prostrate knotweed
Polygonum aviculare L.

Synonyms: *Polygonum aviculare* L. var. *vegetum* Ledeb., *Polygonum heterophyllum* Lindl., *Polygonum monspeliense* Pers.
Other common names: yard knotweed
Family: Polygonaceae

Invasiveness Rank: **45** 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.

Description
Prostrate knotweed is an annual plant that grows 30 ½ to 91 cm tall. Plants are green or blue-green and sometimes have a whitish, powdery mildew. Stems are striate and terete to triangular. Leaves are alternate, lance-shaped to oblong, and 12 ½ to 63 ½ mm long with silver, papery sheaths at each node. Flowers are grouped in clusters at leaf axils. They are small and closed or semi-closed. Tepals are green or reddish with white, pink, or red margins. Seeds are three-sided, light to dark brown, 1.2 to 4.2 mm long, and dull. They usually have small, rounded bumps (tubercles). Seeds do not have beaked apexes (Welsh 1974, FNA 1993+, Whitson et al. 2000).

Polygonum aviculare L.

Similar species: Prostrate knotweed is extremely similar to other knotweed species in North America. Leathery knotweed (*P. achoreum*) can grow as a weed and may be confused with prostrate knotweed. Unlike prostrate knotweed, leathery knotweed has foliage and stems that are light green or yellowish, tepals that are green with yellow margins, and seeds that are uniformly covered in small, round bumps (tubercles). Fowler's knotweed (*P. fowleri*), which is native to Alaska, is rarely reddish or purple tinged. It can be distinguished from prostrate knotweed by the presence of beaks on the apexes of its seeds. Unlike prostrate knotweed, Fowler's knotweed sometimes has zigzagged stems. Alaska knotweed (*P. humifusum* sp. *caurianum*) can be distinguished from prostrate knotweed by the presence of opposite leaves at proximal nodes (Hultén 1968, FNA 1993+). *Polygonum* is a complex taxa, and proper identification is necessary before any control actions are taken.

Flowers clustered in leaf axil of *Polygonum aviculare* L.

Ecological Impact
Impact on community composition, structure, and interactions: Prostrate knotweed is capable of colonizing disturbed ground and creating dense layers. Prostrate knotweed provides a habitat and food source for many farmland birds and mammals (Firbanks and Smart 2002, Watson et al. 2003). Sixty-one species of insects have been observed feeding on prostrate knotweed (Wilson et al. 1999, Marshall et al. 2003). Flowers are frequently visited by insects, especially bees and flies. Prostrate knotweed is a known host for a number of fungi, viruses, and nematodes (Townshend and Davidson 1962, Costea and Tardif 2005).
Impact on ecosystem processes: Prostrate knotweed quickly covers bare soil and may prevent native species from establishing in disturbed sites. Toxins from the roots and leaves of the plant alter the composition of the soil, making it unsuitable for certain native species

(Alsaadawi and Rice 1982, Kloot and Boyce 1982).

Biology and Invasive Potential

Reproductive potential: Prostrate knotweed reproduces by seeds (Costea and Tardif 2005). A single plant can produce from 125 to 6,400 seeds (Stevens 1932).

Role of disturbance in establishment: Prostrate knotweed colonizes disturbed ground. Plants may reappear on sites that have been disturbed again several decades after the previous human disturbance (Densmore et al. 2000). Prostrate knotweed tends to grow on patches of soil disturbed by animals (Milton et al. 1997).

Potential for long-distance dispersal: Seeds can be dispersed by birds and mammals after ingestion. They float and can be transported by irrigation water, rain, streams, and rivers (Costea and Tardif 2005).

Potential to be spread by human activity: Seeds can be transported on footwear, vehicles, and farm machinery. Seeds can contaminate harvested crops, commercial seed, topsoil, and horticultural stock (Hodkinson and Thompson 1997, Hill et al. 1999). They can survive passing through the digestive tracts of domestic animals and birds (Costea and Tardif 2005).

Germination requirements: Most seeds are dormant and germinate in spring after a period of chilling, when moisture is sufficient. Most seeds germinate in a single flush, at temperatures as low as 5°C. A smaller percentage of seeds germinate during the summer and autumn at temperatures from 20°C to 25°C. Seedlings emerge from the top inch of soil. Some seeds can geminate in darkness, but germination rates are higher when seeds are exposed to light (Chepil 1946, Baskin and Baskin 1990).

Growth requirements: Prostrate knotweed is common on all types of soil. It grows well in heavily compacted, poorly aerated, nutrient-poor soils. This species can tolerate drought, low soil fertility, temporary flooding, high salinity, and heavy metal contamination (St-Arnaud and Vincent 1988, Foderaro and Ungar 1997, Ajmal Khan and Ungar 1998).

Congeneric weeds: Asiatic tearthumb (*Polygonum perfoliatum*), Himalayan knotweed (*P. polystachyum*), black bindweed (*Fallopia convolvulus* / *Polygonum convolvulus*), Japanese knotweed (*Fallopia japonica* / *Polygonum cuspidatum*), giant knotweed (*Fallopia sachalinensis* / *Polygonum sachalinense*), Bohemian knotweed (*Fallopia ×bohemica* / *Polygonum ×bohemicum*), spotted ladysthumb (*Persicaria maculosa* / *Polygonum persicaria*), and curlytop knotweed (*Persicaria lapathifolia* / *Polygonum lapathifolium*) are considered noxious weeds in one or more states of the U.S. or provinces of Canada (USDA, NRSC 2006, Invaders 2010). A number *Polygonum* species that are native to North America have weedy habits and are listed as noxious weeds in some states of the U.S. The species listed above are closely related taxa and can be considered congeneric weeds, although the latest taxonomy considers them to be members of three different genera: *Polygonum*, *Fallopia*, and *Persicaria* (FNA 1993+).

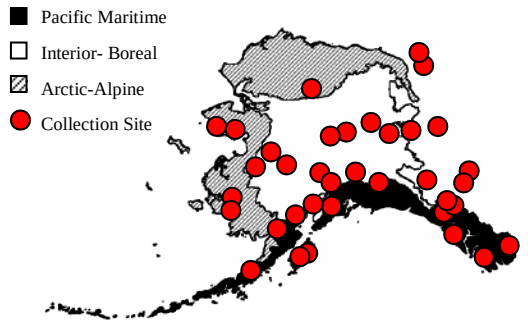
Legal Listings

- ☐ Has not been declared noxious
- ☐ Listed noxious in Alaska
- ☐ Listed noxious by other states
- ☐ Federal noxious weed
- ☒ Listed noxious in Canada or other countries (QC)

Distribution and abundance

Prostrate knotweed is common in roadsides, sidewalks, and paved areas. It also grows in gardens and cultivated fields (Alex and Switzer 1976).

Native and current distribution: Prostrate knotweed is one of the most widespread weeds in the world. It is especially common in the northern hemisphere. It has been introduced into Central Africa, South Africa, South America, North America, Australia, and New Zealand (Hultén 1968, Gubanov et al. 2003). Prostrate knotweed has been documented from all three ecogeographic regions of Alaska (Hultén 1968, AKEPIC 2010).



Distribution of prostrate knotweed in Alaska

Management

Mechanical control methods alone are not effective in controlling infestations of prostrate knotweed. They are more effective in combination with chemical treatments. Several insect species have been suggested as potential biocontrol agents for prostrate knotweed (Costea and Tardif 2005).

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