COMMON KNOTWEED

Integrated Pest Management for Home Gardeners and Landscape Professionals

Common knotweed, *Polygonum arenastrum*, is also known as wiregrass, wireweed, matweed or doorweed. It is an annual species that is native to Europe that has established itself throughout most of the United States and Canada. It is found in field crops, row crops, orchards, yards, gardens and turf. It is tolerant of soils compacted by trampling with foot traffic and is therefore frequently found along paths and walkways. This weed is particularly well adapted to the winter and early spring rainfall pattern throughout California. It gets a good start with the early moisture and establishes a taproot, which allows it to survive the summer drought.

IDENTIFICATION

Common knotweed is a prostrate annual or short-lived perennial plant with numerous slender, wiry stems that are highly branched to form prostrate mats (Fig. 1). However, in cultivated conditions it may grow slightly erect to 4 to 8 inches. Seedlings are initially upright with strap-shaped, embryonic or cotyledon first leaves

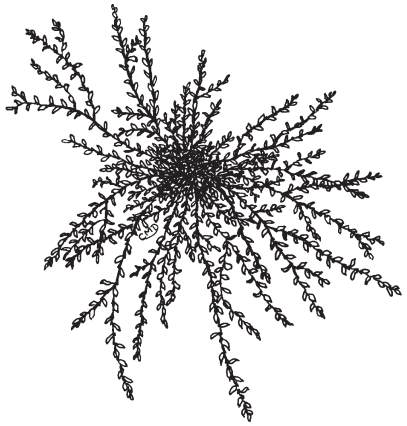

Figure 1. Common knotweed (top view).

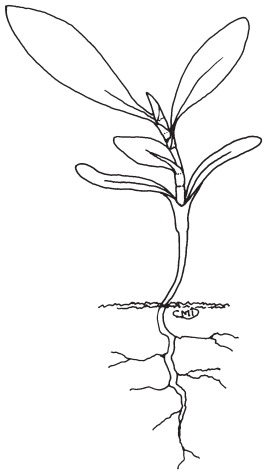

Figure 2. Common knotweed seedling.

that are 1/4 to 3/4 inch long (Fig. 2). There is a single taproot that can penetrate to more than 18 inches. Leaves are bluish green in color with blades narrowly ovate in shape (about 1/5 to 4/5 inch in length). The leaf stalk is short and stem nodes are encircled by papery leaf stipules. These stem nodes are slightly swollen giving the typical "knot"-like appearance from which the common name is derived. Flowers are small and inconspicuous; they are borne in the upper leaf axils (Fig. 3). The colors of the flowers range from white to green, and they may have a pinkish tinge. The seed is part of an achene or simple fruit that is three-sided, is dark brown, not shiny, and about 1/8 inch long.

Silver-sheathed knotweed, *Polygonum argyrocoleon*, is similar to common knotweed, but has a more erect growth habit reaching 12 to 20 inches in height. It may be distinguished from common knotweed by its long leafless, rose-colored flower spikes and its shiny seed. Silver-sheathed knotweed is most common in southern California.

Common knotweed can be confused with spotted spurge in gardens and mowed areas (see *Pest Notes: Spotted Spurge* in References). An easy way to distinguish them is by the white milky sap that is exuded from broken stems of spotted spurge.

LIFE CYCLE

Common knotweed germinates in late winter or early spring, when sufficient moisture is available. It often germinates in soil cracks in compacted soil. Though it germinates in early spring, it grows slowly and upright before becoming prostrate. If mowed, it remains prostrate and spreads. It can form mats 3 to 4 feet in diameter. Seed develop on the plant low to the ground and seedlings readily survive mowing. Like other species in the genus *Polygonum*, seed in the soil are probably long-lived. Flowering may occur from March through October.

Figure 3. Small, inconspicuous flowers in the the leaf axils.

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IMPACT

Common knotweed readily invades areas where other weeds may have difficulty surviving such as trampled and compacted areas. Examples include turf, roadsides, sports fields, vacant lots, gravel parking areas, gardens, agricultural crops, foot paths, and dirt roadways. It is particularly troublesome in alfalfa fields, where soil is compacted from wheel traffic. In turf it invades open areas caused by heavy wear. It is a host for the parasitic weed dodder and some disease organisms such as powdery mildew fungi. Predatory (beneficial) insects are attracted to the flowers which they use as a food source.

MANAGEMENT

One of the most important management methods is to prevent soil compaction, which provides the conditions under which this weed grows best. Arrange landscapes so that soil is less likely to become compacted. Spread out foot and vehicle traffic over a broader area. Use fences or hedges to reduce traffic and install rock or pavement pathways where traffic cannot be avoided. Do not trample areas soon after irrigation or rainfall. Arrange soccer fields and athletic areas so that heavily used areas such as goals, midfields, and sidelines can be rotated.

Aeration. Loosening the soil in lawns to provide better drainage and a better environment for more desirable species can be beneficial. If areas are compacted, loosen the soil and overseed with a locally adapted grass seed.

Mulches. A variety of mulches can be applied to planting beds and other landscaped areas to prevent establishment of common knotweed. Mulching with landscape fabrics can be effective if the fabric is overlapped and no light is allowed to penetrate to the soil. Use a polypropylene or polyester fabric or black polyethylene (plastic tarp) to block all plant growth. Rock or organic mulches such as bark or compost can be used over the top of synthetic fabrics. If used alone, organic mulches should be 3 to 4 inches thick. Finer mulch material is not desirable since weeds seed may easily grow in it. Coarser material will drain readily and reduce seedling establishment of common knotweed. Mulch needs to be replenished each year to maintain cover thickness and eliminate light penetration to the soil.

Prevent knotweed from producing seed by controlling young plants. This will reduce the amount of seed present in the soil in succeeding years.

Cultivation. Common knotweed is easy to remove with common weeding tools, such as a swivel hoe. For the home gardener, frequent manual removal along with mulching should be sufficient to manage this weed in most situations.

Herbicides. There are many herbicides that will control common knotweed, but they are not generally required in home garden situations. The selection of the herbicide is governed by the site and, should there be one, the crop. Remember that many of these herbicides can have negative effects on desirable plants as well and should be used with care, especially in a landscape situation.

Preemergent herbicides must be applied before the knotweed seed germinates. Examples of preemergent herbicides available for home use include products containing benefin, dithiopyr, oryzalin, pendimethalin, prodiamine, and trifluralin.

The following additional preemergent herbicides are only available to licensed pest control operators: atrazine, hexazinone, napropamide, oxadiazon, pronamide, and simazine.

Postemergent herbicides like those containing dicamba (for use in turfgrass only), glyphosate, and pelargonic acid will control emerged common knotweed. For best results, these herbicides must be used while the weed is young, preferably the early seedling stage, before it becomes more established and hardened off. When knotweed is young (i.e., less than 3 inches in diameter), it can be controlled with 2,4-D, and there are a number of products available for home use that contain this chemical. Some postemergent herbicides kill the top growth of a plant, but it may regrow from buds on the crown of the plant.

REFERENCES

Cudney, D. W., C. L. Elmore, and A. Sanders. In press 2008. *Pest Notes: Spotted Spurge*. Oakland: Univ. Calif. Div. Agric. Nat. Res. Publ. 7445. Also available online at http://www.ipm.ucdavis.edu/PMG/menu.weeds.html.

Hickman, J. C., ed. 1993. *Jepson Manual: Higher Plants of California*. Berkeley, Calif.: Univ. Calif. Press.

Whitson, T. D., L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, and R. Parker. 2002. *Weeds of the West*. Jackson, Wyo.: Univ. Wyoming.

DiTomaso, J. M. and E. A. Healy. 2007. *Weeds of California and Other Western States*, Oakland: Univ. Calif. Agric. Nat. Res. Publ. 3488 ❖.

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