

**THIRTY COMMON
RIGHT-OF-WAY WEEDS
IN IDAHO
WEED IDENTIFICATION GUIDE
- RIGHT-OF-WAY EXAM -**



**Selections taken from Weeds of Utah,
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COMMON RIGHT-OF-WAY WEEDS IN IDAHO

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INTRODUCTION

In the weed control exams administered by the Idaho Department of Agriculture, questions about specific weeds are included. In response to the need for appropriate study materials, weed study packets consisting of thirty common weeds have been prepared for the **Agricultural Herbicide, Ornamental Herbicide, and Right-of-Way** exams.

An initial list of weeds for each category was compiled with the help of commercial applicators, the University of Idaho Extension Service, and the Idaho Department of Agriculture. The final list (thirty per category) was compiled with the help of Drs. Don Thill, Robert Callihan, and Don Morishita of the University of Idaho, and Loal Vance of the Idaho Department of Agriculture. Narrative and drawings were taken from *Weeds of Utah. The information was compiled and edited K. Taylor Cox, Idaho Department of Agriculture.

NOTE: There may be many other common weeds which are not included in the packets. The packets are provided to study for exams, and not necessarily for reference materials. An attempt was made to reconcile the information in the weed study packets with Weeds of the West (Whitson, et.al., 1991), which is recommended as a reference manual.

What to study: common name, type of life cycle, morphology (structure or shape), phenology (time the plant grows), habitat, characteristics that make the plant a weed.

* Special Report 21, Utah Agricultural Experiment Station, November 1970, written by Arthur H. Homgren and Berniece A. Andersen. Kaye Hughie Thorne did most of the drawings (identified by the initials KH or KHT); a few are by Dean Fletcher (DF), O. Charles Walmo (OCW), and Berniece Andersen (BA)

GROWTH HABITS DETERMINE THE METHODS OF CONTROL

As the form and growth habits of weeds largely determine the best method of control, these features are emphasized in the descriptions. Since the length of life of the plant depends on the length of life of the the root, we have a basis for dividing plants into annuals, biennials, and perennials.

ANNUALS. Annual plants are those that complete their life cycles (i.e., grow vegetatively, produce flowers and seed, and then perish) in a single growing season. Winter annuals are those plants that germinate from seed in the fall or early winter and quickly complete growth and mature the following spring. Since a continued infestation of annual weeds depends on a yearly succession of seed crops, the simplest and most practical means of control is that which prevents the plants from maturing seed. Ordinary methods of weeding, hand pulling or hoeing, mowing, and clean cultivation are those chiefly employed. Under certain conditions herbicides may be used to advantage.

BIENNIALS. Biennial plants differ from annual plants in that they require two full growing seasons to develop flowers and mature seed. After maturing seed they die. During the first season a short taproot is usually formed and only a rosette of leaves grows from the rootcrown. During the second season, a leafy stem develops which produces flowers and seed, thus completing the plant's life cycle. Since perpetuation of the weed crop depends on seed production, the desirable control practices for biennial weeds are essentially those suggested for annuals.

PERENNIALS. Perennial plants are those that normally live for more than two years and usually do not produce seed until the second year or later. Since the underground parts (the roots, and frequently underground stems called rootstocks or rhizomes) persist from year to year, plants of this character are the most difficult to control or eradicate, and hence constitute the most serious group of weeds. Some perennials produce woody stems which grow from year to year and consequently develop into shrubs or trees. In our region the greater number of perennials produce leafy and flowering stems from the root or rootstock each year. These stems persist only through the one growing season, and die back to the ground at the end of the season. Most of our noxious weeds are perennials. The most important method of control is prevention. Early recognition of and subsequent eradication of weeds may prevent almost hopeless situations. Clean cultivation and proper cultural practices are still the best control methods known.

NAMES OF PLANTS

Scientific names for the most part are applied to families, genera, and species. The family name for the mustards, for instance, is **Brassicaceae** and this family contains many genera (plural for genus) such as **Brassica**, **Cardaria**, **Chorispora**, and **Descurainia**, to name a few of them. A genus may include from one to several hundred species. The name **Sisymbrium altissimum L.** is a species in the genus **Sisymbrium** in the **Brassicaceae** family, and is commonly known as tumble mustard. The "L" following the species shows that Linnaeus was responsible for naming this species.

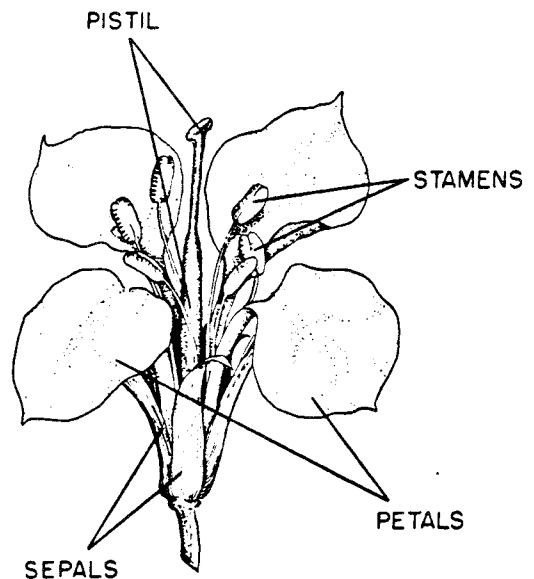
The scientific name for hoary cress is **Cardaria draba (L.) Desv.** In this case Linnaeus originally named the plant **Lepidium draba L.** and Desvaux later transferred it to the genus **Cardaria**.

The common names of plants are often more difficult to apply than scientific names. Some species have many different common names and sometimes a given common name will be used in referring to several different species. The common name given is the one thought to be most acceptable.

BOTANICAL TERMS

Every effort has been made to keep botanical terms to a minimum. Some terms are so necessary and helpful in describing flowers and plant parts that it would be undesirable to omit them from descriptions. The accompanying labeled illustration of a mustard flower will serve to identify the various parts of the flower. It should be kept in mind that the flower is the structure most commonly used in classifying and identifying plants.

The sepals are usually green when present and constitute the outside whorl of the flower. They are referred to collectively as the calyx. The collective term for the petals is the corolla. The stamens or pollen bearing male parts are encountered next. The pistil or female part of the flower is in the center. The seeds are matured ovules that develop inside the ovary of the pistil.



GLOSSARY OF BOTANICAL TERMS

- ACHENE*, a small, dry, one-seed fruit where ovary does not open to expel seed.
- ACUTE*, ending in a point less than a right angle.
- ALTERNATE*, one leaf or bud at a node.
- ANNUAL*, of one season's duration from seed to maturity and death.
- ANTHER*, pollen-bearing part of stamen.
- AXILLARY*, a flower or a bud that appears in the axil of a leaf or a bract.
- BARBED*, being reflexed like the barb of a fish hook.
- BARBELLATE*, with barb-like branches.
- BEAK*, applied here to prolongation of fruits and pistils.
- BIENNIAL*, of two seasons duration from seed to maturity and death.
- BLADE*, the expanded part of a leaf.
- BRACT*, a leaf subtending a flower or flower cluster. The leaf or bract is usually dissimilar to the foliage leaves and smaller.
- CALYX*, a collective term for the outer whorl of a flower, the sepals.
- CAPILLARY*, very slender and hair-like.
- CAPSULE*, a dry, many-seeded fruit pod that splits open at maturity.
- CARPEL*, a modified leaf forming the ovary.
- CATKIN*, a unisexual spike of willows and cottonwoods.
- CLASPING*, leaf base surrounding a stem.
- COROLLA*, a collective term for the inner whorl of a flower, the petal; usually colored.
- COTYLEDON*, the seed leaf of a germinated plant.
- CULM*, the hollow or pithy stem of grasses and sedges.
- DECUMBENT*, reclining on the ground but with the ends ascending.
- DEHISCE*, to split open along definite lines.
- DIFFUSE*, of open and usually dense growth.
- EMBRYO*, the tiny plant enclosed within the seed.
- ENTIRE*, the margin not in any way indented.
- EVERGREEN*, remaining green throughout the year.
- FLORET*, the small individual flowers of grasses and composites.
- FRUIT*, the ripened ovary or ovaries along with other united parts; the seed-bearing organ.
- GLANDULAR*, bearing glands. A glandular hair has an enlargement at the apex, making it appear somewhat like a hat pin.
- INFLORESCENCE*, the flowering segment of a plant and, specifically, the arrangement of the flowers.
- INVOLUCRE*, the bracts or leaf-like structures subtending a flower cluster, usually in the composite family.
- IRREGULAR FLOWER*, the parts of a whorl of a flower not all alike.
- LACERATE*, cut in an irregular manner as if the structure had been slashed.
- LANCEOLATE*, lance-shaped; several times longer than wide, broadest towards the base and tapering to the apex.
- LATERAL*, on or at the side.
- LEAFLET*, one part of a compound leaf.
- LEMMA*, the lower of two bracts, subtending a grass floret.
- LIGULE*, as referred to here it is the membranous projection up from the inside of a grass sheath at its junction from the blade.
- LINEAR*, long and narrow with the sides being parallel or nearly so.
- LOBED*, segments divided to about the middle.
- NECTARY*, a tissue for secreting nectar. Each petal of a buttercup has a nectary on the upper surface near the base.
- NODE*, the point on a stem where leaves or branches normally originate; also any swollen or knob-like structure.
- OB*, a prefix meaning reversed from the usual arrangement.
- OBLONG*, two or four times as long as broad.
- OBTUSE*, blunt or rounded on the apex.
- OPPOSITE*, two leaves or buds at a node.
- OVATE*, egg-shape or about one and one-half times as long as broad with the widest part near the base.
- PALMATE*, parts arising from approximately one point.
- PANICLE*, a compound cluster of flowers consisting of associated spikes or racemes. An example is the inflorescence of wild oat.

PAPPUS, the crown of bristles, scales, or capillary hairs on top of the achene in composites.

PERENNIAL, of three or more seasons' duration.

PERIANTH, a collective term for the sepals (calyx) and petals (corolla).

PETAL, one of the divisions of a corolla.

PETIOLE, the stalk of a leaf supporting the blade.

PINNATE, leaflets of a leaf arranged on each side of a common axis; feather-like.

PINNATIFID, pinnately cleft or parted.

PISTILLATE, a female flower having a pistil and no stamens.

PLUMOSE, like a feather, the term is often applied to hairs that have finer hairs along the side, making it appear feather-like.

POLLEN, the spores or grains borne by the anther.

RACEME, a flower cluster with one-flowered stalks arranged along a common axis.

RAY FLOWER, the modified outer flowers of a composite head with strap-like corollas; irregular flowers.

REFLEXED, part bent outward or backward.

RHIZOME, a horizontal underground stem that is sometimes called a rootstock.

ROOTSTOCK, the same as rhizome.

ROSETTE, a dense cluster of leaves at the base of a plant on a very short stem.

RUNNER, a trailing stem that roots at the nodes.

SCURFY, scale-like particles on a surface that resemble human dandruff.

SERRATE, the margin cut into teeth which point upward.

SHEATH, a tubular structure surrounding an organ or a part. An example is the basal part of a grass leaf that surrounds the stem or culm.

SINUS, the space between two lobes or divisions of a leaf or other expanded organ.

SPIKE, an inflorescence where the flowers are without a flower stalk and arranged on a single axis with the lowermost flower opening first.

SPORE, a simple one-celled reproductive structure found in ferns and horsetails.

STAMEN, the pollen-bearing or male organ of a flower.

STAMINATE, a male flower having stamens and no pistils.

STIPULE, one of a pair of appendages at the base of a leaf stalk. These structures vary considerably in different species of plants.

STOLON, an above ground shoot that takes root at its tip and gives rise to a new plant as in the strawberry.

SUBTEND, to stand below or close as a bract below a flower.

TAP-ROOT, a vertical usually stout root where main root is readily identified.

TENDRIL, a modified leaf or stem part, usually thread-like, by which a plant clings for support.

TOMENTUM, matted woolly hairs.

TRUNCATE, appearing as if the end had been chopped off.

TUBER, usually an enlarged underground stem.

TUBERCLE, a pimple-like or small rounded structure.

UMBEL, an inflorescence with the flower stalks appearing from approximately the same point.

UNISEXUAL, either staminate or pistillate, of one sex.

WHORLED, three or more leaves or buds or other structures at a node.

WOOLLY, provided with long, soft, matted hairs.

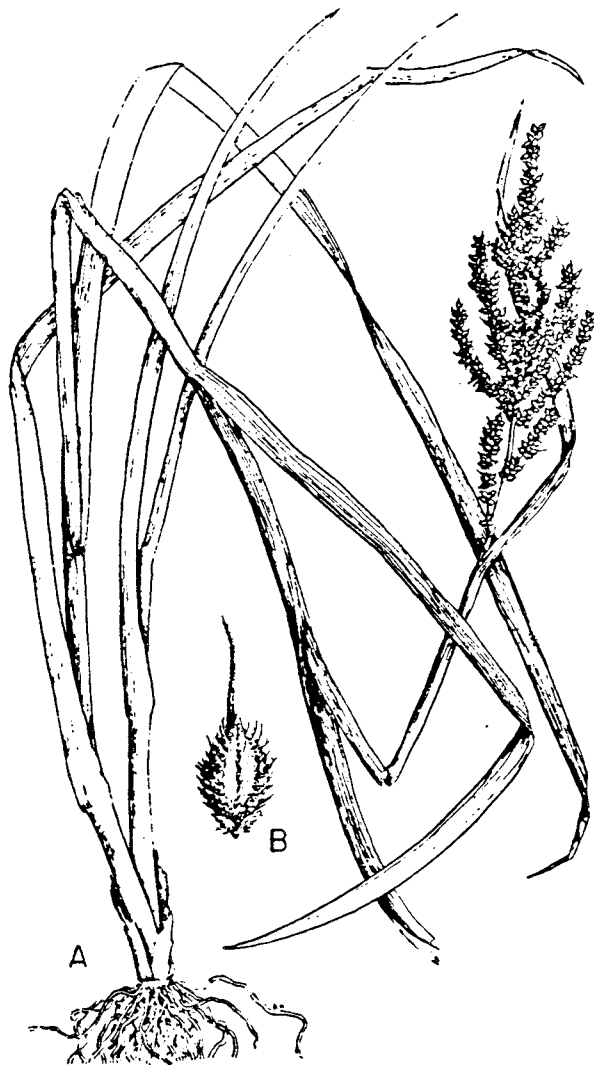
Echinochloa crus-galli (L.) Beauv. Barnyardgrass.

Barnyardgrass was introduced from Europe and has become widespread throughout the United States. It often becomes a pest in moist, fertile ground, but also does well in drier areas in cultivated fields and gardens.

Description--Barnyardgrass is a vigorous annual with considerable variation in our area. Under ideal conditions plants may attain a height of 3 feet or more or remain as low as 6 to 8 inches in less favorable areas. The stems may be erect or perhaps more often rest on the ground. The panicles are reddish to dark purple and even the upper part of the stems may be red. The spikelets are crowded with each one having a conspicuous awn and scattered stiff hairs. The grain is tightly enclosed within the flowering scales. It is approximately $\frac{1}{8}$ inch long, yellowish to brown, shining, rounded on one side, and flattened on the other.

Barnyardgrass may be recognized in the seedling state by the broad blades and the complete absence of a ligule.

Barnyardgrass
Echinochloa crus-galli
A, plant showing annual
roots;
B, detail of spikelet.

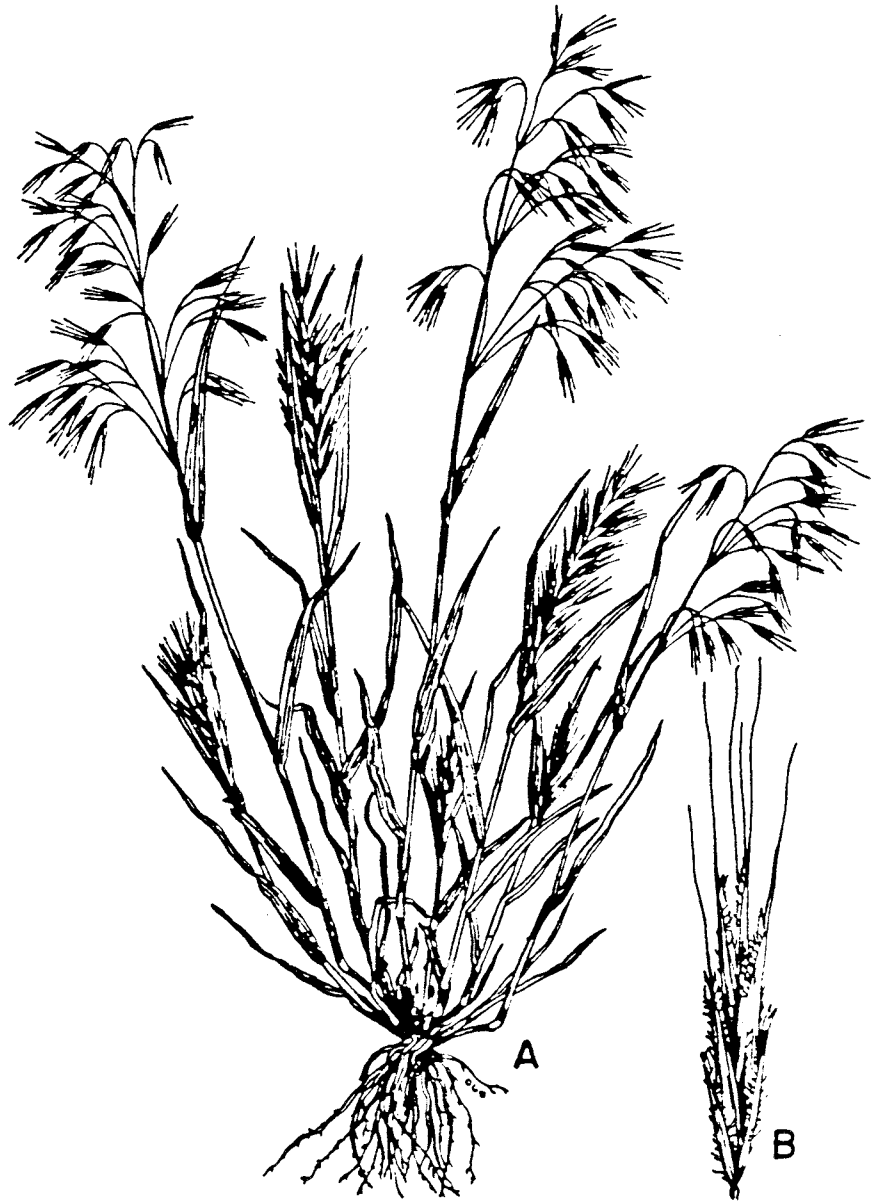


Bromus tectorum L. Downy brome.

Downy brome, or cheatgrass, is a common weed in the Western States that was originally introduced from Europe. It is a weed in waste places, roadsides, and spring-fall foothill ranges. The grass will grow and perpetuate itself in soil types that are free of excessive amounts of injurious salts.

Description--Downy brome is an annual or winter annual that reproduces only by seed. The plants are usually 10 to 15 inches high, although viable seeds may develop on plants no more than 2 inches high. The leaf blades and sheaths are hairy. The drooping flower stalks are awned and oatlike and turn a reddish brown late in the season.

Downy brome,
Bromus tectorum:
A, drawing showing
habit of plant;
B, spikelet.

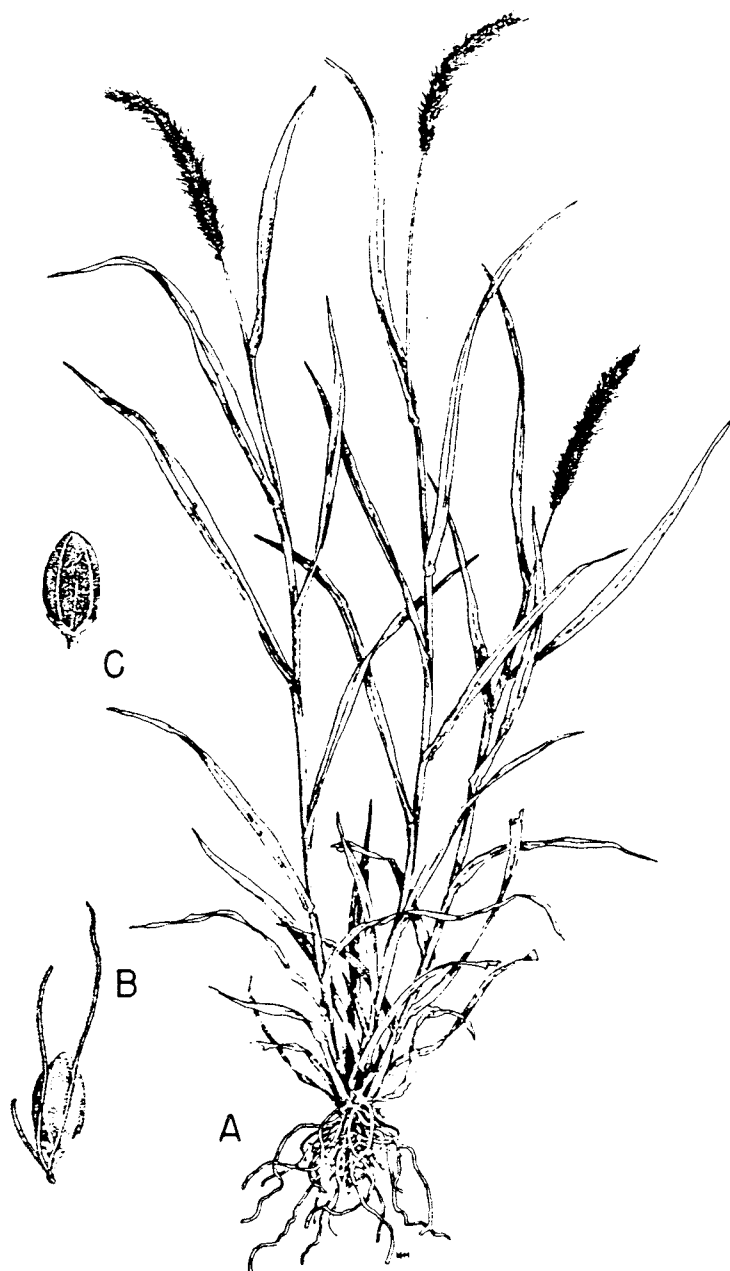


Setaria viridis (L.) Beauv. Green foxtail.

An annual grass that was introduced from Europe, green foxtail is a weed of cultivated fields and waste places.

Description--This species is an annual grass reaching a height of 1 to 2 feet. The stems branch from the base and may be erect or prostrate. Leaves often have wavy, crisp margins and short, inconspicuous hairs on the margins of the sheaths. The bristles below the spikelet are yellowish green and usually two or three in number. The lemma that encloses the grain is about a tenth of an inch long, pale yellow, and nearly smooth at maturity.

Green foxtail,
Setaria viridis:
A, drawing showing
annual habit of plant;
B, spikelet subtended by three
yellowish green bristles;
C, spikelet.



Aegilops cylindrica Host. Jointed goatgrass.

Jointed goatgrass is native to southern Europe occurs occasionally over much of the western U.S. In recent years, the plant has spread rapidly in the wheat producing regions. Apparently, much of the spread has been through the use of infested wheat seed. It is most difficult to control where wheat is grown continuously; hybrids of goatgrass and wheat sometimes backcross with wheat. The rough-awned spikelets may cause injury to the mouths and noses of grazing animals. Flowering and seed production occur from June to August.

Description--Annual, stems 6 to 24 inches tall; spikes cylindric, more than 10 times as long as wide; spikelets closely appressed and fitting into the contour of the rachis; spikelets awned, the longest awns at the top of the spike; seed heads breaking into individual segments at maturity; sheaths and blades usually rough and hairy; ligule very short; auricles inconspicuous. Aegilops is a genus of about 25 species, but only A. cylindrica is a weed in this area.

Jointed goatgrass,
Aegilops cylindrica
Photo showing habit
of plant.



Agropyron repens (L.) Beauv. Quackgrass.

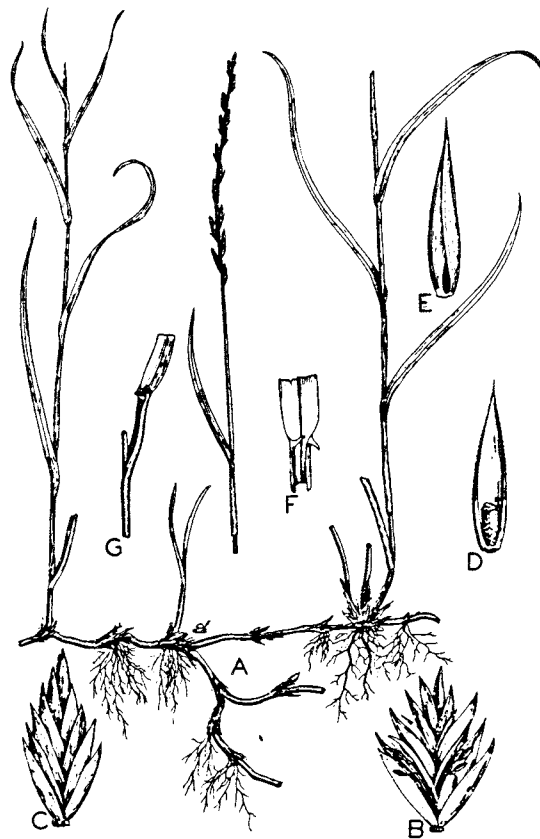
Quackgrass, introduced from Europe, has long been a troublesome weed in the United States, particularly in the northeastern states. It is widespread throughout Idaho as a noxious weed of low-lying valley areas. The grass will grow readily in most soils. It occurs in cultivated fields, along ditch banks, in pastures, and waste places and develops most vigorously in moist or wet lands. Quackgrass is often a vigorous lawn weed that we find objectionable because of its broad leaf blades. It is salt tolerant but will not grow on heavily saline areas. It resembles native western wheatgrass (*Agropyron smithii*) which occurs commonly in dryer benches and uplands.

Description--Quackgrass is a perennial with unbranched stems commonly 1 to 3 feet high; the leaf blades are flat, thin, and form one-fourth to one-half inch wide; the leaf sheath and blades may be thinly covered with soft hairs or sometimes with whitish, powdery bloom, but are mostly without the hairy covering; the flowering heads resemble those of wheat, but are more slender and have only one spikelet at a joint; each flattened spikelet bears two vertical rows of florets (grass flowers enclosed by two scales.) Two or three in each row. Grains are nearly ¼ inch long, slender, yellowish-brown, and are enfolded by the lemma (flower scale), which is drawn to a sharp point. Usually 20 to 30 viable seeds are produced in each head. The rootstocks are shallow, but in cultivated soil may penetrate as deeply as 8 inches. Rootstocks extend away from the parent plant for several feet, branch extensively, and form a tough, interwoven mass. The joints are conspicuous, clothed by a scaly brown sheath, and freely giving rise to slender fibrous absorbing rootlets.

Quackgrass

Agropyron repens:

A, habit of plant and
underground rootstocks,
B, spikelet at maturity;
D and E, florets containing
"seed" F, drawing showing
"ears" at junction of blade
and sheath; G, leaf sheath
attached to stem.



Panicum capillare L. Witchgrass.

Witchgrass is a native plant that often becomes common in gardens and along roadsides. When the plant is matured, the panicle breaks off and tumbles about, leaving a trail of seeds.

Description. Witchgrass is an annual with stems that are often prostrate at the base. The plants vary in height from $\frac{1}{2}$ to $2\frac{1}{2}$ feet. Both leaves and stems have conspicuous hairs. The diffuse panicle is densely flowered and produces an abundance of seeds. The individual grains are tiny and enclosed in the flowering scales.

Witchgrass,
Panicum capillare:
drawing showing annual
habit of grass.

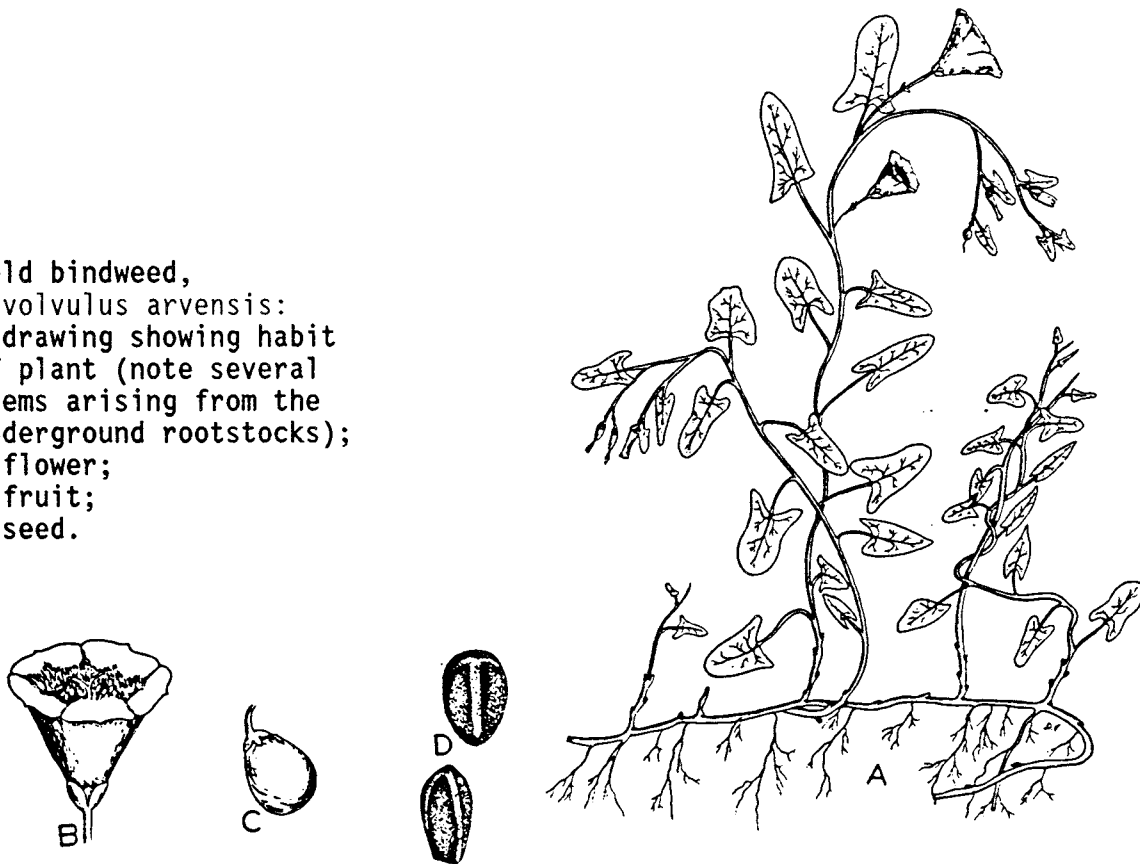


Convolvulus arvensis L. Field bindweed.

Field bindweed, introduced from Europe, is widespread and a serious weed throughout the country. In Idaho, it is extensively distributed in cultivated fields and waste places, and because of a remarkable adaptability to different environmental conditions, may be found at altitudes as high as 10,000 feet. It is a most troublesome weed to eradicate because of a large, fleshy, deep-seated taproot, which may penetrate the soil to a depth of 10 feet, and which may repeatedly give rise to numerous long rhizomes, even when cut off below the crown. It reproduces by seeds and rootstocks.

Description--Field bindweed is a perennial from a deep-seated taproot, which gives rise to several or numerous slender underground rhizomes or prostrate, twining stems. The leaves are alternate and arrow-shaped mostly about 1 to 2 inches long. The white or pink, bell-shaped flowers, frequently as much as an inch in length, are borne on stalks about 1 inch long, which rise from axils of the leaves. The fruit is a two-celled capsule, somewhat less than $\frac{1}{2}$ inch in diameter, producing from two to four seeds. The seeds are angled, rough, gray-brown, often appearing nearly black.

Field bindweed,
Convolvulus arvensis:
A, drawing showing habit
of plant (note several
stems arising from the
underground rootstocks);
B, flower;
C, fruit;
D, seed.

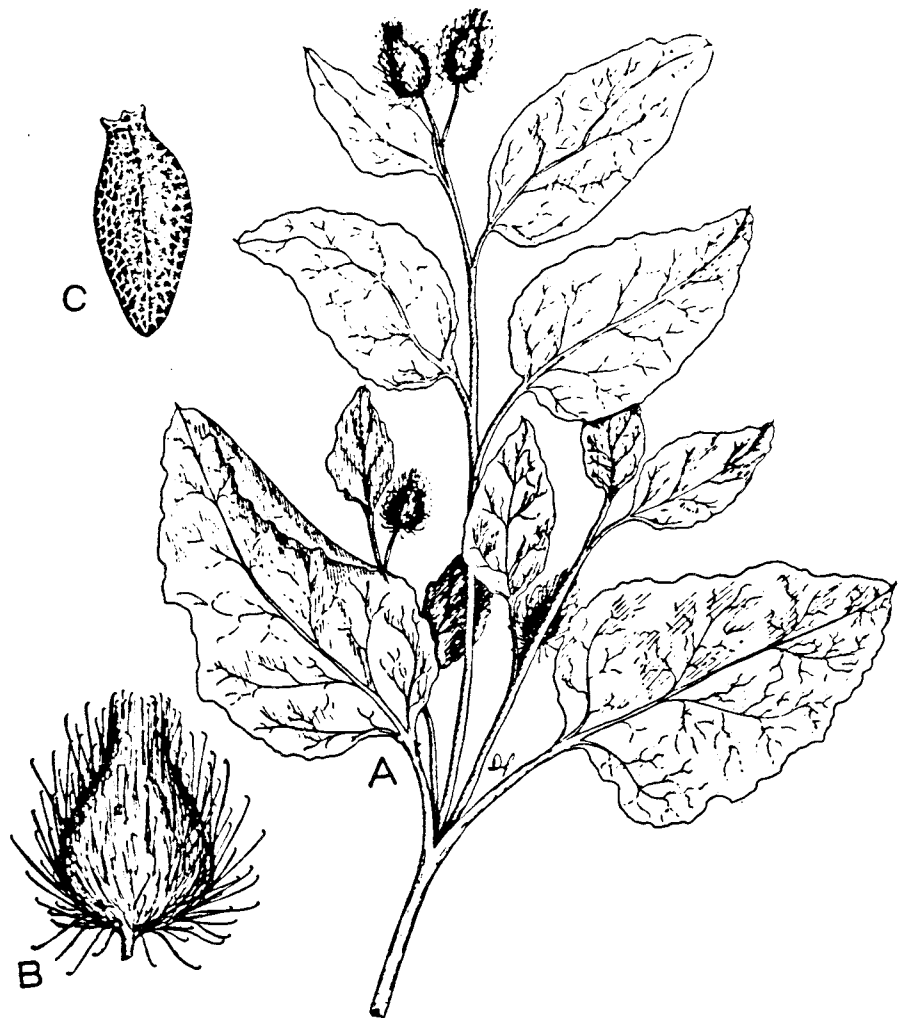


Arctium minus (Hill) Bernh. Common burdock

Common burdock is a native of Europe that has become common over much of the United States. It is generally distributed as a weed of roadsides, ditchbanks, and waste places. Control is not difficult, hence the plant has not become a serious weed. Reproduction is by seed.

Description--Common burdock is a biennial. During the first growing season only a rosette of large, cordate, thickly hairy leaves is formed. In the following growing season, an erect coarse stem from 3 to 6 feet or more high is produced. The stem leaves are alternate, and likewise large and coarse, but become somewhat diminished upwards. Toward the top, the stem branches, producing a number of conspicuous bur-like heads, containing purple tubular flowers. The bur is thickly beset with attenuated scales, which are hooked at the tip. The seeds (achenes) are about 1/4 inch long, oblong, somewhat flattened and angled, mottled gray-brown, and bear a crown of bristly scales which soon fall off.

Common burdock,
Arctium minus:
A, drawing of
upper part of
plant
B, flowering
head showing
hooked scales
C seed



Cichorium intybus L. Chicory.

Chicory is a common weed of roadside, fields, and waste places, and a native of Eurasia. The plant has been cultivated for the root as a substitute or adulterant for coffee and the leaves for use in salads.

Description--Chicory is a perennial with milky juice from a long, deep taproot with stems from 1 to 4 feet high. The leaves are alternate, rough and hairy, the lower leaves are deeply cut and large with the stem. The flowering heads are about 1½ inches broad with several blue, rarely pink or white, flowers in each head. The heads are wide open in the mornings and tend to close by midday.

Chicory,
Cichorium intybus:
drawing showing habit
of plant with taproot.

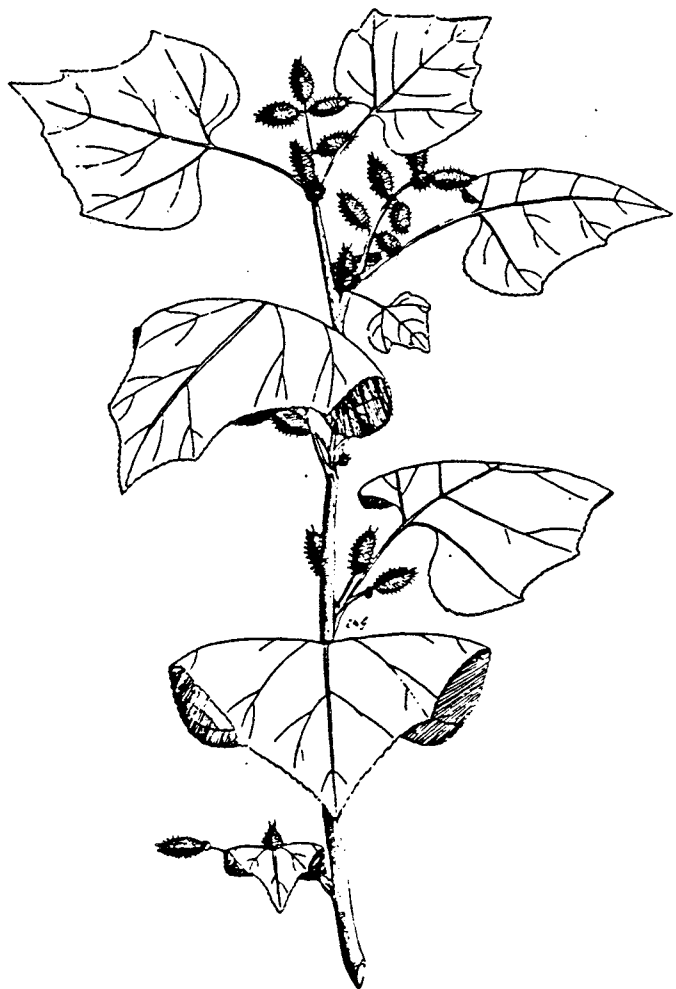


Xanthium strumarium L. Common cocklebur.

These coarse plants occur along ditchbanks, in meadows, in fields, and in waste places, mostly in low-lying heavier and wetter soils. The young plants and the burs are poisonous to livestock. Because of their spininess, the burs are seldom eaten, but do cause mechanical injury to stock, and depreciate the value of wool. The two seeds in each bur frequently do not germinate at the same time, and germination otherwise may be irregular, hence infested areas may need repeated treatment for control or eradication.

Description--Cocklebur is a coarse, annual weed some 3 to 4 feet high, from a stout taproot. The stem is rough, angled, and frequently red-mottled. The leaves are alternate, large, mostly 3 to 5 inches long, broadly ovate, sometimes heart-shaped, irregularly, finely and coarsely toothed, and borne on a long stalk. The flowers are of two sorts. The male flowers occur in small heads in elongate and branched terminal clusters. Two female flowers develop in each bur, hence the bur is two-seeded (two achenes). The bur is elliptic, usually more than ½ inch long, and is thickly covered with long, stout prickles which are curved at the tips.

Cocklebur,
Xanthium strumarium:
drawing of upper part
of plant.

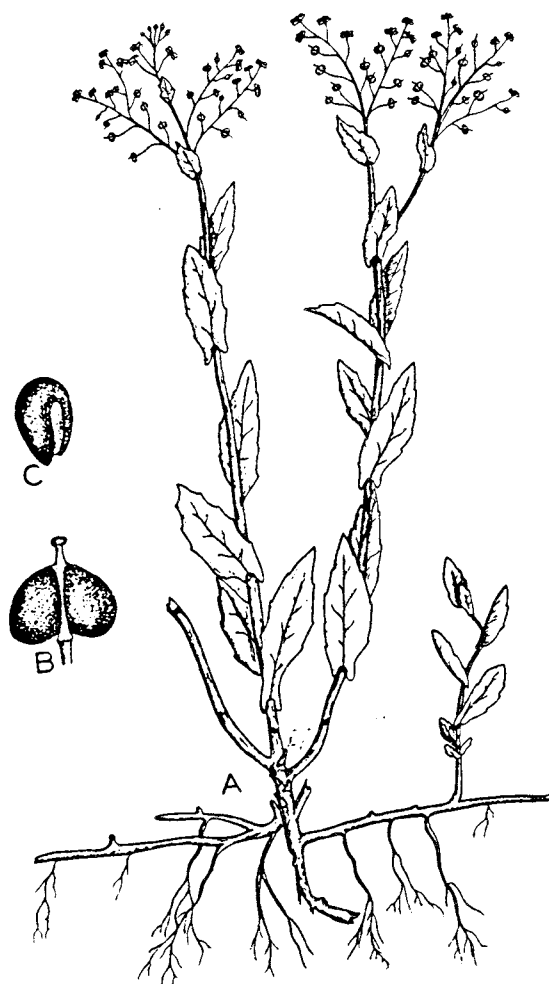


Cardaria draba (L.) Desv. Hoary cress. (Formerly called Lepidium Draba L.)

Hoary cress, also known as whitetop, was introduced into the United States from Europe about 50 years ago and has since become widespread in grain fields, cultivated fields, meadows, and waste places, particularly thriving in somewhat saline soils. It competes aggressively with other plants, forming dense, pure stands. Growing in extensive areas, its white flowers make it most conspicuous and easily recognized. Economically, Hoary cress is one of the most important of the noxious weeds of Idaho, and one of the most difficult to control.

Description--Hoary cress is a perennial, growing from extensive, coarse, underground rhizomes. The erect or spreading stems are 6 to 15 or 20 inches high, and are somewhat grayish in color, owing to rather dense hair covering. The large leaves may become 3 inches long; they are oval or oblong in shape and have entire or mostly coarsely toothed margins. The upper stem leaves are narrower, without petioles and are clasping. The flowers are numerous, small, and white, and are produced in a flat, broad inflorescence. As the pods mature, the flowering shoot becomes elongated. The mature seed pod is heart-shaped, usually inflated, and somewhat less than $\frac{1}{4}$ inch broad. A single reddish-brown seed, which is a little flattened and about $\frac{1}{8}$ inch long, is produced in each of the two cells of the pod.

Hoary cress,
Cardaria draba:
A, drawing showing
habit of plant (note
Perennial rootstock):
B, mature fruit;
C, seed.



Rumex crispus L. Curly dock.

A common weed of wet meadows, flood lands, ditchbanks, waste places, and often as a lawn weed, curly dock was introduced into this country from Europe.

Description--This plant is a perennial from a stout taproot with ridged stems up to 3 feet high. Leaves are 4 to 12 inches long and have a wavy and curly margin. The flowers are small and in dense, brown clusters. The fruits are reddish-brown, triangular, and nearly 1/10 inch long. Several other species of dock occur here, although curly dock is the most important and common weed. The waving and curled leaf margin will serve as the key character in identifying this species.

Curly dock,
Rumex crispus:
perennial plant
showing stout taproot.



Descurainia sophia (L.) Webb. Flixweed.

Introduced from Europe, Flixweed often occurs in abundance in waste places, grain fields, gardens, and roadsides.

Description--Flixweed is a winter annual with sparsely branched stems. The whole plant appears grayish green because of minute branched hairs. The leaves are finely divided into numerous narrow segments. The seed pods are somewhat longer than the spreading stalks. The seeds are in one row in each cell of the pod.

Several native tansymustards grow in Idaho and often become weeds in habitats similar to the above species. None of them have leaves as finely dissected as the introduced plant; at most they are once or twice dissected. **Descurainia pinnata (Walt.) Britt.**, pinnate tansymustard, is a winter annual and has two rows of seeds in each cell of the pod; *D. californica* (Gray) Schulz has spindle-shaped pods (tapered toward both ends) and plants nearly destitute of hairs; *D. richardsonii* (Sweet) Schulz has cylindrical pods and minutely hairy herbage.

Flixweed,
Descurainia sophia:
drawing of an entire
plant. Note the finely
dissected leaves.



Solidago canadensis L. Canada goldenrod

Canada goldenrod is a highly variable native species that becomes a weed along ditchbanks and moist rich soil of fields. Some of the garden plants of this species that become weedy represent introduced cultivars with large open inflorescences. Goldenrods plague hayfever sufferers and they are also suspected of being poisonous to livestock.

Description--Canada goldenrod is a perennial from short, creeping rootstocks and several closely clustered stems about 3 feet tall or even up to 6 feet in garden cultivars. The alternate leaves are mostly similar along the stem but tend to become gradually reduced upwards. Margins of the leaves are usually serrated and sometimes remotely so. The dense terminal inflorescence is often open and graceful in recurved forms with the numerous small heads arranged in the upward side of the branches. Ray flowers are present, but they are short and often over-looked. The pappus consists of capillary bristles.

Canada Goldenrod,
***Solidago canadensis*.**

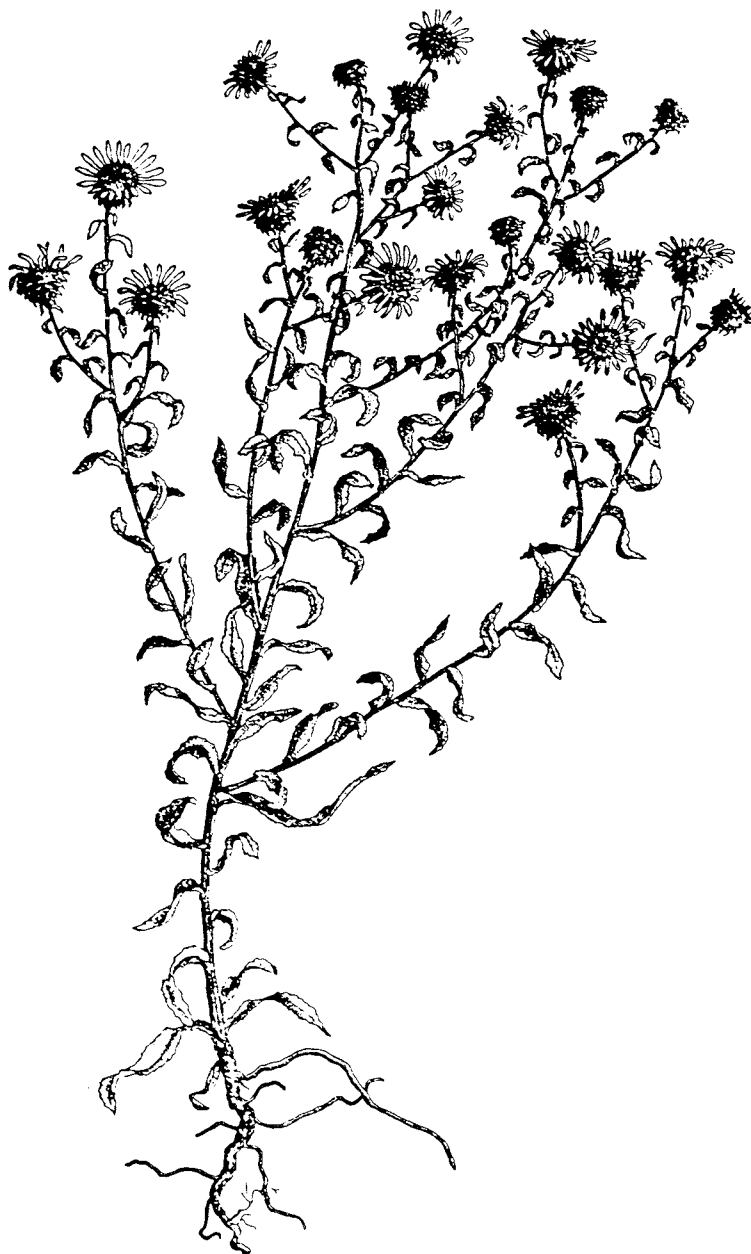


Grindelia squarrosa (Pursh) Dunal. Curlycup gumweed.

A native of North America that has been introduced into many localities in Idaho, curlycup becomes a weed of roadsides, waste places, and dry pastures.

Description--Curlycup gumweed is a biennial or short-lived perennial from 1 to 3 feet tall. The resinous leaves are often somewhat clasping and with margins that are nearly entire to serrate. The bracts subtending the heads are gummy and overlapping in a shingled manner. Both the ray and disc flowers are yellow. The achenes are somewhat four-angled.

Curlycup Gumweed,
Grindelia squarrosa:
drawing showing habit
of plant.



Polygonum aviculare L. Prostrate knotweed.

Prostrate knotweed is an introduced annual that will grow and thrive in hard trampled soil in yards, driveways, along roadsides and waste places.

Description--Plants form prostrate mats that become much branched with maturity. The leaves are bluish-green in color, thin, and with an acute apex. Inconspicuous rose-colored flowers appear in the axils of the leaf. The fruits, "seeds," are three-angled and a dull brown to black. Parts of the flower will usually remain attached to the fruits.

Prostrate knotweed,
Polygonum aviculare:
plant showing prostrate
branches.



Kochia scoparia (L.) Schrad. Kochia.

Kochia was introduced into this country from Eurasia. It superficially resembles smotherweed and occurs in similar habitats.

Description--Kochia is an erect annual that becomes much branched. The species is highly variable in color and form. Spherical and pyramidal plants in colors of varying green to reds are often grown in our gardens and escape from cultivation. The leaves are placed alternately on the stem and usually have a conspicuous hairy margin. The small flowers are in axillary clusters and the individual flowers have a five-lobed calyx that develops into wing-like appendages.

Kochia,
Kochia scoparia:
side stem and a small
part of the main stem.



Chenopodium album L. Common lambsquarters.

Common lambsquarters is a native of Eurasia that is common in gardens, waste places, and grain fields.

Description--This species is an annual from 1 to 6 feet high with ridged, green, or sometimes reddish-striped stems. Leaves are highly variable in shape but usually somewhat triangular in outline with coarsely toothed margins. The lower leaf surface is grayish green and densely covered with mealy particles. The small flowers are crowded in the leaf axils and at the stem tips. Each flower develops a tiny, single, shiny black seed that is often covered by a white papery envelope, the calyx. The seed has a coiled embryo.

Common lambsquarters,
Chenopodium album:
A, drawing of plant;
B, fruit surrounded by sepals.

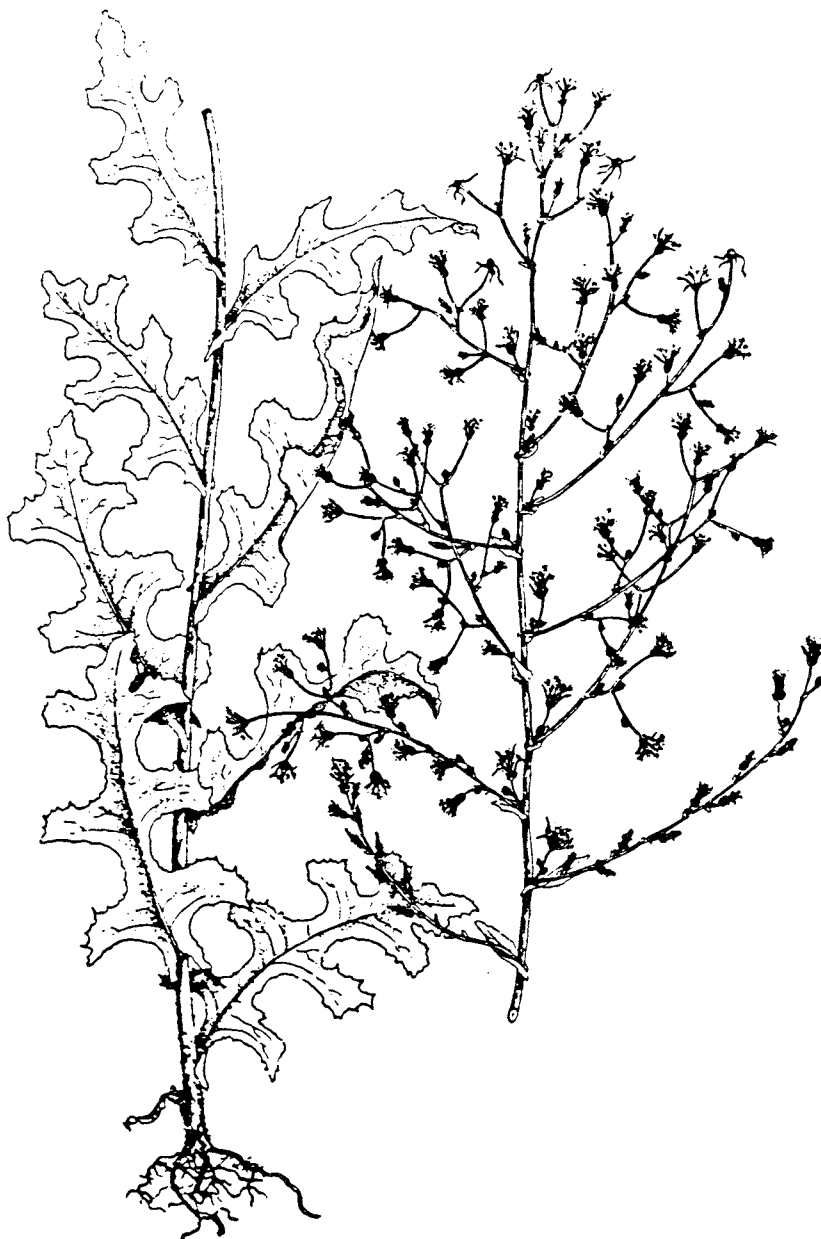


Lactuca serriola L. Prickly lettuce.

Introduced from Europe, prickly lettuce is a common weed of roadsides, waste places, gardens, and cultivated land.

Description--Prickly lettuce is biennial or winter annual with milky juice. The stems arise from a taproot and may vary in height from 1 to 5 feet. The leaves are alternate, deeply divided, and clasping the stem with pointed ear-like projections. The flowering heads are numerous, with bracts that elongate at maturity. The flowers of the head are all strap-shaped ray flowers, yellow and turn bluish with age. The seeds are roughened, contracted abruptly on top to form a beak with a parachute of bristles above.

Prickly lettuce,
Lactuca serriola:
drawing showing annual
habit of plant.

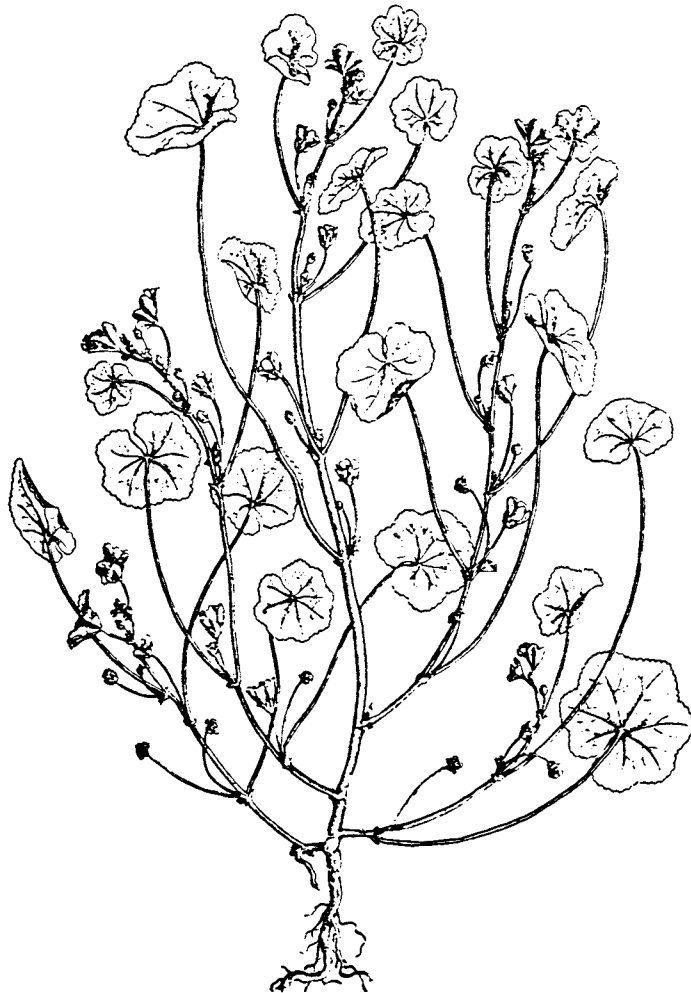


Malva neglecta Wallr. Common mallow

Naturalized from Europe, common mallow is often found in new lawns, gardens, and waste places. It is a prolific seed producer and often becomes a troublesome weed in gardens.

Description--Common mallow is an annual, winter annual, or biennial with many spreading or procumbent stems from a deep taproot. The leaves are nearly round in outline with a heart-shaped base and paired stipules at the base of the leafstalks. Flowers are whitish, with the well-known hollyhock form described in the above species, The fruits are arranged in a ring and are mucilaginous.

Common mallow,
Malva neglecta:
drawing showing
entire plant



Asclepias speciosa Torr. Showy milkweed.

Showy milkweed is a native species that is a familiar sight along the fence rows, ditchbanks, and roadsides. The flowers of this family rival those of the orchids in structural complexity.

Description--The plant is a perennial with milky juice and reproduces from seeds and rootstalks. The stems are tall, 2 to 5 feet high, unbranched. The flowers are showy and beautiful, in umbrella-like clusters. Each flower produces two pods (or one by abortion) that are covered by spiny processes. The seeds are just less than ½ inch long, flat, thin, with a tuft of soft hairs at one end.

Showy milkweed,
Asclepias speciosa:
A, upper part of stem
showing pods;
B, cluster of flowers;
C, seeds showing
tufts of silky hairs.



Verbascum thapsus L. Common mullein.

Common mullein is an introduction from Eurasia that is a familiar sight in pastures, meadows, fence rows, and waste places, especially on gravelly soils.

Description--Common mullein is a stout, erect biennial from 2 to 6 feet high with few branches. The plants are wooly throughout with angled stems that appear winged from leaf bases extending down the stem. The flowers are sulfur yellow, five-lobed, and somewhat more than an inch in diameter. The seed pods are two-chambered and many seeded.

Common mullein,
Verbascum thapsus
A, upper part of
flowering stem (note
the winged stem);
B, flower;
C, capsule containing
numerous seeds.

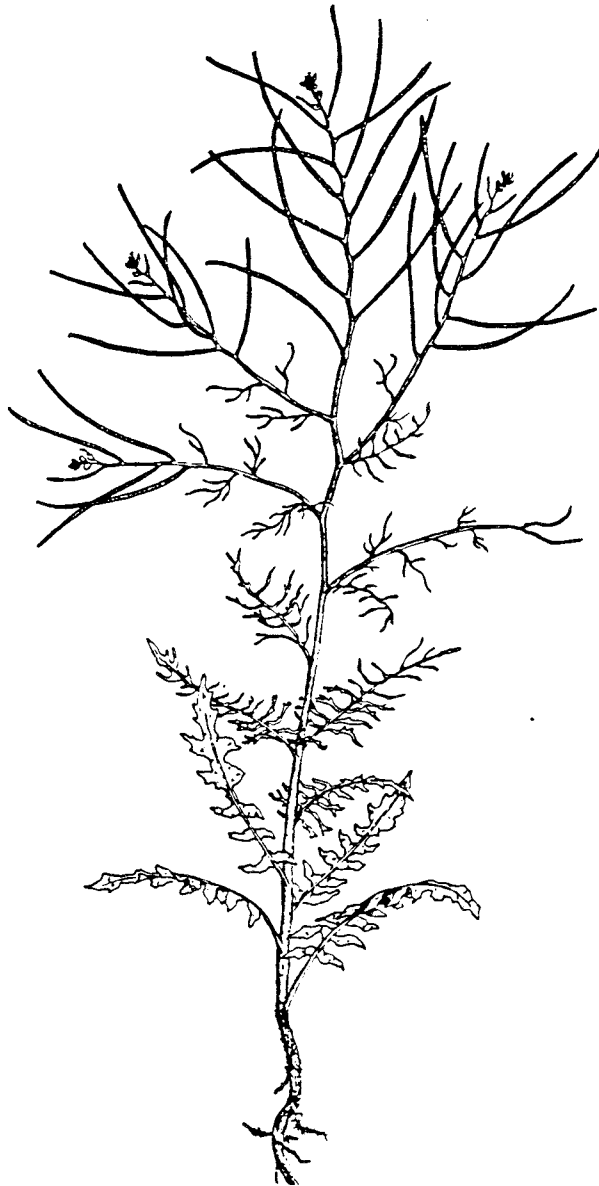


Sisymbrium altissimum L. Tumble mustard.

Tumble mustard is an abundant weed that was introduced into this country from Europe. It is found in grain fields, cultivated ground, and waste places.

Description--Tumble mustard is an annual or winter annual with stems from 3 to 4 feet high, often strongly spreading above. The leaves are deeply cleft and often with narrow segments, especially above. The seed pods are spreading stiff, cylindrical, from 2 to 4 inches long, and on short, thick stalks.

Tumble mustard,
Sisymbrium altissimum:
drawing of entire plant.

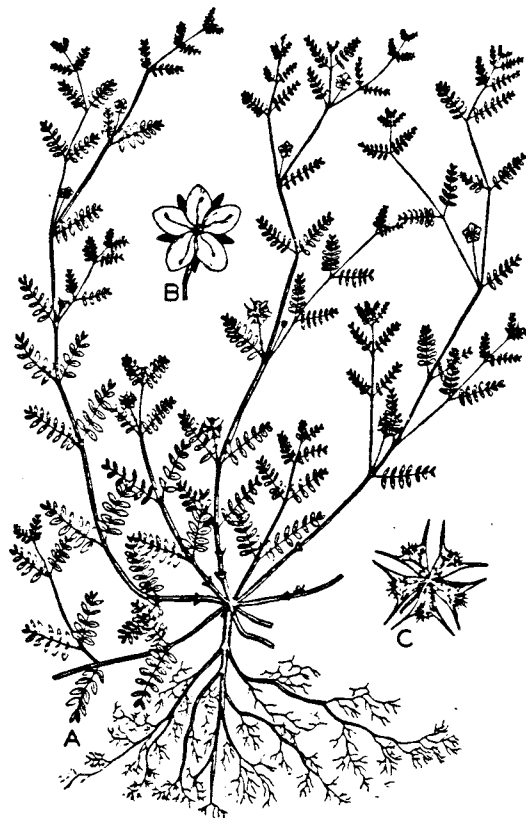


Tribulus terrestris L. Puncturevine.

Puncturevine is a troublesome annual weed which has been introduced from the Mediterranean region and is particularly abundant on the West Coast. It has spread in Idaho mostly along roadsides and railroad right of ways, becoming common in many places. The plant is readily recognized by the two-horned burs, which reputedly can penetrate automobile tires. Considerable loss is experienced in hay that comes from infested fields. Burs, which readily catch in sheep fleeces, depreciate the value of wool.

Description--Puncturevine is a prostrate, trailing vine, the hairy branches radiating from a slender taproot. When support is available, the plant readily becomes a scrambler or climber. The leaves are mostly opposite and compound, with four to seven pairs of oval or elliptic leaflets which are about $\frac{1}{2}$ inch long. The flowers are produced singly on long stalks arising from the axils of leaves. The yellow flowers have five petals about $\frac{1}{2}$ inch long, and 10 stamens. The fruit is a five-part bur, which readily breaks into wedge-shaped two-horned segments at maturity, each somewhat more than $\frac{1}{4}$ inch long.

Puncturevine,
Tribulus terrestris:
A, drawing showing annual
habit of plant;
B, flower;
C, fruit.

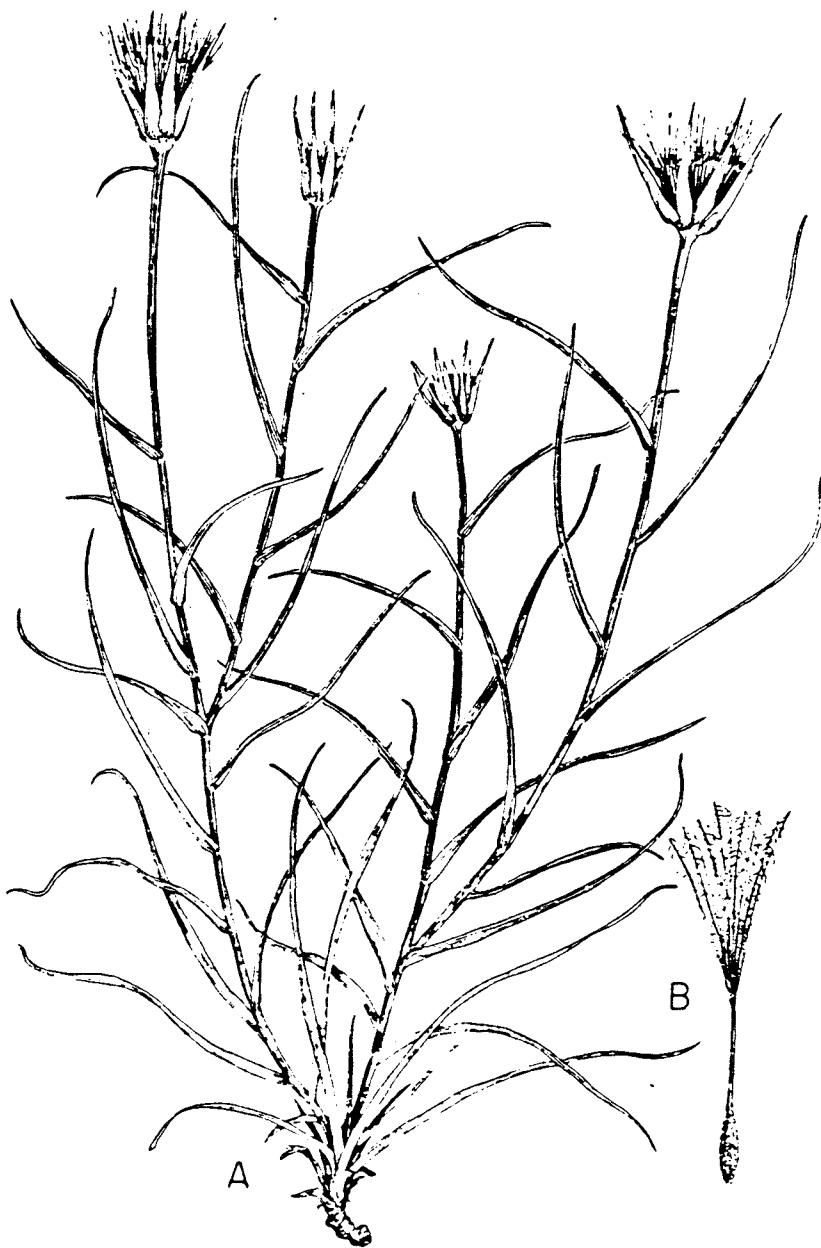


Tragopogon dubius Scop. Western salsify.

Western salsify is of European origin and all are found in such habitats as old meadows, ditchbanks, roadsides, and waste places. Also known as goatsbeard.

Description--Western salsify is an annual or biennial that becomes branched in well developed plants. The stems are 1 to 3 feet high and have long, narrow, grass-like alternate leaves. The branches have a single flowering head. The flower stalks become enlarged under the heads. The flowers in a head are pale yellow, all strap-shaped ray flowers that are surpassed by the narrow leaf-like bracts. The seeds taper to a slender beak that is topped by a tawny or whitish pappus of interwoven plumose bristles that form the parachute.

Western salsify,
Tragopogon dubius:
A, drawing showing
habit of plant;
B, seed with pappus.



Helianthus annuus L. Common sunflower.

Native to North America, common sunflower has been cultivated since pre-Columbian times for its edible seeds. It is a common weed of roadsides, fence rows, grain fields, and waste places.

Description--Common sunflower is familiar to everyone. The species is annual with stout, coarse, rough stems up to 6 feet or more high. The lower leaves are somewhat heart-shaped while the stem leaves are narrower. The heads are large with yellow ray flowers and brownish disc flowers. The achenes are flattened with 2 scales on top.

Common sunflower,
Helianthus annuus:
drawing showing a part
of a flowering stem.

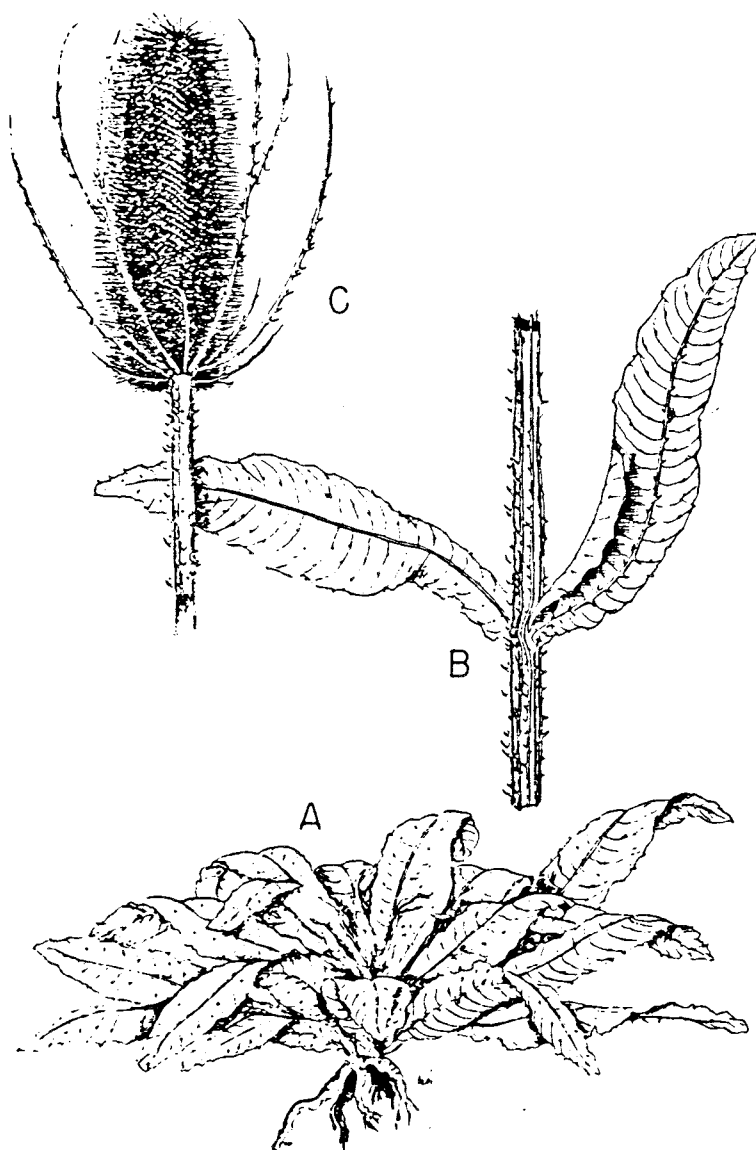


Dipsacus sylvestris Huds. Common teasel.

Introduced from Europe or Asia for the spine-tipped heads that were once used in carding wool, common teasel often becomes a common weed along ditchbanks and pastures, especially in rich, damp soils.

Description--Common teasel is a biennial with stout, stiff stems with prickles arising from prominent angles. A rosette of conspicuously veined spiny leaves are formed the first year. This plant produces the erect, (3 to 6 feet high), stems the second season. The stem leaves are opposite with the upper pairs fused at the base to form a cup. The pale, lavender flowers are borne in dense spiny heads.

Common Teasel,
Dipsacus sylvestris:
A, rosette leaves showing
prominent veins and spiny
margins;
B, angles and a pair of
stem leaves;
C, head of flowers.

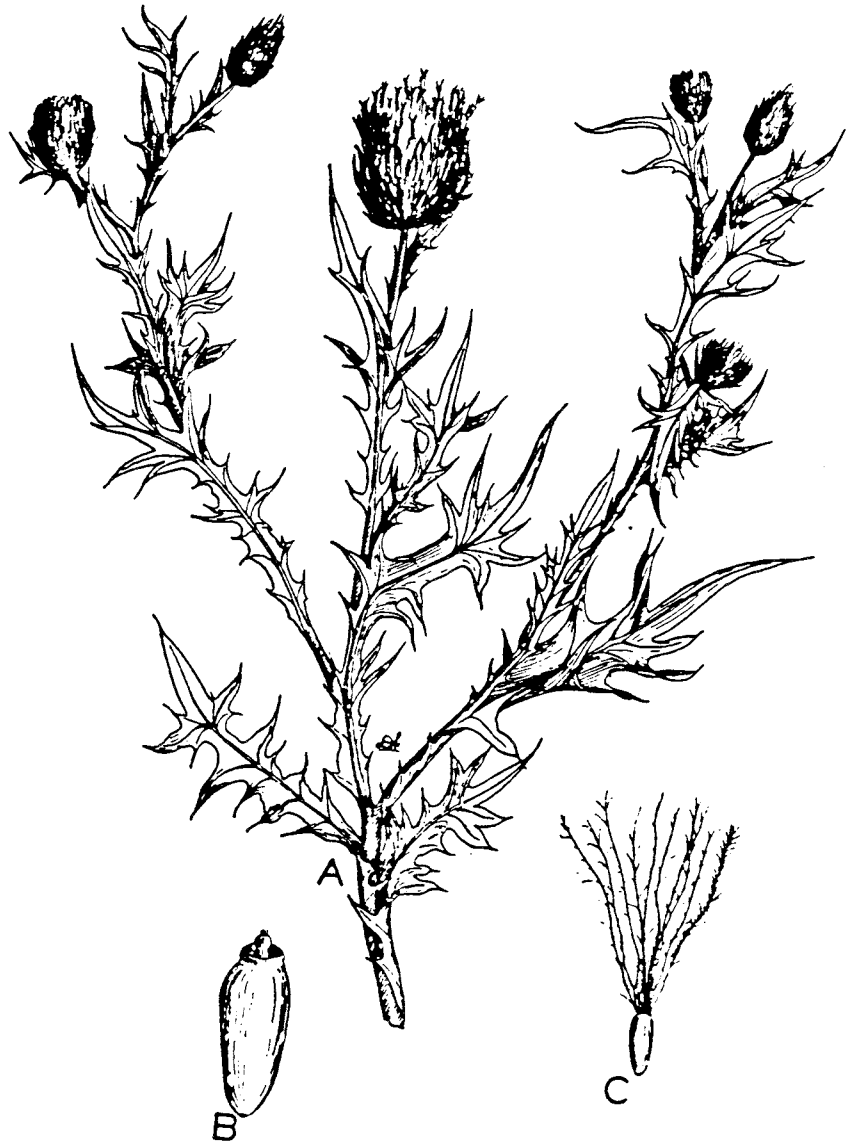


Cirsium vulgare (Savi) Tenore. Bull thistle.

Bull thistle is an introduction for the Old World. It is common in over-grazed pastures, along ditchbanks, and waste places, particularly in lower, heavier, and most moist soils.

Description--Bull thistle is a coarse, prickly, biennial plant, usually 2 to 3 feet, or more, in height. The leaves sometimes appear in a large rosette during the first year. In the second season, a flowering stem develops. The stem leaves are lance-shaped, smaller than the basal, but otherwise similar. They are variously deeply and sharply lobed and toothed, and are quite hairy beneath. The base, particularly of the upper leaves, continues down the stem as paired wings. The heads are mostly terminal, single, and large, sometimes 3 inches across, and produce numerous purplish tubular flowers. Seeds are flattened, smooth, less than $\frac{1}{4}$ inch long, and bear at the summit a crown of long, soft, plumose bristles.

Bull thistle,
Cirsium vulgare:
A, drawing showing upper
part of plant with
flowering heads;
B, seed;
C, seed with crown
of plumose bristles.

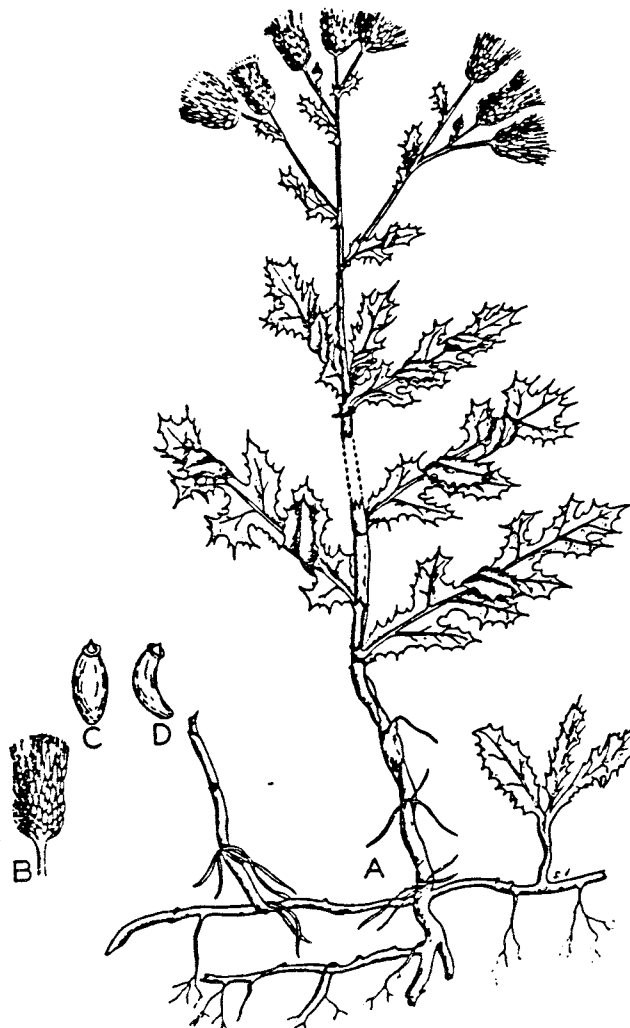


Cirsium arvense (L.) Scop. Canada thistle.

Canada thistle was early introduced into America from the Old World, and is now widely spread throughout the cooler portion of North America. Having become common and persistent, it is one of the more serious weeds of the state; it occurs in heavier, moister areas in pastures, along irrigation ditches, and low-lying fields.

Description--Canada thistle produces extensive coarse and branching rhizomes which give rise to numerous stems from 1 to more than 4 feet tall. The leaves are alternate, lanceolate, or oblong in outline, strongly and irregularly lobed with spiny-toothed margins. The small, tubular, usually purple flowers are aggregated in heads which are about $\frac{1}{2}$ inch across and which are arranged in a flat-top inflorescence. The heads (commonly mistaken for a single flower) of a single plant produce only one kind of flower, male or female. Female flowers (and plants) produce seeds (achenes) which are about $\frac{1}{4}$ inch long, flattened, smooth, brown, and oblong in shape. The crown of plumose bristles borne on the summit is naturally shed as the achene reaches maturity.

Canada thistle,
Cirsium arvense:
A, drawing showing habit
of plant;
B, head consisting of
numerous flowers;
C, and D, seed in
different views.



Equisetum arvense L. Field horsetail.

Field horsetail is native throughout our area. It often becomes abundant in low, wet portions of meadows. Animals consuming large quantities of field horsetail may become sick.

Description--Field horsetail is a perennial that reproduces by spores and creeping rootstocks; the hollow and jointed stems are annual and of two kinds: the brown, fertile, unbranched stems appear early in the spring. A characteristic cone-like structure which contains the spores terminates this stem. About the time the spores are being disseminated, the sterile, much branched stems make their appearance and persist throughout the season until fall; leaves are tiny scalelike structures arranged in a whorl at the summit of each joint.

There are other species of horsetail in our area but none of them seems to be as difficult to control as field horsetail.

Field horsetail,
Equisetum arvense:
A, fertile stem with
spore-bearing cone;
B, sterile stem showing
whorls of branches.

