



Annual Bluegrass

O & T Guide W-1

Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Annual bluegrass, *Poa annua*, is a nonnative annual grass that is mostly erect but sometimes has a spreading growth pattern. This grass has crinkled leaves with unevenly curved tips, and produces seeds on openly branched stems. Annual bluegrass makes good turf under certain management conditions, but will otherwise displace desirable turf. It is also known as annual meadowgrass, annual or dwarf spear-grass, walkgrass, and wintergrass.



The stems are usually erect, although some varieties can produce roots at the stem nodes causing the plants to have a spreading growth pattern. The stems grow to 8 in. tall and are normally light green and hairless. The leaves grow 0.5-4.0 in. long by 0.04-0.10 in. wide and may be flat or folded. They are often keel shaped, have unevenly curved tips, and rough edges. The base of each leaf forms a sheath that extends down the stem. The sheaths are open for about half their length, are slightly flattened, with a raised midvein, and overlapping edges.



Seeds are borne on numerous slender branches found at the stem ends. The stems are openly branched and grow 0.5-4.0 in. long. The seeds are 0.1-0.3 in. long and may be green, purple, or straw-colored. The plant has a fibrous root system, and creeping varieties can produce roots at the stem nodes. It reproduces through seed only.

Management:

- Physically remove single plants or small infestations before seed production
- Cleaning equipment used in an infested area can prevent spread of seed to uninfested areas
- Herbicides are effective



Bermuda Grass

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Bermuda grass, *Cynodon dactylon*, is a perennial grass that is sometimes planted as turf, but because of its creeping growth pattern it can become weedy if it escapes cultivation. It has numerous branched, creeping stems that are flattened in cross-section, produces seed on long, slender branches, and has small, purple flowers. Bermuda grass is also known as common quickgrass, couch grass, devil's grass, and dog's tooth grass.

The stems are often spreading (sometimes erect), branched, slightly flattened in cross-section, and usually grow 4-6 in. tall, though some plants may reach 18 in. tall. The stems are often rooted at the nodes, creating the spreading growth pattern. The leaves grow to about 2.5 in. long by 0.03-0.25 in. wide, are green to dark green, may be flat or folded (rolled when budding), and have a pointed tip. The base of each leaf forms a sheath that extends down the stem; sheaths and leaf bases are often covered with soft, long hairs.

Bermuda grass produces seed on long, slender branches that are found at the stem ends. Each stem produces about 3-8 branches that all emerge from the same point at the stem end in a whorled pattern; each branch is 1.0-2.5 in. long. The seeds are about 0.08 in. long and grow in two overlapping rows on only one side of each branch. One flower is found next to each seed when flowering; flowers are slightly smaller than seeds, purple, and bushy.

The plant produces an extensive system of creeping rhizomes and stolons that often have a scaly appearance. It also produces fibrous roots at the stem nodes. Bermuda grass reproduces through seed and vegetatively through rhizomes and stolons.





Management:

- Physical removal must remove as much of the root/rhizome system as possible
- Herbicides are effective at suppressing this plant



Black Medic

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Black medic, *Medicago lupulina*, is a nonnative annual with clover-like leaves, yellow flower heads, and seed pods that are black at maturity. Black medic is good forage for livestock but is a problem weed in turf. It is also known as black medic, black or hop clover, hop medic, nonesuch, and yellow trefoil.

The stems are branched at the base and often grow along the ground, in colors ranging from green to purple or brown. They grow to about 16 in. long, are usually covered with short hairs. The leaves are clover-like with three leaflets per leaf. The leaflets are oval to heart-shaped, usually hairy, with toothed edges. Each leaflet is about 0.4-0.8 in. long by 0.1-0.5 in. wide.



The plant produces round (sometimes elongated) flower heads on stalks 0.2-1.5 in. long; a single flower head grows on each stalk. Flower heads are 0.1-0.2 in. in diameter with 10-50 flowers per flower

head. Individual flowers are yellow, 0.05-0.10 in. long, and narrow. The plant produces kidney-shaped seed pods that are 0.08-0.12 in. long, sometimes hairy, and black at maturity; each pod contains one seed. The plant grows from a taproot with spreading lateral roots and reproduces from seed only.





Management:

- Physically remove single plants or small infestations
- Herbicides are effective

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Crabgrasses

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Large and smooth crabgrass, *Digitaria sanguinalis* and *D. ischaemum*, are non-native summer annual grasses that produce seed on long, slender branches, and have reddish or purple stems that are flat in cross-section. Although the stems are mostly erect, the plants often have a spreading growth pattern because the stem nodes can develop roots. Several things distinguish large from smooth crabgrass: large crabgrass is covered with long hairs, generally larger, and produces two rows of seeds per branch, while smooth crabgrass has few to no hairs, is usually smaller, and produces three rows of seeds per branch. Large crabgrass is also known as hairy or purple crabgrass; smooth crabgrass is also known as small crabgrass.



Large crabgrass



Large crabgrass

The stems of both plants may be erect or spreading, are branched at the base, flattened in cross-section, and green to purple or red in color. Large crabgrass stems are covered with long hairs while smooth crabgrass is mostly hairless. Large crabgrass stems can grow to about 2 ft. tall and smooth to about 16 in. tall.

The leaves are flat (rolled when budding) and have a prominent midvein. Large crabgrass leaves are 1-8 in. long and 0.15-0.50 in. wide; smooth crabgrass leaves are 0.6-3.5 in. long and 0.1-0.3 in. wide. The

base of each leaf forms a sheath that extends down the stem; large crabgrass sheaths grow up to 6 in. long and smooth up to 4.5 in. long. The sheaths and leaf surfaces of smooth crabgrass are mostly hairless, although some long hairs may be present where the leaf base joins the sheath.



Smooth crabgrass

Both plants produce seed on long, slender branches that emerge from the stem ends. The branches are 2-6 in. long with 3-11 branches per flowering stem. Seeds grow in alternating rows on only one side of each branch; large crabgrass has two rows of seeds and smooth has three rows. Smooth crabgrass seeds are generally smaller; they grow to about 0.1 in. long while large crabgrass seeds grow to about 0.2 in. All seeds are green to purple in color. Both plants have a fibrous root

system that emerges from the plant base or from lower stem nodes. Both plants reproduce through seed only.



Smooth crabgrass

Management:

- Manually remove plants before they produce seed
- Vigorous, healthy turf can compete with crabgrass and reduce infestations
- Pre-emergent herbicides are effective

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Downy Brome

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Downy brome, *Bromus tectorum*, is an annual grass that produces seeds on drooping branches. It has flat leaves that are rolled when budding, is usually green to purple in color, with some long hairs on the leaf base or sheath. Its seeds are tipped with bristles that may injure grazing animals or pets. Downy brome is also known as cheatgrass, drooping brome, military grass, broncgrass, and Mormon oats.

The plant produces erect stems that often droop, especially when in seed. Stems can grow to about 16 in. and are green to purple or red in color, sometimes with short or long hairs. Stem growth is highly variable depending on precipitation.



The leaf blades are flat (rolled when budding), several inches long by 0.05-0.25 in. wide, and green to purple in color.

The base of each leaf forms a sheath that extends at least halfway down the stem. The sheaths and leaf bases often have long hairs.



Downy brome produces drooping, slightly flattened branches at the stem ends that are 2.5-8.5 in. long, with 4-8 grass seeds branch. Individual seeds are 0.35-0.50 in. long and each seed is tipped with a straight bristle that is 0.3-0.7 in. long. The branches and seeds are green to purple or

red in color. The plant produces a fibrous root system to depths of up to 12 in. It reproduces by seed only. The plant is very flammable when dry and can cause extreme fire danger when large patches develop.



Management:

- Burning before seed dispersal will destroy seed but may leave the site susceptible to re-invasion in following years
- Mowing within a week after flowering will reduce seed production
- Cultivation two or three times shortly after germination is effective at controlling seedlings
- Herbicides are effective

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Field Bindweed

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Field bindweed, *Convolvulus arvensis*, is a perennial with vine-like stems, arrowhead shaped leaves, and distinct funnel- or bell-shaped flowers that resemble morning glory. Field bindweed can outcompete desirable plants and is very tolerant of intensive management. The plant is also known as cornbind, creeping Charlie or Jenny, field morning glory, and small bindweed.

Field bindweed produces creeping, vine-like stems of various lengths that twine around each other, other plants, or grow along the ground. The stems are green and often have some small hairs.



It has distinct arrowhead shaped leaves that are green to dull green, 1.0-1.5 in. long, and that often have a rounded tip. Leaf size and shape can vary with environmental conditions.



The flowers are found at leaf axils either singly or in groups of 2-4 on stalks about 0.8-2.5 in. long. The petals are white to pink in color and 0.5-1.2 in. long. The plant produces an extensive system of white, fleshy taproots and creeping perennial roots. It reproduces through seed and vegetatively through its creeping roots.



Management:

- Physical removal must remove as much of the root system as possible
- Repeated deep cultivation (at least 4 in.) is effective at controlling seedlings and young plants
- The bindweed gall mite (*Aceria malherbae*) and bindweed moth (*Tyta luctuosa*) can be effective at suppressing large populations
- Herbicides are effective at suppressing bindweed

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Field Sandbur

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Field sandbur, *Cenchrus spinifex*, is a native annual grass that produces numerous green to straw-colored spiny burs at maturity. The burs are dispersed when they cling to animals, people, clothing, or equipment. They are very sharp and can be dangerous to grazing animals, pets, people, and tires. Field sandbur is also known as sandbur, burgrass, spiny sandbur, and *Cenchrus incertus*.

The stems may be erect or spreading, are often bent near the base, and are highly branched. They grow from 6 in. to 1.5 ft. tall and appear flat in cross-section. The plant's leaves are flat (folded when budding), 1.5-12 in. long and 0.10-0.25 in. wide, usually with a raised midvein, and few to no hairs. The base of each leaf forms a sheath that extends down the stem, and the point where the leaf base joins the sheath is often lighter in color and hairy.



Field sandbur produces numerous small, spiny burs that are green to straw-colored. They are found at the ends of flowering stems in groups that are 0.8-2.0 in. long and contain 10-30 burs; each bur is about 0.10-0.25 inches in diameter with 8-40 sharp, spiny bracts. The plant has a shallow and fibrous root system that emerges from the plant base; some lower stem nodes may also develop roots. It reproduces through seed only.





Management:

- Establishment and management of desirable vegetation is very effective because field sandbur is a poor competitor
- Repeated cultivation before burs form can be effective
- Mowing is NOT effective
- Pre-emergent herbicides are effective

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Khakiweed

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Khakiweed, *Alternanthera pungens*, is a nonnative herbaceous perennial that grows in thick, spreading mats on the ground, often 0.5-2.0 ft. in diameter. The weed spreads through spiny burs that attach themselves to animals, clothing, tires, and equipment. It is also known as creeping chaffweed.

The stems can grow to various lengths depending on environmental conditions. Stems are highly branched, spreading, and grow along the ground, often rooting at the stem nodes. They are green, brown, reddish, or purple in color and covered with short hairs.



The leaves are mostly oval in shape, 0.5-2.0 in. long and 0.25-0.50 in. wide, often with a pointed tip. They grow in an opposite pattern along the stem and opposing leaf pairs often differ in size. Leaves are green in color, often with a shiny appearance and sometimes waxy

texture. Leaves normally have a conspicuous midvein.



Flowers are found at leaf axils. They are small and white and are surrounded by numerous green, white, or straw-colored spiny bracts each about 0.08-0.20 in. long. These bracts make up the burs that allow khakiweed to spread. Khakiweed grows from a woody taproot and reproduces through seed, root nodes, or root fragments.





Management:

- Physical removal must remove as much of the root system as possible
- Herbicides are effective



Knotweed

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Knotweed, *Polygonum aviculare*, is a non-native annual with a spreading growth pattern, oval leaves, and distinct membranous sheaths that grow around the swollen stem nodes. It is often found in compacted soil or in high traffic areas. Knotweed is also known as prostrate knotweed, oval leaf knotweed, matweed, wireweed, and stone grass.

The stems can grow to about 4 ft. long, are round in cross-section, and smooth. The plant has a spreading growth pattern but the stems do not root at the nodes. The stem nodes are swollen and are each covered with a thin, membranous sheath that may be light- to dark-brown or purple in color. The leaves are oval or oblong in shape, hairless, with smooth or wavy edges, and grow 0.2-1.0 in. long by 0.3 in. wide.



The plant produces small flowers with five petals each that grow from the leaf axils. The flowers grow in clusters of 3-8 and are white, yellow, or pink in color. Knotweed grows from a fibrous taproot and reproduces through seed only.





Management:

- Physically remove plants before seed production
- Vigorous, healthy turf can compete with knotweed and reduce infestations
- Herbicides are effective



Kochia

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Kochia, *Kochia scoparia*, is a non-native erect summer annual that has slender leaves (often with long hairs), small flowers, and five-lobed fruit. Kochia can be toxic to livestock when it makes up 50% or more of their diet. It is also known as fireweed, Mexican burningbush, morenita, poor man's alfalfa, and summer cypress.

The plant can grow to about 3-6 ft. tall, and its height and leaf shape can vary dramatically based on precipitation. It has erect stems with some branching; the stems sometimes have reddish streaking. The leaves are narrow or lance-shaped, 0.2-2.3 in. long and 0.05-0.50 in. wide, flat, green to gray-green in color, and have smooth edges. The leaves are mostly alternate but may grow in groups or clusters. Leaves and stems are often covered with short or long hairs.



The flowers are very small and inconspicuous and are found in small clusters at the leaf axils. There are normally five tiny flowers per cluster. Individual flowers are 0.04-0.08 in. wide, heart or spade shaped, and may be green, white, pink, or red in color. Kochia produces a deep taproot (up to 6 ft.) with fibrous, branched horizontal roots that can spread over wide areas (up to 9 ft.). It reproduces through seed only.



Management:

- Physical removal before seed production is effective
- Cultivation before seed production is effective
- Herbicides are effective

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London Rocket

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist

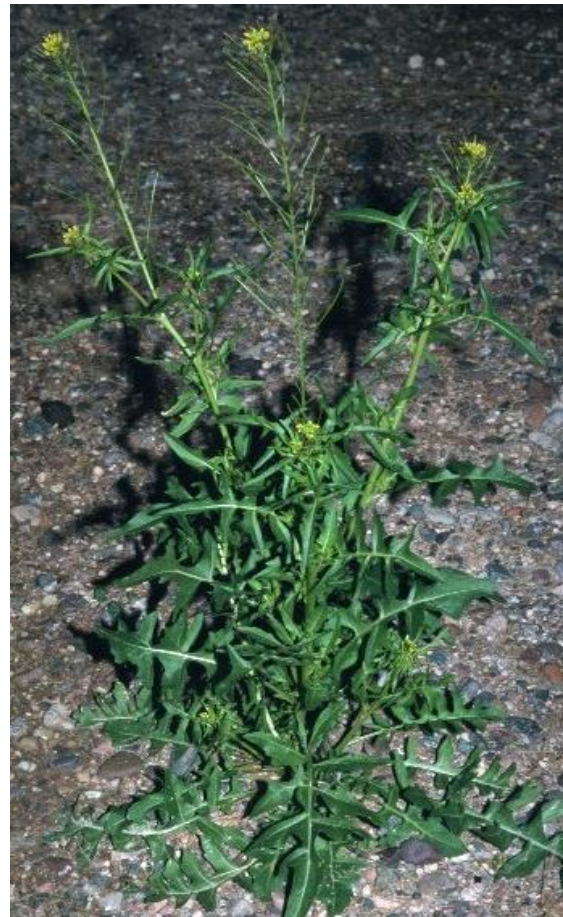


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London Rocket, *Sisymbrium irio*, is a non-native winter annual mustard with bright or pale yellow flowers and slender, green to brown seed pods that ascend up the flowering stems. The plant exists as a rosette of leaves on the ground until it produces erect stems during flowering. London rocket is also known as desert mustard.



The stems are erect, branched at the base, and grow to about 20 in. tall. They are mostly green in color, but sometimes have a purple tinge, and often have hairs.



The lower leaves grow to about 6 in. long and have several pairs of opposite lobes separated by a pronounced midvein. The upper leaves are usually smaller, oblong or narrow in shape, with normally smooth edges, and one or more pairs of elongated lobes at the leaf base. All leaves are green with few to no hairs.



London rocket flowers are 0.2-0.3 in. in diameter with four bright or pale yellow petals. The plant produces seed pods that are round, very narrow, 1.0-1.5 in. long, green to brown in color, straight or curved, and hairless. The seed pods grow in an ascending pattern at the tops of flowering stems. The plant produces a taproot with branching, fibrous horizontal roots, and reproduces by seed only. Large populations of London rocket often develop if there is significant fall precipitation.

Management:

- Physical removal before seed production is effective
- Cultivation before seed production is effective
- Herbicides are effective



Yellow and Purple Nutsedge

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Yellow and purple nutsedge. *Cyperus esculentus* and *C. rotundus*, are non-native grass-like perennial plants that have triangular stems, grass-like leaves that grow in three vertical rows, and small underground “nutlets” or tubers that grow from the rhizomes. The plants’ appearance can vary greatly based on environmental conditions. Nutsedges are quite troublesome and difficult to control, often forming dense infestations. Yellow nutsedge is also known as chufa, earth almond, and rush nut; purple nutsedge is also known as coco sedge or grass; both species are also known as nutgrass.



Purple nutsedge



Yellow nutsedge

Both plants have erect stems that are green, three sided, and appear triangular in cross-section. Yellow nutsedge stems can grow to 3 ft. tall while purple nutsedge stems can grow to 16 in. tall. The leaves grow from the base of the plant and are arranged in three vertical rows. Yellow nutsedge leaves are often longer than the stems while purple nutsedge’s are shorter; both are about 0.10-0.35 in. wide. The leaves of both plants are light to dark

green, hairless, glossy, often with a raised midvein, and form a sheath that extends down the stem.



Yellow nutsedge



Purple nutsedge

Both plants produce leaf-like bracts at the ends of the stems just below the flower structures. The flower structures consist of several small branches, each 0.2-1.2 in. long, with up to 40 small grass-like seeds per branch. Yellow nutsedge branches are

straw-colored to brown, while purple nutsedge branches are reddish, purple, or brown. Both plants produce deep roots, rhizomes, and distinct tubers. Yellow nutsedge tubers grow at the ends of rhizomes, are mostly round, 0.1-0.6 in diameter, hard, brown to black in color, and smooth (but with scales when immature). Purple nutsedge tubers grow in chains along the rhizomes; they are oblong to round but often irregular in shape, 0.1-1.0 in. long by about 0.3 in. thick, and covered with red to brown papery scales. Both plants reproduce vegetatively from tubers; yellow nutsedge can also reproduce from seed.



Yellow nutsedge tuber

Management:

- Physical removal must remove as many roots, rhizomes, and tubers as possible
- Frequent mowing or deep cultivation can drain tubers of stored energy prevent new growth
- Herbicides can suppress nutsedge growth.



Puncturevine

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Puncturevine, *Tribulus terrestris*, is a prostrate summer annual with many creeping or spreading stems, yellow flowers with five petals, and woody seed pods covered with spinney burs. The burs are very sharp and pose a threat to people, animals, pets, and some tires. The plant's foliage is toxic to livestock when ingested; sheep are especially vulnerable because they can tolerate and will often eat the plant. Puncturevine is also known as goathead, bullhead, caltrop, Mexican sandbur, and tackweed.

The stems originate from a taproot and can grow to about 3 ft. long with much branching. Stems are green to red or brown in color, often with long hairs, and grow horizontally along the ground.



The plant's leaves consist of 3-7 pairs of opposite leaflets that grow along a common midvein; each leaflet is oval or

oblong in shape, about 0.2-0.6 in. long, green to dark green in color with smooth edges, sometimes with long hairs or bristles on the leaf or leaf edge.



The flowers grow singly at leaf axils and are 0.2-0.6 in. in diameter, bright yellow, with five petals. Woody seed pods also develop singly at leaf axils and are 0.2-0.4 in. in diameter, green to brown in color, often hairy, with many sharp burs each 0.10-0.25 in. long. The plant grows from a semi-woody taproot and reproduces by seed only.



Management

- Physical removal is effective if performed before seed production
- Establishing competitive vegetation can help control infestations
- Herbicides are effective
- The stem weevil (*Microthrips lypriformis*) and seed weevil (*M. lareynii*) are effective biological controls

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Russian Thistle

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Russian thistle, *Salsola tragus*, is a non-native summer annual that is often known as tumbleweed. Two other species are common in New Mexico: barbwire Russian thistle (*S. paulsenii*) and spineless Russian thistle (*S. collinear*). The plant has a dense and bushy growth pattern, and when mature it forms large bushes with stiff branches and prickly leaves. Russian thistle may be toxic to livestock if ingested in large amounts, especially sheep. It can be a problem for homeowners with a garden because the plant can carry the virus that causes curly-top in tomatoes, melons, chili peppers, and other crops. In addition to Russian thistle and tumbleweed, it is also known as windwitch, witchweed, and common saltwort.



The rigid, erect stems typically grow to about 3 ft. tall and are green, sometimes with purple streaking. The stems are highly branched, and the plants are often very dense and bushy. The plant has

small, narrow leaves that are 0.3-2.0 in. long and 0.02-0.040 in. wide, green to blue-green in color with a fleshy texture, sometimes with short hairs. Each leaf has a sharp, stiff spine at the tip (most pronounced on upper leaves).



The small flowers grow singly at leaf axils and are 0.04-0.20 in. in diameter, pink, dark red, or brown in color, sometimes with a conspicuous midvein. Russian thistle produces a taproot and spreading horizontal roots and reproduces by seed only. After the plants produce seed and begin to die off, the main stems often break off and tumble in the wind, dispersing seed as they travel.



Management:

- Physical removal is effective for seedlings and young plants
- Cultivation before seed production is effective
- Herbicides are effective
- Prevention or reduction of disturbance is critical in preventing establishment



Silverleaf Nightshade

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Silverleaf nightshade, *Solanum elaeagnifolium*, is a native perennial herb or with star-shaped, purple flowers and small, orange fruit. Its stems are usually covered with short, yellow or red thorns. The leaves and fruit of the plant are toxic to livestock and humans if ingested. It is also known as desert nightshade, melloncillo, prairie berry, silverleaf bitter apple, tomato weed, and trompilla.

The stems are erect, can grow up to 3 ft., and are covered with tiny, star-shaped hairs (visible with 20x magnification) that make the stems appear gray-green or silver. The stems are often covered with small yellow or red thorns about 0.1-0.2 in. long. The lance-shaped leaves are 0.8-6.0 in. long with smooth or wavy edges, and are silver or gray-green in color. The lower leaf surfaces often feel velvety because of the dense covering of star-shaped hairs.



Silverleaf nightshade produces distinct star-shaped flowers that are 0.8-1.2 in. in diameter, and purple to blue in color with a yellow center. The small, round seed pods are light to dark yellow-brown or orange in color (green when immature), smooth and glossy, 0.10-0.15 in. long and 0.07-0.10 in. wide. The plant grows from deep vertical roots and creeping horizontal roots. It can reproduce through seed as well as vegetatively through its creeping perennial roots.





Management:

- Physical removal must remove as much of the root system as possible
- Weekly mowing before seed production can prevent seed spread and reduce competitiveness
- Herbicides are effective

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Spotted Spurge

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Spotted spurge, *Euphorbia maculata*, is a native creeping annual plant that has oval-shaped leaves and reddish stems that are filled with milky sap. The sap can cause minor skin and eye irritation in humans and may be toxic to animals if ingested. It is also known as spotted sandmat, milk purslane, milk spurge, and spotted pusley.

The stems are spreading and can grow to about 20 in. long. They are reddish, often covered with long hairs, and filled with milky sap. The leaves are 0.15-0.65 in. long, oval or oblong in shape, grow opposite from each other along the stem, and are often hairy. They are green to dark green in color with a single purple or maroon spot or blotch in the center, and have toothed edges.



The flowers are found at leaf axils. The plant produces both male and female flowers. Male flowers are very small, white to pink, and bell-shaped. Female flowers consist of a three chambered, round ovary that is green to red in color, with several tiny bracts at the top; the female ovaries are often larger than the male flowers. The plant produces a taproot and reproduces through seed only.



Management:

- Physically remove plants before seed production
- Vigorous, healthy turf can compete with spotted spurge and reduce infestations
- Herbicides are effective

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Tall Fescue

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Mark Renz, Extension Weed Scientist



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Tall fescue, *Festuca arundinacea*, is a non-native perennial grass that is sometimes planted as turf but can escape cultivation and become weedy. The plant has pronounced stem nodes, ribbed leaves that are rough to the touch, and produces seeds on openly branched stems. It is also known as reed fescue, coarse fescue, and alta fescue.

The stems are erect, round in cross-section, with pronounced nodes, and grow between 15 in. and 5 ft. tall. The leaves are mostly flat (rolled when budding), green to dark green, with ribbed veins on the upper surfaces, and rough edges. The base of each leaf forms a sheath that extends down the stem; leaf bases are broad, sometimes yellow, and often have two small, claw-like projections (auricles).



Seeds are borne on numerous slender branches found at the stem ends. The branches are 2.0-4.5 in. long and are often open and spreading when the plant reaches maturity. There are about 5-15 seeds per branch; each seed is 0.3-0.6 in. long and is attached to the branch by a short stalk. The plant produces a fibrous root system that can grow up to 20 in. deep, as well as short rhizomes near the base. It reproduces from seed and vegetatively from rhizome fragments.





Management:

- Physical removal must remove as much of the root/rhizome system as possible
- Vigorous, healthy turf can compete with fescue and reduce infestation
- Herbicides are effective

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Tree of Heaven

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Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Tree of heaven, *Ailanthus altissima*, is a deciduous tree that has distinct yellow or red seed pods that grow in bunches, and leaves with small, circular glands on the undersides; its leaves have a skunky odor when crushed. The plant can tolerate shade, pollution, and harsh soil conditions. It is also known as ailanthus, copal tree, and varnish tree.

Tree of heaven normally has a single, erect trunk that can grow up to 65 ft. tall. Small trees have smooth, gray-brown bark while larger trees have rough bark with diamond shaped fissures. The plant's leaves are 1-3 ft. long and are divided into 10-22 pairs of opposite leaflets with one terminal leaflet. Each leaflets is 3-5 in. long, lance-shaped, with mostly smooth edges except for 2-4 rounded teeth at the base. These rounded teeth often have small, circular glands on the undersides. The leaves have a skunky odor when crushed.

The flowers develop in bunches 4-8 in. long. They are very small, greenish-yellow or white, with five petals. The plant's seed pods are 1-2 in. long by 0.5 in. wide, flat, and constrict around a single seed. The pods are straw-colored to reddish-brown in color and grow in bunches. Tree of heaven grows from a taproot with shallow, creeping perennial lateral roots. It reproduces through seed and vegetatively through the root crown and lateral roots.





Management Do's and Don'ts:

- Prevention and maintenance of a healthy plant community are the best management methods
- Physical removal is effective only if root crown and creeping lateral roots are removed
- Herbicides are effective



White Clover

O & T Guide W-19

Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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White clover, *Trifolium repens*, is a non-native perennial clover with creeping stems that root at the nodes and round flower heads with numerous small, narrow, white flowers. It is a common turf weed but has beneficial uses as forage and for erosion control. White clover is also known as Dutch clover and ladina clover.

The plant produces creeping stems and stolons that root at the nodes and can grow to about 12 in. long. Leaves grow on green, reddish, or whitish stems that emerge from the creeping main stems. Leaves are distinctly clover-shaped, with three leaflets each with a white band or crescent; each leaflet is 0.2-1.0 in. long.



Individual flower heads are round to oval in shape and 0.5-1.0 in. in diameter. Flower heads are found on separate stems that are longer than leaf stems. Flower heads consist of 40-100 small, narrow flowers. Individual flowers are 0.25-0.45

in. long, are white to pale pink in color, and often curve upwards. White clover seedlings produce a taproot, but mature plants produce fibrous roots and creeping stolons. The plants reproduce through seed or vegetatively through creeping stolons.





Management:

- Physical removal must remove as much of the root/rhizome system as possible
- Vigorous, healthy turf can compete with white clover and reduce infestations
- Herbicides are effective



Yellow Woodsorrel

O & T Guide W-20

Frank Sholedice, Research Associate &
Mark Renz, Extension Weed Scientist



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Yellow woodsorrel, *Oxalis stricta*, is a native herbaceous perennial with clover-like leaves, yellow flowers with five petals, and distinct seed pods with five corners. It has a spreading, prostrate growth pattern, but the stems often grow tall enough to form a rounded clump several inches high. It is often found in turf, lawns, potted outdoor plants, and greenhouses. Yellow woodsorrel is also known as yellow oxalis, sheep sorrel, toad sorrel, and sourgrass.



The stems emerge from spreading rhizomes that grow along the ground, rooting at the nodes. Stems are green to brown or red in color, up to 20 in. long, branched at the base, and may be smooth or have a few hairs. Stems may be either prostrate and spreading or erect. Leaves consist of three heart-shaped leaflets and resemble clover leaves. They are green to dark green in color, with tiny hairs on the leaf edges, and grow alternately along the stems.

Flowers grow singly or in clusters on long stems that emerge from the leaf axils. The flowers have five yellow petals, and each flower is 0.3-0.7 in. in diameter. The plant produces long, cylindrical seed pods at the ends of stems. The seed pods are green, hairy, and grow to about 0.75 in. long. In cross-section, the pods have 4-5 corners that resemble a star. The plant produces rhizomes and fibrous roots. It reproduces through seed or from rhizomes.





Management:

- Physical removal must remove roots and rhizomes
- Herbicides are effective

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