

Kansas Noxious Weeds

GENERAL NOTICE TO CONTROL NOXIOUS WEEDS

The Kansas Noxious Weed Law K.S.A. 2-1314 et seq requires all persons who own or supervise land in Kansas to control and eradicate all weeds declared noxious by legislative action.

The weeds declared noxious are: Bur ragweed, Canada thistle, Field bindweed*, Johnsongrass*, Kudzu, Leafy spurge, Musk thistle*, Quackgrass, Pignut, Russian knapweed and Sericea lespedeza*

*currently found in Johnson County

Notice is hereby given pursuant to the Kansas Noxious Weed Law to every person who owns or supervises land in Kansas, that noxious weeds growing or found on such land shall be controlled and eradicated. ***Control is defined as preventing the production of viable seed and the vegetative spread of the plant.*** Failure to observe this notice may result in the County: 1. Serving a legal notice requiring control of the noxious weeds within a minimum of 5 days. Failure to control the noxious weeds within the time period allowed may result in the County treating the weeds at the owners expense and placing a lien on the property if the bill is not paid within 30 days or 2. Filing criminal charges for non-compliance. **Conviction for non-compliance may result in a fine of \$100 per day of non-compliance with a maximum fine of \$1500.** The public is also hereby notified that it is a violation of the Kansas Noxious Weed Law to barter, sell or give away infested nursery stock or livestock feed, unless the feed is fed on the farm where grown, or sold to a commercial processor that will destroy the viability of the noxious weed seed. Custom harvesting machines must be marked with a label provided by the Kansas Department of Agriculture and must be free of all weed seed and litter when entering the State and when leaving a field infested with noxious weeds. Additional information may be obtained from your county Noxious Weed Department or by contacting the Kansas Department of Agriculture at 1-785-296-3556.

**Full text of Kansas Noxious Weed Law can be found at:
agriculture.ks.gov**

WEED TERMINOLOGY

Non-indigenous: 1) Weed species that are directly or indirectly introduced into an ecosystem where the species did not occur naturally.

<**alien**> <**exotic**> <**non-native**>

Invasive: 1) Weed species that, outside of their natural ecosystems, establish rapidly thus causing significant harm to the environment, the economy, or to human health.

<**aggressive**> <**destructive**> <**harmful**>

Noxious: 1) Weed species that have been legally declared by the state legislature and/or the board of County Commissioners, to have a negative impact on agriculture, public health, the economy or the environment.

*Noxious weeds **must** be controlled and eradicated according to K.S.A. 2-1314

Impacts of Non-Indigenous Invasive and Noxious Weeds

- Reduced crop production
- Degraded wildlife habitat, including riparian areas
- Negative impact on endangered species
- Increased soil erosion
- Reliability threats to utility power lines and municipal water supplies
- Increased road surface maintenance
- Obscuring sight distances at rural intersections
- Interference with recreational activities in parks and other public lands
- Reduced property values
- Noxious, invasive and non-indigenous weeds cost the American agricultural industry nearly **120 BILLION** dollars each year due to reduced crop production, job losses and costs associated with weed control.
- Invasive species, including non-indigenous, invasive and noxious weeds, are the **#2 threat** to wildlands loss exceeded only by habitat destruction, due to industry and land development

NOXIOUS WEED HERBICIDE APPLICATION CALENDAR

MARCH

Bull thistle Musk thistle

APRIL

Bull thistle Hoary cress Musk thistle Pignut Russian knapweed

MAY

Bull thistle Hoary cress Musk thistle Pignut Russian knapweed
Field bindweed

JUNE

Canada thistle Field bindweed Kudzu Leafy spurge
Russian knapweed Sericea lespedeza

JULY

Bur ragweed Canada thistle Field bindweed Johnsongrass
Kudzu Quackgrass Sericea lespedeza

AUGUST

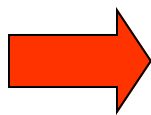
Bur ragweed Canada thistle Field bindweed Johnsongrass Kudzu

SEPTEMBER

Bull thistle Canada thistle Field bindweed Hoary cress Kudzu
Leafy spurge Musk thistle Pignut Russian knapweed Sericea lespedeza

OCTOBER

Bull thistle Canada thistle Hoary cress Field bindweed Hoary cress Kudzu
Leafy spurge Musk thistle Pignut Russian knapweed Sericea lespedeza



Regardless of the month, plants must be actively growing at the time of application.

Bull thistle

Cirsium vulgare

*County option noxious weed

Aggressive, biennial rarely annual broadleaf.

Habitat

- Prefers consistent moisture, any soil type
- Range, pasture, fence lines and roadside ditches

Flowers

- Solitary, purple: clustered at the top of shoots
- July-September

Seeds

- Straw colored w/plume-like bristles, disperse 10 days after flowering up to 10,000 per plant, viable for at least 10 years

Leaves

- Lance-shaped, spine tipped, woolly, gray underside

Shoots

- Spiny and winged

Roots

- First year taproot only, second year lateral roots

Growth and reproduction

- Rosettes during first year, up to 3½ ft. in diameter
- Bolts, flowers and dies second year
- Reproduces by seed only

Management

- Mow/cut/prune frequently to prevent seed heads
- Grubbing/digging: sever taproot 2" below ground
- Herbicides: aminopyralid, chlorsulfuron, clopyralid+triclopyr, dicamba, MSM, picloram, 2,4-D

Threats

- Aggressively competes for light, nutrients and moisture, degrades grazing land-spines ruin palatability

BULL THISTLE



Bur ragweed

Ambrosia grayii

Also known as Woollyleaf bursage

Deep-rooted, perennial forb

Habitat

- Prefers consistent moisture, but can withstand extended drought
- Cropland
- Fallow

Flowers

- Inconspicuous, greenish-gray
- July-August
- Male flowers on upper leaf axils, females lower on stem
- "Bur" is a cluster of female flowers, light tan with barbs

Seeds

- Burs contain two seeds
- 7-10 plants per sq.ft. can produce 920 seeds per sq. ft.

Shoots

- 12-24" tall
- Can produce a single flower stalk from each stem
- New shoots arise from root-borne vegetative buds

Roots

- Tap root can extend 15 feet deep
- Lateral roots can penetrate to 6 feet however, most are in top 3-10" of soil

Growth and reproduction

- Four year old plant: roots 6 ft. deep, 1/4" diameter
- 12 plants per sq. ft. can produce 460 burs per sq. ft.
- Reproduces primarily from root-borne buds, also seed

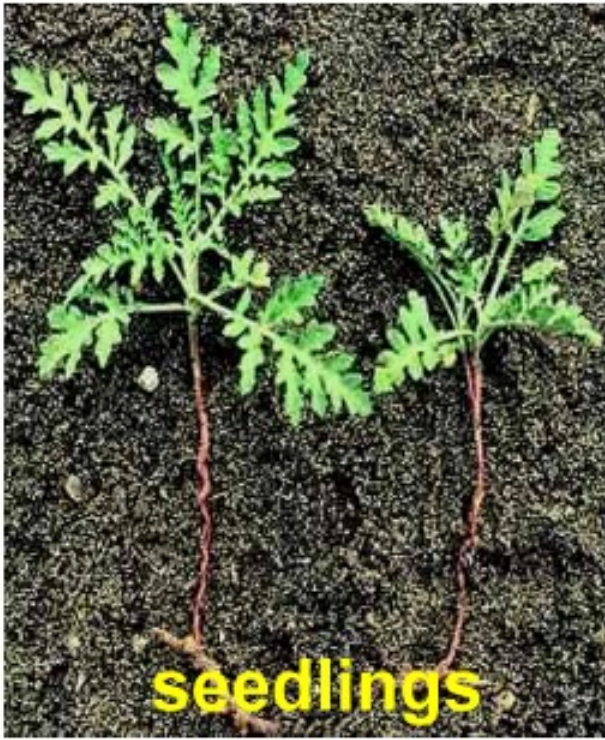
Management

- Tillage: 3-4" deep every 14-21 days, for 2-3 years
- Herbicides: dicamba, glyphosate, imazapic, picloram, 2,4-D LVE
- Picloram + 2,4-D or dicamba most effective
- Apply herbicides when flowering

Threats

- Aggressively competes for light, moisture and nutrients
- Infestation during "bad" year can result in total crop loss
- Infestation during an "average" year can reduce yields by 40-75%

BUR RAGWEED



Canada thistle

Cirsium arvense

Erect, rhizomatous perennial

Kansas has many ecotypes, all with varying degrees of herbicide susceptibility

Distinguished from all other thistles by:

- Creeping, horizontal roots
- Small, purple, pink or white flower heads
- High variability in leaf size and shape

Habitat

- Invades nearly every type of upland community
- Prefers fertile, moist soils, can tolerate salt content of 2%
- Prairies and grasslands
- Roadsides and wasteland
- Range and pasture
- Cropland

Flowers

- Dioecious
- Female flowers lack pollen and have a "vanilla" scent
- Flowering occurs 12-14 weeks after emergence

Seeds

- Seeds are viable 8-10 days after onset of anthesis
- Dissemination occurs 2-3 weeks after pollination
- Majority of seeds germinate during the first year, remainder during the following spring

Roots

- Plants produce horizontal and vertical roots
- Vertical roots can grow to 20 feet, however most are in top 24"
- Roots live an avg. of 2 years
- Carbohydrate reserves are lowest just prior to flowering
- Roots begin to increase carbohydrate reserves in early fall as shoot growth declines

Shoots

- Primary shoots grow as rosettes for 2-3 weeks
- Bolting occurs 2-4 weeks after emergence
- Several growth stages can occur on the same plant, during summer

Growth and reproduction

- 18 week old plant can produce 36 feet of roots, 26 above ground stems, 154 underground shoots
- Average lateral root growth is 14-16 feet per year
- Reproduction mainly from rootstocks, some seed

Management

- Frequent mowing during summer can enhance fall herbicide application
- Herbicides: aminopyralid, chlorsulfuron, clopyralid or picloram

Threats

- Moderately allelopathic, can change ecosystem structure/composition
- Aggressively competes for light, nutrients and water, decreases yields
- Displaces native, desirable plants and reduces species diversity

CANADA THISTLE



Field bindweed

Convolvulus arvensis

Persistent, perennial vine of the morning glory family

Ranked among the top ten world's worst weeds

Distinguished from other bindweeds and morning glories by:

- Leaf shape, rounded arrowhead
- Flower size, small (1")
- Two small bracts located 1-2" below the flower

Habitat

- Orchards and vineyards
- Roadsides and ditchbanks
- Streambanks and lakeshores
- Croplands and wastelands

Flowers

- June through September
- Blooms last only one day

Seeds

- Hard, impermeable coats
- Viable 30 days after pollination
- Majority of seeds fall near the plant, however seeds can be dispersed over longer distances by water and birds

Roots

- Rhizomes and attached lateral roots can survive independently of the primary root, most in the top 12" of soil, plants can regenerate from root sections as deep as 5 ft.
- Buds may arise at any point along a lateral root
- Vertical roots comprise 1/3 of total root system extend 2-30 ft. deep

Shoots

- Shoot growth: 1st year, 18-51"
- Majority of shoots do not overwinter, however those that do can grow 70-114" during their second year

Growth and reproduction

- Lateral root growth: 15-22 ft. per year
- Reproduction primarily from rhizomes

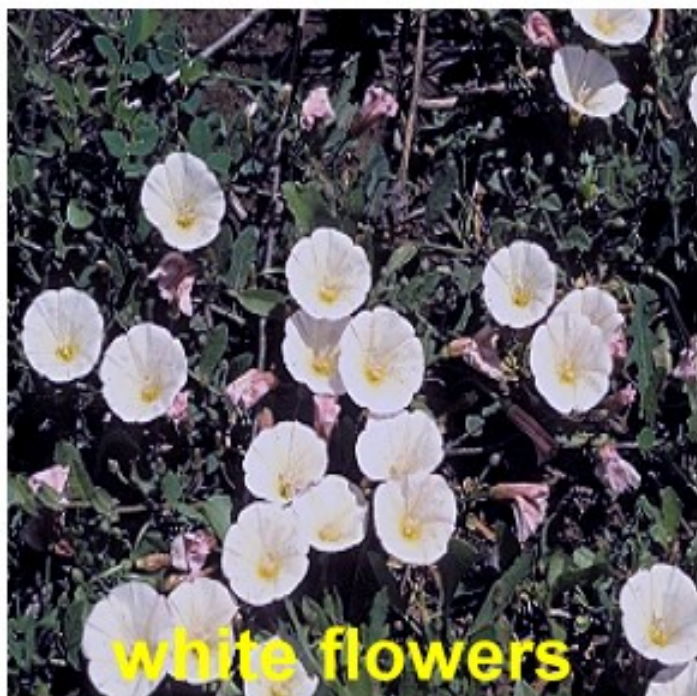
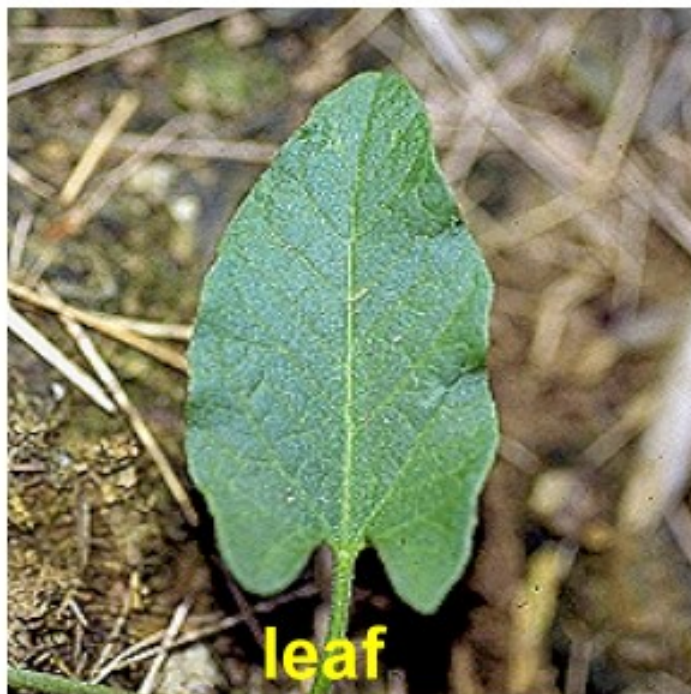
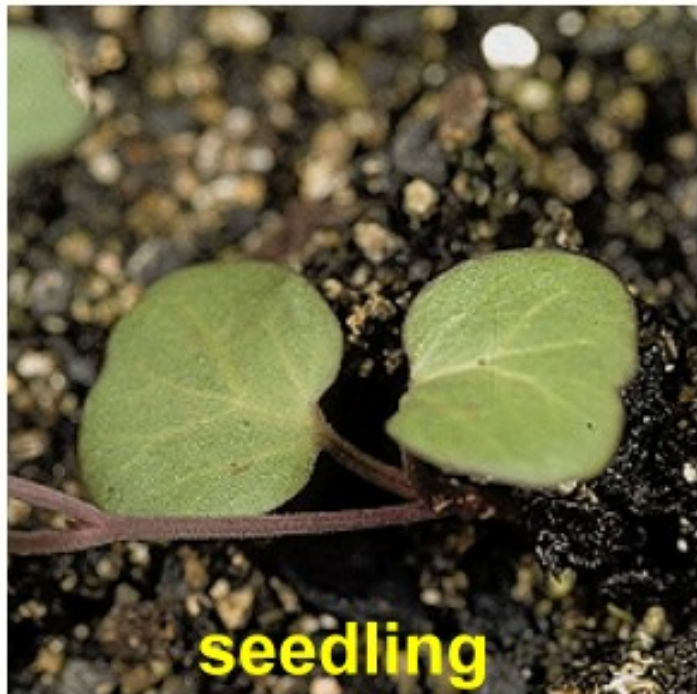
Management

- Deplete carbohydrate reserves by continuous cultivation etc.
- Prevent vegetative spread
- Herbicides: dicamba, glyphosate, imazapic, picloram, quinclorac or 2,4-D LVE
- Apply 2,4-D when soils are wet, dicamba when dry
- Apply herbicides when flowering or in October

Threats

- Aggressively competes for light, nutrients and water
- Can reduce crop yields by 50-60%
- Mildly allelopathic
- Toxic to some livestock

FIELD BINDWEED



Hoary cress

Cardaria draba

Hardy perennial with stout, erect or procumbent stems

Seedling leaves have a sharp pepper taste

Cardaria draba is distinguished from other Cardaria species by:

- Heart-shaped fruit containing only 2 seeds
- As fruit matures and dries, distinct veins appear

Cardaria draba is distinguished from Lepidium species by:

- Lepidium leaves are perfoliate (completely encircle the stem)
- Lepidium fruit is flattened, keeled or winged
- Lepidium fruit is dehiscent, cardaria is indehiscent

Habitat

- Prefers non-shaded, moist, disturbed soils with little competition
- Roadsides and ditches
- Cropland and wasteland
- Watercourses and irrigation canals
- Gardens
- Feedlots

Flowers

- Monoecious
- Blooms May through July
- Flowers are four-petalled with long, narrow bases (spoon-shaped)

Seeds

- Two seeds per fruit
- Plants can produce up to 850 fruits per flowering stem
- Germination rates of 93% are common
- Temperature range for germination: 68°-86°
- Dispersal by animals, humans and water

Roots

- Roots grow 3-6 feet deep
- 25 day old plant: 10" taproot, 5-6 lateral roots
- 100 day old plant: 48 shoots, 80 root buds
- 1/2" root segment can regrow if within 2-4" of surface

Growth and reproduction

- Under ideal conditions, rosettes form 2-3 weeks after emergence, roots develop within 5 weeks and aboveground branching within 13 weeks
- Lateral root growth can exceed 10 feet during the first year, 2-3 in the following seasons
- Reproduction from rootstocks and seeds

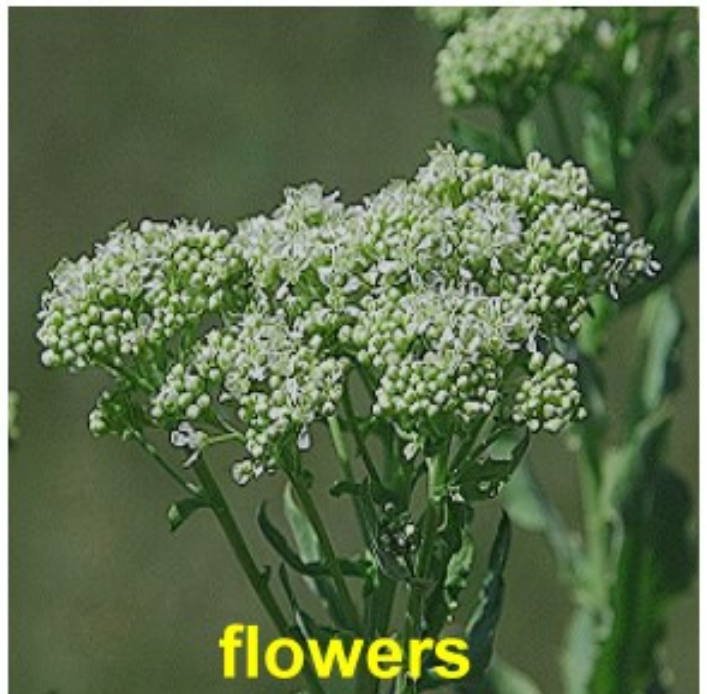
Management

- Mowing 2-3 times per season after flowering, can weaken plant
- Repeated cultivation at 10 day intervals prior to seed set
- Herbicides: chlorsulfuron, dicamba, metsulfuron, 2,4-D LVE

Threats

- Reduces crop yields and forage production, toxic to livestock
- Displaces native species reducing biodiversity

HOARY CRESS



Johnsongrass

Sorghum halepense

~~Erect, perennial, rhizomatous, warm-season grass~~

Ranked among the top ten world's worst weeds

Distinguished from other grasses by:

- Ribbed leaf sheath
- Leaves have a conspicuous midrib
- Large, purplish, paniced seed head
- Extensive large, fleshy, purple rhizomes

Habitat

- Fertile, porous soils, pH 5.0-7.5
- Disturbed, flooded lands
- Ditches and waterways
- Cultivated fields

Flowers

- Monoecious
- Flowering occurs approximately 8 weeks after emergence in spring
- Exact time of flowering depends on temperature, plant vigor and photoperiod (8-16 hours)

Rhizomes

- Primary spring growth is from apical and axillary nodes
- Secondary growth is annual above and below ground structures
- Rhizome spurs and tillers initiate growth 30 days after onset of primary growth, usually at six leaf stage
- Majority of rhizome growth occurs after flowering
- Minimum temperature for rhizome growth is 59°
- Rhizome depth depends on soil type, shallow in clay-deeper in loam, avg. is 8"

Seeds

- Dispersal mechanisms: contaminated feed and forage, livestock, machinery, water and wind

Growth and reproduction

- Plants can regenerate from small rhizome fragments (2")
- Most seeds germinate during second year
- Carbohydrate reserves are lowest in early spring and early fall, are at the absolute lowest 10-30 days after flowering

Management

- Constant cultivation to chop, desiccate and/or freeze rhizomes
- Frequent mowing to deplete carbohydrate reserves
- Herbicides: glyphosate, imazapic, sulfosulfuron, sulfometuron

Threats

- Alleopathic
- Rapid growth and height shades smaller plants
- Aggressively competes for light, nutrients and water
- Stress can produce hydrocyanic acid, cured hay ok
- Johnsongrass serves as a host for crop diseases
- Highly allergenic due to the amount of pollen produced

JOHNSONGRASS



Kudzu

Pueraria lobata

Extremely aggressive, semi-woody perennial vine

Habitat

- Prefers full sun
- Any soil type
- Forest edges
- Abandoned fields
- Roadsides
- Disturbed areas

Flowers

- Fragrant, purple (or blue) upright or hanging clusters
- Produced in late summer
- Plants in northern climates bloom infrequently, or not at all

Seeds

- Brown, hairy and flattened seed pods
- Up to 10 seeds per pod

Shoots

- Up to 30 vines from a single crown
- 35-100 feet long at maturity
- 1/2"-4" diameter
- Stems can root at nodes
- Vines can climb vertically 50 feet

Roots

- Tap root: 7" diameter, 6 feet deep-can weigh 400 pounds
- Rhizomes and stolons
- Lethal temperature for roots: -25° F

Growth and reproduction

- Prefers mild winters (40-60° F), hot summers (above 80° F) and at least 40" of precipitation per year
- Vines can grow 1 foot per day, 60 feet per season
- Reproduces primarily by rhizomes and stolons, also seed

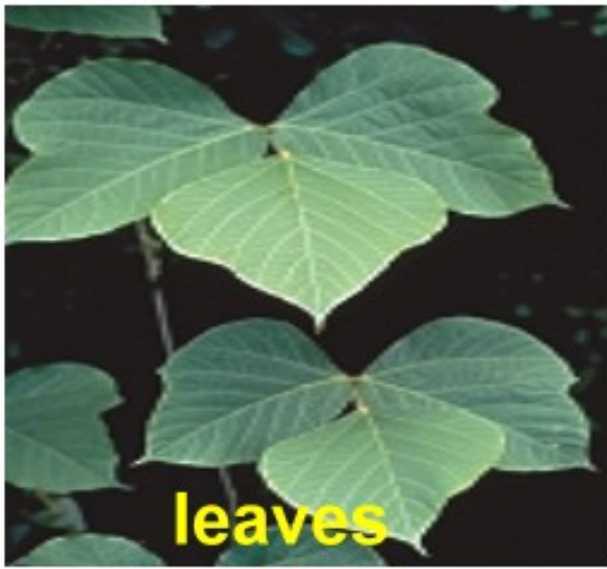
Management

- Frequent mowing/cutting/pruning to deplete carbohydrate reserves
- Grubbing/digging: must remove all root material or regrowth can occur
- Herbicides: dicamba, glyphosate, picloram, triclopyr
* Cut first then treat stump or foliar regrowth

Threats

- Dense foliage shades other plants
- Vines can girdle trunks and stems
- Weight of vines can topple shrubs, trees, power poles etc.

KUDZU



Leafy spurge

Highly aggressive, deep-rooted perennial

One of the first plants to emerge in spring, head start on competition

Seedlings can emerge when temperatures are 33-34° F

Habitat

- Prefers undisturbed, dry noncropland
- Abandoned fields
- Range and pasture
- Woodlands and prairies
- Roadsides and wastelands

Flowers

- Bright yellow blooms are actually leaf bracts
- Bracts appear in early May through July, possibly again in September
- Flowers are insect-pollinated

Seeds

- Seed development continues 4-6 weeks after bract appearance
- Optimum temperature for germination is 86°-88°
- Germination rate is 60-80%
- Plants can produce up to 3400 lbs. of seed per acre
- Seed dispersal occurs in August (dehiscent)
- Seeds are expelled up to 15 feet from plant

Roots

- Root system consists of shallow and deep roots, some 16-18 feet deep
- Buds can arise anywhere along roots, sending up vertical shoots
- Crown region of plant can produce roots and shoots

Shoots

- Shoot growth occurs from crown and root buds
- Seedling shoots can develop buds 7-10 days after emergence

Growth and reproduction

- Most aggressive growth occurs in semi-arid environments such as dry hillsides, dry prairies and rangeland
- Top growth can be killed, however regrowth can occur from root buds as deep as 12 feet
- Reproduction from rootstocks and seeds

Management

- Mowing can increase the infestation by increasing competition
- Control must begin prior to establishment, or may not be possible
- Hand cutting at 4" height repeatedly, can inhibit seed production
- Herbicides: dicamba, diflufenzopyr, glyphosate, imazapic, picloram, 2,4-D LVE

Threats

- Can decrease forage yield by as much as 100%
- Forms a monoculture, eliminating biodiversity
- Latex sap is dermally toxic

LEAFY SPURGE



young plant



milky sap



root buds



crown stems



fall color



leaf bracts/blooms

Multiflora rose

Rosa multiflora

Thorny, perennial shrub with arching stems(canes)

Habitat

- Wide tolerance for soil type, moisture and light conditions
- Intolerant of standing water or extended drought
- Open woodlands and forest edges
- Successional fields
- Savannahs and prairies

Flowers

- May-June
- Mature blooms form seed-bearing "hips" in fall

Seeds

- Up to 500,000 on a mature plant
- Dispersal: "hips" are spread by birds and mammals

Shoots

- Thorny and arching

Growth and reproduction

- Mature shrub size: 10 ft. tall x 20 ft. wide
- Reproduction from seeds, new plants form where canes contact soil

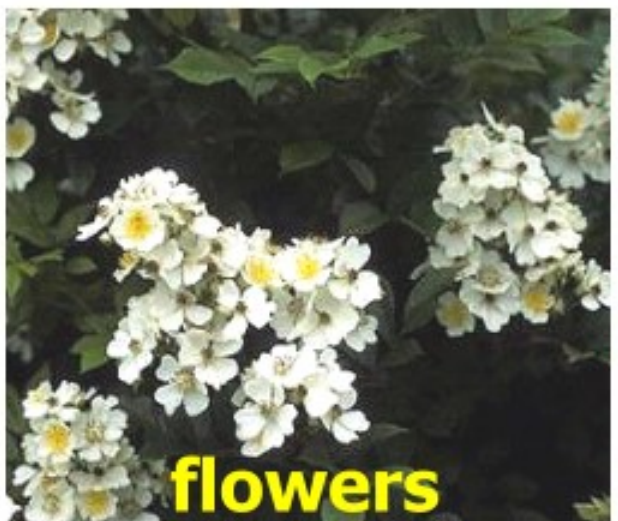
Management

- Mowing: 3-6x per year for 2-3 years
- Grubbing/digging
- Herbicides: fosamine, glyphosate, metsulfuron, picloram, triclopyr, 2,4-D LVE
- * Fall applied herbicides are most effective, regrowth is most susceptible

Threats

- Forms impenetrable thickets creating monocultures that exclude native flora and fauna

MULTIFLORA ROSE



Musk thistle

Carduus nutans

Tall, biennial, in some cases annual/winter annual

Distinguished from other thistles by:

- Simple, not plumose pappus hairs
- Nodding flower heads with spine-tipped green bracts

Habitat

- Roadsides
- Grazed pastures
- Old fields
- Idle pastures
- Rangeland

Flowers

- Monoecious
- May through June, sometimes into July
- Individual plants can produce up to 500 flower heads

Seeds

- Terminal heads avg. 1000 seeds, side branched avg. 125
- Maturity and dispersal occur within 7-10 days of flowering, wind-borne dispersal results in 70-80% of seeds falling within 150 feet of mother plant
- Germination rate of 1 year old seed is up to 90%
- Germination rate is decreased in cold, moist soils
- Optimum germination occurs only after adequate soil cover is established

Growth and reproduction

- First year: basal rosette may reach 3 ft. diameter
- Second year: plant bolts (vertical stem elongation), flowers, produces seed and dies
- Reproduction is from seed only

Management

- Mowing must occur within 2 days of flowering to destroy seed viability
- Hand digging must remove at least 2" of tap root when bolted, to kill entire plant and prevent resprouting
- Clipping or pulling seed heads, bag and burn or bury
- Herbicides: aminopyralid, clopyralid, dicamba, imazapic, metsulfuron, picloram or 2,4-D
* apply dicamba or 2,4-D ester in early spring, 2,4-D amine in late spring/early summer, metsulfuron in summer up to bud break and picloram in fall

Threats

- Deep tap root competes aggressively for nutrients and water
- Large rosette during first year shades and crowds out desirable plants
- Livestock will not graze infested areas
- Forage production can be reduced by as much as 50%

MUSK THISTLE



Pignut

Hoffmanseggia densiflora

Also known as Hog potato, Indian rush-pea

Low growing, slender-stemmed perennial legume

Habitat

- Semi-arid but humid environment
- Any soil type: prefers alkaline
- Tolerant of light shade
- Roadsides and ditchbanks
- Fallow and waste areas
- Cropland
- Range and pasture (disturbed/overgrazed areas)

Flowers

- Yellow/orange, covered with small, sticky tack-shaped glands
- Hermaphroditic
- April thru October

Seeds

- Flattened, slightly curved, dark reddish brown pods
- Seeds are egg-shaped, gray, smooth and flattened

Roots

- Lateral roots 18" deep with swollen, tuberous storage organs
- Roots provide extremely high water transport efficiency

Shoots

- Weak, slender stems

Growth and reproduction

- Mature plant: 6-12" height
- Reproduction primarily from root-borne buds and tubers, some from seed

Management

- Tillage: 3-5" deep every 21-30 days (within 10 days of emergence)
- Grubbing/digging: must remove all tubers and roots
- Herbicides: picloram (do not apply to cropland)

Threats

- Extremely competitive for moisture
- Forms monocultures that exclude native flora and fauna

PIGNUT



Quackgrass

Agropyron repens
(*Elymus repens*)

Aggressive, perennial, cool season grass

Distinguished from other grasses by its prominent pale yellow or straw-colored rhizomes with a tough brownish sheath at every joint

Habitat

- Open areas, moderate to high nutrient levels
- Crop fields
- Grazed pasture
- Sod farms
- Old fields/home sites
- Wet prairies
- Riparian corridors

Flowers

- June through August

Seeds

- Wind-pollinated
- Self-sterile
- Average 25-40 per plant
- Viability: 2-4 years

Rhizomes

- Growth initiates in April/May
- New rhizomes form at soil surface
- New rhizomes form apical buds in June/July
- Established rhizomes normally dormant June through August

Growth and reproduction

- Optimum temperatures for growth: 68°-77°
- Temperatures below 35° and above 95° inhibit growth
- Rhizome growth is triggered at 50°, plus 18 hour photoperiod
- Majority of rhizome growth occurs in the top .75"-4" of soil, some as deep as 16"

Management

- Tillage in spring @ 2" height for minimum 2 years
- Close mowing or grazing prior to tillage
- Consistent spring burning
- Herbicides: fluazifop, glyphosate, sethoxydim

Threats

- Aggressively competes for light, nutrients and water
- Highly allelopathic, capable of forming monocultures

QUACKGRASS



leaf collar



spikelets



seed head



rhizome growth



mature plants



rhizomes

Russian knapweed

Centaurea repens

Extremely persistent, perennial forb

Habitat

- Prefers open areas in semi-arid environments
- Roadsides
- Riverbanks, riparian forests and irrigation ditches
- Rangeland, pasture and disturbed grassland
- Clearcuts and wasteland
- Cropland

Flowers

- Solitary
- Urn-shaped
- .33 -.50" diameter

Seeds

- Up to 1200 per plant
- Germination temperature range: 68-86°
- Viability: 2-8 years (soil)
- Dispersal: passive (hay, feed, animal fur etc.)

Shoots

- Erect, thin and stiff
- Immature shoots covered with short gray hairs
- 100-300 shoots per 10 square feet

Roots

- Taproot
- Lateral growth: 6-8 feet per year
- Two years growth can cover 120-150 square feet

Growth and reproduction

- Reproduction primarily from rhizomes
- Shoots arise from adventitious buds along rhizomes
- Individual stands can survive and grow for 75 years or more

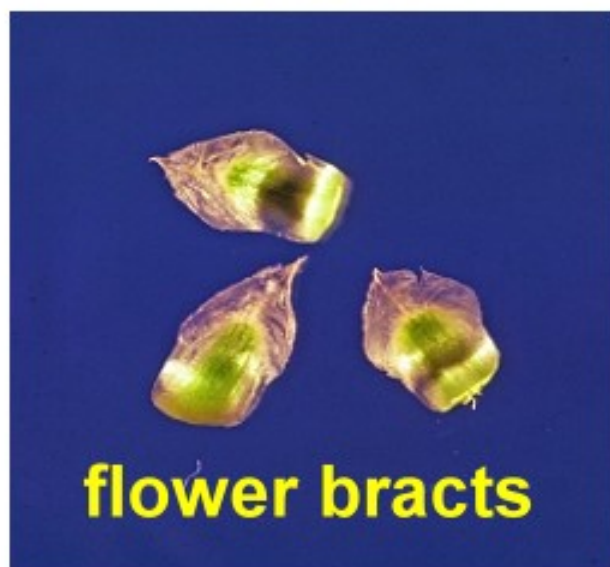
Management

- Prevention is most effective control
- Cutting, discing and mowing several times per year will deplete carbohydrate reserves and inhibit seed production
- Herbicides: dicamba, imazapic, picloram
* Fall applied picloram is most effective

Threats

- Aggressively competes for light, nutrients and water
- Allelopathic
- Rapidly forms monocultures eliminating biodiversity of fauna and flora
- Causes "chewing" disease in horses

RUSSIAN KNAPWEED



Sericea lespedeza

Lespedeza cuneata

Aggressive, perennial, warm-season, tap rooted legume

Shrub habit, copiously branched plant with ascending stems

Distinguished from other lespedeza by:

- Leaf shape
- Flower color
- Growth form

Habitat

- Adapted to a wide range of conditions
- Roadsides
- Ditches
- Railroad tracks
- Abandoned fields
- Pasture
- Rangeland

Flowers

- Chasmogamous or cleistogamous
- July through October
- White to whitish pink with darker blotches

Seeds

- Do not germinate well unless scarified
- Temperature range for germination: 68°-86°
- Optimum seedling growth occurs at 79°(day)/71°(night), plus 13-15 hour photoperiod

Growth and reproduction

- Crown buds produce new shoots each year
- New shoots are succulent until they reach 12"-14" height
- Individual plants can produce up to 30 stems in four years
- Stands can survive for 20 years
- Reproduction from crown buds and seeds

Management

- Frequent mowing encourages herbaceous stem growth to increase herbicide absorption
- Mowing at flower bud stage reduces stand vigor and spread
- Burning increases germination and stem growth: burn in May, spray in June when plants are mature, pre bud stage
- Herbicides: metsulfuron, triclopyr and triclopyr+fluroxypyr
* triclopyr in June, metsulfuron in September

Threats

- Highly competitive for light, nutrients and water
- Tannins in mature stems make them unpalatable
- Highly allelopathic, forms dense monocultures

SERICEA LESPEDEZA



KDA Approved Herbicides for Noxious Weed Control

Bull thistle (*Cirsium vulgare*)

2,4-D Aminopyralid Chlorsulfuron Dicamba Picloram Metsulfuron methyl Imazapic
Triasulfuron+Dicamba Triclopyr+Clopyralid

Bur ragweed (*Ambrosia grayii*)

2,4-D (lo vol ester) Dicamba Glyphosate+Dicamba Imazapic Picloram

Canada thistle (*Cirsium arvense*)

2,4-D Aminopyralid Chlorsulfuron Clopyralid Clopyralid+Triclopyr Dicamba
Glyphosate Picloram

Kudzu (*Pueraria lobata*)

Dicamba Glyphosate Picloram Triclopyr

Leafy Spurge (*Euphorbia esula*)

2,4-D (lo vol ester) Imazapic Picloram

Multiflora rose (*Rosa multiflora*)

2,4-D (lo vol ester) Dicamba Glyphosate Imazapyr Triclopyr+2,4-D
Metsulfuron methyl Tebuthiuron

Musk thistle (*Carduus nutans*)

2,4-D Aminopyralid Chlorsulfuron Clopyralid+Triclopyr Dicamba
Dicama+Triasulfuron Metsulfuron methyl Picloram

Pignut (*Hoffmanseggia densiflora*)

Picloram

Quackgrass (*Agropyron repens*)

Fluazifop-p-butyl Glyphosate

Russian knapweed (*Centaurea repens*)

2,4-D (lo vol ester) Dicamba Picloram

Sericea lespedeza (*Lespedeza cuneata*)

Metsulfuron methyl Triclopyr Triclopyr+Fluroxypyr

Cost-Share Approved Herbicides

*Alternate Herbicide Groups to Help Avoid Weed Resistance

- "2,4-D": 4# amine, 4# low vol, Clean Amine , Freelexx, others **Group 4 Herbicide**
- "Aminopyralid": Chaparral (+metsulfuron), ForeFront(+2,4-D), Milestone, PasturAll (+2,4-D) **Group 4 Herbicide**
- "Bromacil": Bromax, Hyvar-X, Rout **Group 5 Herbicide**
- "Chlorsulfuron": Corsair, Glean, Report, Telar DF **Group 2 Herbicide**
- "Clopyralid": Curtail (+2,4-D), Garrison, Hornet, Stinger, SureStart, Transline **Group 4 Herbicide**
- "Dicamba": Banvel, Clarity, Diablo, Rifle, Status, Sterling Blue, Vanquish **Group 4 Herbicide**
- "Diflufenzopyr": Distinct, Overdrive (+ dicamba) **Group 19 Herbicide**
- "Diquat": Reglone, Reward **Group 22 Herbicide**
- "Fenoxaprop": Excel Super, Puma **Group 1 Herbicide**
- "Fluazifop-P-Butyl": Fusilade DX, Fusion, Tornado, Venture **Group 1 Herbicide**
- "Fluroxypyr": PastureGard(+ triclopyr), Starane **Group 4 Herbicide**
- "Foramsulfuron": Option **Group 2 Herbicide**
- "Glyphosate": Buccaneer, Honcho Plus, Makaze, Razor Pro, Roundup, others **Group 9 Herbicide**
- "Imazapic": Panoramic, Plateau **Group 2 Herbicide**
- "Imazapyr": Arsenal, Ecomazapyr **Group 2 Herbicide**
- "Metsulfuron": Ally, Cimarron Plus, Escort XP, Manor, Patriot, Purestand **Group 2 Herbicide**
- "Nicosulfuron": Accent, Challenger, Nic-It, Primero **Group 2 Herbicide**
- "Picloram": Tordon 22k, Triumph 22K, Trooper 22k **Group 4 Herbicide**
- "Primisulfuron": Beacon **Group 2 Herbicide**
- "Quinclorac": Drive, Facet, Paramount **Group 14 Herbicide**
- "Quizalofop-P": Assure II, Co Pilot, Targa Super **Group 1 Herbicide**
- "Sethoxydim": Poast, Poast Plus, Vantage **Group 1 Herbicide**
- "Sulfometuron": Oust XP **Group 2 Herbicide**
- "Sulfosulfuron": Maverick, Outrider **Group 2 Herbicide**
- "Tebuthiuron": Pronone pellets, Reclaim, Spike **Group 7 Herbicide**
- "Triasulfuron": Amber **Group 2 Herbicide**
- "Triclopyr": Garlon, Remedy Ultra, Tahoe **Group 4 Herbicide**
- "Trifluralin": Treflan, Trust **Group 3 Herbicide**

IMPROVING HERBICIDE PERFORMANCE

- Unless stated otherwise on the label, always add a surfactant to the herbicide tank mix.
- Herbicide groups 6, 10, 14, 22, & 27 perform best when applied using 15-20 GPA of water
- Herbicide groups 1, 2, 9, & 10 are most effective when air temperatures are between 68 and 77° F during the day
- Herbicides in group 3 perform poorly when applied to compacted, saturated or otherwise anaerobic soils
- Herbicides in group 1 work best under cool temperatures not less than 39° F
- Herbicides in group 2 have an increased chance of carryover in extremely wet or extremely dry soils
- Systemic herbicides such as glyphosate are most effective when applied in mid morning
- Contact herbicides such as diquat should not be applied when daytime temperatures will reach 90° F , or more
- Ester (low vol) formulation herbicides should not be applied when daytime temperatures will reach 80° F, or more
- Do not apply an herbicide to a crop under stress as unacceptable damage may occur

CALCULATIONS AND CONVERSIONS

AREA

1 ACRE = 43,560 SQUARE FEET
1 SQUARE MILE = 640 ACRES
1 SQUARE YARD = 9 SQUARE FEET
1 SQUARE FOOT = 144 SQUARE INCHES

VOLUME

1 GALLON = 128 FLUID OUNCES (4 QUARTS)
1 QUART = 32 FLUID OUNCES (2 PINTS)
1 PINT = 16 FLUID OUNCES (2 CUPS)
1 CUP = 8 FLUID OUNCES
1 OUNCE = 2 TABLESPOONS
1 TABLESPOON = 3 TEASPOONS

METRIC CONVERSIONS

AREA

1 HECTARE = 2.47 ACRES
259 HECTARES = 1 SQUARE MILE
1 METER = 1.09 YARDS
1 METER = 3.28 FEET
1 METER = 39.37 INCHES
1 METER = 100 CENTIMETER
1 CENTIMETER = .39 INCHES

VOLUME

1 GALLON = 3.785 LITERS
1 QUART = 0.946 LITERS
1 PINT = 0.473 LITERS
1 FLUID OUNCE = 29.57 MILLILITERS (cc's)
1 LITER = 33.81 FLUID OUNCES

Glossary

Alkaline:	Having a PH greater than 7.0
Allelopathic:	The ability of a plant to produce chemicals, normally through its roots, that inhibit or prevent other plant growth nearby
Annual:	A plant that germinates, flowers, sets seed and dies All within one growing season
Apical:	The tip (of a stem)
Axil:	The upper angle formed by the junction of a leaf, or similar organ, with the stem
Basal:	The lowest portion of a stem
Biennial:	A plant that germinates and produces a rosette during the first growing season, then bolts, flowers, sets seed and dies during the second growing season
Biodiversity:	The number, variety and genetic variation of different organisms found within a specified geographic region
Bolt:	The process of a plant producing a vertical flower stalk
Bracts:	Leaf-like organs usually located just beneath the flowers
Chasmogamous:	A flower that opens thus allowing cross pollination, however self-pollination may also occur
Cleistogamous:	Pertaining to or having pollination occur in un-opened flowers thus precluding the possibility of cross-pollination
Cool Season Grass:	Grasses that contain 3 carbons and put on most of their growth in the spring and fall with a dormant period during hot summer months
Crown:	Persistent base of an herbaceous perennial plant
Cuticle:	A waxy layer on the outside of leaves, stems and fruits
Dehiscent:	A violent opening of the fruit thus extending the seed several feet away from the parent plant (a natural way for plants to spread)
Dessicate:	Dehydration of plant tissue (herbicides sometimes applied to crops to facilitate harvest)
Dioecious:	Having male and female reproductive organs on same plant
Ecotype:	A distinct population of organisms within a species that has adapted genetically to its local habitat
Fauna:	The animals of a given region or period
Flora:	The plants of a particular region or period
Forbs:	Herbaceous plants other than grasses or grass-like plants (broad leaves)
Grass:	Plants with long, narrow leaves with parallel veins on a round hollow stem
Hermaphroditic:	Having both male and female reproduce parts on the same plant (usually wind pollinated)

Indehiscent:	A fruit or fruiting body that does not open to disperse its contents (the surrounding wall must decay or it may be eaten and passed through an animal)
Legume:	Members of the bean family able to fix nitrogen in their root modules from the surrounding air
Midrib:	The vein running down the middle of a leaf from the base to the tip
Monoculture:	Growth of a single crop when others are possible
Node:	The segment of a stem to which leaves and auxiliary buds are attached
Paniced:	Any loose, diversely branching flower culture
Pappus:	A ring of fine hairs, scales or teeth that persist after fertilization often forming a parachute-like structure to aid in wind dispersal of the seed
Perennial:	A plant that lives for many years and spreads through seeds or roots
Plumose:	Feathery or plume-like, covered with feathers
Produmbent:	Lying along the ground but not putting forth roots
Rhizome:	A root-like subterranean stem, commonly horizontal in position that produces roots below and sends up shoots from the upper surface
Rosette:	A circular cluster of leaves close to the ground, during the first year of a biennial plants growth
Sheath:	The leaf base when it forms a vertical coating around the stem
Stolons:	A prostrate stem at or just below the ground that produces new plants from buds at its tips or nodes
Tannins:	A substance occurring in the back of leaves of a plant making it unpalatable to livestock or other herbivores
Tap Root:	A main root descending downward and giving off small lateral roots
Tiller:	A plant shoot that springs from the root or bottom of the original stalk
Warm Season Grass:	Grasses that contain 4 carbons and put on most of their growth during the hot summer period, they are naturally dormant from Fall thru Spring

Bull thistle

Seedling: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org
Stem: Dan Tenaglia, MissouriPlants.com, Bugwood.org
Flower: Loke T. Kok, Virginia Polytech Institute & State University, Bugwood.org
Rosette: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org
Leaf: James Altland, Oregon State University
Mature plant: Loke T. Kok, Virginia Polytech Institute & State University, Bugwood.org

Bur ragweed

Seedlings: Utah—Idaho Cooperative Weed Management Area
Flower: ©2003 Geir Friisoe, Weeds of the Great Plains
Mature plant: © 2003 Geir Friisoe, Weeds of the Great Plains
Burs (seed): Utah-Idaho Cooperative Weed Management Area

Canada thistle

Seedling: Mark Shepard, Weeds of Oregon
Leaf, stem: ©2003-2011 John Hilty
Rosette: © 2006 Kansas Department of Agriculture
Flowers: LaPlata County Colorado
Mature plant: Dan Tenaglia, MissouriPlants.com, Bugwood.org

Field bindweed

Seedling: Ken Chamberlain, The Ohio State University, Bugwood.org
White flowers: Steve Dewey, Utah State University, Bugwood.org
Leaf: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org
Pink flowers: Jan Samnek, State Phytosanitary Administration, Bugwood.org
Mature plant: Kootenai County Idaho

Hoary cress

Seedling: Steve Dewey, Utah State University, Bugwood.org
Fruit (seeds): Steve Dewey, Utah State University, Bugwood.org
Leaves: University of Idaho—Idaho Weed Resources
Flowers: Chris Evans, River to River CWMA, Bugwood.org
Rhizome: Steve Dewey, Utah State University, Bugwood.org

Johnsongrass

Seedling: Howard F. Schwartz, Colorado State University, Bugwood.org
Leaf collar: Chris Evans, River to River CWMA, Bugwood.org
Mature plant: Chris Evans, River to River CWMA, Bugwood.org
Rhizome: Steve Dewey, Utah State University, Bugwood.org
Leaf midrib: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org
Seedhead: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org

Kudzu

Seedlings: Nancy Fraley, USDI-NPS, Bugwood.org
Leaves: Ted Bodner, Southern Weed Science Society, Bugwood.org
Blue flower: Forrest and Kim Starr, USGS, Bugwood.org
Vines: James H. Miller, USDA-FS, Bugwood.org
Purple Flower: Ted Bodner, Southern Weed Science Society, Bugwood.org
Seed pods: Ted Bodner, Southern Weed Science Society, Bugwood.org

Leafy spurge

Young plant: Norman E. Rees, USDA-ARS—retired, Bugwood.org

Root buds: Steve Dewey, Utah State University, Bugwood.org

Fall color: William M. Ciesla, Forest Health Management International, Bugwood.org

Milky sap: Norman E. Rees, USDA-ARS—Retired, Bugwood.org

Crown stems: USDA-ARS Archive, USDA-ARS, Bugwood.org

Leaf bracts/blooms: Steve Dewey, Utah State University, Bugwood.org

Multiflora rose

Seedling: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org

Leaf base: Chris Evans, River to River CWMA, Bugwood.org

Hips (seed): Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Flowers: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Mature plant: James H. Miller, USDA-FS, Bugwood.org

Musk thistle

Seedlings: Lynn Sosnoskie, University of Georgia, Bugwood.org

Leaf: Steve Dewey, Utah State University, Bugwood.org

Lower stem: Dan Tenaglia, MissouriPlants.com, Bugwood.org

Rosette: © 2006 University of Illinois

Mature plant: James H. Miller, USDA-FS, Bugwood.

Pignut

Young plant: Russ Kleinman, Western New Mexico University Department of Natural Sciences

Flowers: James M. Andre © 2004, CalPhotos

Leaves: James M. Andre © 2004, CalPhotos

Seed pods: Aaron Schusteff©2005, CalPhotos

Mature plant: James M. Andre @© 2004, CalPhotos

Quackgrass

Leaf collar: ©2010, Province of British Columbia

Spikelets: Sari Agricultural Sciences and Natural Resources University

Seed head: Sari Agricultural Sciences and Natural Resources University

Rhizome growth: J. Dekker © 1999, Iowa State University

Mature plants: Adel Hamed Barhoum, Encyclopedia Natural Plants and Their Products

Rhizomes: © 2010, Province of British Columbia

Flowers: Ricky Layson, Ricky Layson Photography, Bugwood.org

Russian knapweed

Rosette: Rodney G. Lym

Leaves: © 2006, University of Idaho Agricultural and Life Sciences

Flower bracts: Steve Dewey, Utah State University, Bugwood.org

Stem buds: K. George Beck, Colorado State University, Bugwood.org

Flowers: Steve Dewey, Utah State University, Bugwood.org

Mature plant: Missouri County Weed District

Sericea lespedeza

Seedlings: Chris Evans, River to River CWMA, Bugwood.org

Flowers: Dan Tenaglia, Missouriplants.com, Bugwood.org

Roots: Kansas Department of Agriculture

Leaves: James H. Miller, USDA-FS, Bugwood.org

Seed heads@Fall: James H. Miller, USDA-FS, Bugwood.org

Mature plant: James H. Miller, USDA-FS, Bugwood.org

NOTES