

Hiptage benghalensis

Hiptage
Moraceae

Forest Starr, Kim Starr, and Lloyd Loope
United States Geological Survey--Biological Resources Division
Haleakala Field Station, Maui, Hawai'i

January, 2003

OVERVIEW

H. benghalensis, native from India to the Philippines, is a vine like plant that is often cultivated in the tropics for its attractive and fragrant flowers. This species is reported as invasive in La Reunion, Mauritius, Kaua'i, O'ahu, and Florida. In Hawai'i, *H. benghalensis* is sparingly cultivated and has been targeted for eradication on O'ahu by the O'ahu Invasive Species Committee (OISC). Not much is reported about this species and it is not known whether it is a threat to native areas of Maui, where it is currently not known to be present. Further investigation of its potential as an invader is needed.

TAXONOMY

Family: Malpighiaceae (Malpighia family) (Neal 1965).

Latin name: *Hiptage benghalensis* (L.) Kurz. (Bailey and Bailey 1976).

Synonyms: *H. madoblata* Gaertn. (Neal 1965). Wunderlin and Hansen (2000) list the following synonyms: *Banisteria benghalensis* L., *B. tetraptera* Sonnerat, *B. unicusularis* Lam., *Gaertnera indica* J.F. Gmel., *G. obtusifolia* (DC.) Roxb., *G. recemosa* Vahl, *Hiptage javanica* Blume, *H. macroptera* Merr., *H. madablota* Gaertn., *H. malaiensis* Nied., *H. obtusifolia* DC., *H. pinnata* Elmer, *H. teysmannii* Arenes, *Molina racemosa* Cav., and *Succowia fimbriata* Dennst.

Common names: Hiptage (Neal 1965).

Taxonomic notes: The genus, *Hiptage*, contains about 25 species of erect or climbing shrubs, native to tropical Asia (Bailey and Bailey 1976).

Nomenclature: The genus name, *Hiptage*, is derived from the Greek, *hiptamai*, which means "to fly" and refers to the fruit, a 3 winged samara (Bor 1954).

Related species in Hawai'i: None known.

DESCRIPTION

"Vine-like shrub or liana with scandent branches to 5 m high (16.5 ft) or more. Leaves simple, opposite, blade usually elliptic and 6-18 cm long (2.5-7 in) with an attenuate tip. Flowers intermittently during the year, flowers many, fragrant, borne in compact axillary racemes. Corolla of five free, elliptic to round, reflexed petals 1-1.7 cm long (3/8-3/4 in), white with one petal yellow in the center, margins fringed. Fruit a samara with three spreading, papery oblanceolate to elliptic wing 2-5 cm long (3/4-2 in)." (Whistler 2000).

BIOLOGY & ECOLOGY

Cultivation: *H. benghalensis* is cultivated in the tropics for its fragrant flowers (Whistler 2000). It can be trimmed to form a small tree or shrub or can be trained as a

vine (Whistler 2000). It is also cultivated in India for medicinal purposes (Bailey and Bailey 1976).

Invasiveness: The authors have no first hand knowledge with this plant and it has yet to be observed on Maui. There are not a lot of specifics or in depth reports to draw from, but the following was gathered. There are a few places where *H. benghalensis* is reported as a weed. Apparently, this climber tends to cover and smother native vegetation in La Reunion and spreads by wind dispersed seeds (PIER 2002). It is also reported as invasive in Mauritius (PIER 2002). The Global Invasive Species database (GISP 2002) list *H. benghalensis* as one of the top 100 weeds of the world for its invasiveness on La Reunion and Mauritius. *H. benghalensis* is reported as invasive in Hawai'i (PIER 2002). In addition, this species is listed by Staples et al. (2000) in their checklist of invasive or potentially invasive cultivated plants in Hawai'i. On O'ahu, *H. benghalensis* is being targeted for eradication by OISC. The Florida Exotic Pest Plant Council (FLEPPC 2001) lists *H. benghalensis* as a category II plant, which are species that have shown a potential to disrupt native plant communities. Randall (2002) lists this species in the global compendium of weeds for Western Australia.

Pollination: Unknown.

Propagation: *H. benghalensis* can be propagated by cuttings or seeds (Whistler 2000).

Dispersal: *H. benghalensis* has winged seeds which are wind dispersed.

Pests and Diseases: Unknown.

DISTRIBUTION

Native range: *H. benghalensis* is native from India to the Philippines (Whistler 2000). GRIN (2002) lists the native range as: China, Taiwan, India, Indochina, Indonesia, Malaysia, Myanmar, Philippines, Sri Lanka, and Thailand.

Global distribution: *H. benghalensis* is widely cultivated in the tropics for its attractive and fragrant flowers. It is also occasionally cultivated for medicinal purposes. This species was listed as invasive in Florida (FLEPPC 2001), Hawai'i, La Reunion, and Mauritius (PIER 2002), and in Western Australia (Randall 2002). Distribution maps for this species in Florida (Wunderlin and Hansen 2000) show a limited distribution in the southeast corner.

State of Hawai'i distribution: *H. benghalensis* is reported from Kaua'i and O'ahu, though it is not documented in Wagner et al. (1999) as naturalized. On O'ahu, it is being targeted for eradication by OISC. It is cultivated on O'ahu at the University of Hawai'i, Manoa Campus (Carr 2001). M. Leech (OISC) reports that they are currently assessing the *H. benghalensis* populations on O'ahu and prioritizing by size which ones they will be controlling. It is thought that the largest infestation is in Manoa, but its full extent is still unknown. The following locations were noted in a review of *H. benghalensis* specimens housed at Bishop Museum: several cultivated specimens around the University of

Hawai'i campus, Makiki heights in a garden, cultivated at Waikane, growing wild at Kaneohe Bay for at least 4 years, Pali Hwy. noted as the first naturalized collection, Kea'ahala stream noted as many seedlings in understory, and cultivated in Lanikai. PIER (2002) reports that it prefers dry and moist habitats in Hawai'i from sea level up to 3,500 ft (1,067 m) elevation.

Island of Maui distribution: *H. benghalensis* was not observed on Maui during island wide surveys. It could have been overlooked and potentially exists as a cultivated plant somewhere on the island, though it certainly is not common or widely planted here. It was not observed during a botanical inventory of several nurseries, gardens, and parks.

CONTROL METHODS

Physical control: Uncertain.

Chemical control: OISC is currently doing herbicide trials to find the most effective control methods. They have been cutting all places where *H. benghalensis* touches the ground and painting the stumps with 20% Garlon 4. The results of the trials are not yet known.

Biological control: None known.

Cultural control: The public could be asked not to grow or plant species with the potential to become invasive.

Noxious weed acts: None known.

MANAGEMENT RECOMMENDATIONS

H. benghalensis is reported as invasive in Florida, Hawai'i, La Reunion, and Mauritius. It would be good to get detailed information on the infestation in Kaua'i, O'ahu, and Hawai'i. If it is naturalized, it should be published as part of the flora of Hawai'i. It has not been observed on Maui. Statewide distribution and observations of this plant's behavior needs to be gathered.

REFERENCES

Bailey, L. H. and E. Z. Bailey. 1976. *Hortus*. 3rd ed. Macmillan General Reference, NY.

Bor, N.L. and M.B. Raizada. 1954. *Some Beautiful Indian Climbers and Shrubs*. Diocesan Press, Madras.

Carr, J.D. 2001. UH Manoa Campus Plants. University of Hawai'i, Department of Botany, Honolulu, HI. Available: <http://www.botany.hawaii.edu/faculty/carr/160-webindex.htm> (Accessed: May 14, 2002).

FLEPPC (Florida Exotic Pest Plant Council). 2001. List of Invasive Species. Florida Exotic Pest Plant Council, Florida EPPC Newsletter, Volume 11, Number 1, pp. 3-4. Available: <http://www.fleppc.org> (Accessed: May 14, 2002).

GRIN (Germplasm Resources Information Network). 2001. Online Database. United States Department of Agriculture, Agricultural Research Service, National Germplasm Resources Laboratory, Beltsville, MD. Available: <http://www.ars-grin.gov/> (Accessed: May 14, 2002).

GISP (Global Invasive Species Program). 2002. Global Invasive Species Database: Ecology of *Hiptage benghalensis*. Global Invasive Species Program. Available: <http://jasper.stanford.edu/GISP> (Accessed: May 14, 2002).

Neal, M.C. 1965. *In Gardens of Hawai'i*. Bernice P. Bishop Museum Special Publication 40, Bishop Museum Press, Honolulu, HI.

PIER (Pacific Islands Ecosystems at Risk). 2000. Invasive plant species: *Hiptage benghalensis* (L.) Kurz, Malpighiaceae. Available: <http://www.hear.org/pier> (Accessed: May 14, 2002).

Randall, R. 1998. Western Weeds. Plant Protection Society of Western Australia. Available: <http://www.hear.org/gcw> (Accessed: May 14, 2002).

Staples, G.W., D.R. Herbst, and C.T. Imada. 2000. Survey of invasive or potentially invasive cultivated plants in Hawai'i. *Bishop Mus. Occas. Pap.* 65:1-35.

Wagner, W.L., D.R. Herbst, and S.H. Sohmer. 1999. *Manual of the Flowering Plants of Hawai'i*. 2 vols. Bishop Museum Special Publication 83, University of Hawai'i and Bishop Museum Press, Honolulu, HI.

Whistler, W.A. 2000. *Tropical Ornamentals*. Timber Press, Portland, OR.

Wunderlin, R. and B. Hansen. 2000. Atlas of Florida Vascular Plants. Institute for Systematic Botany, University of South Florida, Tampa, FL. Available: <http://www.plantatlas.usf.edu/> (Accessed: May 14, 2002).