

## thymeleaf speedwell

### *Veronica serpyllifolia* L. ssp. *serpyllifolia*

Synonyms: *Veronica serpyllifolia* L. var. *nummularioides* Lecoq. & Lamotte, *Veronicastrum serpyllifolium* (L.) Fourr.

Other common names: thyme-leaved speedwell

Family: Plantaginaceae

**Invasiveness Rank:** 36 The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

*Note on Taxonomy:* Two subspecies of *Veronica serpyllifolia* are known to occur in Alaska. *Veronica serpyllifolia* ssp. *humifusa* is native to Alaska and occurs in all three ecogeographic regions in the southern half of the state (Hultén 1968, UAM 2010, USDA 2010). *Veronica serpyllifolia* ssp. *serpyllifolia* is an introduced subspecies that is considered non-native in North America (USDA 2010).

#### Description

Thymeleaf speedwell is a rhizomatous, perennial herb with stems that root at the nodes. Stems are 10 to 30 cm tall, branched and creeping at the base, and glabrous or short-haired. Leaves are glabrous or nearly glabrous, elliptic to ovate, rounded at both ends, opposite, and 8 to 25 mm long with smooth to weakly toothed margins. Lower leaves have short stalks and three veins that originate from the leaf base, whereas upper leaves are sessile. Few to 40 flowers are grouped together in terminal racemes. Flowers are stalked, irregularly four-lobed, 6 to 8 mm in diameter, and white to pale blue with darker blue lines. The lowest lobe of each flower is narrower than the other lobes. Sepals are 2 to 5 mm long. Mature flower stalks are 4 to 6 mm long and are covered in short, light-colored, upward-curved hairs. Upper bracts are narrowly oblong and longer than the flower stalks. Capsules are hairy, heart-shaped, flattened, 2.5 to 4 mm long, and wider than they are long with a 2 mm long style and numerous seeds. Seeds are approximately 0.7 mm long (Hultén 1968, Cody 1996, DiTomaso and Healy 2007, Klinkenberg 2010).



Flowers and foliage of *Veronica serpyllifolia* L. ssp. *serpyllifolia*. Photo by R. Old.



Fruits of *Veronica serpyllifolia* L. ssp. *serpyllifolia*. Photo by M. Harte.

*Similar species:* Thymeleaf speedwell can be confused with several other non-native *Veronica* species that are known or expected to occur in Alaska. Unlike the flowers of thymeleaf speedwell, the flowers of Persian speedwell (*Veronica persica*) are bright blue and are solitary in the leaf axils. Corn speedwell (*V. arvensis*) and purslane speedwell (*V. peregrina*) can be distinguished from thymeleaf speedwell by their lack of rhizomes and by the presence of mature flower stalks that measure 2 mm or less in length. Water speedwell (*V. anagallis-aquatica*) can be distinguished from thymeleaf speedwell by the presence of many axillary racemes, lanceolate leaves that are 2 to 10 cm long, and blue to pale violet flowers. Unlike thymeleaf speedwell, germander speedwell (*V. chamaedrys*) has axillary racemes, coarsely serrated leaf margins, and bright blue flowers with white centers. Longleaf speedwell (*V.*

*longifolia*) has conspicuously serrated leaves that are 4 to 8 cm long. Unlike thymeleaf speedwell, spiked speedwell (*V. spicata*) has violet to blue flowers and narrowly elliptic leaves with deeply toothed margins. Additionally, several native *Veronica* species look similar to and could be mistaken for thymeleaf speedwell. Unlike thymeleaf speedwell, American speedwell (*V. americana*) has axillary racemes and leaves that are all petiolated. *V. stelleri* (no common name) can be distinguished from thymeleaf speedwell by its sharply serrated leaves and capsules that are longer than they are wide. American alpine speedwell (*V. wormskjoldii*) can be distinguished from thymeleaf speedwell by the presence of violet to blue flowers and capsules that are longer than they are wide. Unlike thymeleaf speedwell, brightblue speedwell (*V. serpyllifolia* ssp. *humifusa*) has blue flowers, flower stalks that are covered in long, brown hairs, hairy upper stems, and capsules with cuneate bases (Hultén 1968, Cody 1996, DiTomaso and Healy 2007, Klinkenberg 2010, NatureGate 2010).

### Ecological Impact

**Impact on community composition, structure, and interactions:** Thymeleaf speedwell can form mats (Webb et al. 1988), and it may increase the density of vegetation and limit the sizes of native plant populations in disturbed areas. However, this taxon is unlikely to impact natural communities (Hultén 1968, Cody 1996, AKEPIC 2010). The impacts of thymeleaf speedwell on associated trophic levels have not been documented.

**Impact on ecosystem processes:** Thymeleaf speedwell may reduce the nutrients and moisture available to native plant species, but only in disturbed areas (Hultén 1968, Cody 1996, AKEPIC 2010).

### Biology and Invasive Potential

**Reproductive potential:** Thymeleaf speedwell reproduces sexually by seeds and vegetatively by rhizomes and creeping stems that root at the nodes (Hultén 1968, Cody 1996, DiTomaso and Healy 2007, Klinkenberg 2010). The number of seeds produced per plant has not been documented. However, stems usually have 10 to 40 flowers that each produce a capsule filled with numerous seeds (DiTomaso and Healy 2007, eFlorals 2008, Klinkenberg 2010). Thymeleaf speedwell produces persistent seed banks (Onaindia and Amezaga 2000). The seeds of other taxa in the *Veronica* genus, such as corn speedwell and purslane speedwell, remain viable for up to 30 years (DiTomaso and Healy 2007).

**Role of disturbance in establishment:** Thymeleaf speedwell grows in moist, roadside ditches, roadsides, and waste places in Alaska and Yukon (Hultén 1968, Cody 1996). All recorded infestations in Alaska, except for 4% that do not include information on disturbance type, are associated with anthropogenic disturbances; 87% of infestations are associated with fill importation

(AKEPIC 2010).

**Potential for long-distance dispersal:** Most of the seeds of plants in the *Veronica* genus fall to the ground relatively close to the parent plant. Seeds lack specialized adaptations for dispersal; however, some seeds may be dispersed long distances by water, wind, or animals (DiTomaso and Healy 2007).

**Potential to be spread by human activity:** Seeds can be transported in mud attached to shoes, clothing, vehicles, agricultural equipment, and construction equipment. Seeds can likely survive ingestion by cattle (DiTomaso and Healy 2007). Most infestations in Alaska are associated with areas of high human frequency, such as roads and hiking trails (AKEPIC 2010).

**Germination requirements:** Seeds of annual *Veronica* species require an after-ripening period of one month and germinate sporadically in the fall and early spring (DiTomaso and Healy 2007). It is likely that the seeds of thymeleaf speedwell have similar germination requirements.

**Growth requirements:** Thymeleaf speedwell grows best in moist, heavy soil exposed to partial sunlight. It does not compete well with other species (Jacobson 2001).

**Congeneric weeds:** Water speedwell (*Veronica anagallis-aquatica*), corn speedwell (*V. arvensis*), germander speedwell (*V. chamaedrys*), longleaf speedwell (*V. longifolia*), purslane speedwell (*V. peregrina*), Persian speedwell (*V. persica*), and spiked speedwell (*V. spicata*) are known or expected to occur as non-native species in Alaska (AKEPIC 2010). Corn speedwell, purslane speedwell, and Persian speedwell are considered non-native weeds in California (DiTomaso and Healy 2007).

### Legal Listings

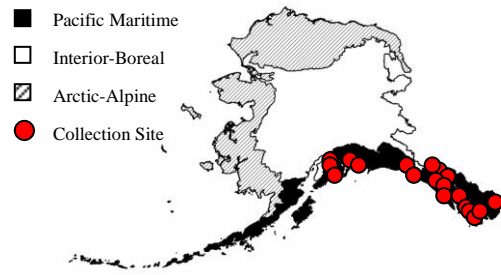
- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states
- Federal noxious weed
- Listed noxious in Canada or other countries

### Distribution and Abundance

Thymeleaf speedwell is an occasional turf, lawn, and garden weed in North America (UC IPM Online 2010).

**Native and current distribution:** Thymeleaf speedwell is native to Europe (DiTomaso and Healy 2007, Klinkenberg 2010). It has been introduced to North America and New Zealand (Webb et al. 1988, USDA 2010), and it grows in 37 states of the U.S. (USDA 2010). This taxon is known to grow in arctic regions from Europe to western Siberia (Elven 2007). It has been documented as far north as 71°N in Norway (Vascular Plant Herbarium Oslo 2010). Thymeleaf speedwell has been documented from the Pacific Maritime ecogeographic region of Alaska and Haines Junction in the boreal region of Canada (Hultén 1968,

Cody 1996, AKEPIC 2010, UAM 2010).



Distribution of thymeleaf speedwell in Alaska

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## Management

Efforts to control thymeleaf speedwell with herbicides have proven only partially successful. After three months, applications of dimethyl tetrachloroterephthalate, a pre-emergent herbicide, reduced a population of thymeleaf speedwell by 87%. However, this pre-emergent herbicide is not practical for controlling infestations outside of an agricultural setting. Other herbicides were less successful (Hanson and Branham 1985). The effects of mechanical control methods have not been evaluated.