NOXIOUS WEED FIELD GUIDE FOR UTAH

EXTENSION

UtahStateUniversity

4th Edition

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This handbook is valid as to its list of noxious weeds as of the date of publication. However, the list is subject to change. Please contact the Utah Department of Agriculture and Food, or go to ag.utah.gov/plants-pests.html to ensure you have the most up-to-date information.

The authors gratefully acknowledge the contributions of the authors of previous editions: Nathan Belliston, Ralph Whitesides, Steven Dewey, Joel Merritt, and Stephen Burningham.

ON THE COVER

Left to Right: *Musk Thistle – pg. 72, Camelthorn – pg. 10, Purple Loosestrife – pg. 48, Cogongrass – pg. 92*

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INTRODUCTION

Noxious Weeds a Biological Wildfire

Invasive noxious weeds have been described as a raging biological wildfire – out of control, spreading rapidly, and causing enormous economic losses. Millions of acres in North America have been invaded or are at risk of being invaded by weeds, including cropland, pastures, rangelands, forests, wilderness areas, national parks, recreation sites, wildlife management areas, transportation corridors, waterways, wetlands, parks, golf courses, even yards and gardens. Noxious weeds are capable of spreading at rates of up to 60% annually (Smith et al. 1999).

Devastation caused by noxious weeds is enormous. Economic losses from weeds exceed $30 billion (Pimentel et al. 2005) annually in the United States, and the cost continues to grow. Weeds often reduce crop yields, and can damage watersheds, increase soil erosion, negatively impact wildland plant and animal communities, and adversely affect outdoor recreation. Ecological damage from uncontrolled noxious weed infestations can be permanent, leaving lands unable to return naturally to their pre-invasion condition.

The weeds included in this guide are legally denoted as noxious according to Utah state law (Code 4-17). Through a structured decision-making process, and with the use of a prioritization tool to help guide the process, the current noxious weed list was determined. The process was biased toward weed species that currently have limited state-wide distribution, and also included those that have not yet been identified as occurring within the state. Because weed management focused on newly invading species, it holds the most promise for effective management.

Prevention, preserving, and protecting lands not presently infested is the first line of defense against aggressive noxious weeds. Prevention requires awareness and action by land managers as well as the general public, to recognize, report, and control new infestations before they have a chance to expand and spread.

Effective April 2016, the Utah Noxious Weed Act was also amended to allow for an updated categorization of weeds based on preventive or management measures. The categories are as follows:

Class IA Early Detection Rapid Response (EDRR)/Watch List: Plants not known to be in Utah, but thought to be present in neighboring states. If found in the state, swift eradication of any plants in this category is a very high priority.

Class IB Early Detection (ED): Plants that occur in Utah at very low levels. It is a high priority to eradicate all known populations, and prevent new ones.

Class II Control: Plants that have a reasonable distribution in Utah, but do not occur everywhere. These should be given a high priority for control.

Class III Contain: Plants widely distributed in Utah. The current populations of these plants should be contained to halt their spread. These plants should not enter commercial channels.

Class IV Prohibited: Plants that are present in Utah, appear to be arriving in nursery stock/seed, and are being sold as ornamentals. This is now illegal.

USING THIS BOOK

This publication is designed to help you identify some of the common noxious and invasive weed species that are currently threatening Utah and have been identified on Utah's state weed list. If you are an outdoor enthusiast or other concerned citizen, this booklet will help you recognize these invasive weeds so you can report them to proper authorities before significant spread and damage can occur. If you are an agriculturalist or public land manager, this booklet will help you more accurately identify the invasive weeds in the area of your stewardship — a critical step in choosing the most effective control strategy.

This book is divided into five color-coded sections that reflect the categories and weed rankings from a statewide perspective. Individual counties may add county-declared noxious weeds to the list and rank the state-listed weeds in different categories, but cannot delete state-listed weeds.

Except for Class IA weeds, each of the noxious weeds in this book occupies one full spread of the publication, with written information on the left side and photos of the weed on the right. Class IA weeds are given minimal treatment, appearing four to a spread (two per page). Weeds are listed in alphabetical order by common name within the designated noxious classifications. Scientific names are listed directly underneath the main common names.

COMMON NAME

The most widely accepted name used by the Weed Science Society of America (WSSA) and found in the book *Weeds of the West*.

SCIENTIFIC NAME

The officially accepted scientific name used by WSSA and found in the book *Weeds of the West*, plus common synonyms.

For each weed, given underneath the names are the following:

BACKGROUND

The plant's origin, habitat preferences, and reasons for noxious designation.

OTHER COMMON NAMES

Local or historical names.

DESCRIPTION

Life cycle, distinguishing characteristics, and methods of reproduction.

CONTROL

General effective control methods.

DISTRIBUTION MAPS

The known county distribution in Utah, from EDDmapS (see references), current as of December 2016.

Class IA Weeds

(Early Detection Rapid Response Watch List)

African Rue *Peganum harmala*

DESCRIPTION: A succulent, highly-branched herbaceous perennial, which grows 1-1 ½ feet tall and 3-4 feet wide. Leaves are very narrow and are divided into fine segments. When crushed, stems and leaves have an unpleasant smell. Five-petaled white flowers yield segmented seed pods.

(UGA5078008)

Common Crupina

Crupina vulgaris

DESCRIPTION: A winter annual. Common crupina grows 1-4 feet tall on a spiny stem that branches widely at the top, bearing up to 40 flower heads. Leaves have spiny margins and are increasingly lobed toward the top of the stems, with upper leaves threadlike. Flower heads are pinkish purple with a swollen base.

(UGA1459128)

Malta Starthistle

Centaurea melitensis

OTHER COMMON NAME: Malta thistle

DESCRIPTION: An annual or biennial plant that grows 1-2 feet tall on stiff, branching stems. Leaves are grayish green with stiff hairs, and dotted with resin. Leaf bases extend down the stem and cause the stem to look winged. Sharp purplish spines occur below the yellow flower head.

Mediterranean Sage

Salvia aethiopis

OTHER COMMON NAME: Ethiopian sage

DESCRIPTION: A shrubby biennial plant that can grow 2-3 feet tall and 2-3 feet wide. Rosette leaves are grayish-green, and triangular. The mature plant has multiple square stems covered with fine hairs and woolly leaves. Flowers are yellowish-white. It becomes a tumbleweed when mature.

(UGA0021072)

Plumeless Thistle

Carduus acanthoides

DESCRIPTION: A winter annual or biennial. Plumeless thistle can grow over 5 feet tall on spiny-winged stems. Rosette leaves are wavy, with white margins. Leaves are hairy underneath and spiny at the margins. Purple flower heads are borne in clusters at the spiny stem tips throughout the summer.

(UGA5290084)

Small Bugloss

Anchusa arvensis

OTHER COMMON NAME: Annual bugloss

DESCRIPTION: Small bugloss is a branching, leafy annual covered with stiff hairs that grow 1-3 feet tall. Leaves are lance-shaped and wavy. Flowers are funnel-shaped and blue with a white center, and have five petals.

Contact your state or county weed specialist for specific, updated control information.

Spring Milletgrass

Milium vernale

OTHER COMMON NAME: Spring millet

DESCRIPTION: Spring milletgrass is an annual that grows 2 ½ feet tall, with drooping, upright or spreading stems. Stems are hollow with swollen joints that are sometimes purple. Stems each produce one cluster of flowers in the spring.

Syrian Beancaper

Zygophyllum fabago

DESCRIPTION: A rhizomatous woody perennial that grows up to 3 feet tall on multiple branches. The oblong leaves are smooth and waxy. Flowers are five-petaled, white with orange markings, and have orange filaments protruding beyond the petals. Seed pods are fleshy and cylindrical.

Contact your state or county weed specialist for specific, updated control information.

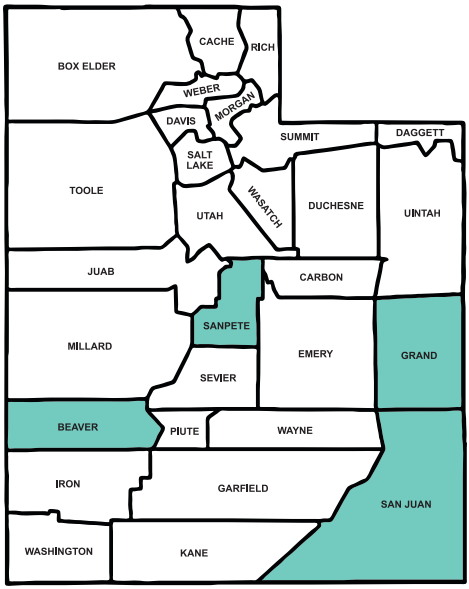
(UGA5078001)

Class IB Weeds
(Early Detection)

Camelthorn *Alhagi maurorum*

BACKGROUND: Native to Eurasia, camelthorn is a weed of rangeland, cropland, scrub wasteland, and waterways. It grows in dry or moist environments, tolerates poor soils, and can form dense stands. The plant is unpalatable and potentially harmful to livestock. It can also become a contaminant in alfalfa seed.

DESCRIPTION: A rhizomatous, thorny, highly branched herbaceous perennial that grows up to 4 feet tall. Pea-like flowers are pink to red and borne on spines that branch off the stems. Spine tips are dry and yellowed. Rhizomes penetrate deeply and spread aggressively, with new plants



regenerating easily from rhizome fragments. Seeds are borne in reddish-brown capsules, retain viability for several years, and are dispersed by animals or water.

CONTROL: Mowing and cultivation of mature plants encourage new growth, and should be avoided. Herbicides can be effective, if used long-term. Contact your state or county weed specialist for specific, updated information.

Camelthorn stand

Single plant

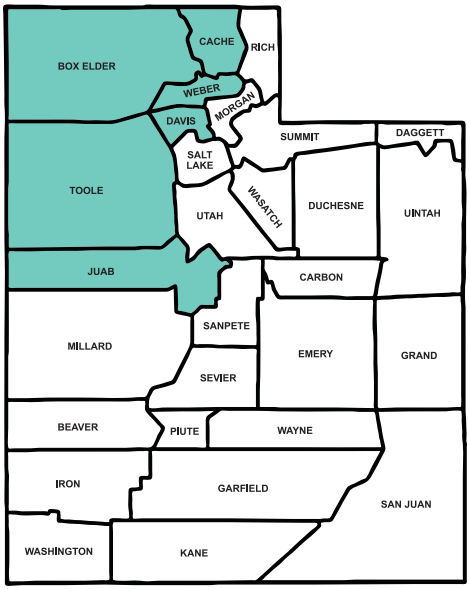
Pea-like flowers and dry spine tips

Common St. Johnswort *Hypericum perforatum*

BACKGROUND: St. Johnswort was introduced from Europe. It invades areas with sandy or gravelly soils. Reproduction is by seeds and short runners. It contains a substance that is toxic (but rarely fatal) to white-haired animals causing them to develop skin irritations and often lose weight when exposed to sunlight. It is also a key ingredient of some popular dietary supplements.

DESCRIPTION: This herbaceous perennial grows 1 to 3 feet tall. Stems are rust colored and woody at the base. Leaves are characterized by prominent veins and transparent dots, visible when held up to light. The flowers are bright yellow with five petals.

CONTROL: Several biocontrol agents are available and can offer good to excellent control. Herbicides can offer good control when applied to actively growing plants between rosette and pre-bloom stages. Contact your state or county weed specialist for specific, updated information.



Transparent dots on leaves

Bright yellow flowers

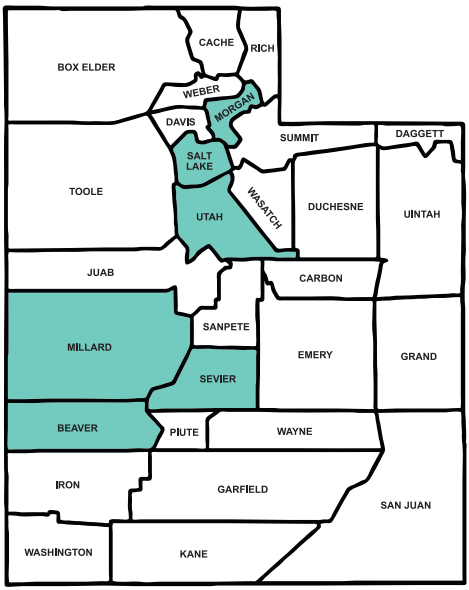
Stand of common St. Johnswort

Cutleaf Vipergrass *Scorzonera laciniata*

BACKGROUND: Native to Eurasia and Africa, cutleaf vipergrass is found in disturbed sites, in open or fallow fields, and on roadsides. It is reportedly edible, and sometimes grown as a crop. The plant is known to serve as a food source for clover cutworms (Anarta trifolii), which also feed on and damage a wide variety of food crops.

DESCRIPTION: An herbaceous, taprooted biennial or short-lived perennial, with hollow, branching stems, that grows about 1 1/2 feet tall. Rosette leaves are 2-8 inches long. Leaves can sometimes appear grass-like, due to deep dissections into narrow lobes. Each stem has one bright yellow composite ray flower head at the top, open a few hours daily. The plant flowers throughout the summer, and produces seed heads 1 to 2 inches in diameter, made up of many parachute-like seed pods.

CONTROL: Do not grow this plant. Contact your state or county weed specialist for specific, updated information.



Taproot

Rosette

Seedhead

Bright yellow composite ray flower head

Infested field

Closed bracts

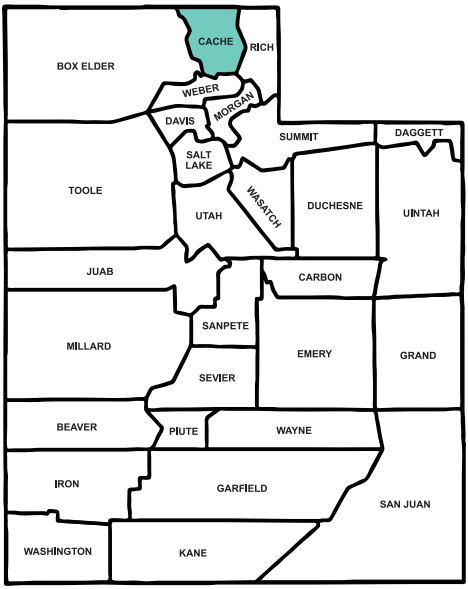
Plant with flowers and fruit in various stages

Elongated Mustard *Brassica elongata*

BACKGROUND: Native to Eurasia, elongated mustard is a weed of disturbed sites and roadsides. It tolerates a wide variety of growing conditions, and thrives in desert settings.

DESCRIPTION: Elongated mustard can be a biennial, winter annual, or short-lived perennial. Branched at the base, the plant grows to 3 feet tall. Lower leaves are shaped like flattened circles with slightly toothed margins, stem leaves are oblong and smaller. Bright yellow, fragrant four-petaled flowers are borne in clusters along stems in mid-summer. Seedpods grow upright and have a tapered tip. The plant produces abundant seed. Seeds are dispersed by wind, and become sticky when wet.

CONTROL: Hand-pulling and digging of seedlings and older plants before seed set is recommended. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Elongated mustard in a typical setting

Four-petaled flowers

Basal leaves

Seedpods

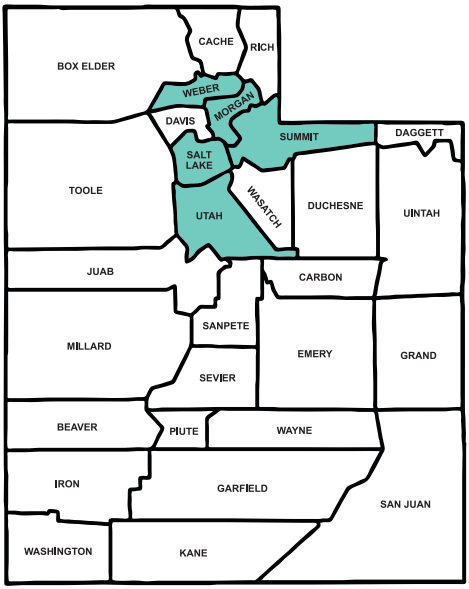
Single plant

Garlic Mustard *Alliaria petiolata*

BACKGROUND: This native to Europe is found in deciduous forests and wetlands, along roadsides, and in disturbed areas. It thrives in shady sites, and can form dense stands. Garlic mustard is suspected of chemically inhibiting the growth of other nearby plants, and is toxic to some native butterflies.

DESCRIPTION: Garlic mustard is a biennial that grows up to 4 feet tall. Rosette leaves have a rounded kidney shape, and mature leaves are arrow shaped with unevenly toothed margins. Injured plant parts smell like garlic. Branch tips produce clusters of four-petaled white flowers, and narrow seed pods grow upright from the stalk. Seeds are sticky when wet, and can remain viable for 5 years in the soil.

CONTROL: Hand-pull or dig before seed production, completely remove roots, and destroy plants with seedpods. Cutting stems at ground level prevents seed production. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Mature plants with seedpods

Flowering plants

Narrow seedpods and four-petaled flowers

Seedling plant

Rounded rosette leaves

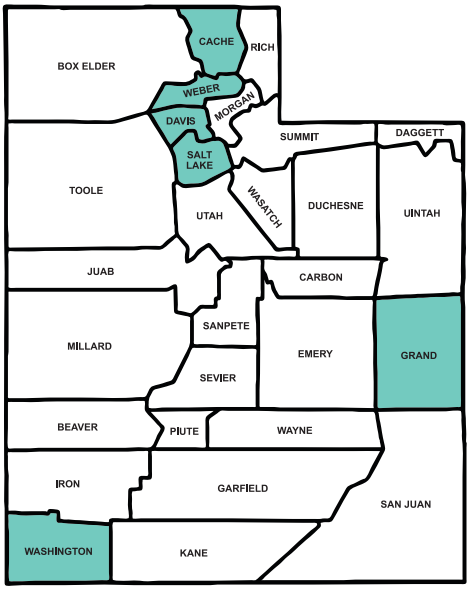
Giant Reed *Arundo donax*

BACKGROUND: Native to Eurasia, giant reed is a weed in waterways and wetlands, disturbed sites, and garden edges. Its aggressive habit allows it to displace native riparian vegetation. It can also be a fire hazard. It is sold as an ornamental and farmed for its canes.

OTHER COMMON NAME: Giant cane

DESCRIPTION: A perennial, creeping rhizomatous grass with hollow stems that grows 6-30 feet tall. The plant can regenerate easily from rhizome fragments. Rough-edged leaves grow up to 1-2 feet in length. Tightly packed cream to purplish-brown flowers form plumes that occur from early summer to early fall. Commonly mistaken for the related grass, phragmites, flower-bearing giant reed stems are hairless, whereas those of phragmites have silky hairs.

CONTROL: Do not buy giant reed at nurseries. Mowing and tilling encourage new growth and should be avoided. Chemical control can be effective. Contact your state or county weed specialist for specific, updated information.



Giant reed seedlings

A stand of giant reed

Rough-edged leaf

Rhizomes

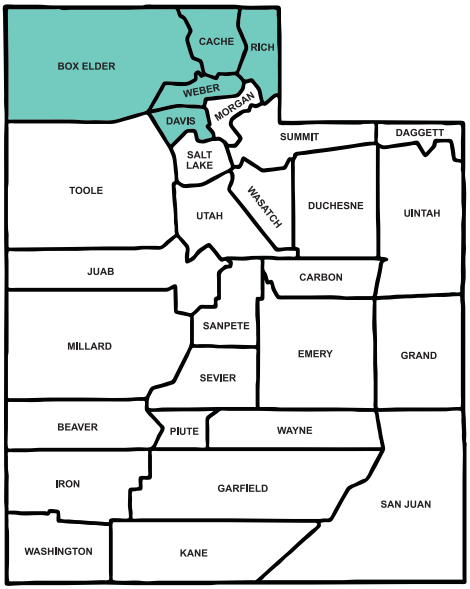
Flower plume

Goatsrue *Galega officinalis*

BACKGROUND: Native to Europe, goatsrue is found in wetlands, along waterways and roads, in pastures, and cropland. It is unpalatable and highly toxic to livestock, and can form dense stands. Goatsrue is a designated federal noxious weed.

DESCRIPTION: A tap-rooted herbaceous perennial with hollow stems that grows up to 5 feet tall. Compound leaves branch off the stems, having 9-15 leaflets each. Light purplish-white, pea-like flowers are borne in clusters at stem tips. Flowers bloom throughout the summer and produce tiny, narrow, elongated seed capsules. Each plant can produce up to 135,000 seeds. Seeds are dispersed in waterways, as a contaminant in seed, and on farm or construction equipment. Seeds can remain viable for up to 10 years.

CONTROL: Crop rotation, deep tilling, and digging are recommended for control. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



In typical setting

Flowering plant

Narrow, elongated seedpods

Compound leaves on young growth

Single plant

Pea-like flowers

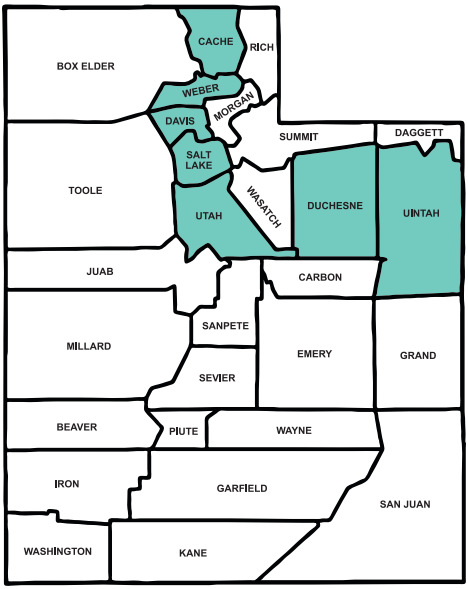
Japanese Knotweed *Polygonum cuspidatum*

Synonym: ***Fallopia japonica***

BACKGROUND: Native to Asia, Japanese knotweed is an escaped ornamental found along roadsides and waterways, in waste areas, and pastures. It forms thick stands and is also shade tolerant. Dormant plants can be a fire hazard.

DESCRIPTION: A creeping herbaceous perennial with hollow, reddish-brown, jointed stems. The plant grows 2.5-5 feet tall. Leaves are oval to heart-shaped. Tiny cream-colored flowers are borne in loose, branching clusters. Rhizomes can grow 30 feet long and form dense tangles. New plants can also regenerate from rhizome fragments.

CONTROL: When digging, the entire rhizome must be removed. Repeated mowing over a period of several years depletes the rhizomes. Japanese knotweed has been shown to have medicinal properties, for which it could potentially be harvested. Some herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Stand of Japanese knotweed

Heart-shaped leaves and fruit

Early growth

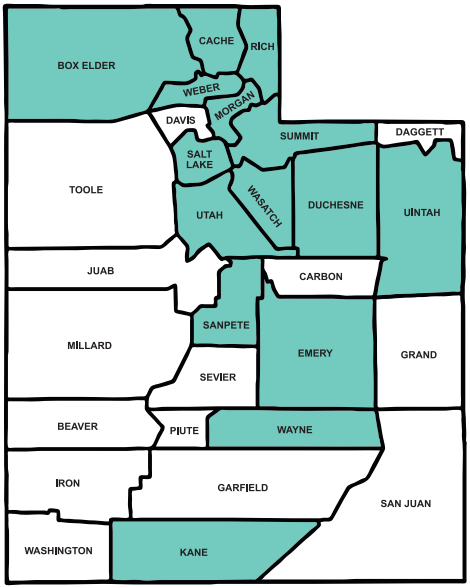
Reddish-brown stems and branching flower clusters (UGA1539051)

Oxeye Daisy *Leucanthemum vulgare*

BACKGROUND: This native of Europe survives in a wide range of environments. It is prevalent on poor soils, tolerates cold conditions, and survives drought well. Often found in meadows, roadsides, waste areas, grasslands, or overgrazed pastures.

DESCRIPTION: This creeping perennial, rhizomatous herb grows 1 to 3 feet tall. Leaves are lance-shaped with coarse teeth. Flowers range 1- 2.2 inches in diameter, and usually appear from June to August. The plant has a disagreeable odor if crushed. Although not toxic, it can give milk an off-flavor if consumed by dairy cattle. It grows in patches, and spreads vegetatively and by seed. Oxeye daisy's coarse toothed-leaf margins differentiate it from members of the Aster genus, with which it is often confused.

CONTROL: Cultivation is effective. Maintaining a dense crop canopy is effective in preventing establishment. Several herbicides give good control. Contact your state or county weed specialist for specific, updated information.



Patchy growth

Upper leaf lobes

Leaves with coarse teeth (UGA1459136)

Flowering plant

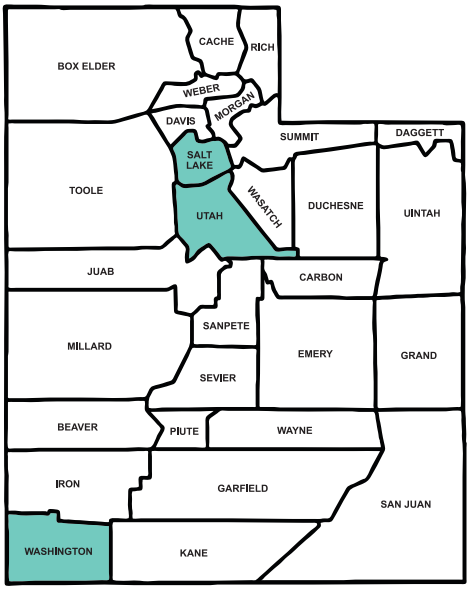
Young plant (1553166)

Purple Starthistle *Centaurea calcitrapa*

BACKGROUND: Native to Eurasia. Purple starthistle is a weed in rangeland, grassland, fields, disturbed areas, and along roadsides. It is unpalatable to livestock, is tolerant to many different soil types, and can form dense stands.

DESCRIPTION: A tap-rooted biennial with branching stems up to 3 feet tall. Rosette leaves are deeply lobed, and the rosette has a spiny center. Young stems and leaves are covered with long, soft, fine hairs. Stem leaves are narrow, not lobed, and have resinous dots on the surface. Flower heads are purple with long, yellow spines below. Purple starthistle blooms throughout the summer. Seeds are dispersed by water, vehicles, animals, and people. Seeds can retain viability for 3 years.

CONTROL: Small infestations can be controlled by digging, especially before seed production. Mowing encourages extra growth of the plant, and should be avoided. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Flowerhead with spines below

Deeply lobed rosette leaves and unlobed stem leaves

Purple starthistle infestation (UGA1459651)

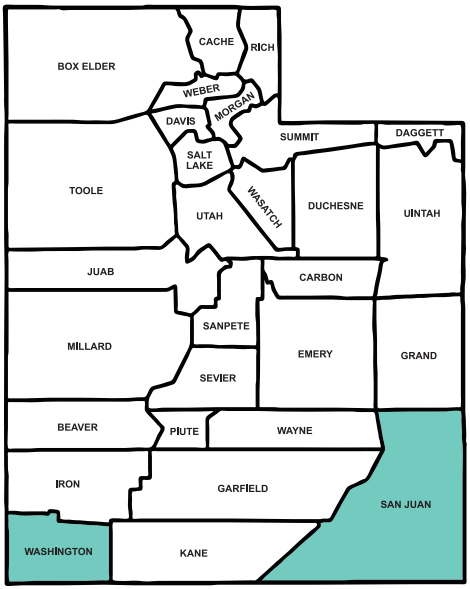
Sahara Mustard *Brassica tournefortii*

BACKGROUND: Native to northern Africa, the Middle East, and southern Europe, Sahara mustard is drought tolerant and thrives in poor soils, especially sandy areas, roadsides, unused fields, and even native desert shrublands. It can form dense stands and also be a fire hazard.

OTHER COMMON NAME: African mustard

DESCRIPTION: Sahara mustard is an annual. Rosette leaves are deeply lobed and can reach 12 inches long. Stem leaves are progressively fewer toward the tips. Stems grow up to 2 feet tall and are covered with stinging hairs. Sahara mustard usually flowers and sets seed very early in spring. Small, pale yellow, four-petaled flowers are borne in clusters on the ends of branches. Narrow seed capsules open when mature, releasing small seeds that are sticky when wet and impervious to water. When mature, the plant breaks off at the base and becomes a tumbleweed.

CONTROL: Plants in small infestations can be pulled before seed set. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Flowering plant (5374664)

Rosette (5374667)

Pale, four-petaled flowers

Narrow seed capsules

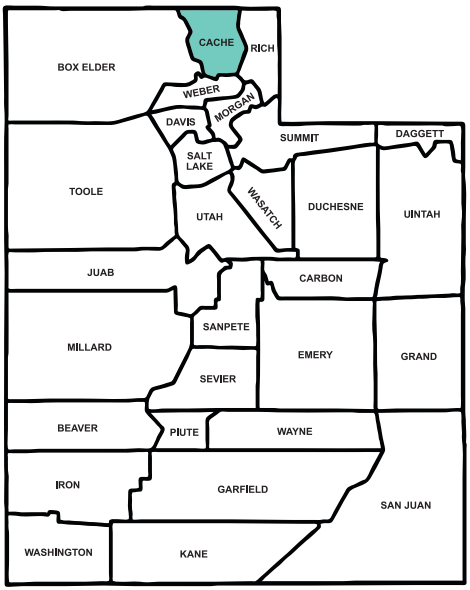
Ventenata *Ventenata dubia*

BACKGROUND: Introduced from Eurasia, ventenata occurs in grain crops, rangeland, and on disturbed sites. The seeds resemble wild oat seeds, with the bent awn. Once the panicles emerge, cattle will not graze it.

OTHER COMMON NAME: North Africa grass

DESCRIPTION: A winter annual grass that grows 6 inches to 2 feet tall. Seedlings have narrow leaves that are folded or rolled inward. Stems have reddish-black joints. Tan seed heads are produced in loose, branching clusters.

CONTROL: Effective control options are limited. Mowing may be effective if performed multiple times throughout the season. Fall applications of herbicides can also be effective. Contact your state or county weed specialist for specific, updated information.



Ventenata

Dark, swollen nodes and membranous ligule of ventenata.

Ventenata florets showing the bent awns.

Ventenata inflorescence

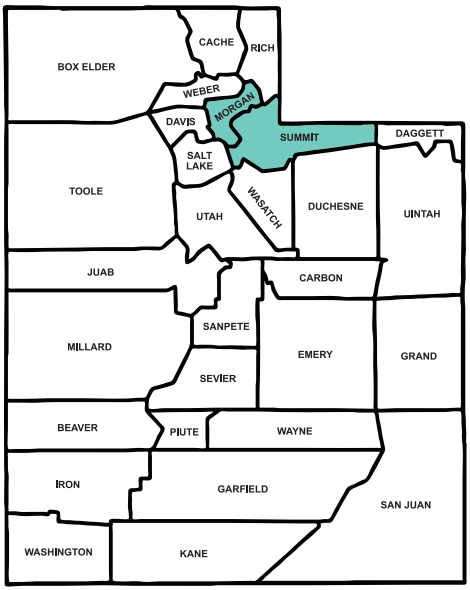
Vipers Bugloss *Echium vulgare*

BACKGROUND: Native to Eurasia, vipers bugloss is found in pastures, along roadsides and waterways, and in disturbed areas. It thrives in poor soil. The plant's stiff hairs can cause skin irritation in humans, and it is toxic and unpalatable to horses and cattle. It is also a known host of several crop diseases.

OTHER COMMON NAME: Blueweed

DESCRIPTION: A deeply taprooted biennial or short-lived perennial that grows 1-3 feet tall. Stems and leaves are rough and hairy. Stems are speckled purple and bear lance-shaped leaves. Flowers are borne on curling clusters that branch off the main stem. Flower buds are pink, but blooming flowers are bright blue and funnel-shaped. Each flower produces four seeds, which are viable up to 3 years.

CONTROL: Maintaining fertile soil and healthy desirable vegetation can reduce the plant's establishment. Pull or dig the plant before seeds set, and remove the tap root. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Rosette

Mature plant

Lance-shaped leaves and curling flower clusters

Hairy, speckled stem

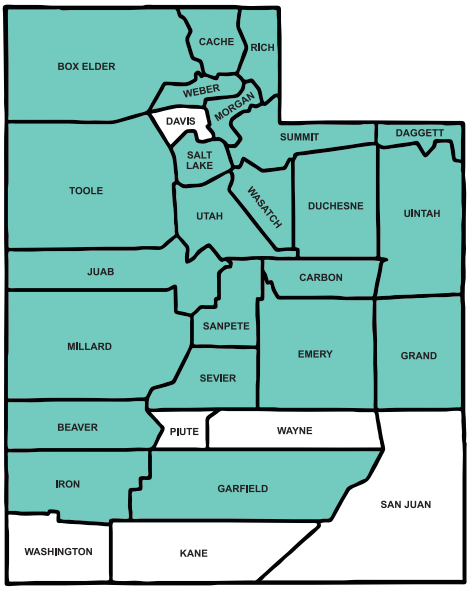
Class II Weeds
(Control)

Black Henbane *Hyoscyamus niger*

BACKGROUND: Black henbane is a native plant of Europe commonly found in waste areas, pastures, along rights-of-way, and fence lines. It is poisonous to both animals and humans; however, it has medical use in controlled circumstances.

DESCRIPTION: As either an annual or biennial, black henbane grows 1 to 3 feet tall. Leaves have pointed lobes and prominent veins. Off-white or greenish flowers with purple centers and veins are 1 to 2 inches wide. Pineapple-shaped fruit is borne in leaf axils. Each fruit has five lobes and contains hundreds of tiny black seeds. Bloom occurs in late spring.

CONTROL: Herbicides can be very effective when applied during rosette to bloom stages. Digging can offer some control. Contact your state or county weed specialist for specific, updated information.



Off-white flowers with purple centers

Rosette, leaves with pointed lobes

Mature flowering plant

Desiccated fruit

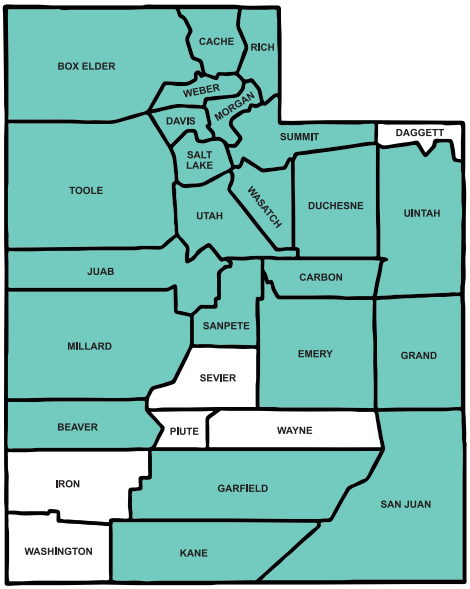
Pineapple-shaped fruit

Dalmatian Toadflax *Linaria dalmatica*

BACKGROUND: Dalmatian toadflax was brought to the United States from Europe, probably for ornamental purposes. It prefers rangeland and roadside habitat with sandy soils. It is very aggressive and hard to control due to deep roots and a thick, waxy leaf cuticle. It reproduces by seed and rootstock.

DESCRIPTION: This creeping herbaceous perennial weed grows from 2 to nearly 4 feet tall. Multiple stems may come from the base. Blue-green leaves alternately line the stem. Leaves are wedge shaped, have a thick, waxy cuticle, and partially clasp the stem. Flowers are yellow and may have white highlights and long tails, similar to snap dragon flowers. Bloom is in late spring into summer. Fruits are two-celled, berry-like capsules containing many seeds.

CONTROL: Biocontrol is available and offers fair control. Select herbicides can offer good control when applied from spring through fall. Contact your state or county weed specialist for specific, updated information.



Dalmatian toadflax patch

Creeping roots

Snapdragon-like flowers

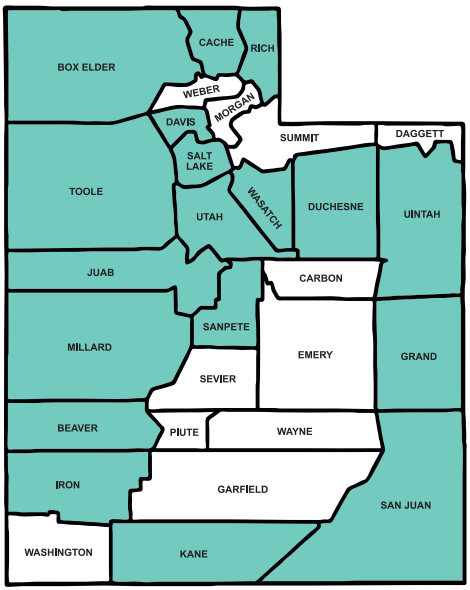
Waxy, wedge-shaped leaves

Diffuse Knapweed *Centaurea diffusa*

BACKGROUND: Native to Eurasia, diffuse knapweed inhabits dry rangeland, roadsides, field edges, and waste areas. Knapweeds release chemical substances into the soil that inhibit the growth of competing vegetation.

DESCRIPTION: It is an annual or a short-lived perennial averaging 1 to 2 feet tall. Leaves have finely divided lobes. Flowers are white to rose in color. Diffuse knapweed differs from squarrose knapweed in that the terminal spine of the toothed flower bracts is straight rather than arched outward. It blooms throughout summer.

CONTROL: Several biocontrol agents are available and provide fair to good control. Select herbicides can offer good to excellent control when applied from rosette to pre-bud stages. Tillage offers good control. Contact your state or county weed specialist for specific, updated information.



Mature flowering plant

White to rose flowers, and straight terminal spine of bracts

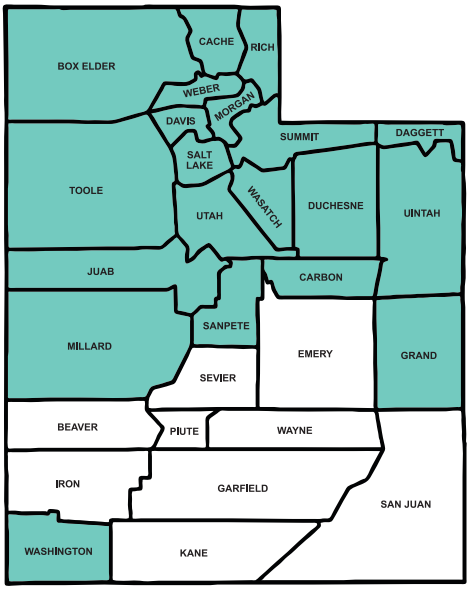
Rosette

Dyers Woad *Isatis tinctoria*

BACKGROUND: Dyers woad was introduced from Europe for production of textile dyes. It thrives in waste areas, gravel pits, road sides, pastures, field edges, and disturbed soils.

DESCRIPTION: Dyers woad may be a winter annual, biennial, or a short-lived perennial. Heights of 1 to 4 feet are common. A thick tap root may penetrate to 5 feet deep. Leaves are blue-green with a whitish midrib. The bright yellow, four-petaled flowers bloom and are highly visible in late spring. Club-shaped seed pods each produce a single seed. As the fruits mature, they turn from green to dark brown or nearly black.

CONTROL: Biocontrol rust fungus is naturally wide spread and other agents are currently undergoing research. Herbicides can offer good to excellent control when applied to rosettes in spring and fall and during pre-bloom. Digging offers good control. Contact your state or county weed specialist for specific, updated information.



Dyers woad infestation

Maturing fruits

Four-petaled flowers

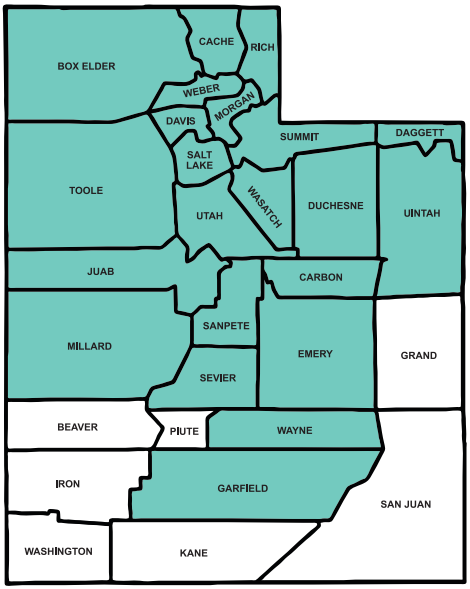
Flowering plant

Leafy Spurge *Euphorbia esula*

BACKGROUND: A native plant of Eurasia, leafy spurge is an aggressive invader of pastures, rangeland, stream banks, and waste areas. It reproduces by seed and rootstock. It is toxic to cattle and may result in their death.

DESCRIPTION: This creeping herbaceous perennial plant grows up to 3 feet tall. The leaves are narrow, and 1 to 4 inches long. In late spring, yellow-green flower bracts appear, which cup tiny, inconspicuous flowers that develop in early summer. Seeds are contained in a three-celled capsule, with one seed per cell. When dry, capsules can shoot seeds up to 15 feet from parent plant. Stems exude a milky fluid when damaged. An extensive root system, up to 20 feet long and more than 14 feet deep, with multiple shoot-producing buds, makes this plant very difficult to control.

CONTROL: Biocontrol is extensive and control is fair to excellent. Herbicides can offer fair to good control, especially when combined with biocontrol. Apply herbicides from spring to the killing frost. Contact your state or county weed specialist for specific, updated information.



Leafy spurge infestation

Flowering plant

Narrow leaves and milky sap

Yellow-green bracts cup tiny flowers

Close-up of flowers

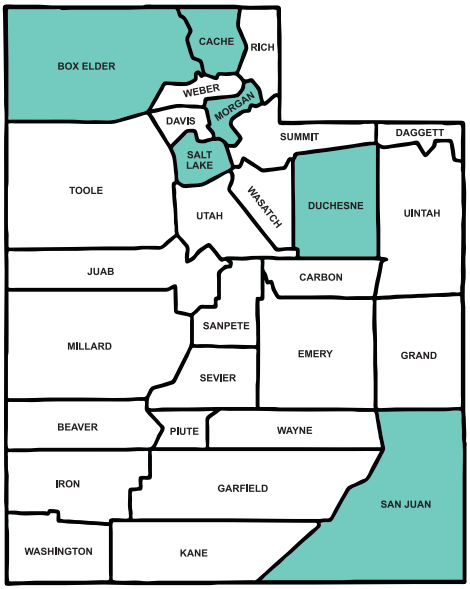
Medusahead *Taeniatherum caput-medusae*

BACKGROUND: Medusahead was brought to the United States from Eurasia. It is extremely competitive, completely displacing other desirable grass species. It spreads by seed, commonly carried by wind, animals, clothing, and vehicles.

OTHER COMMON NAME: Medusahead rye

DESCRIPTION: Medusahead is an annual growing from 6 inches to 2 feet high. Leaf blades are about 1/8 inch wide. Awns of the seedhead are long and become twisted as the seed matures. It is sometimes confused with foxtail barley or squirreltail, but is different in that the seedhead doesn't break apart completely as the seeds mature. Flowering and seed production take place in late spring and early summer.

CONTROL: A combination of burning, herbicide, and reseeding offers the best control. For the best results, this should be done in fall through early winter. Contact your state or county weed specialist for specific, updated information.



Thatch

Medusahead infestation

Seedhead

Seedheads

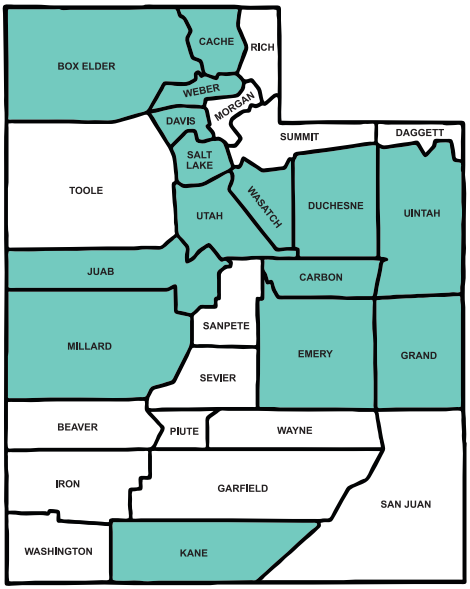
Infesting sagebrush

Purple Loosestrife *Lythrum salicaria*

BACKGROUND: Purple loosestrife is a European plant probably introduced to the United States as an ornamental. It reproduces both by seed and creeping rootstocks. Infestations can impede water flow and replace beneficial plants, and thus displace wildlife. It can be found in shallow, marshy wetland areas and ditches.

DESCRIPTION: Purple loosestrife is a semi-aquatic creeping herbaceous perennial growing 6 to 8 feet tall. There are five to seven petals on rose-purple flowers that appear in columns along the upper end of stems. Leaves are lance shaped with smooth margins up to 5 inches long. Bloom is in midsummer.

CONTROL: Biocontrol is limited in availability but control can be good to excellent. Herbicides with an aquatic label can offer fair to good control. Contact your state or county weed specialist for specific, updated information.



Growing along waterways

Purple flowers with five to seven petals

Lance-shaped leaves

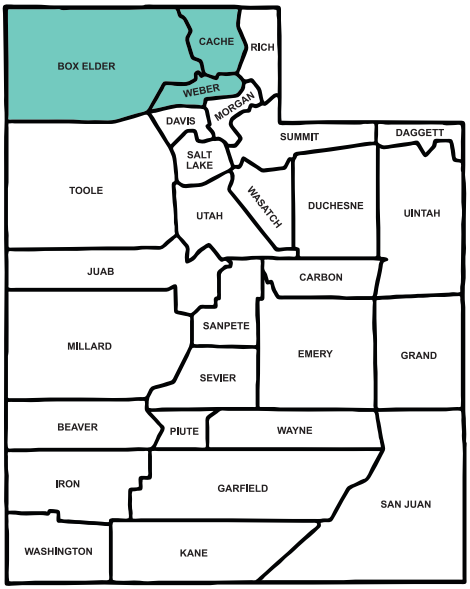
Flowers in columns at stem ends

Rush Skeletonweed *Chondrilla juncea*

BACKGROUND: Native to Eurasia, rush skeletonweed is found in rangeland, cropland, pastures, wasteland, disturbed areas, sagebrush, and along roadsides. It tolerates drought and many different soil types, and also benefits from wildfires.

DESCRIPTION: A deeply tap-rooted creeping perennial with stiff stems that grows up to 4 feet tall. The plant produces a rosette that dies back after stems develop. The lowest few inches of stems are covered in prickly hairs, and stems are nearly leafless. Plant parts exude a milky juice when damaged. Yellow flowers are dispersed irregularly among the branches. Plants do not need fertilization to produce seed, and root fragments can generate new plants, as well. Individual plants can produce 20,000 seeds, each with a small silky parachute. Stems die back in autumn.

CONTROL: Repeated hand-pulling and tilling help control rush skeletonweed. Biocontrol agents may be available. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Flowers and buds

Mature plant

Rosette and prickly, downward pointing hairs on stem

Silky seedhead

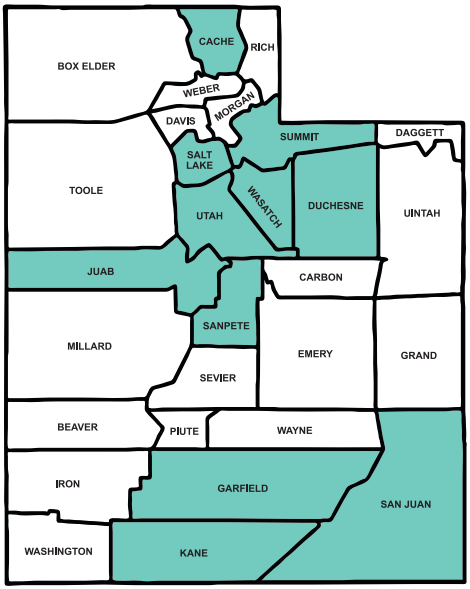
Spotted Knapweed *Centaurea stoebe*

Synonym: ***Centaurea maculosa***

BACKGROUND: Originally found in Eurasia, spotted knapweed infests rangeland, pastures, roadsides, or any disturbed soils. Knapweeds release chemical substances into the soil that inhibit the growth of competing vegetation.

DESCRIPTION: Spotted knapweed is a short-lived, creeping herbaceous perennial that is 1 to 3 feet tall. The rosette leaves are deeply lobed and may be 6 inches in length. The stems are moderately leaved. Flowers are typically pink with black-tipped flower bracts. Bloom is in early summer.

CONTROL: Several biocontrol agents are available and offer fair to good control. Select herbicides can offer good to excellent control when applied between rosette and pre-bud stages. Contact your state or county weed specialist for specific, updated information.



Rosette

Black-tipped flower bracts

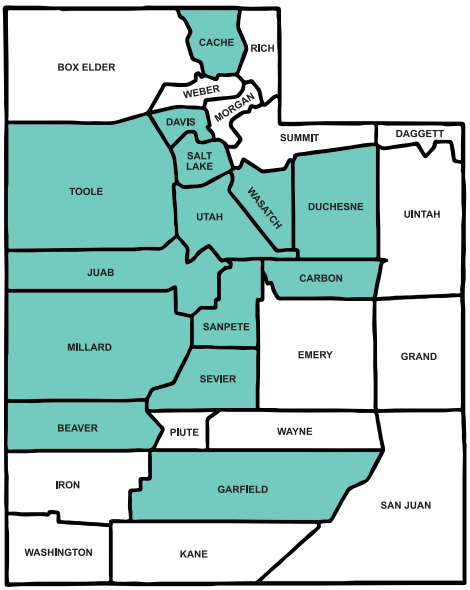
Flowering plant

Squarrose Knapweed *Centaurea virgata*

BACKGROUND: Squarrose knapweed is a native plant of the eastern Mediterranean area. It is very competitive on rangelands. Knapweed releases a chemical substance that reduces competing vegetation.

DESCRIPTION: This long-lived herbaceous weed has a simple taproot and grows 12 to 18 inches tall. The rosette and stems have deeply-lobed leaves. Flowers are rose to pink. It is often confused with diffuse knapweed, but differs in that the terminal spines on the flower bracts are curved outward and are not laterally toothed. Bloom occurs in early to mid-summer.

CONTROL: Several biocontrol agents are available. Herbicides offer good to excellent control. Contact your state or county weed specialist for specific, updated information.



Single plant

Deeply lobed rosette leaves

Bracts with outward curvature

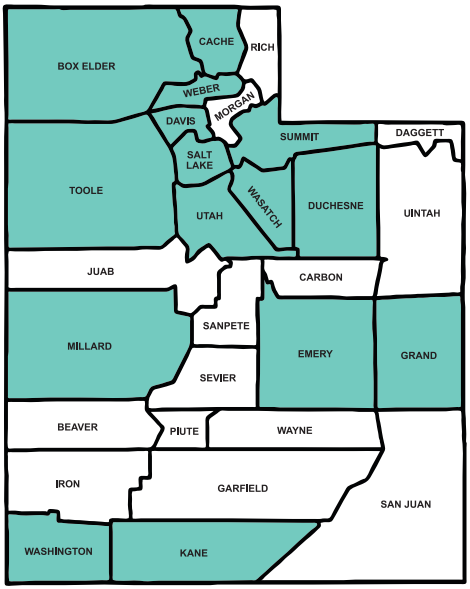
Squarrose knapweed infestation

Yellow Starthistle *Centaurea solstitialis*

BACKGROUND: Yellow starthistle was introduced from Europe. It grows well on dry sites in rangeland, roadsides, and waste areas. It can cause "Chewing disease" in horses that consume it.

DESCRIPTION: Yellow starthistle is a 2 to 3 foot tall winter annual with blue-green coloration. Rosette leaves are deeply lobed and could be confused with dandelion. Stems are winged and sparsely leaved. Flowers are yellow. Cream-colored thorns, 1/4 to 3/4 inch long, protrude from the flowering heads. Bloom is in early summer.

CONTROL: Several biocontrol agents have been tested, but availability is limited. Select herbicides offer fair to good control when applied between rosette and bloom stages. Tillage is effective. Contact your state or county weed specialist for specific, updated information.



Blue-green winged stem

Flower with cream-colored, thorny bracts

Flowering plant

Yellow starthistle infestation

Rosette

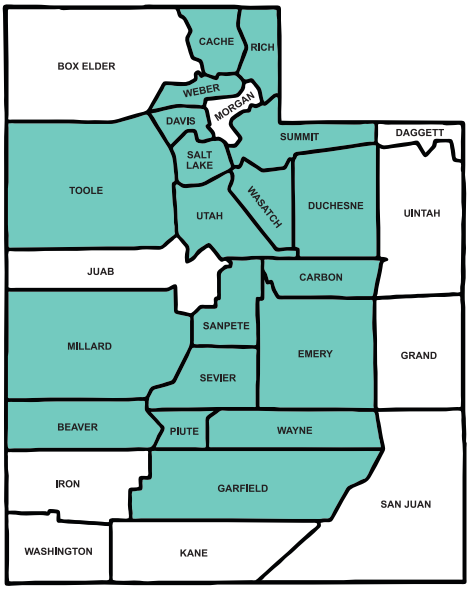
Yellow Toadflax *Linaria vulgaris*

BACKGROUND: Yellow toadflax came from Eurasia. It is an aggressive invader of rangeland, roadsides, field edges, and waste areas. An extensive root system makes this weed difficult to control. It reproduces by seeds and roots.

OTHER COMMON NAME: Butter and eggs

DESCRIPTION: This creeping herbaceous perennial weed grows to 2 feet tall. Leaves are 2.5 inches in length, and are narrow and pointed. Flowers are about 1 inch long, yellow with an orange throat, have long tails, and develop in dense, terminal clusters. They look similar to snap dragon flowers. Bloom is in late spring into summer. Fruits are small, 1/4 inch, two-celled, berry-like capsules containing many seeds.

CONTROL: A few biocontrol agents are available and offer fair control. Herbicides can offer good control. Contact your state or county weed specialist for specific, updated information.



Narrow, pointed leaves

Snapdragon-like flowers

Yellow toadflax infestation

Creeping roots

Class III Weeds
(Contain)

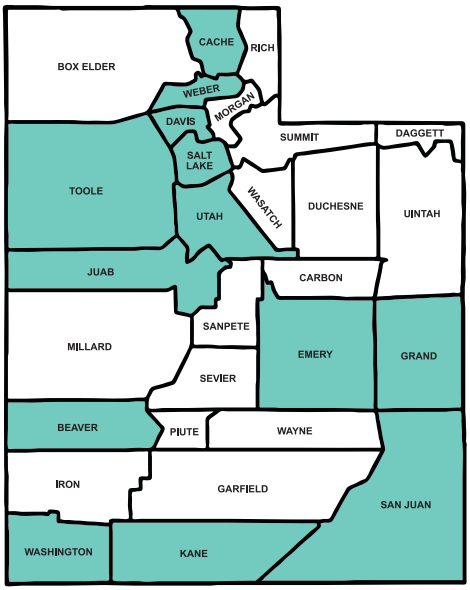
Bermudagrass *Cynodon dactylon*

BACKGROUND: Bermudagrass probably came from Africa. It prefers warmer regions, but it is becoming established in cooler regions as well. It is posing a serious threat to crop production and turf management. It reproduces by seed, rhizomes, and lateral stolons, taking root at any node.

DESCRIPTION: It is a low-growing and sod-forming perennial grass with stolons creeping along the ground and upright stems about 12 inches tall. Seedheads have three to seven terminal spikes, each about 2 inches in length.

CONTROL: Herbicides can offer fair to good control. Tillage should not be used as a control. Contact your state or county weed specialist for specific, updated information.

**Bermudagrass is exempt from noxious weed classification in Washington County.*



Creeping stolons

Patch of bermudagrass

Seedheads have three to seven terminal spikes

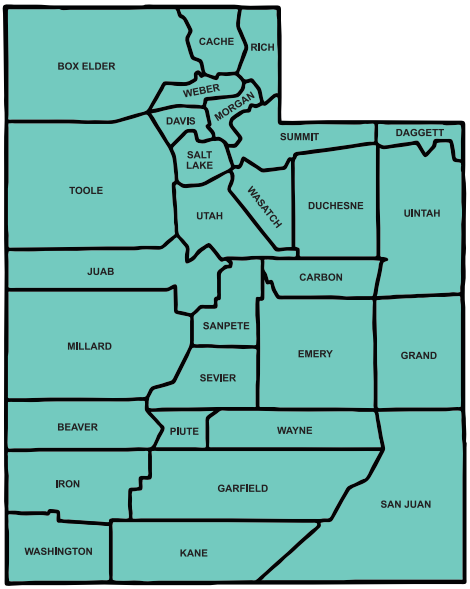
Whole plant

Canada Thistle *Cirsium arvense*

BACKGROUND: A native to southeastern Eurasia, Canada thistle reproduces by seeds and rootstock. It is adaptable to a diverse range of habitats.

DESCRIPTION: Canada thistle is a creeping herbaceous perennial plant usually from 1 to 4 feet tall, in sparse to extremely dense colonies. Leaves have spiny tipped lobes. Flowerheads are light pink to purple and are typically 3/4 inch in diameter. Bracts are softly spined. Bloom occurs in July and August.

CONTROL: Several biocontrol agents are available offering fair control. Herbicides can offer good control when applied to actively growing plants from spring to fall. As with most creeping perennials, digging or tillage is generally not effective. Contact your state or county weed specialist for specific, updated information.



Rosettes

Leaves with spiny-tipped lobes

Canada thistle infestation

Flowerheads and buds with softly spined bracts

Seedheads

Flowering plants (UGA1459760)

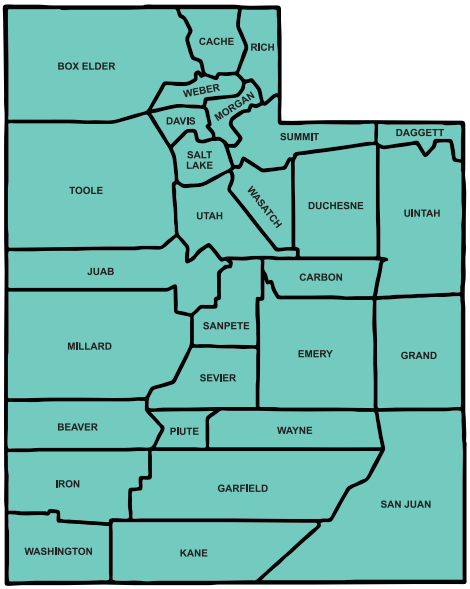
Field Bindweed *Convolvulus arvensis*

BACKGROUND: This European native reproduces from both seed and rootstock. Seeds may remain viable in the soil for up to 50 years. It grows in fields, pastures, gardens, road sides and many other areas. It may be found in areas up to 10,000 feet in elevation.

OTHER COMMON NAME: Wild morningglory

DESCRIPTION: Field bindweed is a creeping herbaceous perennial with twisting stems up to 6 feet long, growing prostrate, or it may climb nearby vegetation. The root system may grow to a depth of 10 feet or more. Arrow-shaped leaves are up to 2 inches long. Flowers are funnel-shaped, white to pink and 1 inch wide. Fruit is teardrop-shaped. Bloom is from June through September.

CONTROL: Biocontrol is available. Several herbicides offer good control when applied from late spring to the killing frost. Contact your state or county weed specialist for specific, updated information.



Twisting stems

Funnel-shaped flowers

Young plant

Arrow-shaped leaves

Teardrop-shaped fruit

Field bindweed infestation

Hoary Cress *Cardaria draba*

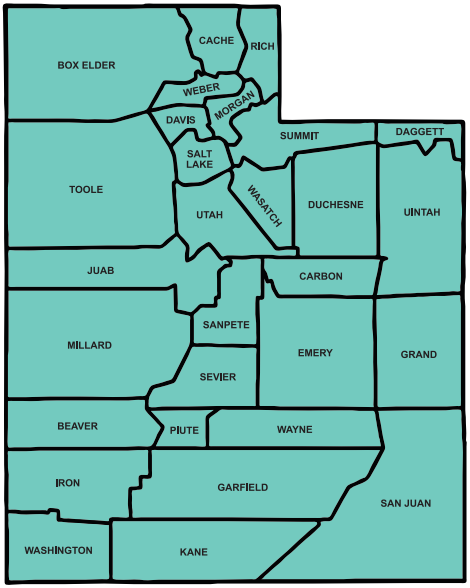
Synonym: ***Lepidium draba***

BACKGROUND: This plant originated in Europe. It reproduces by root segments and seed. It is commonly found on disturbed sites along road ways, field edges, and excavations. It is also a widespread weed of grain fields, cultivated fields, and meadows. It grows particularly well on somewhat salinic soils.

OTHER COMMON NAME: Whitetop

DESCRIPTION: Hoary cress is a perennial plant, commonly 1 to 2 feet tall, with creeping rootstocks. Leaves are finely toothed. Upper leaves clasp the stem. Bloom is in late spring with clusters of white flowers, each flower containing four petals. Seed pods are heart-shaped bladders and contain two brownish seeds.

CONTROL: Biocontrol research is in the early stages. Select herbicides can offer fair to good control when applied from rosette to early bloom stages. Contact your state or county weed specialist for specific, updated information.



Flowering plant

Hoary cress infestation

Creeping rootstocks

Four-petaled flowers

Heart-shaped seedpods

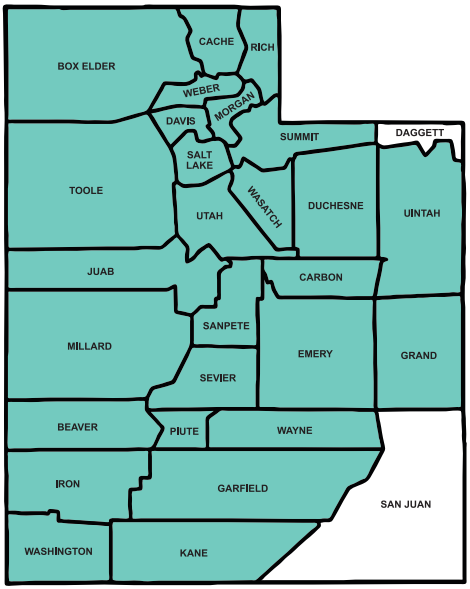
Houndstongue *Cynoglossum officinale*

BACKGROUND: Houndstongue is a native of Europe. It thrives in disturbed soils along roadsides, trails, in pastures, and rangelands. Because of the bur-like seed, it spreads widely along travel corridors as a passenger on clothing or animal fur. It is toxic to livestock.

OTHER COMMON NAME: Gypsy flower

DESCRIPTION: Houndstongue is a 1 to 4 foot tall biennial. Basal leaves are about 3 inches wide with a hairy surface. Upper leaves are narrower, about 1 inch wide and have a curled appearance and partially clasp the stem. Small reddish purple flowers form in the upper portions of the plant along stems borne in leaf axils. Each flower produces four green, bur-like fruits that turn brown as they mature. Bloom is in early summer.

CONTROL: Herbicides can offer good to excellent control when applied between the rosette and bloom stages. Digging before seed development can offer good control. Contact your state or county weed specialist for specific, updated information.



Rosette

Bur-like fruits

Dry plant

Houndstongue patch

Houndstongue with flowers

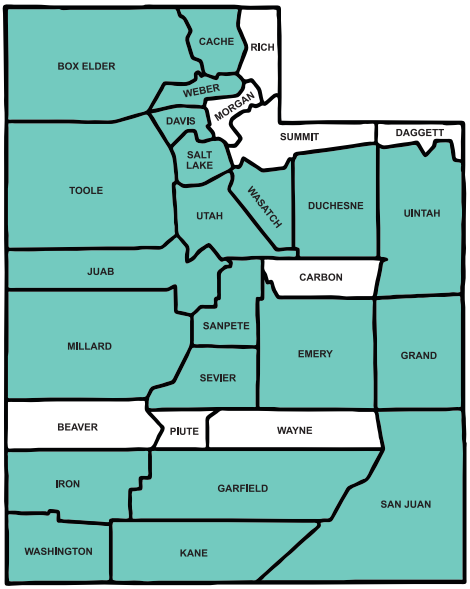
Houndstongue with fruit and flowers

Jointed Goatgrass *Aegilops cylindrica*

BACKGROUND: Native to Eurasia, jointed goatgrass is a weed in rangeland, disturbed areas, fields, pastures, and along roadsides. It is drought tolerant, and is especially troublesome in winter wheat fields, where hybridization of the two can occur. It is also a common contaminant in grain.

DESCRIPTION: A winter annual grass that grows up to 2 1/2 feet tall on hollow stems that branch at the base. Leaves have fine hairs along their margins and surfaces. Seed heads are cylindrical, jointed stacks that shatter into individual pieces when mature. Plants can produce up to 3,000 seeds each. Seeds can be viable up to 5 years.

CONTROL: Rotation cropping is an effective control. Farming equipment should be cleaned after being used in infested fields. Mowing and tilling give good control, especially prior to seed set. No selective herbicides are available for jointed goatgrass in winter wheat or wildland grasses. Contact your state or county weed specialist for specific, updated information.



Spike

Infestation

Separate spikelets

Whole plants

Infestation

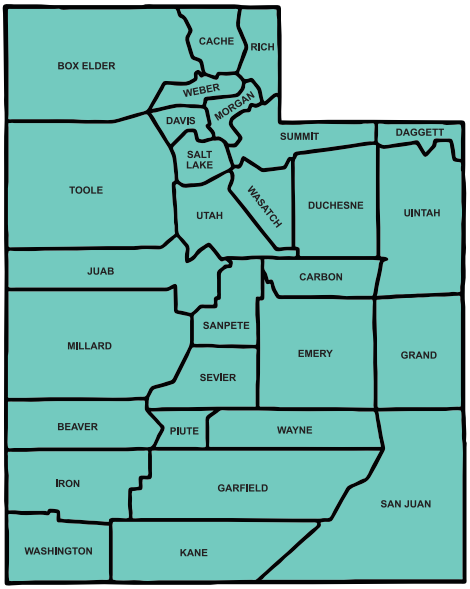
Musk Thistle *Carduus nutans*

BACKGROUND: Native to southern Europe and western Asia, musk thistle thrives in pastures and rangelands, in waste areas, stream banks, and road sides.

OTHER COMMON NAMES: Nodding plumeless thistle

DESCRIPTION: Musk thistle is a biennial or winter annual. Plants 4 to 6 feet tall are common. Deeply lobed spiny leaves are distinguished by a dark green blade with a prominent light green midrib. Stems are spiny and appear winged. Flowers may be violet, purple, or rose colored. Flowers are typically "nodding" or bent over. A tuft of white hairs is attached to each seed, which develops together at maturity and displaces the flowerhead. Bloom is in June and July.

CONTROL: Several biocontrol agents are available and offer good control. Herbicides can offer good to excellent control when applied between rosette and pre-bud stages. Mechanical means can be used for control by chopping the plant off at the ground. Contact your state or county weed specialist for specific, updated information.



Spiny, winged stem

Flowering plant

Deeply lobed rosette leaves

Seedhead

Musk thistle infestation

Nodding flowers at various stages of maturity

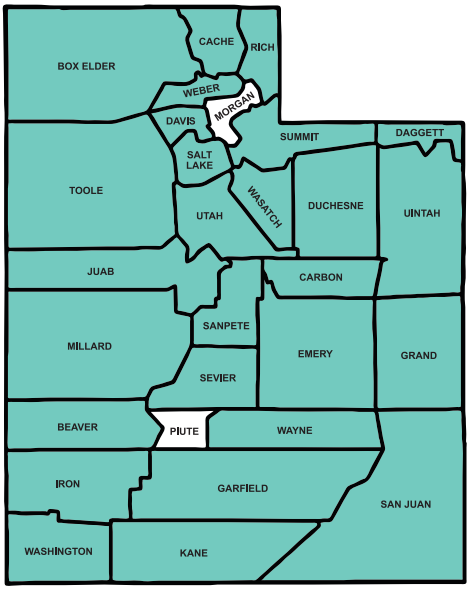
Perennial Pepperweed *Lepidium latifolium*

BACKGROUND: Native to southern Europe and western Asia, perennial pepperweed is commonly found in wet drainage areas of waste areas, ditches, roadsides, and crop lands.

OTHER COMMON NAME: Tall whitetop

DESCRIPTION: Perennial pepperweed grows from 1 to 6 feet tall. It is a creeping perennial and has spreading lateral rootstocks. Leaves have smooth to lightly toothed margins. Stems and leaves are waxy. Four-petaled white flowers form dense clusters at the end of branches. Flowering takes place from summer into early fall. Seeds form in round, flattened two-chambered pods.

CONTROL: Biocontrol research is in early stages. Select herbicides can offer fair to good control when applied to actively growing plants up to pre-bloom. Contact your state or county weed specialist for specific, updated information.



Round, flattened two-chambered seedpods

Flowering plants

Young growth

Four-petaled white flowers

Perennial pepperweed infestation

Perennial Sorghum Species

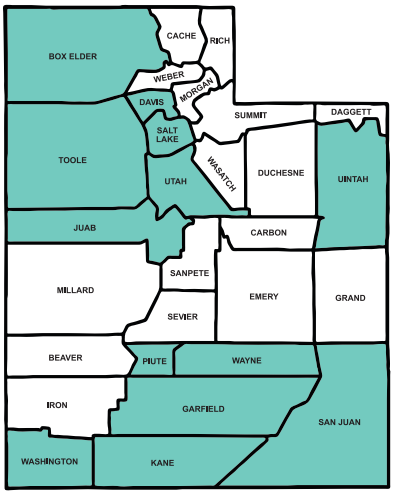
Sorghum grasses include many different variants and can hybridize easily with each other. Johnsongrass and Sorghum-almum are two perennial species with particularly invasive habits.

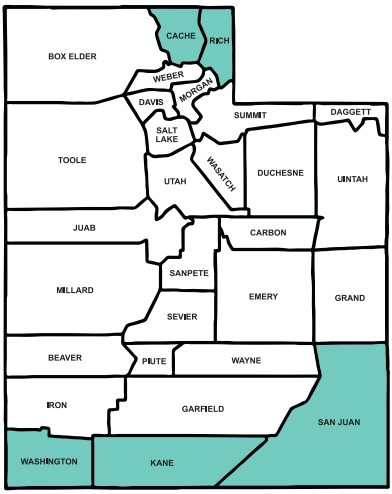
Johnsongrass *Sorghum halepense*

Sorghum-almum *Sorghum almum Parodi*

BACKGROUND: Johnsongrass was introduced from the Mediterranean as a forage grass, but when under frost or moisture stress, it becomes toxic to livestock. It reproduces by seed and lateral root systems. It thrives in rich soils and along waterways. A hybrid between Johnsongrass and grain sorghum (Sorghum bicolor), Sorghum-almum is similar in many ways to Johnsongrass, including toxicity. However, it tolerates drought better than its parent.

DESCRIPTION: Johnsongrass is a hardy creeping perennial grass with large, fleshy rhizomes. Stems grow 2-8 feet tall. Leaf blades are flat, up to 1 inch wide, with a prominent light midvein and prominent nodes. Seedheads



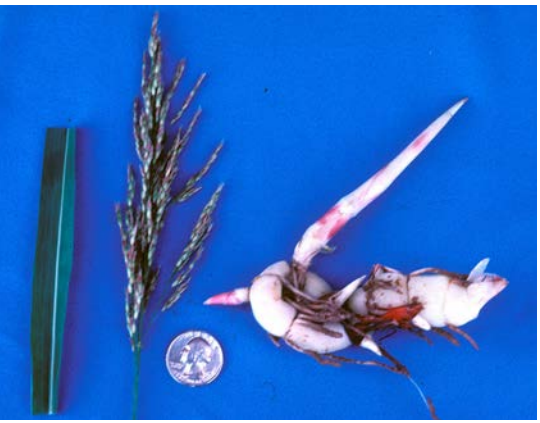


are reddish to purple. Sorghum-almum can grow up to 15 feet tall, with leaves up to 2 inches wide. Its rhizomes are shorter, have a general upward curve, and are not as aggressive as Johnsongrass rhizomes. Its seedheads are also longer and more open.

CONTROL: Plowing gives effective control for Sorghum-almum, but the more aggressive Johnsongrass is better controlled with herbicides. Contact your state or county weed specialist for specific, updated information.

Perennial Sorghum patch

Seedhead



Leaf with prominent light midvein, reddish to purple seedhead, fleshy rhizomes (UGA1459246)

Ligule

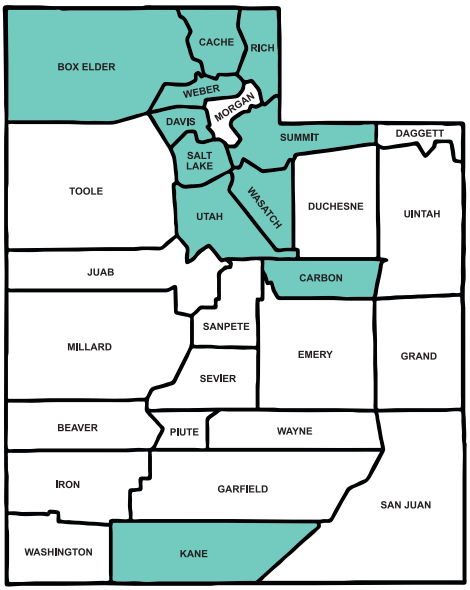
Phragmites *Phragmites australis*

BACKGROUND: Native to North America and Europe, phragmites is a weed in wetlands, marshes, and waterways, where it can form impenetrable stands. It is sold by nurseries, is commonly used in erosion control, and sometimes for livestock grazing. It is tolerant of fire and salinity.

OTHER COMMON NAME: Common reed

DESCRIPTION: A perennial rhizomatous grass, with hollow, sometimes creeping stems. Phragmites grow up to 10 feet tall, with rhizomes as deep as 3 feet, and rough-margined leaves up to 1 ½ feet long. Flowers form in dense, brown, feathery plumes at stem tips. Phragmites is commonly mistaken for giant reed. However, the flower-bearing stems on giant reed are hairless, whereas those of phragmites have silky hairs.

CONTROL: Do not plant phragmites. Because of extensive rhizomes, most mechanical control measures are only partially successful, and some actually encourage its spread. Research on biocontrol agents is ongoing. Systemic herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Phragmites stand

Flower plume

Spreading stems

Creeping stems (1559091)

Rhizomes (5487187)

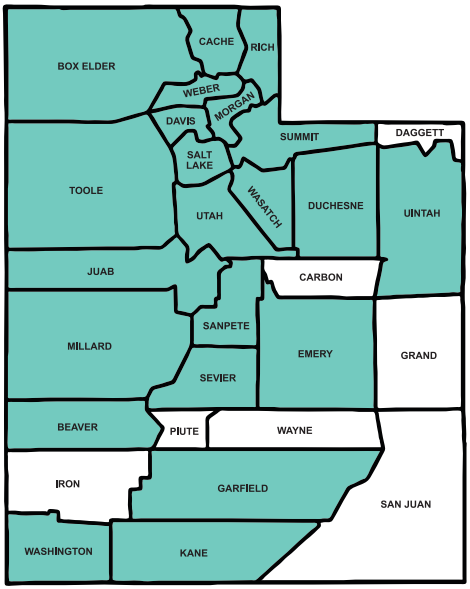
Leaves (5487202)

Poison Hemlock *Conium maculatum*

BACKGROUND: Poison hemlock is a European native, growing 6 to 10 feet tall. It is commonly found along waterways, roadsides, and field edges and tolerates poorly drained soils. It has been mistaken for parsley and wild carrot. All parts of the plant are toxic.

DESCRIPTION: This biennial has a large taproot. The stems have purple spots, especially at the bases. Leaves are finely divided, having a fern-like appearance. Leaf stems clasp the main stem. The tiny flowers are in umbrella-shaped clusters on the ends of individual stalks. Bloom is late spring into early summer.

CONTROL: Biocontrol is available and offers fair to good control. Herbicides can offer excellent control when applied to actively growing plants between rosette and bloom stages. Contact your state or county weed specialist for specific, updated information.



Poison hemlock infestation

Poison hemlock seedling

Fern-like fine leaves

Umbrella-shaped flower clusters

Flowering plant

Purple-spotted stems

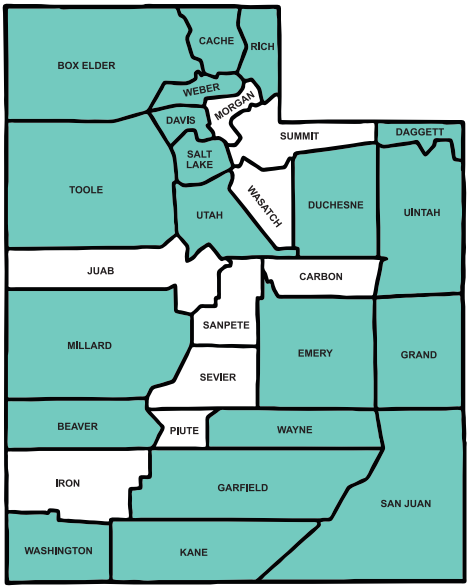
Puncturevine *Tribulus terrestris*

BACKGROUND: Native to Eurasia and Africa puncturevine can be found along roadsides, in cropland, pastures, and waste areas. It tolerates very dry conditions and poor soil. Its spiny fruit can penetrate skin, bicycle tires, and thin vehicle tires, and cause external and internal injury to grazing animals. Puncturevine foliage can also be toxic to livestock.

OTHER COMMON NAMES: Goathead

DESCRIPTION: A mat-forming summer annual with a deep taproot. Leaves consist of four to eight pairs of oval-shaped leaflets. Stems and leaves are covered with tiny hairs. The plant blooms throughout the summer, producing single, bright yellow, five-petaled flowers. The fruit is spiny and resembles a five-rayed cross, which turns brown and woody as it matures. It then splits into five separate, wedge-shaped seedpods.

CONTROL: Puncturevine plants can be controlled before fruit develops by digging, hoeing, tilling, and hand-pulling every few weeks throughout the season. Biocontrol may be available. Herbicides are also effective. Contact your state or county weed specialist for specific, updated information.



Puncturevine infestation

Leaves with flowers

Five-petaled flower and hairy stem

Taproot and leaves with four to eight pairs of leaflets

Spiny, five-rayed fruit

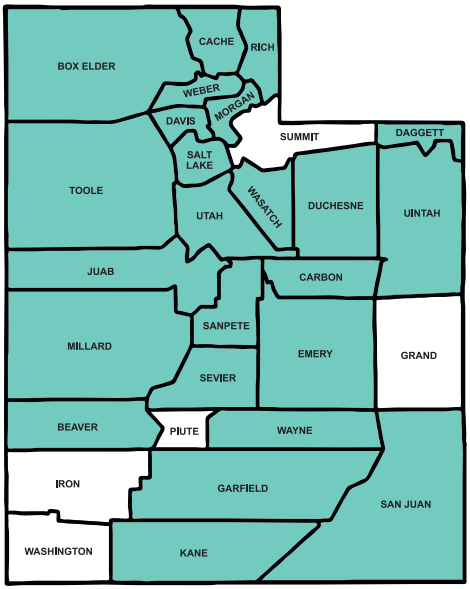
Quackgrass *Elymus repens*

Synonym: ***Agropyron repens, Elytrigia repens***

BACKGROUND: Originally found in the Mediterranean area, quackgrass infests crops, rangeland, pasture, and lawns. It adapts well to moist soils in cool, temperate climates. It reproduces by seed and rhizomes. These rhizomes can penetrate hardened soils and even roots of other plants.

DESCRIPTION: This creeping perennial grass usually grows 1 to 3 feet tall. Rhizomes are creamy colored and pointed. Leaf blades are up to 0.5 inch wide. Near the tip of the leaves a band-like constriction may be present. Seedheads are 3 to 4 inches long and narrow.

CONTROL: Herbicides can offer good control when applied from early spring to winter. Contact your state or county weed specialist for specific, updated information.



Quackgrass infestation

Band-like constriction

Seed-bearing plant

Mature seedheads

Mature seeds

Pointed, creamy-colored rhizomes

Russian Knapweed *Acroptilon repens*

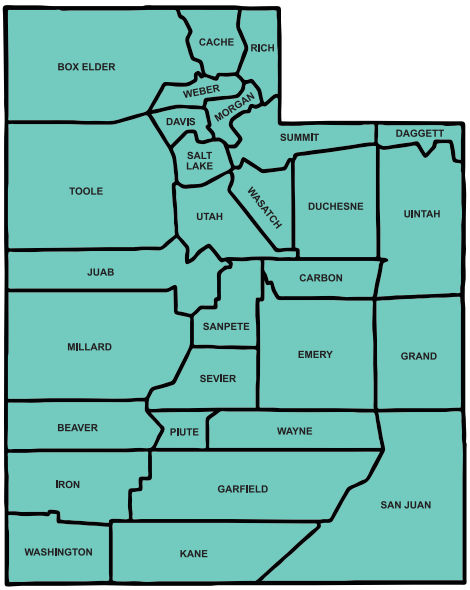
Synonym: ***Centaurea repens, Rhaponticum repens***

BACKGROUND: Russian knapweed is native to Eurasia. It infests rangelands, field edges, pasture, roadsides, and other disturbed soils. Knapweeds release chemical substances into the soil that inhibit the growth of competing vegetation. It can cause “chewing disease” in horses that consume it.

OTHER COMMON NAME: Hard heads

DESCRIPTION: A creeping herbaceous perennial, Russian knapweed grows 2 to 3 feet tall. Roots are black and may go 8 feet deep or more. Basal leaves are lobed and are 2 to 4 inches in length. Flowers are pinkish to purple, and flower bracts have membranous cream-colored tips. Bloom is early summer through late summer.

CONTROL: Biocontrol is available, but limited. Select herbicides can offer good to excellent control when applied between pre-bloom to the killing frost. Contact your state or county weed specialist for specific, updated information.



Russian knapweed infestation

Black root

Lobed leaves

Flowering plants

Membranous bract tips

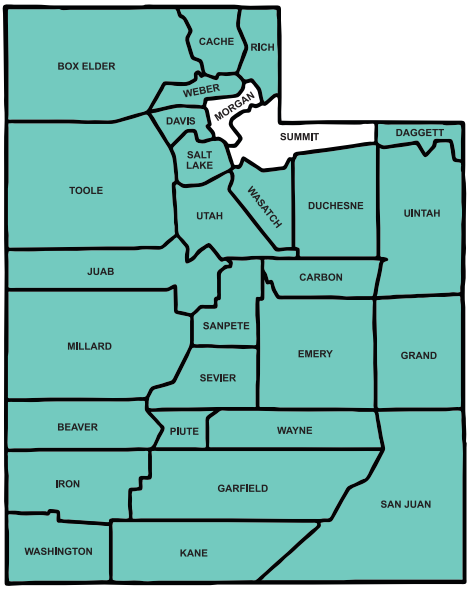
Saltcedar *Tamarix ramosissima*

BACKGROUND: Saltcedar was introduced from Eurasia and is found throughout the United States. It is widely used as an ornamental. It commonly infests lake and stream banks as well as pastures and rangeland. Large plants can transpire 200 gallons of water per plant per day, drying up ponds and streams.

OTHER COMMON NAME: Tamarisk

DESCRIPTION: This woody perennial plant grows 5 to 20 feet tall. Stems are reddish-brown. Leaves are small and scale-like. Branches are long and slender. White to pink flowers have five petals and are borne in finger-like clusters. The root system is extensive. Saltcedar may exhibit either deciduous or evergreen traits.

CONTROL: Biocontrol is available. Select herbicides can offer excellent control when applied in late summer through early fall, especially after cutting or burning. Contact your state or county weed specialist for specific, updated information.



Young growth with reddish-brown stems

Flower clusters

Saltcedar infestation

Scale-like leaves

Flowering plants

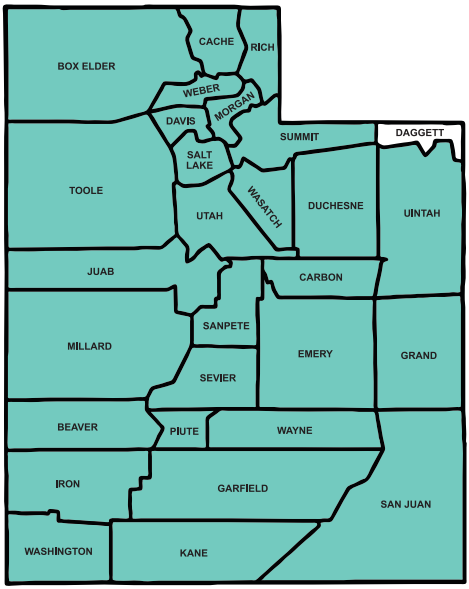
Flowering plants

Scotch Thistle *Onopordum acanthium*

BACKGROUND: Scotch thistle is native to Europe and eastern Asia. It grows well in waste areas, pastures, rangeland, and along canal and stream banks.

DESCRIPTION: This biennial plant commonly grows 3 to 8 feet tall, but it may grow as high as 12 feet. Rosettes may be 4 feet wide. Large, spiny leaves are covered with dense hair, giving a grayish, blue-green coloration. Stems are winged. The flowers are violet to reddish with spine tipped bracts, blooming in mid-summer.

CONTROL: Biocontrol research is currently being conducted. Herbicides can offer good-to-excellent control when applied between rosette and pre-bud stages. Contact your state or county weed specialist for specific, updated information.



Spiny leaves covered with dense hair

Winged stems and flowers with spine-tipped bracts

Flowering plant

Rosette

Scotch thistle infestation

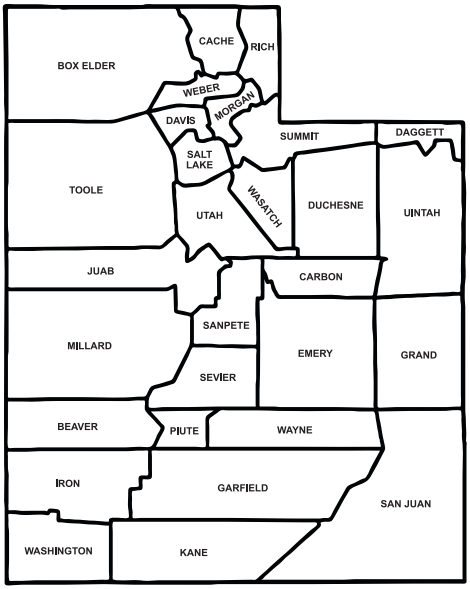
Class IV Weeds
(Prohibited)

Cogongrass *Imperata cylindrica*

BACKGROUND: Native to Asia and Africa, several cultivars of cogongrass are grown as ornamentals. It is an aggressive weed of forests, roadsides, and disturbed areas, and is tolerant of a wide variety of growing conditions. The plant is highly flammable and fire tolerant. Cogongrass is a designated federal noxious weed.

OTHER COMMON NAME: Japanese blood grass

DESCRIPTION: A perennial rhizomatous grass that can grow over 4 feet tall. The plant is yellowish-green, sometimes changing to red in autumn. It grows in dense patches and reproduces by seed and segmented, sharp-tipped, scaly rhizomes. Fragmented rhizomes can easily generate new



plants. Leaves have a dominant off-centered whitish vein. Cogongrass produces silky white flower heads in spring.

CONTROL: This plant is not known to be in Utah outside of ornamental gardens. Do not buy cogongrass from nurseries. Contact your state or county weed specialist for specific, updated information.

Sharp-tipped, scaly rhizomes (UGA2120071)

Cogongrass infestation (UGA1380037)

Silky white flowerhead (UGA2131097)

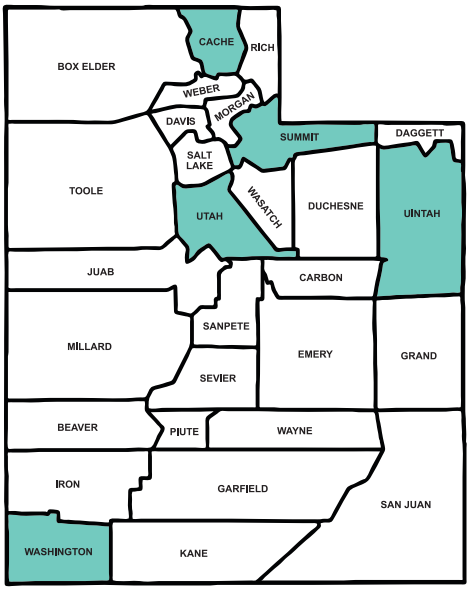
Dominant whitish midvein (UGA5125041)

Damesrocket *Hesperis matronalis*

BACKGROUND: Native to Europe and central Asia. Damesrocket is sold in wildflower seed mixes and is desired for its sweet scent, as a cut flower, for its essential oil, and its attraction to butterflies. Leaves, seeds, and oil are also edible. However, it is highly aggressive and known for invading native landscapes.

DESCRIPTION: A biennial or simple herbaceous perennial. In its second season, the rosette produces 1-4 foot high flowering stalks. Stems and leaves are finely hairy, and leaves are lance-shaped with serrated edges. The four-petaled flowers develop separately on short, equal stalks along the stem. In spring, flowers bloom pink, white or violet, and long, narrow seedpods develop under the flowers.

CONTROL: Do not buy wildflower seed mixes that include damesrocket. Mow plants before flowering to prevent seed production. With flowering plants, pull before seeds mature and remove. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Damesrocket infestation

Rosette (5450182)

Four-petaled flowers

Long, narrow seedpods (5450142)

Lance-shaped leaves with serrated edges (5450175)

Pre-flowering plant (5542024)

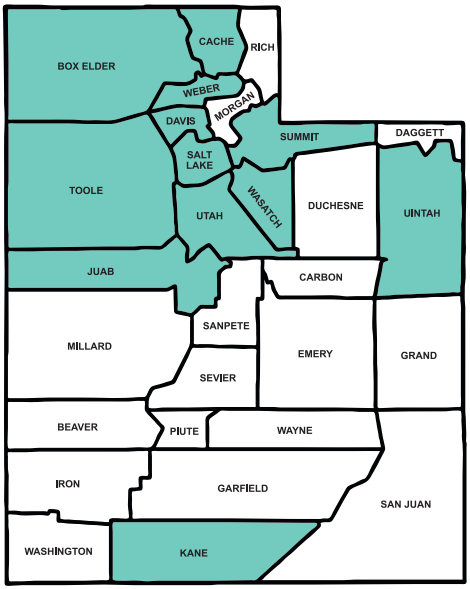
Myrtle Spurge *Euphorbia myrsinites*

BACKGROUND: Native to Eurasia, myrtle spurge is a weed of gardens, dry natural hillsides, waste areas, and public lands. It is drought tolerant and thrives in nutrient poor, sandy, and rocky soils. The plant contains a milky sap toxic to cattle and humans. Myrtle spurge is sold as an ornamental.

OTHER COMMON NAME: Blue spurge

DESCRIPTION: A short-lived, clumping herbaceous perennial with 8-inch tall, fleshy stems that bear thick, waxy, grayish-blue leaves. Stem tips bear yellow-green bracts that cup tiny flowers in umbrella-like clusters. Seeds are ejected up to 15 feet when the seed capsules open. The plants can also regenerate from root fragments.

CONTROL: Do not buy or grow this plant. Seedlings are easily dug or hand-pulled (use gloves, eye and skin protection!), but when digging more mature plants, the entire root must be removed. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Myrtle spurge infestation

Fleshy stems and milky sap

Yellow-green bracts cup tiny flowers

Waxy grayish-blue leaves

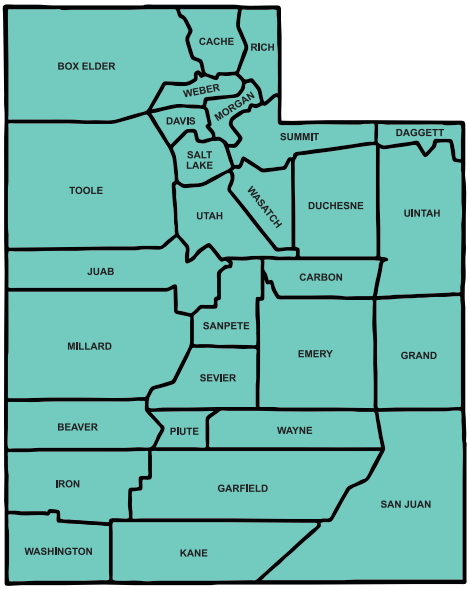
New growth emerging through dead stalks

Russian Olive *Elaeagnus angustifolia*

BACKGROUND: Native to Eurasia. Russian olive is a weed of gardens, roadsides, pastures, waterways, cropland, meadows, and seasonally moist open areas. It can form thickets and be aggressively competitive, even on poor soils. It tolerates flooding, salinity, and drought. It is sold in nurseries.

DESCRIPTION: An open, irregular tree up to 35 feet tall. Young branches are silvery, while older branches are red-brown. Stems and branches bear 1-2 inch thorns. Leaves are narrow and oval-shaped, with silvery-gray undersides. Flowers are small, fragrant, yellow, and funnel-shaped. Fruit is olive-shaped and silvery, and becomes tan with age.

CONTROL: Do not buy or plant this tree. Young plants can be hand-pulled, or tilled or mowed repeatedly. Goat grazing is also helpful. Larger plants must be cut or girdled at or below ground level, and any regrowth should be removed. Herbicides can be effective. Contact your state or county weed specialist for specific, updated information.



Red-brown, thorny branches

Russian olive infestation

Silvery, olive-shaped fruit

Funnel-shaped flowers and narrow leaves

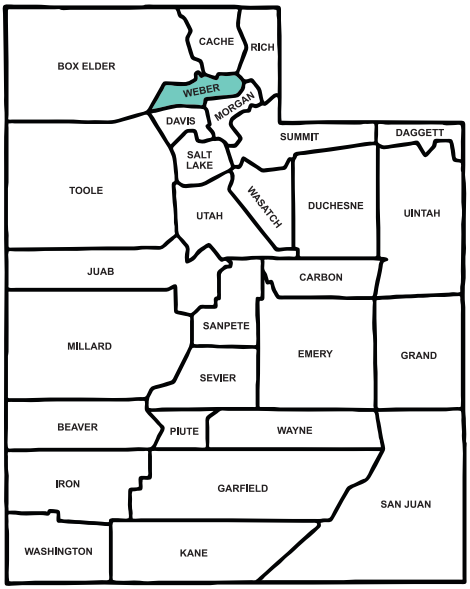
Mature tree

Scotch Broom *Cytisus scoparius*

BACKGROUND: Native to Europe, Scotch broom grows on roadsides, pastures, open areas, and recently disturbed areas. The plant is tolerant of fire, and is toxic to livestock. It also displaces desirable vegetation and forms dense stands. It is sold as an ornamental.

DESCRIPTION: A long-lived, highly branched woody perennial that can grow over 6 feet tall. Scotch broom produces bright yellow, pea-like flowers in early summer. Stems are dark green and sparsely covered with leaves. When young, the stems are ridged and hairy. The plant reproduces by seed. Seed pods are dark brown and have hairy margins. Seeds can remain viable for over 30 years.

CONTROL: Do not buy Scotch broom at nurseries. Plants can be hand pulled, dug, cut, or mowed, all done best before seeds mature. Applying herbicide to cut plants can help prevent regrowth. Some insects are known to provide biocontrol. Contact your state or county weed specialist for specific, updated information.



Pea-like flowers (UGA1459557)

Flowering plant (UGA1459556)

Dark brown seedpods (5447462)

Ridged young stems with sparse leaves (5397124)

Scotch broom infestation (5392106)

LIFE CYCLE DEFINITIONS

Annual—life cycle completed in 1 year or less (seed to seed), reproduce by seed only.

- Winter annuals: germinate in fall or winter, finish in spring or summer.
- Summer annuals: germinate in spring, mature and die by summer or autumn.

Biennial—a plant that lives longer than one season but fewer than 2 years. A rosette is produced the first year (a circular cluster of leaves, usually at soil level). Following a cold period there is floral initiation, fruit set, and death.

Perennial— a plant that lives for more than 2 years, and renews growth year to year from the same root system.

- Woody Perennials—plants such as trees, shrubs, and vines that do not die back during cold winters.
- Simple Herbaceous Perennials—reproduce by seed, usually not vegetative parts. However, a cut piece can regenerate. Above-ground parts usually die back to the ground in a cold winter.
- Creeping Herbaceous Perennials—reproduce by seed and by vegetative parts: roots, stolons, and rhizomes. Above-ground parts usually die back to the ground in a cold winter.

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Small bugloss flowers: AnRo0002, https://commons.wikimedia.org/w/index.php?curid=21972956

Spring milletgrass: Enzo De Santis, 2011. In Acta Plantarum. Available online (date of consultation: 23/01/2017): http://www.actaplantarum.org/floraitaliae/viewtopic.php?t=33315&p=219271#p219271.

Syrian beancaper: California Department of Food and Agriculture, Bugwood.org

Japanese knotweed reddish brown stem and branching flower clusters: James H. Miller, USDA Forest Service, Bugwood.org

Sahara mustard plant and rosette: Joseph M. DiTomaso, University of California-Davis, Bugwood.org

Canada thistle whole plants: Steve Dewey, Utah State University, Bugwood.org

Johnsongrass leaf, seedhead, and rhizome: Steve Dewey, Utah State University, Bugwood.org

Phragmites leaves and phragmites rhizomes: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Phragmites creeping stems: Ohio State Weed Lab, Ohio State University, Bugwood.org

Cogon grass (all photos): Chris Evans, University of Illinois, Bugwood.org

Dames rocket rosette, seedpods, and leaves: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Scotch broom flowers: Utah State University, Bugwood.org

Scotch broom infestation: John M. Randall, The Nature Conservancy, Bugwood.org

Scotch broom stem and leaves: Robert Vidéki, Doronicum Kft., Bugwood.org

Scotch broom seedpods: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Scotch broom flowering plant: Steve Dewey, Utah State University, Bugwood.org

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