

***Limnophila heterophylla***

**Family:** Scrophulariaceae

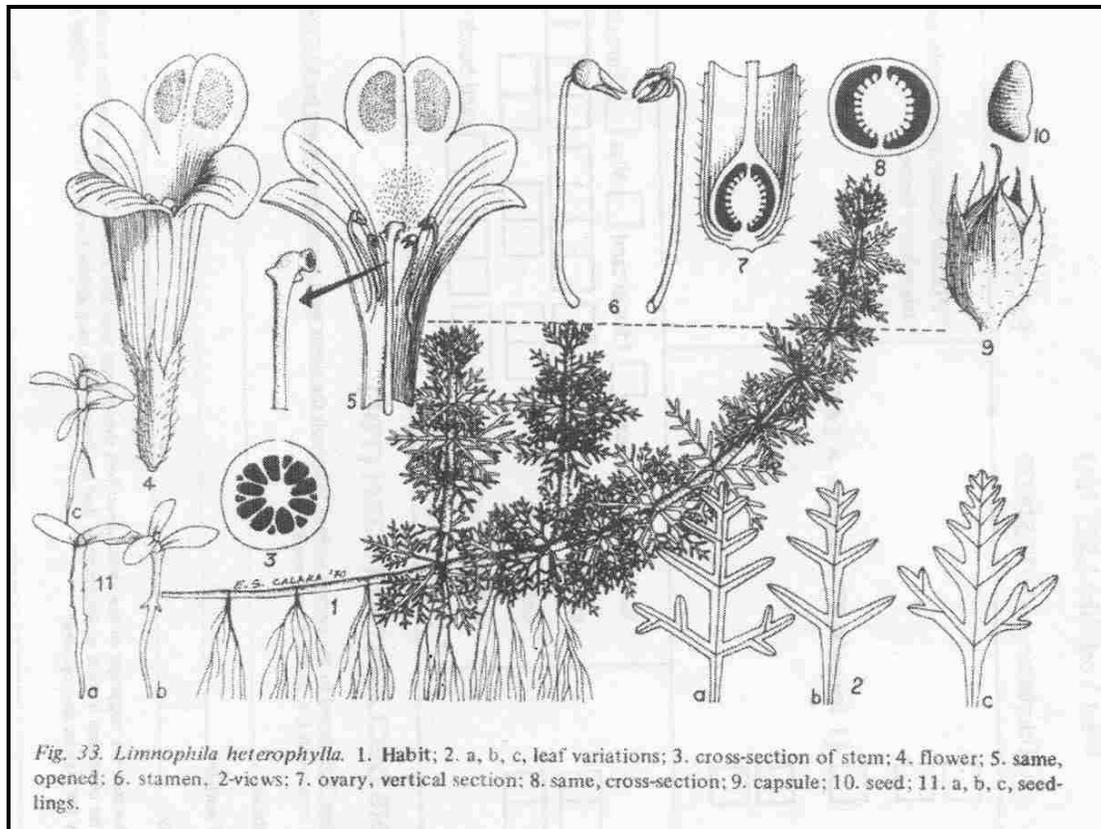
**Species:** *Limnophila heterophylla* Benth.

**Common Names:** beremi (Malaysia); sarai chat (Thailand)

**Synonyms:** *Columnnea heterophylla* Roxb.

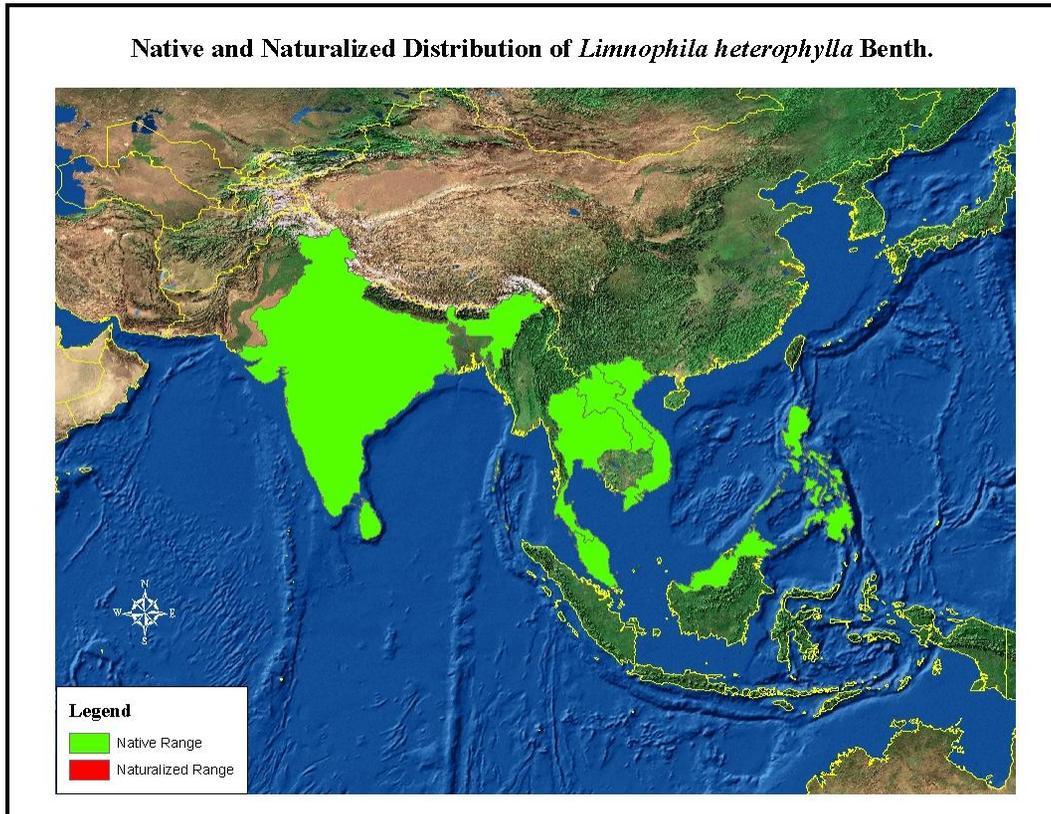
**Bayer Code:** None provided

**Description:** An aquatic herb, mainly submerged, but with shoots that often emerge above the water surface, rooting at nodes. Leaves are arranged in whorls of four to ten, sessile, 2–3 cm long. Below water, they are finely twice pinnatifid. Above water, they are undivided but shallowly toothed. Flowers occur singly, sessile, in the axils of the upper leaves, above water. The corolla tube is 3–4 mm long with four lobes, the upper bifid, spreading to about 3 mm across. Calyx tubular, 1–2 mm long, with five teeth. Capsule ovoid, with many very small seeds irregularly ovoid in shape and less than 1 mm long.



**Figure 1.** *Limnophila heterophylla* from Pancho and Soerjani (1978)

**Distribution:** *Limnophila heterophylla* appears to be restricted to the true tropics. It is native in Asia (India, Laos, Malaysia, Philippines, Sri Lanka, Thailand, and Vietnam) (Holm et al., 1979; Islam, 1989; Moody, 1989; Yong and Goh, 1997).



**Figure 2.** By Glenn Fowler, USDA APHIS PPQ CPHST, 2002 (Fowler, 2002)

**Biology and Ecology:** *Limnophila heterophylla* occurs mainly in still or slowly moving water, at the edges of streams and irrigation channels, and in rice and jute fields. It flowers and fruits from October to March in India. It may propagate from stem fragments as well as from seeds.

**Possible Pathways to the United States:** Although a weed of rice in a number of Asian countries, *Limnophila heterophylla* poses relatively low risk of accidental contamination of crop seed and other produce. However, the risk of deliberate introduction as an aquatic ornamental are very high, given the listing and availability of this species on a number of web sites outside of the United States; for example, in France and the Netherlands.

**Adverse Impacts:** *Limnophila heterophylla* is listed as a “serious” weed in India and a “common” weed in Thailand. Sahu (1992) describes it as among the most problematic weeds of deep-water rice in West Bengal, India. Dense growth can impede the flow of water in irrigation channels and choke ponds. While this species is somewhat restricted to the true tropics, it poses a significant threat to tropical and possibly subtropical regions and islands of United States.

**Literature Cited:**

- Fowler, G. 2002. Distribution Map. USDA, APHIS, PPQ, Center for Plant Health Science and Technology, Raleigh, NC.
- Holm, L. G., J. V. Pancho, J. P. Herberger, and D. L. Plucknett. 1979. A Geographical Atlas of World Weeds. Wiley, New York. 391 pp.
- Islam, M. 1989. Aquatic Weeds of North-east India. International Book Distributors, Dehra Dun, India. 155 pp.
- Moody, K. 1989. Weeds Reported in Rice in South and Southeast Asia. International Rice Research Institute (IRRI), Manila, Philippines. 442 pp.
- Pancho, J. V., and M. Soerjani. 1978. Aquatic Weeds of Southeast Asia. National Publishing Cooperative, Inc, Quezon City, Philippines. 130 pp.
- Sahu, R. 1992. Control of annual aquatic weeds of deep-water paddy fields by pre-emergence spray of butachlor. *Indian Agriculturist* 36(1):49-51.
- Yong, S. H., and A. K. Goh. 1977. Weeds in Padi-fields (Peninsular Malaysia). Malaysian Ministry of Agriculture, Kuala Lumpur. 74 pp.