

# WILD BUCKWHEAT

*(Polygonum convolvulus)*

## SEEDLING DESCRIPTION

The stem below the seed leaves (hypocotyl) of wild buckwheat seedlings is smooth or slightly rough, erect, and sturdy. It grows  $\frac{1}{2}$  to  $1\frac{1}{4}$  inch (12 to 43 mm) long by the time the seed leaves (cotyledons) are fully formed. The cotyledons are oval, up to  $\frac{3}{4}$  inch (18 mm) long, and about  $\frac{1}{8}$  inch (3 mm) wide. Cotyledons have rounded tips and base, and they are attached to the main stem by a leaf stalk (petiole) less than  $\frac{1}{8}$  inch long.

True leaves are alternate and appear one at a time after the seed leaves grow to their maximum size. The petiole of true leaves is  $\frac{1}{4}$  to  $\frac{3}{4}$  inch (6 to 18 mm) long. A papery sheath called an ochrea wraps around each petiole where it joins the main stem. The first true leaves are oval,

up to 1 inch (2.5 cm) long and half as wide. They have pointed tips and two rounded basal lobes that eventually become pointed, giving the leaves an arrowhead or heart shape. When the seedling is a few inches tall, its weight bends the stem over and the plant begins to grow along the ground in search of upright support.

## BIOLOGY

Wild buckwheat is an annual plant with a vining growth habit and fibrous root system. It is a member of the Buckwheat family (Polygonaceae), a group of plants characterized by the ochrea that surrounds each node where the leaf stalks attach to the stem. The ochrea of wild buckwheat is smooth and translucent, without hairs or fringe.

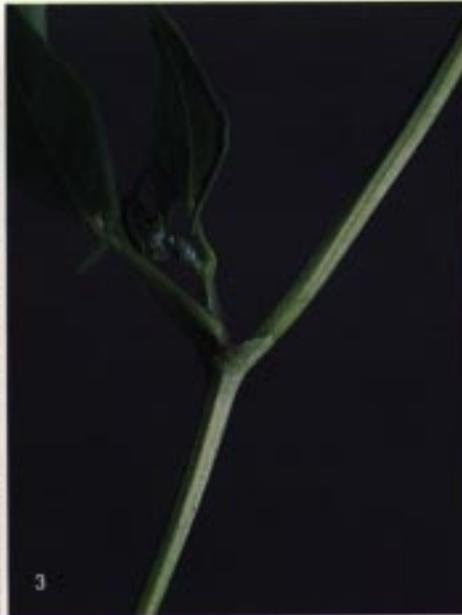
The main stems are smooth or slightly rough, slender, and branch freely at the base. Stems trail along the ground or twine around other plants and can grow to  $6\frac{1}{2}$  feet (2 m) long.

Leaves are dark green, alternate,  $\frac{3}{4}$  to  $2\frac{1}{2}$  inches (1.8 to 6 cm) long, and heart-shaped or arrowhead-shaped. They have a pointed tip and pointed basal lobes. Small reddish leaves indicate acid soil.

Flowers form in clusters, both in the leaf axils and at the tip end of the stem. Axillary clusters are short and compact. Terminal clusters are elongated or spike-like. Individual flowers are greenish-white and not more than  $\frac{1}{4}$  inch across. Flowers are perfect (have both male and female parts) and self-pollinate without the aid of wind or insects.



1. Wild buckwheat plants emerge from seed.
2. Plants soon become viney.
3. Note papery sheath where leaf attaches to stem.
4. Wild buckwheat has a sprawling growth habit.
5. Leaves are arrowhead shaped. Flowers are inconspicuous.



A single seed forms inside each flower, and an average plant can produce about 12,000 seeds. Seeds are black and about 1/8 inch long and, because they are also three-sided, they look triangular in cross-section. Only 3 percent of the seeds can germinate when shed from the plant. The rest are dormant and must be exposed to temperatures ranging from 37° to 41°F (3° to 5°C) for eight weeks before they can germinate. About 75 percent of the seeds are viable, and they can last up to five years in the soil, up to three months in silage, or up to forty days in stored manure.

Seedlings emerge best from depths of 1/2 to 2 inches (1.2 to 5 cm) but have successfully sprouted from as deep as 8 inches (19 cm). They are distributed throughout fields mainly by plowing. Seedlings emerge in spring in cultivated fields, about eight days after planting, and continue to sprout until September.

#### SIMILAR SPECIES

Wild buckwheat is often confused with several members of the Morningglory family (Convolvulaceae), a group of plants that includes the bindweeds and wild morningglories. Confusion exists because the leaves and vining growth habit of all of these plants are very similar. Their flowers, however, are strikingly different. Morningglory species have large (greater than 1 inch) pink or white, funnel-shaped blossoms, while the flowers of wild buckwheat are small, green, and inconspicuous. When flowers are absent, the presence of the ochrea confirms the Buckwheat family. Learning to identify these viney weeds correctly is important because the *Convolvulus* species are perennial weeds and their controls are quite different from those of annual wild buckwheat.

#### NATURAL HISTORY

A native of Eurasia, wild buckwheat has spread throughout the world via grain transport, and now grows on every continent except Antarctica. It is one of the most common contaminants in all seedstock, especially in wheat. Wild buckwheat grows everywhere crops are cultivated in Europe and North America and is common in more than forty other countries. It is listed as a serious or principal weed in twenty crops.

Wild buckwheat grows poorly where humid conditions prevail year-round, but it can be found in tropical latitudes wher-

ever there are cool valleys or high elevations. It grows well in open, unshaded sites, such as pastures, roadsides, and especially cultivated land. The highest incidence of wild buckwheat is in fields that have been cropped for fifty to seventy years. Although it grows best in cultivated land, germination is not entirely discouraged by compacted soil. It is often well-established on sandbars, indicating that the seeds are effectively dispersed by water.

Wild buckwheat needs a great deal of sun. It efficiently gathers light by trailing along the ground and climbing up other vegetation, exposing its leaves to as much sunlight as possible.

Ancient peoples gathered the large black seeds of wild buckwheat for food. Archaeologists investigating prehistoric sites in the Alps discovered liter-sized containers of the seed. The foliage, however, is unpalatable and provides little nutrition for animals. Its leaves have less protein, oil, and fiber than do the leaves of other common weeds.

Wild buckwheat is a stronger competitor than lambsquarters (*Chenopodium album*), common chickweed (*Stellaria media*), shepherd's purse (*Capsella bursa-pastoris*), and knotweed (*Polygonum aviculare*). Its roots absorb water and nutrients so efficiently that during dry spells the weed can overtake most crops.

Wild buckwheat complicates grain harvesting because the long vines pull cereals to the ground and become tangled in equipment. When wild buckwheat is the dominant weed in wheat, crop loss can be as high as 25 percent. Large amounts of wild buckwheat seed in stored grain can cause spoilage. The high moisture content of the weed seed raises the temperature in the grain bin high enough to cause deterioration of the grain and, more important, to allow the growth of potentially toxic fungus organisms.

Wild buckwheat is a host of several crop plant diseases, including virus yellows of beets, cucumber and alfalfa mosaic virus, and tobacco rattle virus.

*Polygonum convolvulus* is also known as black bindweed, dullseed combind, ivy bindweed, and corn bindweed, although it does not belong to the Bindweed family at all. The genus name *Polygonum* is Latin for "many knees," referring to the large number of nodes that form on the long vines, and the species name *convolvulus* means "to turn around," describing the twining stem.

#### CONTROL

Wild buckwheat is becoming a more serious crop weed, especially where grains are the principal crops in the prairie regions of North America and Europe. The problem is occurring for several reasons. One factor is seed production: seeds are produced in great numbers and can remain dormant for up to five years. Another factor is the seedlings' ability to germinate throughout the summer and emerge from great depths. As a result, burying seeds by tilling is ineffective, and harrowing before crop emergence actually increases the number of wild buckwheat plants that will emerge. Finally, wild buckwheat is resistant to several commonly used broadleaf herbicides, including MCPA.

One of the most effective ways to control wild buckwheat is to purchase clean crop seed. Crop seed contaminated by only 1 percent of its weight in wild buckwheat seed can distribute twenty-seven weed plants per square meter (10 1/2 square feet). The extra cost of certified seed is more than recovered by savings in weed control. Wild buckwheat seed is so close in size and shape to many grain seeds that mechanical separation is difficult. However, the black angular seeds stand out in sharp contrast to cereal grains, and a quick look will reveal their presence.

If prevention fails, wild buckwheat can be controlled by chemical herbicides. Postemergence herbicides provide effective control in small grains and corn. When small grains are underseeded with legumes, a selective contact herbicide may be applied in fall or spring, when weeds are small and grain is 2 to 6 inches (5 to 15 cm) tall.

For specific recommendations, consult your county Extension agent or the most recent *Weed Control Manual and Herbicide Guide*, available through Meister Publishing Company, 37841 Euclid Avenue, Willoughby, Ohio 44094. Follow label instructions for all herbicides and observe restrictions on grazing and harvesting procedures.

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