Ligustrum robustum 简体中文 正體中文 **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Scrophulariales	Oleaceae

Common name bora-bora (Sinhalese, Sri Lanka), tree privet (English), Sri Lankan privet (English), troene (French), Ceylon privét (English)

Synonym *Ligustrum robustum* , Sensu Thw., 1872
Ligustrum walkeri , Decne., 1879
Ligustrum ceylanicum , Decne., 1879
Ligustrum neilgherrence , Decne., 1879

Similar species *Ligustrum lucidum*

Summary Ligustrum robustum subsp.walkeri is a highly invasive weed in the Mascarene Achipelago in the Indian Ocean. It was introduced to Mauritius over a century ago and to La Réunion Island in the 1960s. On the oceanic islands that it has invaded, it disrupts primary forest regeneration and threatens native floral biodiversity. Its high fruit production, due to a lack of natural enemies in regions where it has invaded, has been cited as one reason for its high invasiveness.

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Species Description
A shrub (or small tree) which can reach up to 5m in height with arched stems, *L. Robustum* produces terminal panicles of small white flowers. The tree produces drupe fruits (one-seeded, fleshy fruit with a seed enclosed in a stony wall), which are bluish-purple when ripe (Lavergne *et al.* 1999). \r\nThe shrub (or small tree) has twigs that are conspicuously white-speckled. The leaves are ovate to lanceolate in shape, grow up to 8cm (3 in) long, are acute (slightly pointed) at the tip and base and are glabrous (lack hair); the leaf margins are entire (lack teeth or lobes). Flower inflorescences are compound, produced on terminal panicles and are 10cm to 15cm (4 in to 6 in) long (Starr *et al.* 2003). *Ligustrum* spp. Are sometimes deciduous; leaves simple, short-petiolate, often glandular beneath; inflorescences terminal, thyrsoid or paniculiform, bracteate, the flowers small, 4-merous, subsessile or short-pedicellate; calyx campanulate, truncate or shortly 4-dentate; corolla infundibular or campanulate, the tube equal to or longer than calyx tube, the lobes induplicate-valvate in bud, becoming spreading, slightly shorter than or longer than corolla tube; stamens 2, inserted on corolla tube, the filaments slender, short, the anthers basifixed, ellipsoid or oblong, usually exserted; ovary subglobose, the ovules 2 per locule, pendulous, the style often filiform, the stigma 2-lobed; fruit a carnose berry or somewhat drupaceous, the endocarp chartaceous or membranous, the seeds usually solitary, sometimes 2-4 (PIER, 2003).

Notes
There are at least three subspecies of *L. robustum*. Subspecies *robustum* is from northeastern India, subspecies *perrottetii* is from southern India and subspecies *walkeri* is from Sri Lanka. The latter subspecies has been shown to be the subspecies of *Ligustrum robustum* that has invaded the Mascarene Archipelago (Milne and Abbott, 2004).

Lifecycle Stages
L. robustum behaves like a hemisciaphilous species, establishing in shady sites but requiring light to mature (ie: produce fruit). The tree may reach reproduction age after five to seven years in a forest margin with partial sunlight (Lavergne *et al*., 1999). *Ligustrum* spp. are perennial (SE-EPPC, 2003).

Uses
In its native range, *L. robustum* is used for its stems, which are made into tool handles (Sakalasooriya, 2003); in Sri Lanka the plant is grown by streams and rivers to reduce erosion. *L. robustum* was introduced into Mauritius as an ornamental plant, and into Rodrigues and Réunion as a hedge plant (Lavergne *et al.* 1999). The plant has been further propagated and planted in Mauritius to protect conifer plantations from deer, provide firewood and control invasions of other invasive weeds (Lavergne *et al.* 1999).

Habitat Description
The species occurs up to 1,500m in wet and intermediate low montane regions in India and in the submontane forest in Sri Lanka, at an altitude of between 725m and 1,650m; it often grows near streams (Lavergne *et al*., 1999). Specifically, it occurs between the latitudes 06 39 047N and 07 40 432N, and between the longitudes 081 00 752E and 080 40 735E. It often grows on roadsides (Sakalasooriya *et al*., 2000; 2001). On Réunion Island *L. Robustum* has escaped from gardens and severely infested wastelands, and established itself along drainage banks, road verges, landslides, *Cryptomeria* plantations and in native forests (Lavergne *et al.*, 1999). *L. Robustum* is common in low land forests, which consist of 8 - 15m high trees and 2 - 8m heigh bushes (Institute For Environmental and Legal Studies, 2003).

Reproduction
The plant propagates by production of fruit and seeds (but can be easily propagated from cuttings). Fruits are produced over 6 months of the year and the plant in self-pollinated. Fruit are injested by birds and spread in their droppings, dispersing the seeds over long distances and creating new \"foci\" of infestation (Lavergne *et al*., 1999). *Ligustrum* spp. also regenerates readily from root and stump remains (SE-EPPC, 2003).

General Impacts
L. robustum is among the most invasive of the introduced plant species on the Mascarene Islands. In an ecological impact ranking based on subjective impressions it was the fourth most important species after *Psidium cattleianum*, *Rubus alceifolius* and \r\n\r\n*Lantana camara* (Lavergne *et al.* 1999). Its invasiveness is partly attributable to its dense foliage, which reduces light reaching the forest floor and prevents the regeneration of light-demanding plants (which are estimated to make up to 80% of all native species). The plant may alter the structure and composition of the forest by affecting nutrient and water cycling, and may compete with native species for space and nutrients, displacing them and affecting successional patterns. The characteristics of the plant that contribute to its invasiveness include; its rapid growth rate, ability to tolerate high shade conditions, its high seedling recruitment and its dependance on birds to distribute its seeds. *L. robustum* is capable of invading primary forests which poses a serious threat to native ecosystems (MacDonald *et al.* 1991; Lavergne *et al.* 1999). The leaves of fruits of *L. robustum* may be allelopathic (biochemically inhibit growth of surrounding vegetation), although futher research is necessary to confirm this. Native floral diversity is highly threatened by this aggressive species (Taylor and Killiffer, 1996).

Management Info
Physical: Small plants may be hand pulled; older individuals need to be dug out. Plants should be pulled as soon as they are large enough to grasp but before they produce seeds. Seedlings are best pulled after a rain when the soil is loose. Larger stems, up to 6cm (2.5 in), can be removed using a Weed Wrench or similar uprooting tools. The entire root must be removed since broken fragments may resprout. Alternatively, mowing or cutting will control, but not eradicate privet. It is appropriate for small populations or environmentally sensitive areas. Stems should be cut at least once per growing season as close to ground level as possible (PIER, 2003; SE-EPPC, 2003).
Chemical: There are three forms of applying chemical treatment to privet: (i) the foliar spray method can be used for expansive areas of privet where risk to non-target species is minimal. Air temperature should be above 18°C to ensure absorption of herbicide. Apply a 2% solution of glyphosate and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves; use a low spray pressure and coarse spray pattern to reduce spray-drift as glyphosate is non-selective. Alternatively, apply a 2% solution of triclopyr and water plus a 0.5% non-ionic surfactant, to thoroughly wet all leaves; use a low pressure and coarse spray pattern to reduce spray-drift damage to non-target species. Triclopyr can be used without damage to grasses. Metsulfuron is also effective when sprayed on wet foliage (at the rate of 5 grams per 10 liters of water). (ii) the cut stump method can be used to treat individual bushes or in environmentally sensitive areas. Horizontally cut privet stems at (or near) ground level. Immediately apply a 25% solution of glyphosate (or triclopyr) and water to the cut stump making sure to cover the entire surface, and (iii) the basal bark method involves applying a mix of 25% triclopyr and 75% horticultural oil to the basal parts of the shrub to a height of 30-38cm (12-15 in). Stems of less than 1.25cm in diameter are susceptible to this method (larger stems should be notched or frilled). Thorough wetting is necessary; spray until run-off is noticeable at the ground line (SE-EPPC, 2003; PIER, 2003).
Biological: The Réunion Island Regional Council (in collaboration with CABI Bioscience) began a research into the possibility of biological control of *L. robustum*. They indentified several species including a moth (*Epiplema albida*), *Dermorhytis ornatissima*, *D. lewis* and one *Hyphasis* species; further testing of *E. albida* is planned for 2005 (CABI Bioscience, 2002; PIER, 2003; Sakalsooriya *et al.* 2002; 2003; Shaw, R., pers. comm., 2004).

Pathway
It was introduced into Rodrigues Island as a hedge plant in some gardens (Lavergne *et al.* 1999).*L. robustum* was introduced to Mauritius as an ornamental plant (Lavergne *et al.* 1999).

Principal source: Lavergne *et al.* 1999. The invasive woody weed *Ligustrum robustum* subsp. *walkeri* threatens native forests on La Réunion.

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

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ALIEN RANGE

[2] MAURITIUS

[1] REUNION

Red List assessed species 8: CR = 2; EN = 3; VU = 3;

Coracina typica **VU**
Foudia rubra **EN**
Nesoenas mayeri **EN**
Zanthoxylum heterophyllum **CR**
Falco punctatus **VU**
Hypsipetes olivaceus **VU**
Psittacula eques **EN**
Zosterops chloronothus **CR**

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