

Hiptage

Hiptage benghalensis



Steve Csurhes

Biosecurity Queensland

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Queensland
Government

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Front cover: Hiptage benghalensis

Photo: Sheldon Navie

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Summary

Hiptage benghalensis is a vine-like shrub native to parts of Asia. It is occasionally cultivated as a garden ornamental. Its seeds are dispersed by wind and water.

H. benghalensis has been listed among 100 examples of the world's worst invasive alien species and is considered to be a significant pest in Hawaii, Mauritius, Réunion and Florida (United States). At some locations, it has formed dense stands, smothering locally native vegetation.

A substantial wild population exists in Far North Queensland (around Mossman) and there are smaller infestations scattered across coastal South East Queensland. Despite being present in Queensland for some time, it appears to be in a relatively early stage of population development.

Pest risk assessment suggests there is sufficient evidence to treat *H. benghalensis* as a 'high-risk' emerging weed threat in Queensland. If permitted to spread, there is a strong probability that it will have locally significant impacts on Queensland's native vegetation, especially riparian habitats and closed forests in coastal areas.

Introduction

Identity

Species identity: *Hiptage benghalensis* (L.) Kurz. (Malpighiaceae)

Synonyms: *Banisteria benghalensis*, *Banisteria tetraptera*, *Banisteria unicapsularis*, *Gaertnera indica*, *Gaertnera obtusifolia*, *Gaertnera racemosa*, *Hiptage benghalensis* forma *longifolia*, *Hiptage benghalensis* forma *cochinchinensis*, *Hiptage benghalensis* forma *latifolia*, *Hiptage benghalensis* forma *macroptera*, *Hiptage benghalensis* forma *typica*, *Hiptage javanica*, *Hiptage macroptera*, *Hiptage madablota*, *Hiptage malaiensis*, *Hiptage obtusifolia*, *Hiptage pinnata*, *Hiptage teysmannii*, *Molina racemosa*, *Succowia fimbriata*, *Triopteris jamaicensis* (ISSG 2006)

Common names: Hiptage, helicopter flower, butterfly vine

Taxonomy

The genus *Hiptage* comprises approximately 30 species of woody lianas, lianoid shrubs, or small trees, found across South-East Asia (Flora of China 2008).

Description

H. benghalensis is a variable vine-like perennial shrub. In rainforest canopies it can be a tall, woody vine. When growing in more open sites, it tends to be shorter and more shrub-like, often no more than 10 m tall. Young shoots are sparsely pubescent and often with minute medifixed hairs. Young branches are greyish-green in colour and have numerous lenticels. Older stems are grey in colour and can be quite woody in nature or twisted into very long and thick vines.

Leaves are elliptic, 9–19 cm long, 4–9 cm broad, acuminate, pale and sparsely pubescent beneath, shiny on top and with petioles up to 1 cm long.

Flowers are fragrant and borne in auxiliary and terminal racemes up to 20 cm long, erect and softly tomentose. Each flower cluster contains 10–30 flowers. Bract are 3–4.5 mm long, ovate–lanceolate, acuminate, pubescent, deciduous, with 2 bracteoles about 3 mm long, linear–lanceolate, present halfway up the pedicel that is 1.5–2.5 cm long.

Sepals are oblong, about 8 mm long, up to 1 cm in fruit, appressed pubescent; the calycine gland reddish brown, about 4 mm long is present between the 2 sepals and partly adnate to the pedicel. Petals alternate with the sepals, sub-orbicular to obovate, about 1 cm long and are clawed, creamish-white or tinged with pink—the posterior one the largest and with a yellow centre; with appressed pubescent hairs to the outside, glabrous to sparsely pubescent within. Stamens are unequal; filament of the longest stamen 1–1.2 cm long, twice as long or longer than the shorter ones, slightly dilated and connate at the base, with anthers ovate. Ovary is pubescent and the style is 1.3–1.5 cm long, slightly curved with lower part with appressed hairs.

Fruit, called samara, have 1–3 mericarps: pubescent; wings papery, oblong lanceolate, the 2 laterals shorter and the median one 4–6 cm long. Seeds are sub-globose (Flora of Pakistan undated; PIER 2008).



Figure 1: Flowering *Hiptage benghalensis* (photograph courtesy of Sheldon Navie)



Figure 2: Flowers of *Hiptage benghalensis* (photograph courtesy of Sheldon Navie)

Reproduction and dispersal

H. benghalensis reproduces from seeds. Plants begin producing seeds at about three years of age (Vitelli et al. 2009). In its native range, it flowers from February to April and fruits from April to May (Flora of China undated; Flora of Pakistan undated). In Australia, flowering can occur throughout the year, with a peak in flowering over spring and summer. Seeds are distinctive, with 3 papery wings of 2–5 cm long that float in the wind, particularly when released high in the forest canopy. Seeds are also dispersed by water. Near Mossman in Far North Queensland, seed density on the soil surface has been recorded at 39.2 seeds per square metre. Seed longevity is estimated to be less than two years (based on laboratory-stored fruit). Fresh seeds are about 65% viable. At Mossman, the seed bank appears to be very transient and seeds do not persist in a moist environment (Vitelli et al. 2009). The plant can produce new roots from cut stems (Vitelli et al. 2009).

Origin and distribution

H. benghalensis is native to subtropical and tropical Asia (parts of southern China, Taiwan, India, Indonesia, Malaysia, Myanmar, Philippines, Sri Lanka and Thailand).

Naturalised populations exist on the Hawaiian islands of Kaua'i and O'ahu, the Mascarene islands of Réunion and Mauritius, and in Florida (United States) and Australia (ISSG 2006).

It has been cultivated widely in the tropics.

Status in Australia and Queensland

H. benghalensis was first recorded in Queensland in 1932 in the Brisbane Botanic Gardens. It has not been reported in other states. Currently, it is rarely planted in gardens, but it used to be a popular hedge plant and can be found in several older gardens around Brisbane.

Naturalised populations exist in coastal South East and Far North Queensland, with herbarium specimens collected from rainforests along the Mossman River, the banks of gullies and ditches in the Mossman township, at Branyan on the banks of the Burnett River, Nambour, Brisbane (Toowong, Fig Tree Pocket, Mt Coot-tha Botanic Gardens and Moggill) and Currumbin (Gold Coast) (Queensland Herbarium Records, data courtesy of DERM). The largest infestation affects approximately 60 hectares in Far North Queensland (Vitelli et al. 2009). Infestations in Brisbane are being treated and monitored by Brisbane City Council.

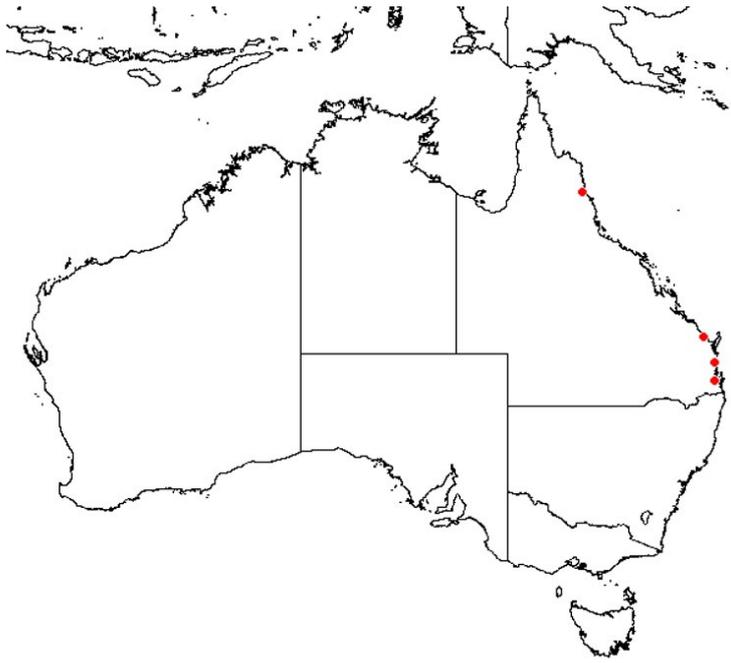


Figure 3: Locations where *Hiptage benghalensis* has been recorded by Australian herbaria (specimen data reproduced from Australia's Virtual Herbarium with permission of the Council of Heads of Australasian Herbaria Inc., AVH 2011).

Preferred habitats

H. benghalensis prefers tropical and subtropical climates. It can persist in seasonally dry areas but tends to prefer moist, shady areas. Most naturalised populations are in closed forests and along the banks of waterways.

On the island of Réunion, it is most abundant in disturbed sites such as forest gaps, landslides and along river banks. Invaded habitats can be described as lowland open woodlands, lowland rainforest, semi-dry forests, windward submountain rainforest and submountain mesic forest (Baret et al. 2006). On Mauritius, it is found in riverine forests, lowland dry and semi-dry forests, as well as agricultural and forestry land (Kueffer & Mauremootoo 2004). *H. benghalensis* is the most abundant liana species in certain areas of tropical evergreen forest in South India (Chittibabu & Parthasarathy 2001).

In Queensland, *H. benghalensis* has naturalised in mesophyll rainforest and remnant gallery forests (Vitelli et al. 2009).

History as a weed elsewhere

H. benghalensis is a significant threat to native vegetation in several places overseas, resulting in it being included in a list of 100 examples of the world's worst invasive alien species (ISSG 2006).

On the Mascarene Islands (Mauritius and Réunion), it is considered an 'extremely invasive' liana, climbing over and smothering native plants. It was introduced to Mauritius before 1785 and has since formed pure stands in forests, as well as on agricultural and forestry land (Kueffer & Mauremootoo 2004). On Réunion, it is one of the island's most problematic invasive plant species, especially in semi-dry lowland forests. It forms impenetrable thickets in places, with significant impacts on the composition, structure, and function of local ecosystems.

In Hawaii, *H. benghalensis* is being targeted for eradication on O'ahu (ISSG, 2006). In Florida, it is listed as a potential pest (ISSG 2006).

Uses

H. benghalensis has been widely cultivated in the tropics for its attractive, fragrant flowers. It can be readily clipped to form a hedge.

H. benghalensis is used for medicinal purposes, particularly in Indian medicine. The leaves and bark are used to treat a variety of conditions such as coughs, inflammation and skin diseases (ISSG 2006).

Pest potential in Queensland

Currently, *H. benghalensis* is sparingly naturalised in Queensland but has the potential to become more abundant and widespread. Climate-modelling, using *Climatch* (Bureau of Rural Sciences 2009), suggests that climate along much of Queensland's coastline is suitable for the species (see Figure 4).

Within its potential climatic range, impacts are predicted to include locally significant damage to native riparian vegetation and the margins of closed forests. The species could have localised impacts on grazing land but is not expected to have any impacts on cropping land.

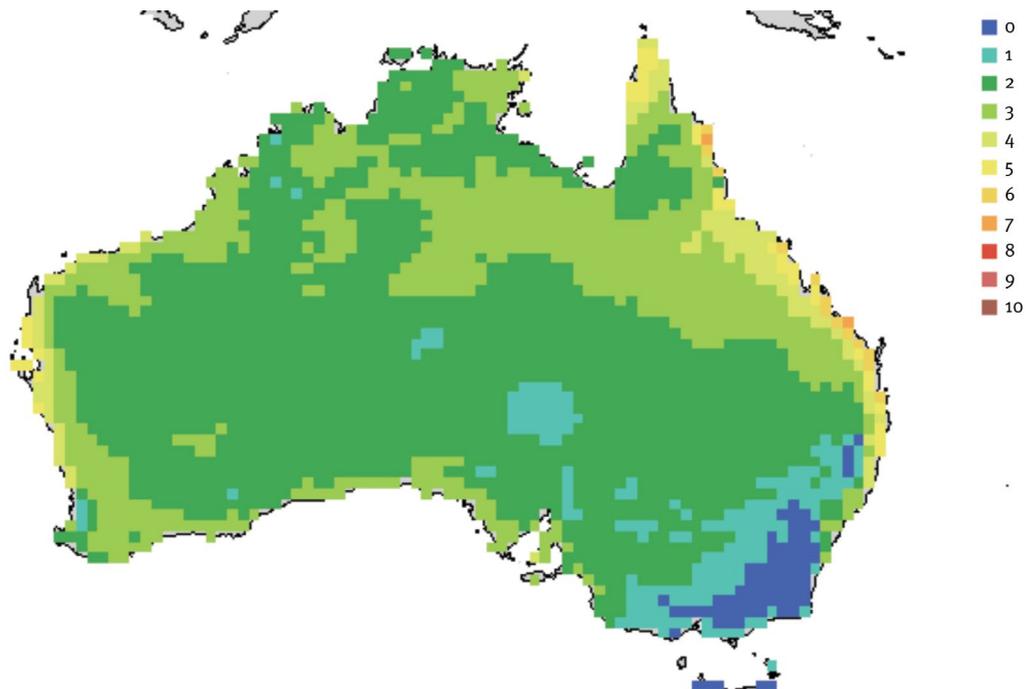


Figure 4: The areas of Australia where climate appears suitable for *Hiptage benghalensis*—orange indicates most suitable areas and yellow is marginally suitable, whereas green and blue are unsuitable (map produced using *Climatch*, BRS 2009).

Control

For details on control methods refer to Vitelli et al. (2009).

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