An IPM Pocket Guide for Weed Identification in Christmas Trees
Michigan State University Extension Service
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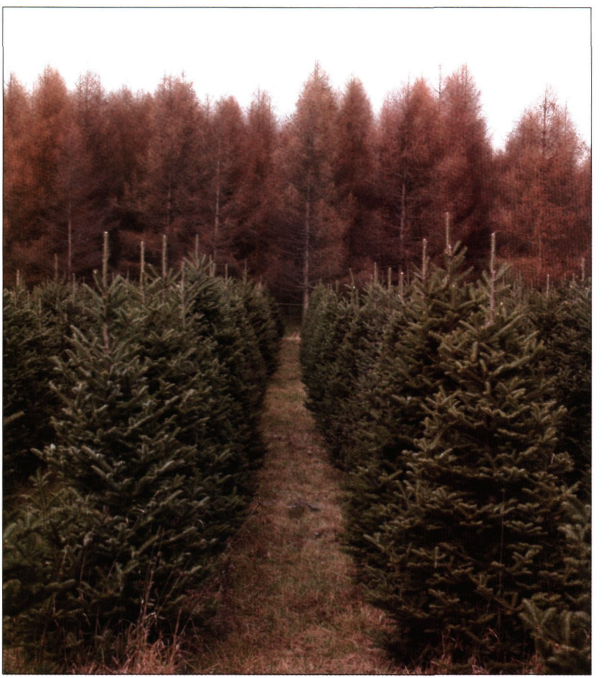
Contents:



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Suggested reading:

Christmas Tree Pest Manual. D.G. McCullough, S.A. Katovich, M.E. Ostry and J. Cummings-Carlson. 1998. Bulletin E-2676. East Lansing, Mich.: Michigan State University Extension.

Common Weed Seedlings of the North Central States. A.J. Chomas, J.J. Kells and J.B.Carey. 2001. North Central Regional Extension Publication NCR 607. East Lansing, Mich.: Michigan State University Extension.

Weeds of the Northeast. R.H. Uva, J.C. Neal and J.M. DiTomaso. 1997. Comstock Publication Associates, Cornell University. Ithaca, N.Y. Bulletin E-2666. East Lansing, Mich.: Michigan State University Extension.

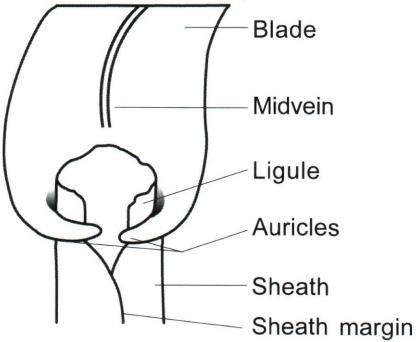
Introduction

Like growers of any other crop, Christmas tree growers face a myriad of pest and plant health problems that are best managed within the context of a comprehensive integrated pest management (IPM) program. Scouting for plant pests is the foundation of an IPM program, so weed identification is one of the first critical steps to creating an integrated weed management program. This IPM pocket scouting guide for identifying weeds in Christmas tree plantations was designed for field use. This guide will help with proper weed identification, which will allow growers to implement proper IPM practices, including site-specific management, prevention and sanitation, appropriate herbicide selection and prevention of herbicide misapplication due to improper herbicide selection.

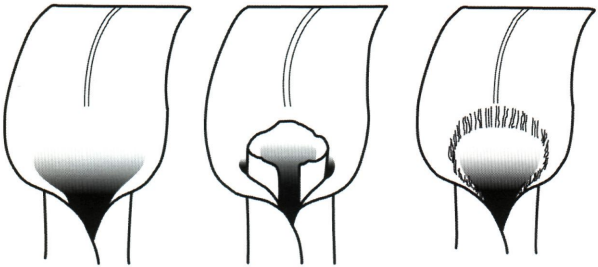
Specific pesticides are not listed in this guide. Recommendations can change frequently as new products become available and older ones are removed from the market. We suggest you contact your local Extension office. This guide is a field supplement to the more comprehensive resources listed in the suggested reading section.

Grass characteristics

Grass morphology

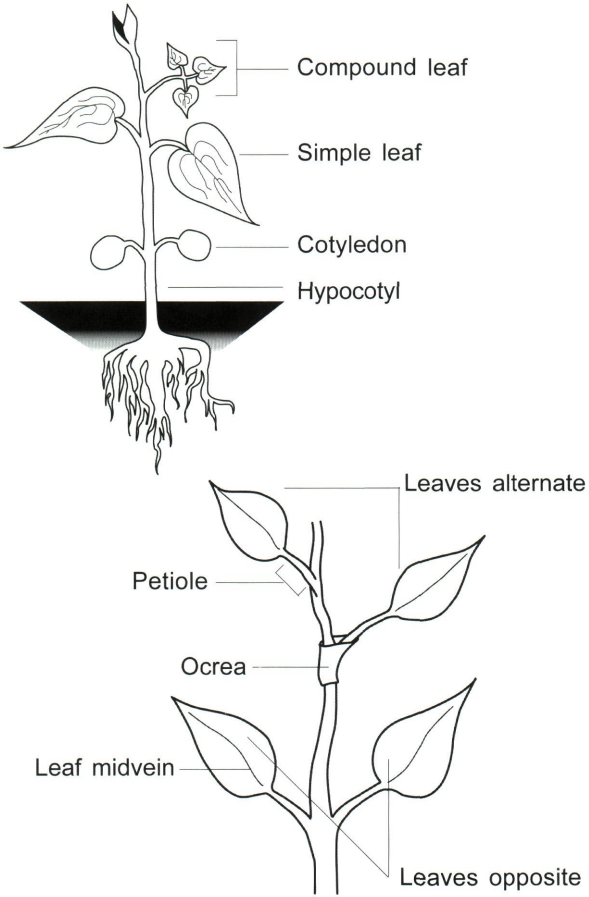


Ligule types



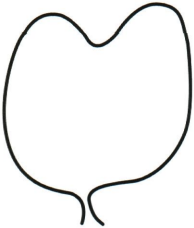
Absent Membranous Hairy

Broadleaf morphology



Broadleaf characteristics

Cotyledon shapes

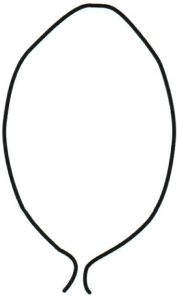


Kidney

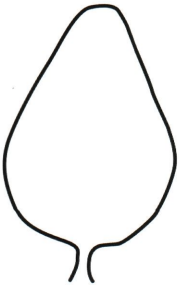
Linear

Lance-shaped

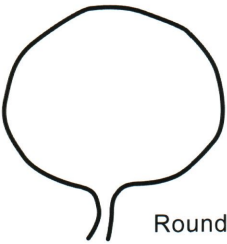
Oblong



Oval



Egg-shaped



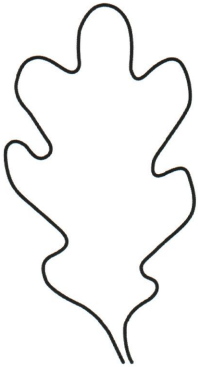
Round

Spatula-shaped

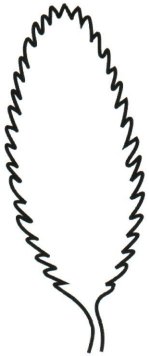
Broadleaf characteristics

Leaf margins

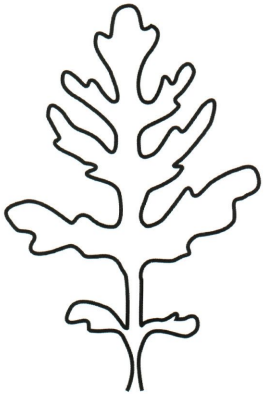
Smooth



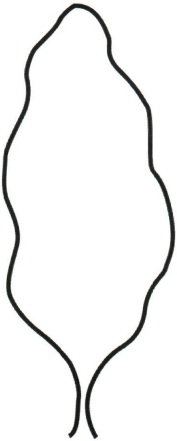
Lobed



Serrated or toothed



Dissected or divided



Wavy

Field horsetail

Equisetum arvense L.

Life cycle

Perennial, spore-producing plant.

Leaves

Not present.

Stems

Vegetative stems are green and branch in whorls. Stems may have a bottle-brush appearance and should not exceed 2 feet in height. Stems die back to the ground in winter.

Flowers and fruit

Erect, unbranched, white to brown fruiting stalks (stems) bear terminal spore-releasing cones. Flowers are not produced.

Reproduction

Spores and prolific rhizomes.

Patch of field horsetail fruiting and vegetative stems.

Field horsetail *continued*

Field horsetail fruiting stalk.

Closeup of vegetative stem of field horsetail.

Field horsetail vegetative stems.

Similar weeds

Scouringrush (*E. hyemale* L.)
Differs by having larger evergreen stems with little or no branching. Grows only in wet areas.

Yellow nutsedge

Cyperus esculentus L.

Life cycle

Rhizomatous perennial sedge.

Leaves

Yellowish green, shiny, grasslike leaves are long and narrow, and distinctly ridged along the midvein, and they narrow to a long, sharp point. Leaves are mostly basal and alternate, and they point outward from the stem in three directions.

Stems

Erect, solid, up to 3-foot-tall stems are triangular in cross-section. Plants spread by wiry, scaly rhizomes and nutlike tubers produced at the rhizome tips.

Patch of yellow nutsedge.

Triangular stem of yellow nutsedge.

Flowers and fruit

The seedhead consists of numerous yellowish brown spikelets, which occur in a terminal, umbrellalike cluster. Under each seedhead is a whorl of several long, leaflike bracts. The seed is enclosed in a single-seeded, three-angled, yellowish brown fruit with a blunt end.

Reproduction

Tubers, rhizomes and, very rarely, seeds.

Yellow nutsedge seedling.

Yellow nutsedge seedhead.

Large crabgrass

Digitaria sanguinalis (L.) Scop.

Life cycle

Prostrate to ascending summer annual.

Leaves

Both leaf surfaces and sheath are densely hairy. Leaves are rolled in the bud and more numerous at the base. Leaves are generally shorter, wider and more tapered than those of most other grasses.

Ligule

Jagged, membranous ligule.

Large crabgrass seedling.

Stems

Prostrate to ascending stems may reach 3 feet tall, capable of rooting at the nodes. Mature stems are often compressed in cross-section.

Large crabgrass collar region.

Flowers and fruit

The seedhead is a terminal panicle that consists of a few to several slender, fingerlike branches arranged in a whorl. Each plant is capable of producing thousands of yellowish brown, narrow oval to lance-shaped seeds.

Reproduction

Seeds.

Large crabgrass seedhead.

Similar weeds

Smooth crabgrass [*Digitaria ischaemum* (Schreb.) Schreb. ex Muhl.]
Differs by having a smaller stature, hairless to sparsely hairy leaves and sheath, a tuft of long hairs at the collar region and stems that do not root at the nodes.

Smooth crabgrass collar region.

Smooth crabgrass plant.

Barnyardgrass

Echinochloa crus-galli (L.) Beauv.

Life cycle

Erect summer annual.

Leaves

Hairless leaves, occasionally with a few hairs near the base, are rolled in the bud and up to 20 inches long. Leaves have a distinct midvein and are rough to the touch on both surfaces.

Barnyardgrass collar region.

Ligule

Absent.

Stems

Erect, thick, hairless, up to 5-foot-tall stems are round to flattened in cross-section and are often bent, branched and purple-tinted at the base.

Flowers and fruit

The seedhead consists of several coarse, thick branches that occur in an upright to nodding terminal panicle. The green, purple to brown panicle yields tan to brown, shiny, oval seeds.

Barnyardgrass seedhead.

Reproduction

Seeds.

Quackgrass

Elymus repens (L.) Gould

Life cycle

Erect, rhizomatous perennial.

Leaves

Leaves are rolled in the bud, hairless to sparsely hairy above and up to 8 inches long. Leaf sheaths are hairless except those near the base, which may be sparsely hairy. Clasping, clawlike auricles are present at the collar region.

Ligule

Very short, membranous ligule.

Stems

Erect and clump-forming, up to 4 feet tall. Plants spread by thin, yellowish to white, sharp-tipped rhizomes.

Patch of quackgrass.

Flowers and fruit

The seedhead is a two- to 10-inch-long, slender, unbranched spike made up of several alternating spikelets arranged edgewise on the stem. Each spikelet contains up to eight straw-colored, lance-shaped seeds. Each seed has a short to prominent awn.

Reproduction

Seeds and rhizomes.

Quackgrass collar region.

Quackgrass seedhead.

Sharp-tipped rhizome of quackgrass.

Stinkgrass

Eragrostis cilianensis (All.) Vign. ex Janchen

Life cycle

Erect to spreading summer annual.

Leaves

Leaves are usually hairless and up to 6 inches long with a tuft of long, soft hair at the collar region. Tiny, warty glands on the leaf margins and sheath release an unpleasant odor.

Ligule

Hairy.

Stems

Erect to spreading, up to 2-foot-tall, slender stems are branched at the base. Stems have a ring of tiny glands just below the nodes, which release an unpleasant odor.

Stinkgrass collar region.

Tiny, warty glands on the leaf margins of stinkgrass.

Flowers and fruit

The seedhead is a dense to open, tan, gray-green to purple, pyramid-shaped panicle. Flattened and oblong, spikelets contain up to 40 reddish orange to brown, egg-shaped seeds.

Reproduction

Seeds.

Stinkgrass seedhead.

Stinkgrass spikelets.

Fall panicum

Panicum dichotomiflorum Michx.

Life cycle

Erect summer annual.

Leaves

Leaves are hairless at maturity, up to 20 inches long with a prominent, white midvein. Leaf sheaths are also hairless at maturity, and there are no hairs on the sheath margin. Seedlings may have hairs on the lower leaf surface and sheath, becoming less hairy with age.

Ligule

Hairy.

Stems

Erect, bending in a zigzag manner at the nodes, up to 6 feet tall.

Fall panicum collar region.

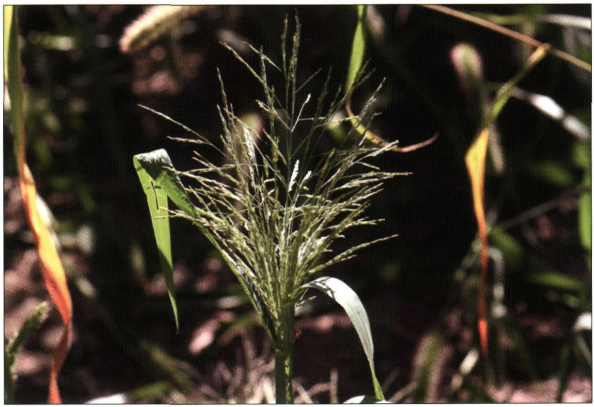
Flowers and fruit

The seedhead is a large, open and spreading panicle that may be purple-tinted at maturity and yields small, straw-colored, oval seeds.

Reproduction

Seeds.

Prominent, white midvein of fall panicum.



Fall panicum seedhead.

Similar weeds

Wild proso millet (*P. miliaceum* L.)
Differs by having long, mostly perpendicular, stiff hairs covering both leaf surfaces and sheath and a nodding panicle with large, shiny, olive-brown to black, oval-shaped seeds. Seeds often persist on the roots of seedlings.

Witchgrass (*P. capillare* L.)
Differs by having dense, mostly perpendicular, soft hairs covering the entire plant.

Wild proso millet collar region.

Witchgrass collar region.

Green foxtail

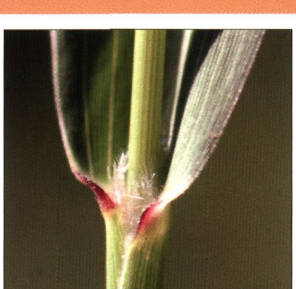
Setaria viridis (L.) Beauv.

Life cycle

Erect summer annual.

Leaves

Leaves are hairless, rough, rolled in the bud and up to 12 inches long. Leaf sheaths are hairless except for short hairs along the margin.



Green foxtail collar region.

Ligule

Hairy.

Stems

Erect, mostly 3-foot-tall stems are branched and clump-forming at the base. Stems are usually round but are occasionally flattened in cross-section.

Green foxtail seedhead.

Flowers and fruit

The seedhead is a dense, cylinder-shaped, foxtail-like panicle with green to purple bristles. Usually erect to slightly nodding seedheads are capable of producing prolific amounts of oval to egg-shaped, yellowish brown seeds.

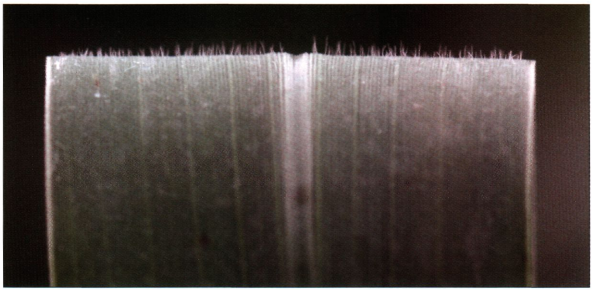
Reproduction

Seeds.

Similar weeds

Giant foxtail (*S. faberi* Herrm.)
Differs by having a larger, up to 7-foot-tall stature, leaves with numerous short hairs on the upper surface, and longer, highly nodding panicles.

Yellow foxtail [*S. glauca* (L.) Beauv.]
Differs by having long, wispy hairs on the upper leaf surface near the stem, a panicle with yellowish-brown bristles, and a yellow to light brown seedhead at maturity.



Giant foxtail upper leaf surface.

Giant foxtail seedhead.

Giant foxtail collar region.

Yellow foxtail seedling.

Yellow foxtail collar region.

Yellow foxtail seedhead.

Johnsongrass

Sorghum halepense (L.) Pers.

Life cycle

Rhizomatous perennial.

Leaves

Bright green leaves are hairless with a prominent, white midvein. Leaves are rolled in the bud and may be up to 24 inches long. Leaf sheaths are also hairless.

Ligule

Very prominent, jagged, membranous ligule.

Stems

Erect, stout, hairless stems may reach 10 feet in height. Round to sometimes flattened stems are purple-tinted at the base. Plants form dense patches by purplish, thick, scaly rhizomes.

Flowers and fruit

The seedhead is a purple, very large, open and spreading, pyramid-shaped panicle that consists

Patch of Johnsongrass.

of numerous whorled branches. Seeds are oval, shiny and reddish brown.

Reproduction

Seeds and rhizomes.

Johnsongrass collar region.

Johnsongrass seedhead.

Johnsongrass rhizome section.

Tumble pigweed

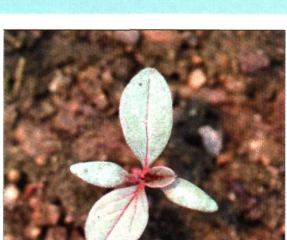
Amaranthus albus L.

Life cycle

Bushy-branched summer annual.

Leaves

Alternate, oval- to spatula-shaped, light green leaves have wavy margins and notched leaf tips.



Tumble pigweed seedling.

Stems

Mostly erect and usually hairless, pale green to whitish stems with multiple branches create a bushy appearance. Stems, up to 4 feet tall, break off at the soil surface when mature and tumble with the wind.

Tumble pigweed foliage and flowers.

Flowers and fruit

Small, greenish flowers are found in dense clusters in the leaf axils. Flowers have long bracts two to four times the length of the sepals and yield small, round, shiny black seeds.

Reproduction

Seeds.

Tumble pigweed leaf.

Whitish stems of tumble pigweed.

Tumble pigweed flowers.

Prostrate pigweed

Amaranthus blitoides S. Wats.

Life cycle

Prostrate, mat-forming summer annual.

Prostrate pigweed seedling.

Leaves

Alternate and pale green to shiny, dark green leaves are oblong, oval to egg-shaped with pointed, rounded to slightly indented leaf tips. Leaf margins are smooth and usually whitish. Leaves are numerous at the stem ends.

Stems

Prostrate and nearly smooth, light green to reddish stems form thick, circular mats. Stems may be 1 to 3 feet long and mostly erect at the tip.

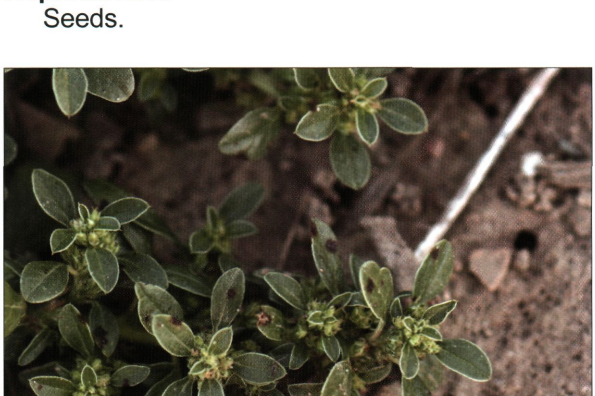
Prostrate stem and shiny green foliage of prostrate pigweed.

Flowers and fruit

Small, greenish flowers are found in dense clusters in the leaf axils. Flowers have bracts as long as the sepals and yield small, round, shiny black seeds.

Reproduction

Seeds.



Prostrate pigweed foliage and flower clusters.

Redroot pigweed

Amaranthus retroflexus L.

Life cycle

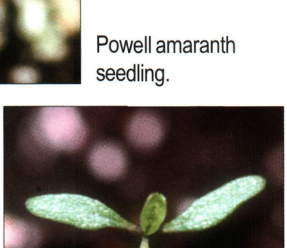
Erect summer annual.

Leaves

Cotyledons are linear with a prominent midvein and reddish tinted undersides. Leaves are alternate, dull green, egg- to diamond-shaped with a small notch at the tip, smooth to wavy margins and long petioles. Leaves are hairy beneath, at least on the whitish veins.

Powell amaranth seedling.

Redroot pigweed seedling.



Smooth pigweed seedling.

Stems

Erect, up to 6-foot-tall herbaceous stems are pale green to reddish and usually nearly red at the base. Lower stems are usually thick, stout and smooth; upper stems are covered with many short, fine hairs.

Flowers and fruit

Small, greenish flowers are found in dense terminal and axillary clusters of short, thick and prickly spikes. Flowers have bracts two to three times the length of the sepals and yield small, round, shiny black seeds.

Reproduction

Seeds.

Redroot pigweed leaf.

Smooth pigweed leaf.

Powell amaranth leaf.

Redroot pigweed seedhead.

Powell amaranth seedhead.

Smooth pigweed seedhead.

Similar weeds

Powell amaranth (*A. powellii* S. Wats.)
Differs by having dark green, diamond-shaped, mostly hairless and somewhat glossy leaves; stems with few to no hairs; and seedheads with fewer, very prickly, erect and elongated spikes.

Smooth pigweed (*A. hybridus* L.)
Differs by having hairless leaves, hairless to slightly hairy upper stems, and seedheads with narrower, less dense and less prickly spikes.

Redroot pigweed stem.

Powell amaranth stem.

Staghorn sumac

Rhus typhina L.

Life cycle

Colony-forming shrub to small tree.

Staghorn sumac flower cluster.

Leaves

Alternate, pinnately compound with nine to 31 leaflets approaching 24 inches long. Leaflets are lance-shaped to narrowly oblong with a pointed tip, 2 to 5 inches long with coarsely toothed margins. Leaflet veins and leaf petioles are densely hairy. Leaflets are deep green above and dull green below and turn bright red in the fall.

Stems

Shrub to small tree. Young stems and petioles are covered with soft, fuzzy hairs.

Young, fuzzy stems and petioles of staghorn sumac.

Flowers and fruit

Green to yellow flowers form in long, terminal, pyramid-shaped clusters. Red, fuzzy, berrylike fruit form in upright, persistent, cone-shaped clusters.

Reproduction

Seeds and rhizomes.

Staghorn sumac *continued*

Staghorn sumac leaf.

Staghorn sumac foliage and fruit.

Similar weeds

Dwarf sumac (*R. copallina* L.)
Differs by having smooth leaflet margins, raised red dots on stems and distinctly winged leaf stems.

Smooth sumac (*R. glabra* L.)
Differs by having hairless stems and petioles and more open fruit clusters. May hybridize with staghorn sumac.

Poison ivy

Toxicodendron radicans (L.) Ktze.

Life cycle

Perennial woody vine.

Leaves

Alternate, compound with three shiny leaflets. Leaflet margins may be smooth, toothed or lobed. The side leaflets occur on very short stalks; the middle leaflet occurs on a much longer stalk. Leaves may turn bright red in the fall. Contact with any part of this plant can cause a reaction in sensitive people.

Stems

Shrubby or climbing, woody vines are supported by aerial roots.

Poison ivy foliage.

Flowers and fruit

Small, inconspicuous, yellow to green flowers have five petals. Fruit are gray to white berries (drupes).

Reproduction

Seeds, creeping roots and stems, which may root if in contact with the ground.

Compound leaf of poison ivy.

Poison ivy aerial roots.

Poison ivy flower.

Wild carrot (Queen Anne's lace)

Daucus carota L.

Life cycle

Erect, fernlike biennial.

Leaves

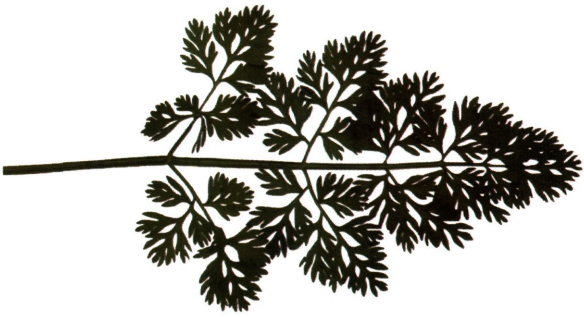
First-year leaves originate from a basal rosette followed by an erect flowering stem with few leaves in the second year. Cotyledons are long, very narrow and thin. Leaves are doubly compound, fernlike and attached by long stalks inflated at the base. Damaged leaves will emit a carrotlike odor.

Stems

Erect, hollow, grooved, rough-hairy stems elongate during the second year, up to 5 feet tall with numerous branches.

Flowers and fruit

Numerous white flowers, often with a central purple flower, form terminal, 2- to 6-inch-wide, flat-topped clusters.



Fernlike leaf of wild carrot.

Fruit have two egg-shaped sections; each section is yellow to grayish brown, flattened on one side and ridged with barbed spines.

Reproduction

Seeds.

Wild carrot seedling.

Wild carrot flower cluster.

Similar weeds

Common yarrow (*Achillea millefolium* L.) Differs by having a rhizomatous perennial nature, more finely dissected leaves that lack a carrotlike odor, and a shorter, bushier appearance at maturity.

Poison hemlock (*Conium maculatum* L.) Differs by having hairless, waxy, purple-spotted stems and dark, glossy green leaves that have a musty odor.

Hemp dogbane

Apocynum cannabinum L.

Life cycle

Erect, patch-forming perennial.

Leaves

Opposite, narrow oval to egg-shaped, 2 to 5 inches long with smooth margins. The upper leaf surface is usually pale to bluishgreen and smooth; the lower leaf surface may be sparsely hairy. Leaves are smaller than those of common milkweed and exude a milky sap when damaged.

Stems

Erect, up to 6-foot-tall, slender, hairless, reddish stems are herbaceous and multibranched at the top and semiwoody at the base. Stems exude a milky sap when damaged.

Flowers and fruit

Small, white to greenish white, bell-shaped flowers are found in flat- to round-topped clusters. Fruit are 4- to 8-inch-long, narrow, reddish brown, sickle-shaped capsules that

Hemp dogbane flower clusters.

Young hemp dogbane plant.

usually occur in pairs. Pods split open at maturity to release small, spindle-shaped seeds, each with a tuft of long, silky hairs that aid in wind dissemination.

Reproduction

Seeds, creeping roots and rhizomes.

Hemp dogbane leaf.

Hemp dogbane fruit.

Similar weeds

Spreading dogbane
(*A. androsaemifolium* L.)
Differs by having a preference for a drier habitat, usually shorter height, often drooping leaves and more distinct, usually pinkish white flowers.

Common milkweed

Asclepias syriaca L.

Life cycle

Stoutly erect, patch-forming perennial.

Leaves

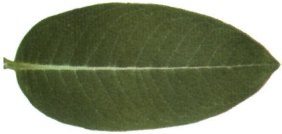
Opposite, oval, oblong to egg-shaped leaves are 3 to 8 inches long with smooth margins and distinctly white midveins and veins. The upper leaf surface is dark green and usually smooth; the lower leaf surface is pale green and finely hairy. Leaves exude a milky sap when damaged.

Stems

Stout and erect, rarely branched, up to 6-foot-tall herbaceous stems are finely hairy and hollow and exude a milky sap when damaged.

Young common milkweed plant.

Common milkweed flower clusters.



Common milkweed leaf.

Flowers and fruit

Purple, pink to white flowers are found in dense, ball-like clusters consisting of 20 to 130 individual flowers. Fruit are large, 3- to 5-inch-long, grayish green, teardrop-shaped pods covered with soft, warty bumps. Pods split open at maturity to release thin, brown, oval seeds each with a tuft of long, silky hairs that aid in wind dissemination.

Reproduction

Seeds, creeping roots and rhizomes.

Common milkweed fruit.

Mature fruit and seeds of common milkweed.

Common ragweed

Ambrosia artemisiifolia L.

Life cycle

Erect, branching summer annual.

Leaves

Cotyledons are thick and oval to spatula-shaped. Leaves are fernlike, once or twice compound and usually hairy. Upper leaves are alternate; lower leaves may be opposite or alternate with distinct petioles.

Common ragweed leaf.

Stems

Usually hairy, erect and branched up to 6 feet tall.

Flowers and fruit

Flowers are generally inconspicuous, found on terminal branches. They produce prolific amounts of pollen. The seed is enclosed in a single-seeded, woody fruit with several spikes resembling a crown.

Reproduction

Seeds.

Common ragweed seedling.

Common ragweed flowering branch.

Similar weeds

Giant ragweed (*A. trifida* L.)
Differs by having cotyledons three to four times larger; three- to five-lobed leaves opposite in arrangement; and a height that may reach 15 feet.

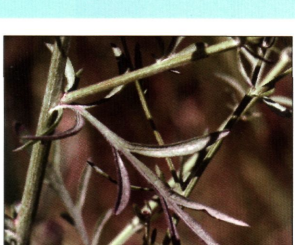
Western ragweed (*A. psilostachya* DC.)
Differs by having a perennial nature with prolific creeping roots, densely hairy leaves and a height typically not above 4 feet.

Giant ragweed seedling and leaf.

Western ragweed root sprout and leaf.

Spotted knapweed

Centaurea stoebe L. ssp. *micranthos* (Gugler) Hayek



Spotted knapweed upper leaf.

Life cycle

Biennial or short-lived perennial.

Leaves

First-year leaves originate from a basal rosette, followed by a flowering stem in the second year. Basal leaves are deeply and irregularly lobed on long stalks; stem leaves are alternate and finely dissected. Leaves are grayish green and roughly hairy.

Stems

Erect, wiry stems elongate during the second year, up to 6 feet tall with multiple branching. Stems are roughly hairy and often green to purple-striped.

Flowers and fruit

Terminal and axillary heads consist of purple to pink disk flowers above encircled by distinctly black-tipped bracts below. The seed is enclosed in a single-seeded, olive-green to brown fruit with a bristly pappus that can attach to animals for transport.

Reproduction

Seeds.

Spotted knapweed rosette.

Spotted knapweed flower head.

Spotted knapweed stem.

Bull thistle

Cirsium vulgare (Savi) Tenore

Life cycle

Erect, spiny biennial.

Leaves

Bull thistle flower head.

First-year leaves originate from a basal rosette, followed by an erect, branched, flowering stem in the second year. Seedlings have egg- to spatula-shaped cotyledons and oval, oblong to spatula-shaped leaves with bumpy surfaces and marginal spines. Mature leaves are alternate, lance-shaped, deeply cut or lobed, with long, stiff spines. Leaves have coarse hairs above and soft, cottony hairs below.

Bull thistle rosette.

Stems

Spiny-winged, hairy stems elongate during the second year, often branched up to 7 feet tall.

Flowers and fruit

Red to purple, usually solitary flower heads consisting of only disk flowers are 1 to 2 inches wide and encircled by spine-tipped bracts. The seed is enclosed in a single-seeded, chili-pepper-shaped, wind-disseminated fruit.

Reproduction

Seeds.

Bull thistle seedling.

Coarse hairs on the upper leaf surface of bull thistle.

Similar weeds

Canada thistle [*C. arvense* (L.) Scop.] Differs by having a prolific, patch-forming perennial nature with a deep, creeping root system; leaves with smooth, dark green upper leaf surfaces and irregularly lobed to crinkled, spiny margins; and smaller (less than 1-inch wide) pink to purple flower heads with spineless bracts.

Canada thistle flower head.

Canada thistle mature flower heads.

Canada thistle plant.

Horseweed (marestail)

Conyza canadensis (L.) Cronq.

Life cycle

Erect winter or summer annual.

Leaves

Cotyledons are egg- to spatula-shaped and hairless. Seedling leaves initially develop from a basal rosette; mature leaves are alternate and numerous, and crowded along an erect central

Erect, central stem of horseweed.

Horseweed rosette.

stem. Leaves are hairy and linear to lance-shaped with smooth to toothed margins, gradually becoming smaller toward the top of the plant.

Horseweed flowers.

Stems

Erect, hairy central stem arises from a basal rosette, then branches to flower, reaching up to 7 feet tall. Flowering branches resemble a horse's tail.

Flowers and fruit

Numerous clusters of small, white flower heads are found on many short branches near the top. Each seedhead is capable of producing thousands of small seeds; each seed is enclosed in a single-seeded, wind-disseminated fruit.

Reproduction

Seeds.

Horseweed seedhead.

Canada goldenrod

Solidago canadensis L. var. *scabra* Torr. & Gray

Life cycle

Clump-forming, rhizomatous perennial.

Leaves

Leaves initially develop from a basal rosette. Leaves are alternate, lance-shaped, tapering at both ends, stalkless, usually with toothed margins. Leaves are numerous and crowded along the stem, with soft hairs below and smooth above.

Canada goldenrod flowers.

Canada goldenrod rosette.

Canada goldenrod leaf.

Stems

Erect, up to 7 feet tall with little to no branching. Dense hairs present.

Flowers and fruit

Golden-yellow flowers are found in dense, pyramid-shaped, paniclelike clusters. The seed is enclosed in a single-seeded, wind-disseminated fruit.

Reproduction

Seeds and extensive creeping rhizomes.

Canada goldenrod clump.

Perennial sowthistle

Sonchus arvensis L.

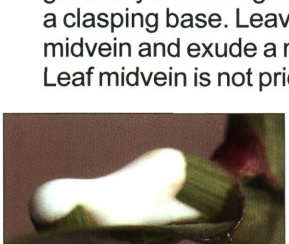
Life cycle

Erect, patch-forming perennial.

Leaves

Seedling leaves initially develop from a basal rosette from a deep taproot. Lower leaves are alternate, blue-green, 4 to 12 inches long with two to five lobes with prickly teeth on each side, gradually becoming smaller towards the top with a clasping base. Leaves have a thickened midvein and exude a milky sap when damaged. Leaf midvein is not prickly underneath.

Perennial sowthistle plant.



Milky sap of perennial sowthistle.

Perennial sowthistle flower.

Stems

Erect, herbaceous stem up to 5 feet tall that branches only near the flowers. Stems are hollow and smooth with ridges and exude a milky sap when damaged. Upper stems may have gland-tipped hairs.

Clasping leaf base of perennial sowthistle.

Flowers and fruit

Bright yellow ray flowers are 1 to 2 inches wide and found in clustered heads. The seed is enclosed in a single-seeded, narrow, oval, reddish brown, ribbed, wind-disseminated fruit.

Reproduction

Seeds and extensive creeping roots.

Lower leaf of perennial sowthistle.

Similar weeds

Annual sowthistle (*S. oleraceus* L.)
Differs by having an annual life cycle and short taproot, less prickly leaf margins, and pale yellow, 0.5- to 1-inch-wide flower heads. Leaf midvein is not prickly underneath.

Prickly lettuce (*Lactuca serriola* L.)
Differs by having an annual or biennial life cycle; fine prickles on leaf margins and sharp prickles on the underside of the leaf midvein; and a many branched, spreading panicle with numerous, pale yellow flower heads less than 0.5 inch wide.

Spiny sowthistle [*S. asper* (L.) Hill]
Differs by having an annual life cycle and short taproot, leaf margins with many sharp prickles, earlike lobes where the leaf attaches to the stem, and flower heads 0.5 to 1 inch wide. Leaf midvein is not prickly underneath.

Spiny sowthistle leaf.

Sharp prickles on the underside of the leaf midvein of prickly lettuce.

Dandelion

Taraxacum officinale Weber in Wiggers

Life cycle

Rosette-forming simple perennial.

Leaves

All leaves originate from a basal rosette. Leaves are oblong to spatula-shaped, ranging from 2 to 10 inches long with deep, backward-pointing lobes. Leaves remain green year round and exude a milky sap when damaged.

Stems

Vegetative stems are not visible aboveground. Forms a deep, thick taproot.

Dandelion plant.

Flowers and fruit

Bright yellow, solitary flower heads consisting of only ray flowers are 1 to 2 inches wide and found at the ends of unbranched, hollow, leafless flowering stalks. The seed is enclosed in a single-seeded, wind-disseminated fruit that forms in a globe-shaped collection.

Reproduction

Seeds and new shoots from a taproot.

Dandelion seedling.

Yellow flower head of dandelion.

Mature dandelion seed head.

Yellow rocket

Barbarea vulgaris R. Br.

Life cycle

Erect winter annual or biennial.

Yellow rocket flowers.

Leaves

Seedlings have round to egg-shaped cotyledons on long stalks with smooth, shiny, dark green leaves that initially develop from a basal rosette. Lower leaves are 2 to 8 inches long with a large, rounded terminal lobe and up to four oppositely arranged smaller lobes along the stalk. Upper leaves are alternate, more coarsely toothed than lobed, and they often distinctly clasp the stem, gradually becoming smaller toward the top.

Yellow rocket seedling.

Stems

Erect, hairless and up to 3 feet tall. Stems bolt from a basal rosette to flower and are numerous and branched at the top.

Flowers and fruit

Bright yellow flowers with four petals are found in terminal clusters. Fruit are slender, slightly curved, approximately 1-inch-long capsules with a slender beak at the tip; fruit are nearly square in cross-section.

Reproduction

Seeds.

Yellow rocket lower leaf.

Yellow rocket rosette.

Hoary alyssum

Berteroa incana (L.) DC.

Life cycle

Annual, biennial or short-lived perennial.

Leaves

Seedling leaves initially develop from a basal rosette. Basal leaves are hairy, oblong and up to 3 inches long with smooth to slightly wavy margins and long stalks. Stem leaves are similar but smaller and alternate and gradually become stalkless. Leaves are covered with gray, star-shaped hairs that result in a grayish green appearance.

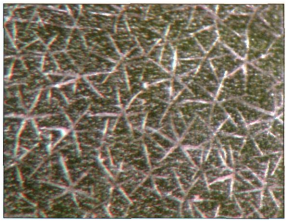
Stems

Erect, stiff, up to 4 feet tall. Stems bolt from a basal rosette to flower. Up to 10 stems may form per taproot with many branches near the top. Stems are covered with gray, star-shaped hairs that result in a grayish green appearance.

Flowers and fruit

Numerous white flowers with four petals so deeply divided that they resemble eight petals, are found in elongated clusters. Fruit are hairy,

Left: Hoary alyssum seedling.
Below: Gray, star-shaped hairs.

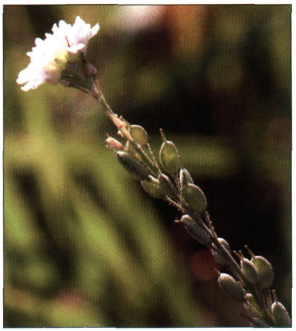


oval and slightly flattened, grayish green seed pods with a short beak on the end. Seed pods are usually held close to the stems and yield oblong, rough and narrowly winged, grayish to reddish brown seeds.

Reproduction

Seeds and root crowns.

Hoary alyssum flowers.



Hoary alyssum seed pods.

Hoary alyssum flowering plant.

Shepherd's purse

Capsella bursa-pastoris (L.) Medicus

Life cycle

Erect winter or summer annual.

Leaves

Leaves initially develop from a basal rosette. Basal leaves are stalked and highly variable in shape; young leaves are first rounded and elongated, becoming variously lobed, toothed to wavy. Smaller stem leaves are alternate with smooth to toothed margins and clasping bases.

Shepherd's purse rosette.

Stems

Erect, slender, hairy, up to 2-foot-tall stems bolt from a basal rosette to flower. Flower stems are usually unbranched with few to no leaves.

Shepherd's purse fruit.

Flowers and fruit

White flowers with four small petals are found in terminal clusters. Fruit are distinctly heart-shaped to triangular pods found on elongated, unbranched stems.

Reproduction

Seeds.

Shepherd's purse flowering cluster.

Wild mustard

Sinapis arvensis L.

Life cycle

Erect winter or summer annual.

Leaves

Seedlings have smooth, kidney-shaped cotyledons and prominently veined, bristly hairy leaves that initially develop from a basal rosette. Lower leaves are irregularly lobed and toothed with petioles; upper leaves are alternate, stalkless to short-stalked with coarsely toothed margins and pointed tips, gradually becoming smaller toward the top.

Wild mustard lower leaf.

Stems

Erect, up to 3-foot-tall stems bolt from a basal rosette to flower. Stems are bristly hairy at the base, often branched and nearly hairless at the top.

Wild mustard rosette.

Flowers and fruit

Bright yellow flowers with four petals are found in terminal clusters. Fruit are 1- to 2-inch-long, cylinder-shaped capsules with a four-angled beak at the tip that contain round, black to purple seeds.

Reproduction

Seeds.

Kidney-shaped cotyledons of wild mustard.

Wild mustard flower.

Wild mustard stem base.

Wild mustard fruit.

Field pennycress

Thlaspi arvense L.

Life cycle

Erect winter or summer annual.

Leaves

Leaves initially develop from a basal rosette. Lower leaves are oval to spatula-shaped with wavy to slightly toothed margins, rounded tips and distinct petioles. Upper leaves are alternate with toothed to smooth margins and clasping bases. Basal leaves fall off before maturity.

Stems

Erect, mostly 2-foot-tall stems with varied branching bolt from a basal rosette to flower.

Field pennycress rosette.

Flowers and fruit

White flowers with four small petals are found in terminal clusters. Fruit are flat, round to oval, distinctly winged, 1/2-inch-wide pods with a prominent notch at the tip.

Reproduction

Seeds.

Field pennycress upper leaf.

Field pennycress flowering cluster.

Field pennycress fruit.

White campion (white cockle)

Silene latifolia Poir.

Life cycle

Annual, biennial or short-lived perennial.

Leaves

Seedling leaves initially develop from a basal rosette. Basal leaves are attached to the stem by petioles; stem leaves are without petioles. Leaves are opposite, softly hairy with a grayish tinge, and lance-shaped to oval with a pointed tip and smooth to slightly wavy leaf margins.

Stems

Soft, hairy stems are erect or semierect at maturity, and up to 3 feet tall. Stems have swollen nodes and often branch at the base.

White campion rosette.

Flowers and fruit

Male and female flowers are produced on separate plants. Flowers have five showy, white petals, each with a deep V-shaped notch at the tip. Just below the petals are fused and inflated sepals that create a balloonlike appearance. Fruit are light brown, vase-shaped capsules with 10 teeth at the open end. Each capsule contains numerous brown to gray, kidney-shaped seeds.

Reproduction

Seeds and root fragmentation.

Opposite leaves of white campion.

Balloonlike sepals of white campion.

Deeply notched petals of white campion.

Similar weeds

Bladder campion
[*S. vulgaris* (Moench) Garcke]
Differs by having a strong perennial nature, hairless stems and leaves, and globe-shaped fruiting capsules.

Nightflowering catchfly (*S. noctiflora* L.)
Differs by having an annual habit, sticky hairs on the stems and leaves, flowers containing both male and female organs, and fruiting capsules with six teeth at the open end.

Bladder campion flower.

Common lambsquarters

Chenopodium album L.

Life cycle

Erect summer annual.

Common lambsquarters seedling.

Leaves

Cotyledons are oblong, narrow and linear with no midvein and a dull green to gray cast. The first one or two leaf pairs are opposite; all remaining leaves are alternate. Mature leaves are highly variable, being triangle-, diamond- or lance-shaped and light green above with gray, mealy undersides. Lower leaves have a petiole and irregular wavy to shallowly toothed margins. Young or newly emerged leaves often have a gray, mealy coating on both surfaces.

Common lambsquarters cotyledons do not have midveins.

Common lambsquarters leaf.

Stems

Erect, moderately branched central stem up to 6 feet in height. Mature stems are vertically grooved with red, purple or light green stripes.

Flowers and fruit

Green, inconspicuous flowers are found in dense, granular clusters at the stem ends. Round to oval, somewhat flattened, black to brown, shiny seeds are enclosed by a star-shaped, papery covering.

Reproduction

Seeds.

Common lambsquarters plant.

Mature seedhead of common lambsquarters.

Similar weeds

Atriplex (*Atriplex patula* L.)
Differs by having larger cotyledons, a more branching, spreading habit due to the opposite arrangement of the first several pairs of leaves and branches, and leaf bases with a lobe on each side.

Atriplex seedling.

Atriplex leaf base with a lobe on each side.

Atriplex plant.

Common St. Johnswort

Hypericum perforatum L.

Life cycle

Multistemmed, shrublike perennial.

Leaves

Opposite, narrow oval to oblong leaves have round to pointed tips and entire margins, and attach directly to the stem. Leaves are covered with small, transparent dots when viewed against the light.

Young common St. Johnswort plant.

Common St. Johnswort flowers.

Stems

Erect with numerous branches and up to 3 feet tall. Herbaceous stems are often reddish in color and become woody at the base with maturity.

Flowers and fruit

Bright yellow to orange-yellow flowers with five petals are approximately 0.75 inch wide, often with several black dots along the petal margins. Fruit are capsules with three cells containing numerous dark brown to black, cylinder-shaped seeds.

Reproduction

Seeds and short runners.

Black dots along the petal margin of common St. Johnswort.

Transparent dots on common St. Johnswort leaf.

Field bindweed

Convolvulus arvensis L.

Life cycle

Twining, creeping perennial vine.

Leaves

Cotyledons are square to kidney-shaped. Leaves are alternate, arrowhead- to spade-shaped with nearly parallel leaf margins and generally rounded tips. Leaf bases are pointed or rounded.

Stems

Climbing, trailing, herbaceous vines up to 6 feet or more in length.

Flowers and fruit

White to pink petals fused into a funnel shape with two leafy, small bracts approximately 1

Field bindweed seedling.

inch below the flower base. Fruit are egg-shaped capsules containing dull gray, brown or black seeds with one round and two flattened surfaces.

Reproduction

Seeds, creeping roots and rhizomes.

Field bindweed flower.

Similar weeds

Hedge bindweed

[*Calystegia sepium* (L.) R. Br.]

Differs by having larger, triangle-shaped leaves with square lobes extending behind and perpendicular to the petiole. Leaf is squarely notched at the petiole. Flower base has two large bracts.

Leaves of hedge bindweed (left) and field bindweed (right).

Hedge bindweed flower base with two large bracts.

Ivyleaf morningglory

Ipomoea hederacea (L.) Jacq.

Life cycle

Twining summer annual vine.

Leaves

Cotyledons are butterfly-shaped and usually narrower at the base. Leaves are alternate with erect hairs on both surfaces. The first leaf may be unlobed; all other leaves are three-lobed and ivy-shaped.

Ivyleaf morningglory seedling.

Ivyleaf morningglory leaf.

Ivyleaf morningglory flowers.

Ivyleaf morningglory *continued*

Stems

Densely hairy, climbing or trailing, twining vines up to 6 feet or more in length.

Flowers and fruit

Blue to purple or white petals fused into a funnel shape. Fruit are egg-shaped capsules containing dull gray, brown or black seeds with one round and two flattened surfaces.

Erect hairs of ivyleaf and entireleaf morningglory.

Reproduction

Seeds.

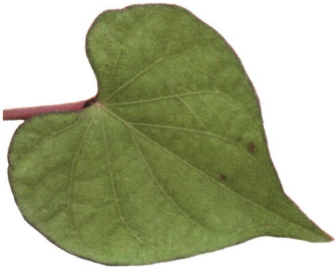
Similar weeds

Entireleaf morningglory
(*I. hederacea* var. *integriuscula* Gray)
Differs only from ivyleaf morningglory by having heart-shaped leaves. Leaf hairs are erect on both surfaces.

Pitted morningglory (*I. lacunosa* L.)
Differs by having V-shaped cotyledons and heart-shaped leaves with no to few hairs.

Tall morningglory [*I. purpurea* (L.) Roth]
Differs by having butterfly-shaped cotyledons with tip and base similar in width and heart-shaped leaves with dense hairs that lie flat.

Entireleaf morningglory leaf.



Pitted morningglory leaf.

Entireleaf morningglory seedling.

Pitted morningglory seedling.

White clover

Trifolium repens L.

Life cycle

Mat-forming perennial.

Leaves

Alternate, compound with three stalkless, egg-shaped leaflets. Leaflets are smooth with small teeth along the margins, a slight notch at the tip and usually a whitish V-shaped watermark. Trifoliolate leaves are found on long petioles that arise perpendicular to the prostrate stems.

White clover flower head.

Stems

Plants spread by prostrate, creeping stolons that root at the nodes and are generally smooth.

Flowers and fruit

White or pinkish white, globe-shaped flower heads occur at the ends of long flower stalks. Each head may contain up to 85 individual flowers. Fruit are small, three- to six-seeded pods.

Reproduction

Seeds and stolons.

Trifoliolate leaf of white clover.

White clover stolon.

Similar weeds

Red clover (*T. pratense* L.)
Differs by having a more robust size and upright growth, red to purple flower heads, and larger, usually hairy trifoliolate leaves.

Red clover flower head.

Trifoliolate leaf of red clover.

Vetches

Vicia spp.

Life cycle

Climbing or trailing annual, biennial or perennial vines.

Leaves

Alternate, pinnately compound with several pairs of opposite, narrowly oblong leaflets. The terminal leaflet is modified into a branched, twining tendril used to climb.

Stems

Ascending, climbing or trailing stems are herbaceous but may become woody with age.

Twining tendril of vetch.

Pinnately compound leaf of vetch.

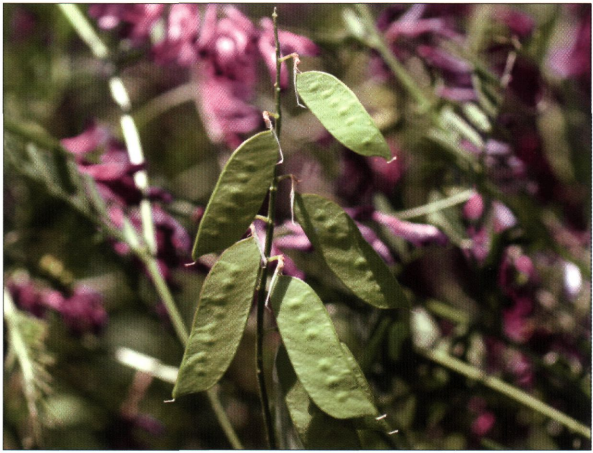
Flowers and fruit

Blue, purple or reddish pealike flowers are borne on short stalks in the upper leaf axils or found crowded along one side of long, bare stalks. Fruit are variously sized pealike pods.

Reproduction

Seeds or rhizomes.

Vetch flowers.



Pealike pods of vetch.

Velvetleaf

Abutilon theophrasti Medicus

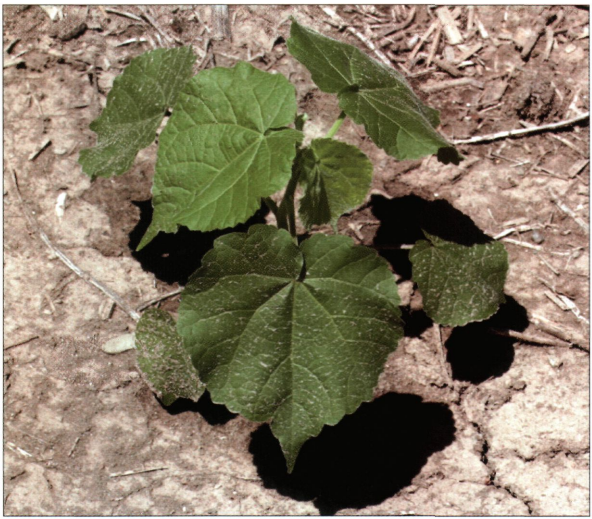
Life cycle

Erect summer annual.

Leaves

Seedlings have one heart-shaped cotyledon and one nearly round cotyledon with short hairs on both surfaces. Leaves are alternate, broadly heart-shaped, 3 to 8 inches long and

Velvetleaf seedling.



Velvetleaf plant.

nearly as wide with narrow, pointed tips and long, slender petioles. Leaves have round-toothed margins and softly hairy surfaces that feel velvety.

Stems

Erect, up to 7-foot-tall stems with little branching are covered with short, velvety hairs and may persist through the winter.

Flowers and fruit

Yellow to yellow-orange five-petaled flowers form solitarily on short stalks in the upper leaf axils. Fruit are approximately 1-inch-wide, bowl-shaped, green capsules that turn dark brown at maturity. Each capsule has nine to 15 compartments, each containing three to nine grayish brown, somewhat flattened and notched seeds.

Reproduction

Seeds.

Velvetleaf fruit and flower.

Common eveningprimrose
Oenothera biennis L.

Life cycle

Usually an erect biennial or winter annual. Occasionally a summer annual.

Leaves

Alternate, narrow oval-shaped, smooth to slightly wavy leaf margins, with distinctive pink to white midveins. Leaves initially develop from a basal rosette.

Stems

Erect, semiwoody, approaching 5 feet in height. Stem usually branches only at the top and may be visible through the winter.

Flowers and fruit

Flowers are yellow, attached to fused sepals forming a tube and found in terminal spikes. Seed capsules are woody, cylinder-shaped and thickest near the bottom.

Reproduction

Seeds.

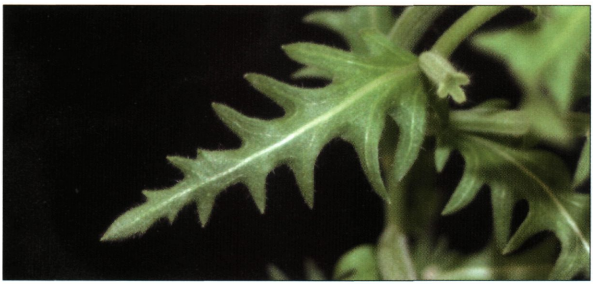
Common eveningprimrose rosette.

Common eveningprimrose plant.

Common eveningprimrose flowering stem.

Similar weeds

Cutleaf eveningprimrose (*O. laciniata* Hill)
Differs by having a prostrate to moderately erect, branching stem; wavy and coarsely toothed leaves; yellow to reddish flowers in the upper and middle leaf axils; and linear,



Cutleaf eveningprimrose leaf is coarsely toothed.

Pokeweed

Phytolacca americana L.

Life cycle

Erect, branched taprooted perennial.

Leaves

Alternate, hairless, broadly oval, lance- to egg-shaped with smooth to slightly wavy leaf margins.

Stems

Smooth, succulent, herbaceous, predominantly reddish and branched multiple times without a central stem, reaching up to 9 feet in height.

Pokeweed plant.

Flowers and fruit

Greenish white to pink flowers yield erect to nodding, hanging clusters of conspicuous, deep purple to black berries when mature. Berries are poisonous, and berry juice will easily stain.

Reproduction

Seeds. Often dispersed by birds.

Young pokeweed plant.

Mature pokeweed berries.

Pokeweed seedling.

Buckhorn plantain

Plantago lanceolata L.

Life cycle

Rosette-forming simple perennial.

Leaves

All leaves originate from a basal rosette. Cotyledons are very narrow and grasslike. Leaves are narrow, linear and elongated with parallel veins and generally smooth leaf margins. Long hairs may be present at the leaf base.

Stems

No visible aboveground stem. Semiwoody taproot present.

Buckhorn plantain seedling.

Flowers and fruit

Long, leafless stalks bear dense, cylinder-shaped flowering spikes and fruit. Single flowers are inconspicuous. Fruiting capsules yield two narrowly oval, brown to black, shiny seeds indented on one side.

Reproduction

Seeds and basal shoots.

Buckhorn plantain flowering spike.

Buckhorn plantain rosette.

Broadleaf plantain

Plantago major L.

Life cycle

Rosette-forming simple perennial.

Broadleaf plantain flowering spikes.

Leaves

All leaves originate from a basal rosette. Cotyledons are long and spatula-shaped. Leaves are generally smooth and broadly to narrowly oval, with parallel veins and smooth to slightly wavy leaf margins. Leaf base tapers to a distinct petiole. Petioles are usually green but occasionally pale pink.

Stems

No visible aboveground stem. Short taproot present.

Broadleaf plantain seedling.

Flowers and fruit

Leafless stalks bear long, dense, cylinder-shaped flowering spikes and fruit resembling a rat tail. Single flowers are inconspicuous. Fruiting capsules yield many narrowly oval, usually glossy brown seeds.

Reproduction

Seeds.

Broadleaf plantain rosette.

Similar weeds

Blackseed plantain (*P. rugelii* Dcne.) Differs by often having dark red to purple petioles, usually wavy leaf margins and dull dark brown to black seeds.

Wild buckwheat

Polygonum convolvulus L.

Life cycle

Twining summer annual vine.

Leaves

Cotyledons are oblong-oval to linear. Leaves are alternate, hairless and heart- to triangle-shaped with a pointed tip and smooth margins.

Wild buckwheat seedling.

Fruit of wild buckwheat.

Wild buckwheat plant.

Stems

Twining, herbaceous, smooth vines branch at the base and are less than 3 feet long. A membranous sheath (ocrea) surrounds the stem at the base of each petiole.

Flowers and fruit

Flowers are inconspicuous and green to white or pink. The seed is enclosed in a single-seeded, dull black, three-sided fruit.

Reproduction

Seeds.

Wild buckwheat flowers.

Wild buckwheat leaf.

Similar weeds

Mile-a-minute (*P. perfoliatum* L.)
Differs by having downward-pointing prickles on the stems, petioles and leaf veins.

Tartary buckwheat
[*Fagopyrum tataricum* (L.) Gaertn.]
Differs by having a more erect habit, arrow-shaped leaves and a grooved, hollow stem.

Japanese knotweed

Polygonum cuspidatum Sieb. & Zucc

Life cycle

Aggressive, clump-forming perennial.

Leaves

Alternate, broadly egg-shaped, sometimes heart-shaped with a squared leaf base.

Stems

Stout, semiwoody, red to brown, hollow and bamboolike, often exceeding 6 to 8 feet in height. Stems are also jointed, forming a zigzag growth pattern. A membranous sheath (ocrea) surrounds the stem at the base of each petiole. Reddish shoots arise from thick, sturdy and abundant rhizomes.

Japanese knotweed ocrea.

Flowers and fruit

Flowers are small, white to pink and borne in elongated clusters. The seed is enclosed in a single-seeded, shiny, dark brown to black, three-sided fruit.

Japanese knotweed foliage and flowers.

Reproduction

Seeds and aggressive rhizomes.

Japanese knotweed foliage.

Japanese knotweed flower cluster.

Similar weeds

Giant knotweed
(*P. sachalinense* F. W. Schmidt)
Differs by having a greater height and heart-shaped leaf base.

Pennsylvania smartweed

Polygonum pensylvanicum L.

Life cycle

Erect summer annual.

Leaves

Cotyledons are narrow oval to lance-shaped with rounded tips. Leaves are alternate, lance-shaped with pointed tips and smooth margins, usually hairless and occasionally with a purple watermark.

Stems

Branched, erect up to 4 feet tall and jointed with swollen nodes. A smooth, membranous sheath (ocrea) surrounds the stem at the base of each petiole.

Flowers and fruit

Small, pink to white flowers form in dense, spikelike clusters at the tips of stems. The seed is enclosed in a single-seeded, flat, glossy black, round to oval fruit with a pointed tip.

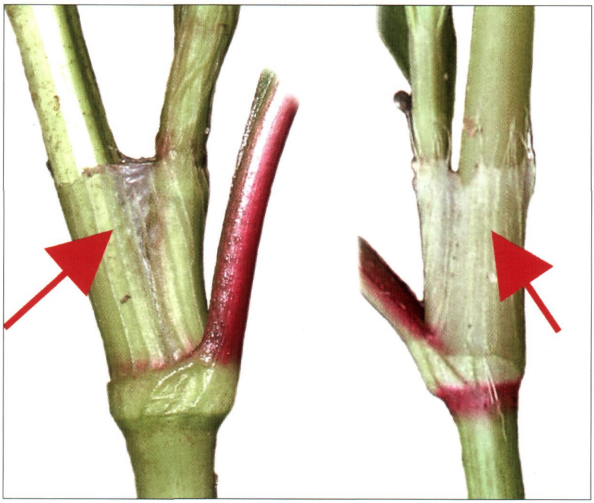
Reproduction

Seeds.

Pennsylvania smartweed leaf.

Pennsylvania smartweed immature flower cluster.

Pennsylvania smartweed seedling.



Left: Pennsylvania smartweed ocrea. Right: Ladysthumb ocrea.

Similar weeds

Ladysthumb (*P. persicaria* L.)
Differs by having a fringe of bristly hairs at the top of the ocrea. Usually has a purple watermark on leaf.

Pale smartweed (*P. lapathifolium* L.)
Differs by having young leaf undersides with whitish hair, older leaf undersides with yellow glands and a nodding inflorescence.

Swamp smartweed (*P. amphibium* var. *emersum* Michx.)
Differs by having perennial, creeping, woody rhizomes and usually hairy foliage; found in wetter environment.

Hairy foliage of swamp smartweed.

Curly dock

Rumex crispus L.

Life cycle

Erect, taprooted simple perennial.

Leaves

Alternate, long and narrow with round to pointed tips and wavy margins. Leaves are shaped like bacon strips.

Stems

Forms a basal rosette that bolts prior to flowering, unbranched, reaching 3 to 4 feet in height. A membranous sheath (ocrea) surrounds the stem at the base of each petiole.

Curly dock mature seedhead.

Curly dock rosette.

Flowers and fruit

Flowers are small, usually greenish and found in clusters on the upper stems, becoming reddish brown at maturity. The seed is enclosed in a single-seeded, shiny, reddish brown, three-sided fruit.

Reproduction

Seeds and fleshy taproot.

Curly dock flower cluster.

Curly dock seedling.

Similar weeds

Broadleaf dock (*R. obtusifolius* L.)
Differs by having much wider, broader leaves and usually heart-shaped leaf bases.

Broadleaf dock rosette.

Broadleaf dock leaf.

Brambles
(blackberries, dewberries, raspberries, etc.)
Rubus spp.

Life cycle
Woody perennials.

Leaves
Alternate, typically compound with three to seven leaflets with toothed margins. Undersides of leaves are white to green.

Stems
Arching/trailing stems that root when in contact with the ground to form thickets. Stems have fine bristles or stiff prickles.

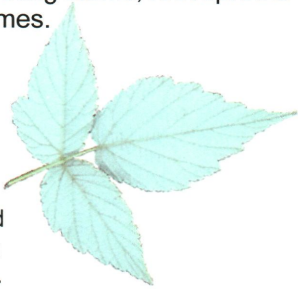
Raspberry foliage and fruit.

Flowers and fruit

Flowers have five usually white petals; may be solitary or in clusters. Fruit are red or black berries with numerous seeds.

Reproduction

Seeds, rooting stems, root sprouts and rhizomes.



Raspberry leaf underside (left) and bramble stem with stiff prickles (right).

Raspberry leaf.

Common cottonwood

Populus deltoides Marshall

Life cycle

Fast-growing, weedy tree.

Leaves

Alternate, simple, broadly triangular, 3 to 5 inches long with coarse, incurved-toothed margins and a smooth base. Leaves are shiny green above and have two to five prominent, fingerlike glands where the long, flattened petiole attaches to the leaf. Margins are outlined by a colorless border.

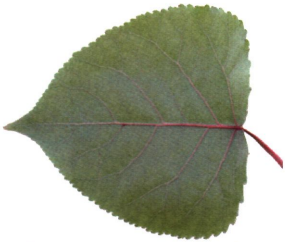
Stems

Up to 100 feet at maturity with a straight trunk and minimal branching. Bark is ash gray on mature trees and greenish yellow on young stems. Plants have the ability to form many vigorous, weedy sprouts.

Flowers and fruit

Male and female flowers are found on separate plants and are clustered in drooping, up to 4-inch-long spikes. Male flowers are reddish;

Common cottonwood seedling.



Common cottonwood leaf.

female flowers are greenish. Fruit are three- to four-valved capsules that release cottony, wind-disseminated seeds.

Reproduction

Seeds.

Glands on upper leaf surface of common cottonwood.

Mass of common cottonwood seeds.

Common cottonwood tree.

Tree-of-heaven

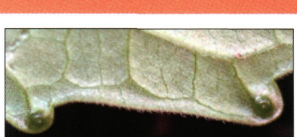
Ailanthus altissima (Mill.) Swingle

Life cycle

Fast-growing, weedy tree.

Leaves

Alternate, pinnately compound with 11 to 41 leaflets, approaching 36 inches long. Leaflets are spear-shaped, 2 to 6 inches long, dark green above and pale green below. Leaf margins are smooth except for one to a few coarse teeth near the base; each tooth has a large gland beneath. Damaged leaves emit an unpleasant odor.



Glands on underside of leaflet teeth.

Tree-of-heaven leaf.

Tree-of-heaven sapling.

Stems

A small to medium-sized tree, reaching up to 80 feet in height, although 40 feet is more common. Twigs are stout, yellowish to reddish brown and either smooth or downy. Bark is thin, smooth and pale to dark gray. Damaged stems emit an unpleasant odor.

Flowers and fruit

Small, green to yellow flowers are produced in terminal clusters. Fruit are single-seeded, 1.5-inch-long, winged samaras found in crowded clusters.

Reproduction

Seeds and prolific vegetative sprouts.

Tree-of-heaven weedy habit.

Jimsonweed

Datura stramonium L.

Life cycle

Erect, branching summer annual.

Leaves

Cotyledons are long and narrow with a prominent midvein. Leaves are alternate, oval to egg-shaped, 3 to 8 inches long, smooth with long petioles. First leaves are entire; later leaves have large, coarsely and unevenly toothed margins. Damaged leaves will emit a foul odor.

Jimsonweed plant.

Stems

Erect and branching, up to 5-foot-tall stems are hollow, generally smooth and green to purple. Damaged stems emit a foul odor.

Jimsonweed seedling.

Immature jimsonweed fruit.

Mature jimsonweed fruit.

Flowers and fruit

Flower petals are large, white to purple in color and fused into a 2- to 5-inch-long tube. Fruit are very spiny, egg-shaped capsules with four valves. Each valve contains numerous flat, dark brown to black, round to kidney-shaped seeds.

Reproduction

Seeds.

Toxicity

All plant parts are toxic to animals.

Jimsonweed leaf.

Smooth groundcherry

Physalis longifolia Nutt. var. *subglabrata* (Mackenzie & Bush) Cronq.

Life cycle

Erect, branching, rhizomatous perennial.

Leaves

Alternate, egg-, lance- to diamond-shaped with entire to toothed margins and long petioles. Leaves are smooth to slightly hairy.

Stems

Erect, branching, angled, up to 3-foot-tall herbaceous stems that become smooth and semiwoody with age.

Flowers and fruit

Flowers have five yellow to greenish yellow petals with purple centers, fused into a bell shape and found drooping and solitary in branch and leaf axils. Fruit are orange, red or purple, globe-shaped berries surrounded by a green,

Young smooth groundcherry plant.

lantern-shaped, papery bladder. Each fruit contains many flat, circular to kidney-shaped seeds.

Reproduction

Seeds and rhizomes.

Smooth groundcherry flower.

Smooth groundcherry leaf.

Smooth groundcherry plant.

Similar weeds

Apple of Peru

[*Nicandra physalodes* (L.) Gaertn.]

Differs by having an aggressive, annual habit, being up to 4 feet tall and having blue, upward facing, bell-shaped flowers.

Apple of Peru fruit.

Apple of Peru flower.

Apple of Peru foliage, flowers and fruit.

Horsenettle

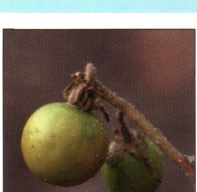
Solanum carolinense L.

Life cycle

Spreading to erect, patch-forming perennial.

Leaves

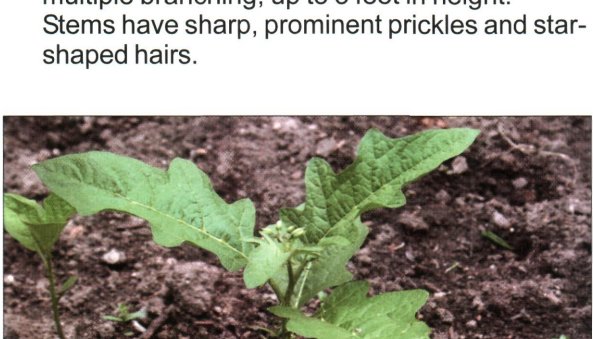
Alternate, egg-shaped, shallowly to deeply lobed, 2 to 5 inches long with sharp, prominent prickles on the leaf veins, midveins and petioles. Star-shaped hairs are present on both leaf surfaces.



Horsenettle mature berries.

Stems

Spreading to erect, herbaceous stems with multiple branching, up to 3 feet in height. Stems have sharp, prominent prickles and star-shaped hairs.



Horsenettle plant.

Flowers and fruit

Flowers are white to pale purple, star-shaped with five petals fused at the base and found in clusters on prickly flowering stalks. Flower centers consist of bright yellow, cone-shaped anthers. Berries are yellow at maturity, globe-shaped, wrinkled and approximately 0.5 inch across, and contain up to 170 seeds.

Reproduction

Seeds and deeply penetrating vertical to horizontal creeping roots.

Toxicity

All plant parts are toxic to animals.

Sharp, prominent prickles of horsenettle.

Horsenettle leaf.

Eastern black nightshade

Solanum ptycanthum Dun.

Life cycle

Erect, branching summer annual.

Leaves

Seedlings have small, egg-shaped cotyledons with a pointed tip and a purplish tinge underneath followed by alternate, petiolated, simple leaves. First leaves are generally smooth, egg-shaped with wavy margins and a purplish tinge underneath; later leaves are slightly hairy, egg- to diamond-shaped with entire to irregularly toothed margins.

Stems

Erect and branching, up to 3-foot-tall stems with few hairs.

Flowers and fruit

Flowers are white to purple tinged, star-shaped with five petals fused at the base surrounding five bright yellow anthers; found in downward facing clusters. Berries are glossy black at maturity and globe-shaped, and contain up to 110 seeds.

Eastern black nightshade seedling.

Eastern black nightshade mature berries.

Reproduction

Seeds.

Toxicity

All plant parts are toxic to animals.

Young eastern black nightshade plant.

Upper leaf surface of eastern black nightshade.

Puplish lower leaf surface of eastern black nightshade.

Similar weeds

Bittersweet nightshade (*S. dulcamara* L.) Differs by having a vining, perennial habit; leaves that are oval to egg-shaped with pointed tips, smooth margins and usually two basal lobes; and purple to blue flowers that yield bright red, oval berries at maturity.

Left: Mature berries of bittersweet nightshade.
Right: Bittersweet nightshade leaf.

Bittersweet nightshade flower.

Stinging nettle

Urtica dioica L.

Life cycle

Erect, rhizomatous perennial.

Stinging nettle seedling.

Leaves

Opposite, egg- to lance-shaped with a rounded base and pointed tip. Petiolated leaves have coarsely toothed margins, smooth surfaces to a few hairs beneath and long, stinging hairs on the lower surface. Contact with stinging hairs can cause a skin irritation.

Stems

Four-angled, herbaceous stems are usually erect and unbranched, up to 6 feet tall and covered with stinging hairs. Contact with stinging hairs can cause a skin irritation.

Flowers and fruit

Inconspicuous, green to yellow flowers are formed in clusters in the upper leaf axils. The seed is enclosed in a single-seeded, tan, egg-shaped fruit.

Reproduction

Seeds and rhizomes that form extensive colonies.

Stinging nettle leaf.

Stinging nettle foliage and flower clusters.

Stinging nettle stem.

Close-up of stinging hairs on stem of stinging nettle.

Field violet

Viola arvensis Murr.

Life cycle

Prostrate to ascending winter annual.

Field violet flower.

Leaves

Young leaves that develop from a basal rosette are round to oval with a few shallow teeth on the margins, long petioles and small stipules. Mature leaves are longer and narrower with round-toothed margins, hairy veins on the leaf underside and large, deeply lobed stipules.

Stems

Prostrate to ascending, multi-branched stems are less than 16 inches long.

Flowers and fruit

Flowers have five white to pale yellow petals sometimes tinged with purple. The lower petal is the largest and the sepals are the same length as the petals or slightly longer. Fruit are single-celled capsules with three valves.

Field violet plant.

Reproduction
Seeds.

Similar weeds

Common blue violet
(*V. papilionacea* Pursh)
Differs by having a perennial nature with rhizomes; basal, hairless, heart-shaped leaves with round-toothed margins; and blue to purple to occasionally white flowers.

Common blue violet flower.

Common blue violet foliage.

Virginia creeper

Parthenocissus quinquefolia (L.) Planch.

Life cycle

Perennial woody vine.

Leaves

Alternate, palmately compound usually with five leaflets, although leaves may consist of three to seven leaflets. Leaflets have toothed margins and turn deep red in the fall.

Virginia creeper tendril.

Tendrils

Branched three to eight times with adhesive disks at their tips that enable plants to grip and climb verticle surfaces.

Compound leaves of Virginia creeper.

Stems

Climbing woody vines with white pith. Young stems are red to green and turn brown with age.

Flowers and fruit

Flowers are small, inconspicuous and green to white. Fruit are small, blue to black, grapelike berries (drupes).

Reproduction

Seeds. Often dispersed by birds. Stems in contact with the ground may root.

Virginia creeper fruit.

Wild grapes

Vitis spp.

Life cycle

Perennial woody vines.

Leaves

Alternate, simple, often three-lobed with toothed margins and palmate veins.

Tendrils

Wrapping, forked and arising opposite from the leaves.

Wrapping tendrils of wild grape.

Stems

Climbing, woody vines. Paperlike bark shreds in strips. Young stems are green and turn brown with age.

Young wild grape.

Flowers and fruit

The green and yellow flowers occur in clusters and are relatively inconspicuous. Fruit are small, purple to black grapes (berries).

Reproduction

Seeds. Often dispersed by birds. Stems and stumps may resprout.

Wild grape leaf.

Wild grape foliage and flowers.

Puncturevine

Tribulus terrestris L.

Life cycle

Prostrate, mat-forming summer annual.

Leaves

Opposite, even pinnately compound, with many small, oblong leaflets.

Stems

Prostrate, covered with stiff hairs and branching in all directions, forming circular mats.

Puncturevine seedling.

Puncturevine leaf.

Flowers and fruit

Flowers are small with five yellow petals. Podlike fruit are woody with five triangular burs and sharp spines. Spines are stout enough to puncture tires.

Reproduction

Seeds.

Puncturevine flower.

Puncturevine fruit.

Glossary of Terms

Aerial: Occurring above ground or water.

Auricles: Earlike structures found at the junction of the blade and sheath; extensions of the leaf blade around the stem.

Awn: A narrow, hairlike bristle.

Axil: The position between the stem and a leaf.

Axillary: Positioned in or arising in an axil.

Basal rosette: Cluster of leaves radiating from the base of the stem at ground level.

Bract: A reduced leaf or leaflike structure at the base of a flower or flower cluster.

Bristle: A short, stiff hair or hairlike structure.

Collar: The area on the outside of a grass leaf at the junction of the blade and the sheath.

Cotyledon: A primary leaf of the embryo; a seed leaf.

Creeping roots: Thickened roots that store carbohydrates, spread vertically and horizontally in the soil and contain adventitious buds that give rise to new plants.

Disk flower: The central flowers of a flower head in the Asteraceae (aster family).

Disseminate: To disperse throughout.

Glume: One of the paired bracts at the base of a grass spikelet.

Herbaceous: A non-woody plant with stems and leaves that die back to the ground in the winter.

Ligule: A membranous or hairy structure arising on the inside of the leaf at the junction of the blade and sheath.

Node: The position on the stem where leaves or branches originate.

Ocrea: A membranous, papery sheath around the stem at the nodes as in members of the Polygonaceae (smartweed family).

Palmate: Lobed, veined or divided from a common point, like the fingers of a hand.

Panicle: A flower cluster with a main axis and subdivided branches that is often pyramid-shaped.

Pappus: The feathery or hairy portion of a seed used to facilitate wind dispersal.

Petiole: A leaf stalk.

Pinnate: The word used to describe a compound leaf with leaflets arranged on opposite sides of an elongated axis.

Prickle: A small, sharp outgrowth of the stem surface.

Ray flower: The straplike outer flowers of a flower head in the Asteraceae (aster family).

Rhizome: Belowground modified stem that gives rise to new plants.

Samara: A dry, winged fruit.

Sepal: The outermost part of a flower; typically green and leaflike.

Spikelet: The individual flower clusters of grasses and sedges, consisting of one to many flowers subtended by two bracts (glumes).

Spine: A stiff, slender, sharp-pointed structure arising from below the epidermis.

Stipules: A pair of leaflike structures found at the base of a leaf.

Stolon: Aboveground modified stem that gives rise to new plants.

Terminal: The tip or end of a stem or leaf.

Thorn: A stiff, woody, modified stem with a sharp point.

Trifoliolate: The word used to describe a compound leaf consisting of three leaflets.

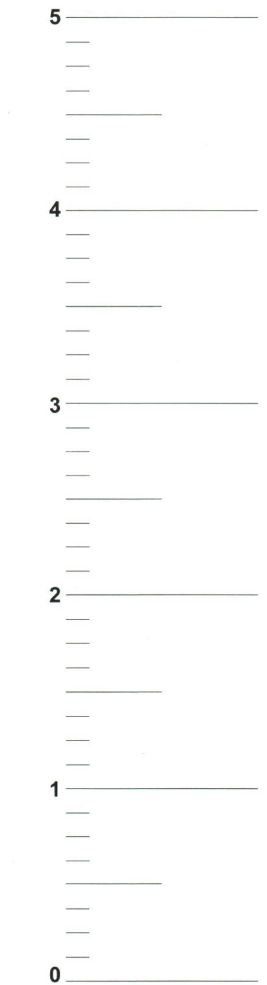
Tuber: The thickened portion of a rhizome bearing nodes and buds; underground stem modified for food storage.

Whorl: Arrangement of three or more parts arising from a common point, as in a leaf arrangement with three or more leaves per node.

Modified from:
Plant Identification Terminology: An Illustrated Glossary. J.G. Harris and M.W. Harris. 1999. Spring Lake, Utah: Spring Lake Publishing.

Index

By common name



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