Plant Diversity Website

Lathyrus latifolius L.

Common Names: Perennial Pea (1), Everlasting Pea (2), Broad-leaved Everlasting Pea (3).

Etymology: *Lathyrus* comes from *Lathyros*, a leguminous plant of Ancient Greece classified by Theophrastus and believed to be an aphrodisiac. "The name is often said to be composed of the prefix, *la*, very, and *thuros*, passionate." (1). *Latifolius* means broad-leaved (4).

***Botanical synonyms**: Lathyrus latifolius* L. var. *splendens* Groenl. & Rumper (5)

FAMILY: Fabaceae (the pea family)

Quick Notable Features:
¬ Winged stem and petioles
¬ Leaves with only 2 leaflets
¬ Branched leaf-tip tendril
¬ Pink papilionaceous corolla (butterfly-like)

Plant Height: Stem height usually reaching 2 m (7).

Subspecies/varieties recognized:
Lathyrus latifolius f. *albiflorus* Moldenke
L. latifolius f. *lanceolatus* Freyn (5, 6)**:**

Most Likely Confused with: Other species in the genus *Lathyrus*, but most closely resembles *L. sylvestris* (2). May also possibly be confused with species of the genera *Vicia* and *Pisum.*

Habitat Preference: A non-native species that has been naturalized along roadsides and in waste areas (7).

Geographic Distribution in Michigan: *L. latifolius* is scattered throughout Michigan, in both the Upper and Lower Peninsula. In the Upper Peninsula it is found in Baraga, Gogebic, Houghton, Keweenaw, Mackinac, Marquette, Ontonagon, and Schoolcraft counties. In the Lower Peninsula it is found in the following counties: Alpena, Antrim, Benzie, Berrien, Calhoun, Cass, Charlevoix, Cheboygan, Clinton, Emmet, Genesee, Hillsdale, Isabella, Kalamazoo, Kalkaska, Kent, Leelanau, Lenawee, Livingston, Monroe, Montmorency, Newaygo, Oakland, Oceana, Ostego, Saginaw, Sanilac, Van Buren, Washtenaw, and Wayne (2, 5). At least one quarter of the county records are newly recorded since 1985: 29 county records were present in 1985 and there are 38 county-level records as of 2014.

Known Elevational Distribution: Recorded in Utah at elevations between 1,360 and 1,690m (8). It is also recorded in California at elevations generally below 2000m (9).

Complete Geographic Distribution: Native to Europe and North Africa, *L. latifolius* escaped from cultivation in the United States, and has been naturalized in every state except Alaska, Florida, and North Dakota (2, 5).

Vegetative Plant Description: An herbaceous perennial with stems and petioles that appear to be folded longitudinally. The stems and petioles are actually flanked on two sides by broad wings, 5-10 mm wide. At the base of the petiole are two leafy stipules with basal lobes, 3-5mm long. The glabrous leaves are composed of two leaflets that point upward, each with 3-5 veins originating at the base. The leaflets are lanceolate, elliptic, or oblong, 4-9 cm long and 1-3cm wide (7, 10, pers. obs.). The roots are a taproot plus rhizomes.

Climbing Mechanism: The species climbs using branched leaf-tip tendrils that emerge from between the two leaflets (7). These tendrils are modified leaflets, most likely.

Flower Description: Inflorescences are axillary racemes consisting of 4-14 odorless, purplish-pink or white flowers. The peduncles are generally long, from 10-20cm. The pedicels are also relatively long, 8-15mm, and bear the glabrous green, bell-shaped calyx. The lobes of the calyx are unequal, varying from 5-6mm, and have acuminate or acute tips. The corolla is papilionaceous (*papilio* is Latin for butterfly) - a bilaterally symmetrical structure composed of a broadly erect banner petal, and a lower keel enclosed by two wing petals. The lower keel is composed of two petals that are fused together, enclosing 10 stamens. The stamens are fused into two groups (diadelphous) – 9 stamens in one group and one stamen free. The pistil consists of a single style and stigma, and a superior ovary. The style is compressed and pubescent, and the ovary is 1-locular (7, 9, 10, 11, 12, 13, 14).

Flowering Time: In the southeastern United States, *L. latifolius* blooms from May to September. In the northeastern United States, *L. latifolius* blooms from June to August (7, 10).

Pollinator: "A diverse group of insects visit the flowers to obtain nectar, but the flowers are effectively pollinated only by pollen-collecting bumblebees, which must force the keel petals open to contact the stamens" (16).

Fruit Type and Description: The fruit of *L. latifolius* is a 10-25 seeded flat, dehiscent legume: a pea-pod that opens on both sides. The legume is glabrous, 6-10cm long and 7-10mm wide (1, 7, 10). The fruit opens as the dried carpel walls twist.

Seed Description: Seeds are dark in color, 3-5mm in diameter, spherical to tuberculate to oblong, smooth or dimpled (1, 11, pers.obs.).

Dispersal Syndrome: Fruits dehisce violently, scattering the seed contents. Seeds do not exhibit any specialized means of dispersal such as wings or hairs, but appear to roll away from their source populations, establishing themselves not too far downhill from a cultivated population. In addition to sexual reproduction, *L. latifolius* also invests in vegetative reproduction by rhizomes and stolons (11, 15, 16).

Distinguished by: *L. japonicus, L. ochrolucus, L. venosus,* and *L. palustris* are distinguishable from *L. latifolius* by having 4-12 leaflets instead of only 2. *L. pratensis* and *L. tuberosus* do not have winged stems and petioles. *L. odoratus* and *L. hirsutus* have a pubescent fruit, whereas *L. latifolius* has a glabrous fruit. *L. sylvestris* is very similar to *L. latifolius*, but can be distinguished by its smaller flower and having only 3-6 flowers per inflorescence (1, 2, 15). *Lathyrus* species can all be distinguished from *Pisum* because *Pisum* bears very large stipules that are larger than the basal leaflets. *L. latifolius* can be distinguished from *Vicia* species because *L. latifolius* has only two leaflets.

Other members of the family in Michigan: *Amorpha* (2), *Amphicarpaea* (1), *Anthyllis* (1), *Apios* (1), *Astragalus* (3), *Baptisia* (4), *Caragana* (1), *Cercis* (1), *Chamaecrista* (2), *Cladrasis* (1), *Colutea* (1), *Crotalaria* (1), *Cytisus* (1), *Dalea* (1), *Desmodium* (12), *Genista* (1), *Gleditsia* (1), *Glycine* (1), *Gymnocladus* (1), *Hedysarum* (1), *Kummerowia* (1), *Lathyrus* (9), *Lespedeza* (13), *Lotus* (1), *Lupinus* (2), *Melilotus* (2), *Mimosa* (1), *Orbexilum* (1), *Phaseolus* (2), *Pisum* (1), *Pueraria* (1), *Robinia* (3), *Securigera* (1), *Senna* (1), *Strophostyles* (1), *Tephrosia* (1), *Trifolium* (9), *Vicia* (8), *Vigna* (1), *Wisteria* (1) (2, 5).

Ethnobotanical Uses: The seeds of *L. latifolius* are poisonous to mammals. Lathyrism is a neurological disease caused by eating the seeds of certain species within the genus *Lathyrus* genus (6, 13). "*Lathyrus latifolius* was found to be highly toxic, causing convulsions and death. Symptoms appear when the seeds become a major part of the animal's diet, typically greater than 25 percent for a period of days or weeds. The seeds cause paralysis, skeletal deformity, birth defects, and, if the diet remains unaltered, death" (11,13).

Phylogenetic Information: Fabaceae belongs to the order Fabales, which is closely related to Fagales, Cucurbitales, and Rosales within the clade, Eurosids I. Within Fabaceae, *L. latifolius* belongs to the subfamily, Faboideae (also known as Papilionoideae). Members of this subfamily are characterized by the papilionaceous flowers. *L. latifolius* is included in the Fabaceous tribe Fabeae (also known as Vicieae and thus close to the genus Vicia) (6, 12).

Interesting Quotation or Other Interesting Factoid not inserted above

"Members of the genus *Lathyrus* have caused many cases of illness and death in humans and livestock over the centuries in Europe, Russia, India, and northern Africa. Livestock become poisoned when the seeds mature on forage vines and become a significant part of the animals diet. Human poisoning from *L. sativus* rarely found wild in the US has occurred during times of drought and famine when people have relied on the seeds as a major food source" (13). Seeds reportedly have a neuroactive amino acid which should be avoided (17)

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4) Picture of *L.latifolius* seeds taken by Steve Hurst and retrieved from the U. S. Department of Agriculture via the USDA PLANTS Website (www.plants.usda.gov)

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