003dba9c3c1ccc> [Accessed 9 April 2008]

[Eurobodalla Shire Council \(ESC\), 2003. South Coast Weeds.](#)

Summary: A small amount of information on preferred habitat, impacts and look-alikes in Australia. Available from:

<http://www.esc.nsw.gov.au/Weeds/Sheets/trees/T%20Wild%20tobacco%20bush.htm> [Accessed 7 April 2003]

Fournet, J. 2002. Flore illustrée des phanogames de Guadeloupe et de Martinique. CIRAD-Gondwana éditions.

[Gargominy, O., Bouchet, P., Pascal, M., Jaffre, T. and Tourneau, J. C. 1996. Consequences des introductions d'espèces animales et végétales sur la biodiversité en Nouvelle-Calédonie. *Rev. Ecol. \(Terre Vie\)* 51: 375-401.](#)

Summary: Consequences to the biodiversity of New Caledonia of the introduction of plant and animal species.

Henderson, L. 2001. Alien Weeds and Invasive Plants: A Complete Guide to Declared Weeds and Invaders in South Africa. Plant Protection Research Institute Handbook No. 12. 300 pp.

Summary: A handbook which provides a short description of *S. mauritianum* and a map of its distribution in South Africa (p. 195).

[ITIS \(Integrated Taxonomic Information System\), 2005. Online Database *Solanum mauritianum*](#)

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from:

http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Solanum+mauritianum&p_format=&p_ifx=plgt&p_lang= [Accessed March 2005]

Kissmann, K.G. & D. Groth. 1997. Plantas Infestantes e Nocivas. Tomo 3, 2 Edicao. BASF, Sao Paulo, Brasil.

Summary: A book which provides more detailed botanical information on *S. mauritianum* in its native Brazil (pp. 551-554). Also covered are the closely related species, *S. erianthum* (pp. 527-530; probably a synonym) and *S. granuloso-leprosum* (pp. 541-543).

[Kueffer, C. & Laverigne, C. 2004. Case studies on the status of invasive woody plant species in the Western Indian Ocean. Réunion. FAO. 36 p](#)

Summary: Available from: <http://www.fao.org/forestry/webview/media?mediald=6842&langId=2> [Accessed 26 March 2008]

[KZN Wildlife. Wildlife management: alien plant invaders and their control. Ezemvelo KZN Wildlife, South Africa.](#)

Summary: Has one paragraph on *S. mauritianum*. Scant information.

Available from: http://www.rhino.org.za/mngt_alienp.htm [Accessed 18 November 2002]

Lorenzi, H. 1991. Plantas Daninhas do Brasil: terrestres, aquáticas, parasitas, tóxicas e medicinais (Segunda Edicao). Editora Plantarum, Nova Odessa.

Summary: A book which provides a short description of *S. mauritianum* (listed as *S. erianthum*) and a map of its distribution in its native Brazil (p. 391).

MacKee, H.S. 1994. Catalogue des plantes introduites et cultivées en Nouvelle-Calédonie, 2nd edn. MNHN, Paris.

Summary: Cet ouvrage liste 1412 taxons (espèces, sous espèces et variétés) introduits en Nouvelle-Calédonie. L'auteur précise dans la majorité des cas si l'espèce est cultivée ou naturalisée.

Meyer, Jean-Yves & Loope, Lloyd & Sheppard, A. & Munzinger, Jérôme & Jaffré, Tanguy. (2006). Les plantes envahissantes et potentiellement envahissantes dans l'archipel néo-calédonien : première évaluation et recommandations de gestion.

[Meyer, J.-Y. 2000. Invasive plants in the Pacific Islands. In: *The Invasive Species in the Pacific: A Technical Review and Draft Regional Strategy*. Sherley, G. \(tech. ed\). Published in June 2000 by the South Pacific Regional Environment Programme \(SPREP\).](#)

Summary: Resource that includes the distribution of invasive species throughout the Pacific Islands.

[Wildy, E. 2002. Alien Invader Plants. Wildlife & Environment Society of South Africa \(WESSA\).](#)

Summary: Contains images, and a small amount of material on description, impacts and distribution. The most useful information covers chemical control methods, which details herbicides to use and where they should be applied.

Available from: <http://www.geocities.com/wessaaliens/species/bugweed.htm> [Accessed 18 November 2002].