

# *Solanum torvum*

Turkey berry

Solanaceae

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## OVERVIEW

*Solanum torvum* is a pantropical weed that invades disturbed areas and forms large thorny impenetrable thickets. On Maui, *S. torvum* is established in lowland pastures and agricultural fields on both East and West Maui. At this time, it is probably not feasible to eradicate on an island wide level. It seems to be spreading on Maui via contaminated equipment and soil. It also appears to be sparingly cultivated. Public education is needed so that people do not cultivate or spread noxious weeds unknowingly. It could be controlled if found at an early stage in new areas where it is not wanted.

## TAXONOMY

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

**Latin name:** *Solanum torvum* Sw. (Wagner et al. 1999).

**Synonyms:** *Solanum ficifolium* Ortega (PLANTS 2003), *Solanum ferrugineum* Jacq. (Langeland and Burks 1998).

**Common names:** Turkey berry, devil's-fig, prickly *Solanum* (GRIN 2003, PIER 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. robustum*, *S. seaforthianum*, and others (Wagner et al. 1999).

## DESCRIPTION

"Spreading or sprawling shrubs 2-3 m tall, prickles 3-7 mm long, slightly hooked, laterally flattened, scattered on stems, both leaf surfaces, and main veins, sparse on aged and mature growth, all parts pubescent with stellate hairs, sparse on upper leaf surface, dense on lower surface, general aspect drab. Leaves simple, alternate, broadly ovate-elliptic, variable in size, 10-15 cm long, 8-10 cm wide, margins with broad lobes, deeply cut in juvenile phases, shallow in mature leaves, apex acute to obtuse, base somewhat sagittate to auriculate, equal or oblique, petioles 2-5 cm long. Lower flowers perfect, upper ones staminate, actinomorphic, numerous (50-100) in congested, branched corymbs, at first terminal, soon lateral by sympodial growth, peduncle to first fork 1-2 cm long, pedicels 5-10 mm long; calyx 3-4 mm long, the lobes apiculate, 2-3 mm long;

corolla white, stellate, 2.5 cm in diameter, the lobes lanceolate, ca. 10 mm long, apex acute; stamens 5, inserted on corolla tube; filaments ca. 1 mm long; anthers yellow, attenuate, 6-7 mm long, opening by small apical pores; ovary globose, pubescent; style 1, erect, 8-10 mm long in perfect flowers, in staminate flowers. Berries few to 10 in clusters, drab yellow, brownish at maturity, mucilaginous, drying with age, globose, 1-1.5 cm in diameter, pedicels 1-1.5 cm long, thickened below calyx, calyx not much enlarged. Seeds numerous, drab brownish, flattened, discoid, 1.5-2 mm long, slightly reticulate. Self-compatible." (Wagner et al. 1999).

"Distinguished in Florida from other prickly *Solanum* spp., and other prickly shrubs, by its treelike habit, stout prickles, clearly petioled leaves with dense stellate hairs below, numerous bright white flowers followed by yellow grape-sized berries, and glandular hairs on flower stalks." (Langeland and Burks 1998).

### **BIOLOGY & ECOLOGY**

**Cultivation:** *Solanum torvum* is cultivated in the tropics for its edible fruits that are eaten when immature (Langeland and Burks 1998).

**Invasiveness:** *Solanum torvum* is a large prickly shrub that forms dense thickets in disturbed areas. *S. torvum* is considered a weed in numerous places, including Florida, Hawai'i, Papua New Guinea, French Polynesia, Tonga and elsewhere (Langeland and Burks 1998, Wagner et al. 1999, PIER 2003).

**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. *S. torvum* seeds are spread by fruit eating birds (PIER 2003). *S. torvum* may also be spread on equipment or in contaminated soil.

**Pests and diseases:** Not known.

### **DISTRIBUTION**

**Native range:** *Solanum torvum* is native to the Antilles (Wagner et al. 1999). Langeland and Burks (1998) report that *S. torvum* is native from Mexico to Peru and Venezuela, and in the West Indies and Bermuda where it occurs in wet thickets, dry brushy plains, woodland clearings, and rocky hillsides.

**Global distribution:** *Solanum torvum* is widely cultivated throughout the world for its edible fruits (Wagner et al. 1999). It has become a pantropical weed. *S. torvum* is a weed in at least Florida, Hawai'i, Australia, French Polynesia, Tonga, Samoa, Papua New Guinea, and elsewhere (PIER 2003, PLANTS 2003).

**State of Hawai'i distribution:** In Hawai'i, *Solanum torvum* is reported from Maui, O'ahu, and Hawai'i (Oppenheimer et al. 1999, Wagner et al. 1999, Starr et al. in press).

On O'ahu, *S. torvum* is known from Kane'ohe and Palolo Valley. On Hawai'i, *S. torvum* is known from at least the Hilo area.

**Island of Maui distribution:** *Solanum torvum* was first collected in the state on Maui in 1954 (Wagner et al. 1999). Previously known from West Maui from along Iao Stream, *S. torvum* was then reported from East Maui from near the Hana airport (Oppenheimer et al. 1999). Recent surveys revealed several lowland disturbed sites on both East and West Maui where *S. torvum* is established. On West Maui, *S. torvum* is sparingly cultivated in Lahaina. Established populations occur mostly in agriculture fields and pastures from Waiehu to near Ma'alaea. On East Maui, *S. torvum* is established in pastures in Ha'iku and near the Hana Airport. Rainfall amounts in these areas varies from 30-120 in (76-305 cm). Plants attain large heights (to 3 m) in moist lowland areas near Hana.

### **CONTROL METHODS**

**Physical control:** Plants are thorny and should be handled with caution. It may be possible to hand pull or dig up small plants.

**Chemical control:** *S. torvum* is susceptible to translocated herbicides such as glyphosate (Swarbrick 1997).

**Biological control:** PIER (2003) notes that the leaf-eating chrysomelid beetle *Leptinotarsa undecimlineata* is host specific and may be useful as a biological control agent of *Solanum torvum*.

**Cultural control:** On Maui, this species seems to be spread on equipment or in soil that has come from infested areas. Cleaning vehicles and equipment after being in contaminated areas may help decrease the spread on Maui. *S. torvum* appeared to be sparingly cultivated in Lahaina and it may be useful to educate the public that it is a noxious weed and is not legal to propagate, possess, or sell.

**Noxious weed acts:** *Solanum torvum* is a federal noxious weed (USDA-ARS 2003). *Solanum torvum* is a noxious weed in Florida, Hawai'i, and North Carolina (GRIN 2003, HDOA 1992, PLANTS 2003, USDA-ARS 2003).

### **MANAGEMENT RECOMMENDATIONS**

*Solanum torvum* is a Hawai'i state noxious weed and is currently established in several locations on Maui. *S. torvum* is mostly naturalized in pastures and agriculture sites in relatively dry to wet disturbed lowland areas. At this time, it does not seem feasible to eradicate *S. torvum* on the entire island. 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.

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