# *HYGROPHILA POLYSPERMA* (ACANTHACEAE) IN FLORIDA—

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ABSTRACT: *The Old World species, Hygrophila polysperma (Acanthaceae) is reported for the first time as naturalized in Florida. Synonymy, description, and distribution in Florida are given. The species is illustrated.*

RECENT field collections of *Hygrophila polysperma* (Roxb.) T. Anderson from Lee County, Florida, indicate that this exotic species has become naturalized in that area.

*Hygrophila polysperma* is indigenous to the East Indies. Reams (1953) reported the species as becoming established in lakes in Virginia when introduced, but doubtfully naturalized there. The species was first collected in Florida near Tampa in 1965 [*Wiggins 19184* (FLAS)], but remained misidentified as "*Dyschoriste* sp." until 1977 when the proper determination was made by Dieter C. Wasshausen, Smithsonian Institution. The occurrence of *H. polysperma* at the Tampa locality is best regarded as an escape from cultivation. Attempts to relocate the population have been unsuccessful.

The first collection of *H. polysperma* from Lee County, Florida, was made by the senior author in December 1979. Plants in the vegetative state were noted by the same author as early as May of the same year. The Lee County specimens were identified by *H. polysperma* by the authors and verified by comparison with the specimen collected from the Tampa locality. Subsequent collections have shown the species to be well distributed and established in Lee County.

*Hygrophila polysperma* belongs to the subfamily Ruellioideae, tribe Ruellieae, subtribe Hygrophilinae (Bremekamp, 1956). The genus

*Hygrophila* contains about 80 species which are distributed primarily in the Old World tropics with a few tropical American species (Long, 1970). *Hygrophila lacustris* (Schlecht.) Nees, indigenous to the southeastern United States, is the only other representative of the genus in Florida. *Hygrophila polysperma* and *H. lacustris* can easily be distinguished by habit and size. *Hygrophila lacustris* is typically an erect emergent frequently over 50 cm tall, while the emergent form of *H. polysperma* is prostrate and creeping, rarely over 10 cm tall. At anthesis *H. lacustris* has very distinct axillary verticels of flowers, while in *H. polysperma* the flowers are more or less hidden in crowded apical leaf axils. *Hygrophila lacustris* has a leaf length of 5-12 cm, capsule length of 8-12 mm, corolla length of 7-8 mm, and calyx length of 4-5 mm, while *H. polysperma* has a leaf length of 2-8 cm, capsule length of 4-6 mm, corolla length of 4-6 mm, and calyx length of 2-4 mm. *Hygrophila lacustris* is typically a marsh plant, while *H. polysperma* seems to prefer riverine habitats.

The flowers of all *Hygrophila* spp. are purple or bluish-white. Some authors (Eyles and Robertson, 1944; Correll and Correll, 1972) erroneously refer to the flowers of *H. lacustris* as being yellow. This misconception originates from the examination of dried material in which the normally bluish flowers have changed to a dull yellow color. The flowers of *H. polysperma* turn yellow upon drying as well.

It is likely that *H. polysperma* has been introduced into Florida via the aquarium plant industry because the species has been extremely popular with aquarium enthusiasts since its introduction into the market in 1948 (Axelrod, 1954; Brunner, 1973; Stodola, 1967). McLane (1969) supports this suspicion by presenting a list (which includes the entry, "Hygrophila sp.") of exotic, nursery-reared aquatics which he has observed as established in the waters of Florida. The possibility exists that establishment of the species was the result of the careless disposal of cultivated aquarium specimens. It is also possible that it was planted in Florida to supply local aquarium plant dealers and that it has escaped. Vegetative reproduction is extremely well developed in *H. polysperma*. Fragmented portions of the stem will readily root and produce new plants. Rataj and Horeman (1977) state " . . . even torn leaves and their fragments may take root . . . ". There is a high percentage of seed set in the Florida populations indicating that the species is probably autogamous.

Preliminary field observations in Lee County indicate that *H. polysperma* competes fairly well with *Hydrilla verticillata* (L. f.) Casp. Its ease of vegetative reproduction, its probable autogamy, and demonstrated vigor in Lee County suggest the possibility that *H. polysperma* could eventually become another nuisance aquatic weed in Florida.

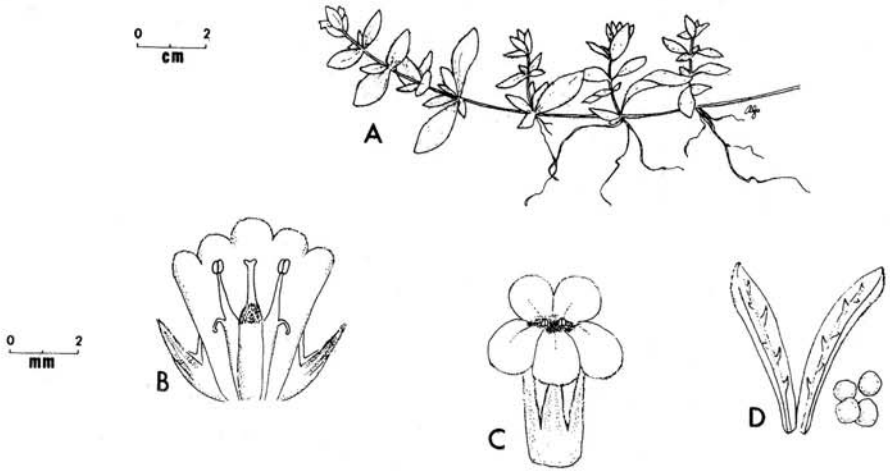


Fig. 1. *Hygrophila polysperma* (Roxb.) T. Anders. A. Habit of emergent form with inflorescences. [After *Les 170* (USF)]. B. Opened flower. C. Unopened flower. D. Opened fruit with seeds. [After *Les 201* (USF)].

HYGROPHILA POLYSPERMA (Roxb.) T. Anderson, Journ. Linn. Soc. Bot. 9:426. 1867.

*Justicia polysperma* Roxb., Fl. Ind. 1:120. 1820.

*Hemidelphis polysperma* (Roxb.) Nees in Wall., Pl. As. Rar. 3:30. 1832.

Perennial aquatic herb. Stems erect or scrambling, submergent or emergent, ± 4-angled. Leaves opposite, 2-8 cm long, lanceolate or ovate, sessile, minutely denticulate, joined at bases with ciliated flange. Flowers sessile, in axillary clusters; bracts foliaceous; calyx 5-lobed, 2-4 mm long, united near base, white-margined, pilose; corolla bluish-white (dull yellow in dried specimens), zygomorphic, 2-4 mm long, adaxial lip 2-lobed, abaxial lip 3-lobed, lobes puberulent; stamens 4, didynamous, 2 perfect, included, adnate to corolla tube, each pair of filaments connate at base by a membrane; anthers 2-celled; nectariferous disc inconspicuous; ovary superior, anteriorly pubescent, 2-locular, stigma ± 2-lobed. Fruit a capsule, 4-6 mm long, explosively dehiscent by 2 valves. Seeds minute, funiculus an antrorsely hooked retinaculum. Fig. 1.

A duplicate of the following collection which is indicated by an asterisk (*) is also on deposit at the Lee County Hyacinth Control District offices, Fort Myers.

SPECIMENS EXAMINED: FLORIDA: Lee Co.: Able Canal, Lehigh Acres, T44S, R26E, S23, NW¼, December 3, 1979, *Les 170* (USF)*, January 31, 1980, *Les 193* (USF); Able Canal, Lehigh Acres, T44S, R26E, S25, NE¼, January 31, 1980, *Les 194*, (USF); February 15, 1980, *Les 201* (USF); Orange River at crossing of Buckingham Rd., T44S, R26E, S8, NE¼, February 15, 1980, *Les 199* (USF); Able Canal, Lehigh Acres, Lee Blvd. at Taylor Ct., T44S, R27E, S32, NW¼, February 21, 1980, *Les 202* (USF); Lehigh Acres, Lehigh Heights Blvd. at Bell Blvd., under bridge over Able Canal, T44S, R27E, S34, SW¼, February 21, 1980, *Les 203* (USF); Lehigh Acres, Canal crossing Lee Blvd. near Ruth St., T44S, R26E, S26, SE¼, February 22, 1980, *Les 206* (USF); Lehigh Acres, canal crossing Sunshine Blvd., T44S, R26E, S35, NE¼, February 22, 1980, *Les 207* (USF). Pasco Co.: Roadside 17 mi. N of Tampa, February 8, 1965, *Wiggins 19184* (FLAS).

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