

# *Solanum robustum*

Silverleaf nightshade

Solanaceae

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## OVERVIEW

*Solanum robustum* is a thorny shrub that is widely grown in botanical gardens and occasionally cultivated as an ornamental. This species is considered noxious in places where it has escaped, including Hawai'i and Oregon. In Hawai'i, *Solanum robustum* is known only from Kailua Gulch, Maui (Wagner et al. 1999). Further survey in the gulch is needed to refine the exact extent of the infestation. If feasible, it should be eradicated. Public education would help prevent people from growing the plant and may help find new locations.

## TAXONOMY

**Family:** Solanaceae (Nightshade family) (Wagner et al. 1999).

**Latin name:** *Solanum robustum* Wendl. (Wagner et al. 1999).

**Synonyms:** *Solanum alatum* Seem. & J.C. Schmidt, nom. illeg. (GRIN 2003).

**Common names:** Silverleaf nightshade, shrubby nightshade (GRIN 2003, PLANTS 2003).

**Taxonomic notes:** The genus *Solanum* is large and complex, made up of about 1,700 species worldwide (Wagner et al. 1999).

**Nomenclature:** The genus name *Solanum* is probably derived from the Latin name of a plant that was used medicinally for treatment of epilepsy (Wagner et al. 1999).

**Related species in Hawai'i:** *Solanum* is represented in Hawai'i by several endemic species, including *Solanum nelsonii*, *Solanum incompletum*, and *Solanum sandwicense*. There are also several other weedy naturalized species, such as *S. linnaeanum*, *S. seafortianum*, *S. torvum*, and others (Wagner et al. 1999).

## DESCRIPTION

"Shrubs up to 2 m tall, armed with strong, straight or slightly recurved, flattened prickles up to 12 mm long, base up to 6 mm wide, densely pubescent with stellate hairs on stems and upper and lower leaf surface along veins, ferruginous on younger shoots; stems strongly winged from the decurrent bases of the leaves, wings leafy, 2-15 mm wide. Leaves with lower surface paler than upper surface, simple, alternate, ovate in outline but with 2-4 triangular lobes on each margin, sinuses cut 1/5 to midvein, juvenile leaves up to 30 cm long and 28 cm wide, later leaves ovate in outline, ca. 15 cm long and 10 cm wide, lobes 2-4 cm long, sinuses rounded, apex acute, base truncate to subcordate, oblique and continued down the petiole as a leafy wing, petioles 2-8 cm long. Flowers perfect, actinomorphic, in unarmed, racemose cymes up to 10 cm long, extra-axillary, peduncle to first flower 1.5-2.5 cm long, pedicels ca. 1 cm long; calyx tube 2-3 mm long, the lobes

ovate-lanceolate, 7-10 mm long; corolla stellate, deeply divided, the lobes lanceolate, 10-15 mm long, 5-8 mm wide, densely pubescent externally; stamens equal, inserted near base of corolla tube; filaments 1-3 mm long; anthers lanceolate, 5-7 mm long, opening by apical pores; ovary globose, densely pubescent; style 1, erect, 9-11 mm long, exceeding anthers, pubescent in lower part; stigma terminal. Berries yellowish, globose, 1.2-2 cm in diameter, persistently pubescent, pedicels 1-2 cm long, calyx not much enlarged, reflexed. Seeds numerous, brown, compressed, subreniform, ca. 1.4 mm long, foveolate. Self-compatible." (Wagner et al. 1999).

## **BIOLOGY & ECOLOGY**

**Cultivation:** *Solanum robustum* is widely grown in botanical gardens and is sometimes grown for its handsome leaves and winged petioles and stems (Wagner et al. 1999).

**Invasiveness:** *Solanum robustum* has escaped in at least Hawai'i, where it is known from guava infested pastures on Maui (Wagner et al. 1999). This plant is covered with thorns and could be a nuisance in areas it invades.

**Pollination:** Not known.

**Propagation:** *Solanum robustum* can probably be propagated from seeds.

**Dispersal:** Plants are spread long distances in the horticulture trade. Plants spread locally by seeds.

**Pests and diseases:** Not known.

## **DISTRIBUTION**

**Native range:** *Solanum robustum* is native to South America (Wagner et al. 1999). GRIN (2003) lists the following areas of South America for the native range of *Solanum robustum*: Argentina - Chaco, Corrientes, Formosa, Misiones; Brazil - Bahia, Espirito Santo, Minas Gerais, Parana, Rio de Janeiro, Santa Catarina, Sao Paulo; and Paraguay.

**Global distribution:** *Solanum robustum* is widely cultivated in botanical gardens and occasionally as garden ornamentals (Wagner et al. 1999).

**State of Hawai'i distribution:** In Hawai'i, *Solanum robustum* is only known from the island of Maui (Wagner et al. 1999).

**Island of Maui distribution:** On Maui, *Solanum robustum* was first collected in 1977 by Robert Hobdy from guava infested cattle pastures, about 230 m (755 ft) elevation, in Kailua Gulch (Wagner et al. 1999). During recent surveys, *S. robustum* was found along the Hana Hwy. in the same area. Plants were observed on steep rock gulch walls near the road as well as in disturbed sites near the road. The full extent of the infestation is not well defined and would require more indepth investigation in steep and difficult terrain. The area is moist and receives approximately 100 in (254 cm) annually.

## CONTROL METHODS

**Physical control:** Plants are thorny and should be handled with caution. Small plants that were rooted in lava rock were impossible to remove by hand. Small plants rooted in soil may be easier to hand pull.

**Chemical control:** Plants in lava that are impossible to hand pull may be effectively controlled using some sort of herbicide. It is not certain which methods or herbicides would be most effective.

**Biological control:** None known.

**Cultural control:** The only part of the Hawaiian Islands where *Solanum robustum* is known from is Kailua Gulch, Maui. Care should be taken to prevent this plant from spreading to other parts of the island or to other islands. Since this is a common botanical garden plant, these areas should be searched and the plant should be controlled before it had a chance to escape.

**Noxious weed acts:** In Hawai'i, *Solanum robustum* is considered a noxious weed (HDOA 1992). In Oregon, *Solanum robustum* is considered a "B" designated noxious weed (PLANTS 2003). These are weeds of economic importance which are regionally abundant, but which may have limited distribution in some counties.

## MANAGEMENT RECOMMENDATIONS

*Solanum robustum* is a Hawai'i state noxious weed and is currently known from Kailua Gulch, Maui. More detailed searches are needed in the area to fully refine the distribution in the gulch on Maui. If the distribution is indeed limited, it should be considered for eradication. Other botanical gardens and places where this species could potentially be grown should be searched. Plants found in new areas should be controlled as early as possible to prevent an infestation. Public education is needed so that noxious weeds are not being unknowingly cultivated.

## REFERENCES

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