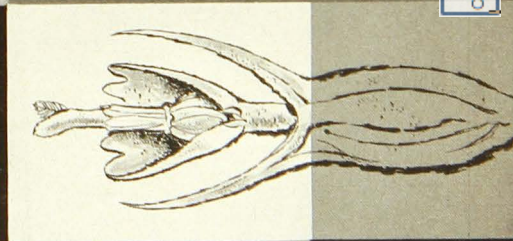


# PESKY PLANTS

Thor Kommedahl  
Herbert G. Johnson

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UNIVERSITY OF MINNESOTA  
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# Pesky Plants

Thor Kommedahl and Herbert G. Johnson<sup>1</sup>

This bulletin is intended to supply information on identification, growth habits, and control measures for plants that produce skin irritations, or are poisonous when eaten, and other plants which are injurious because they have thorny fruits, leaves, or stems. In addition plants likely to be bothersome at bathing beaches or lakeshore property are described.

The plants considered in this bulletin are those likely to be encountered at home grounds, summer resorts, camp grounds, parks, or playgrounds.

Control measures given are general. Specific rates of application of herbicides are not given as one should follow

the recommendations given on the label of the herbicide used. Additional details on weed control are given in Extension Folder 191, *Cultural and Chemical Weed Control in Minnesota*, available at your county Extension office.

## Irritating or Blister-Producing Plants

### POISON IVY

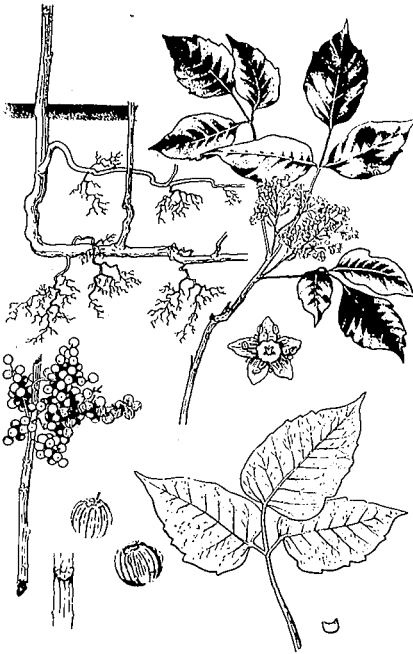
Poison ivy (*Rhus radicans*) and sumacs reduce land values at summer resort areas and inflict much suffering at summer camps, parks, bathing beaches, and woodlands.

The poisonous properties of this woody perennial are blamed on urushiol, a yellow, slightly volatile oil, which occurs in resin ducts of leaves, flowers, fruits, and the bark of stems

and roots. The wood, pollen, and the hairs on leaves are not poisonous.

Contact with poison ivy causes inflammation and swelling of the skin, followed by intense irritation and blisters. Often the skin breaks, the liquid escapes, and scabs or crusts form. Symptoms may appear from 12 to 24 hours after contact although it varies from a few hours to several days. Some persons are apparently more susceptible at some times than at other times. Also, contact with the plant at different times

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**Poison Ivy**

in the season may result in varying degrees of skin irritation.

A physician should be consulted for treatment. If contact with poison ivy is known or suspected, immediate lathering with a strong alkali (laundry) soap with frequent rinsing can prevent inflammation and blistering. The alkali soap emulsifies the oil and, by thorough rinsing, the oil is removed from the skin.

Poison ivy varies in growth habit from dwarf and erect forms to straggling or climbing forms that produce aerial rootlets which anchor the vines to fences, walls, or trees. Slender, creeping rootstocks grow from the base of the stems and run underground for several yards. Short leafy stems emerge from the soil from such rootstocks.

The leaves are alternate on the stem and are divided into three leaflets; each is oval-shaped, pointed at the tip, and

tapered to the base. The terminal leaflet is longer stalked than the two lateral ones. The leaf surface may be glossy or dull green and smooth or somewhat hairy. The leaf margin may vary from entire to toothed or somewhat lobed. In deep shade or in dry weather, leaves may be light green, yellowish-green, or even red. In autumn, leaves turn yellow and bright red before falling.

The greenish-yellow flowers, borne in compact clusters, often pass unnoticed. The grayish-white berry-like fruit measures up to about  $\frac{1}{4}$  inch in diameter and contains a one-seeded pit. Stripes on the fruit make it look like the segments of a peeled orange. Fruits persist on the shrub through the winter and are eaten by as many as 55 different species of birds in the United States and in this way seeds can be dispersed from place to place. Because some plants produce only male flowers, fruits are not always found on a given plant.

Though often found in rich woods, poison ivy thrives also in dry, rocky fields, pastures, fence rows, banks, and waste places.

Virginia creeper or moonseed should never be mistaken for poison ivy—Virginia creeper has five leaflets and moonseed is only three lobed. Hog peanut, although with three leaflets, has pink or white flowers, produces a pod, and is a twining vine.

In large infestations, poison ivy can be controlled by mowing close to the ground in midsummer, followed by plowing and harrowing, or by grazing sheep or goats. For smaller patches, the roots may be grubbed out. If poison ivy is grubbed out and burned, one should be careful not to stand in the smoke of the fire because the oil will stick to particles of soot and thus be carried to the skin where severe irritation can occur.

Chemical methods of control include amino triazole, or if a dormant spray is used, 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) has proven to be effective. The ester form of 2,4,5-T can be used

to spray on the foliage. Ammonium sulfamate and certain borax formulations also have been effective. If desirable trees are close by and might be injured by chemical sprays, a basal treatment with 2,4-dichlorophenoxyacetic acid (2,4-D) or the ester form of 2,4,5-T in diesel oil can be used. Rates of application are given on the label of any herbicide purchased.

## POISON SUMAC

This baneful bog bush, known also as swamp sumac, poison dogwood, poison elder, poison ash, or thunderwood can be more poisonous than its near relative, poison ivy. The conditions of poisoning and the toxic principles are the same as for poison ivy.

Poison sumac (*Rhus vernix*), with greenish-white berries, can be distinguished from the harmless staghorn sumac and smooth sumac, which have red berries. Some confuse green ash with poison sumac; however green ash has only one stem per plant and the leaf margin is toothed, while poison sumac produces a clump of stems and has leaves with unbroken leaf margins.

Poison sumac is a coarse shrub from 6 to 20 feet tall, has smooth, gray bark and smooth branches. There are from 7 to 13 leaflets per leaf and the leaves are opposite. The autumn foliage is orange to scarlet in color.

The greenish-yellow flowers may be male or female and are arranged in a spreading or pendulous branch arising from the point of attachment of leaf to stem. Flowers appear from May through July and the globular fruits ripen from August through November and are conspicuous all winter.

While poison sumacs are most common in wet places of southeastern Minnesota, they can be seen elsewhere in the state: in bogs and swamps, where tamaracks grow, or along streams and ditches. In contrast, the harmless sumacs grow only in well-drained soil or even in fairly dry soils.

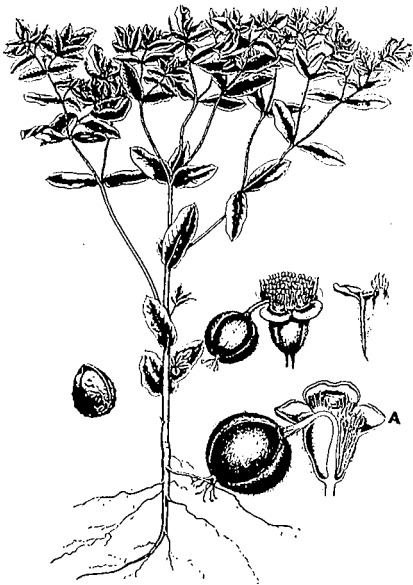


Poison Sumac

Because poison sumac is so poisonous, it is probably better to eradicate it with chemicals. Also, it may be safer to apply chemicals when the plants are dormant. A mixture of 2,4-D and 2,4,5-T, or a soil sterilant can be applied to the shrubs with success. Ammonium sulfamate, like 2,4-D and 2,4,5-T can be sprayed on aerial parts of the shrub and be carried in the sap to the roots and so kill them.

## SPURGES

Plants in this group contain a highly acrid milky juice in stems, leaves, and roots, and this juice may produce severe irritation and blistering of the skin. Most cases of poisoning result from snow-on-the-mountain.



Snow on the Mountain

If eaten, spurges are emetic and purgative. Also, there is swelling about the eyes and mouth accompanied by abdominal pains. Purgatives are sometimes made from the cypress spurge and if taken in excess can be poisonous.

The spurges are found throughout the state, with 15,400 acres infested with leafy spurge alone in 1956.

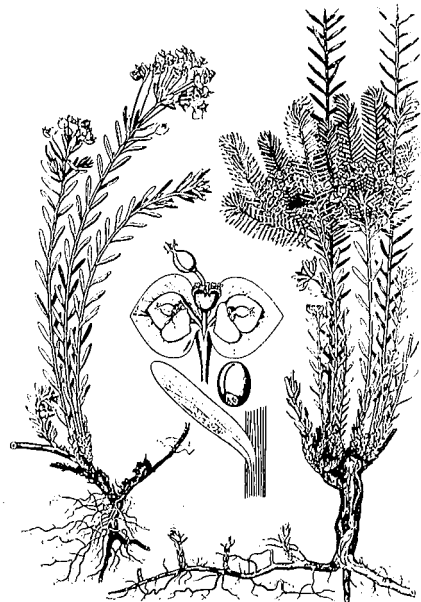
Snow-on-the-mountain (*Euphorbia marginata*) is a native, annual plant often planted in gardens because the leaf margins are white and petal-like. The simple leaves are alternate on the lower stem but are opposite or whorled on the upper part of the stem. The flowers are borne in clusters with three-forked branches. The fruit, a three-parted capsule, is somewhat hairy as shown in the drawing in A. There are three seeds per capsule.

Cypress spurge (*Euphorbia cyparissias*), sometimes named graveyard spurge because of its frequent occurrence in cemeteries, is a perennial herb.

It was introduced into the United States from Europe where it was grown as an ornamental. It frequently inhabits dry, gravelly, or sandy soils.

This weedy plant sometimes grows in densely tufted masses from a network of ropelike rootstocks, or clustered from buds at the crown of the plant, or even scattered from buds on the creeping roots. The stems are smooth and the leaves are alternate but more thickly set on the stem than other spurges. Seeds are not common and reproduction occurs primarily by creeping roots and rootstocks.

Flowering spurge (*Euphorbia corollata*), known also as poison milkweed, is a native perennial that reproduces by seeds and rootstocks, and is common in dry, sandy areas. The erect stems are simple or only sparingly branched, smooth, and are about 3 feet tall. The flax-like leaves are alternate at the lower parts of the stem and opposite

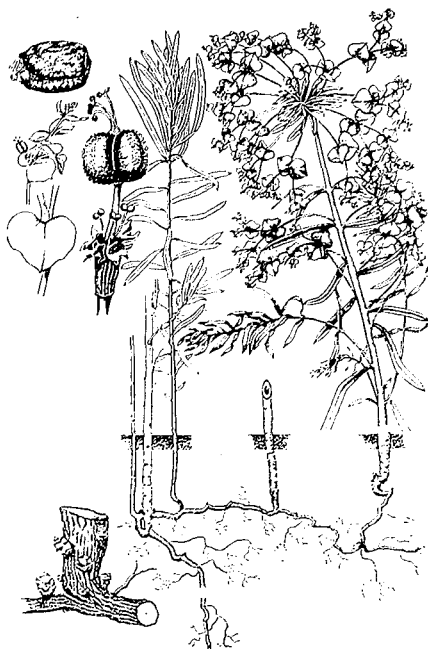


Cypress Spurge

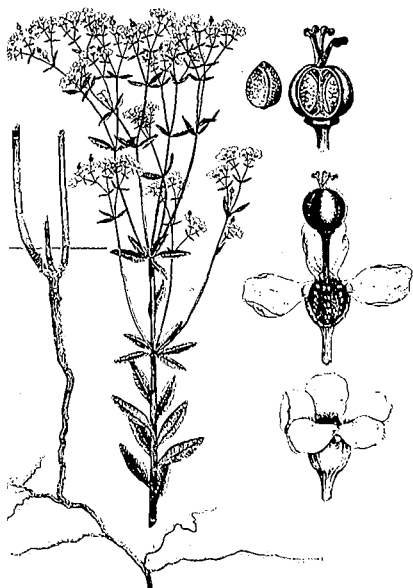
above. There are from 25 to 75 or more leaves along the stem. The showy, flower-like parts of the plant are not flowers at all, but appendages below the flower which are petal-like.

Leafy spurge (*Euphorbia esula*) is a noxious perennial herb that reputedly made its way into southwestern Minnesota in oats brought from Russia in 1890.

It is deeply-rooted; some roots grow 16 feet deep. The roots near the surface are creeping and aid in the distribution of this weed. The stem is erect and is simple or branched near the summit. Frequently stems are clustered from buds arising on the vertical root. In late summer, pinkish, scaly buds are visible just below the crown. The bluish-green leaves frequently turn to a brownish-orange color toward autumn. Cuplike structures at the top of the plant contain the greenish-yellow flowers and at maturity a fruit (cap-



Leafy Spurge



Flowering Spurge

sule) is formed which bursts and thereby scatters seed. Some plants produce two or more crops of seed stalks per season.

The spurges may be controlled by digging scattered plants if the infestation is small. Continuous mowing will prevent seed formation and exhaust food reserves in roots or underground stems. Close grazing by sheep in spring can eliminate leafy spurge.

It is not easy to kill spurges with herbicides. Snow-on-the-mountain is resistant to 2,4-D. Flowering and leafy spurges are moderately resistant to 2,4-D; however, the combination of cutting or mowing and the repeated application of 2,4-D ester has been used to destroy leafy spurge. Small patches can be eradicated by applying chemicals that sterilize soil. Herbicides containing boron, borate-chlorate mixture, or am-

monium sulfamate have been used for this purpose.

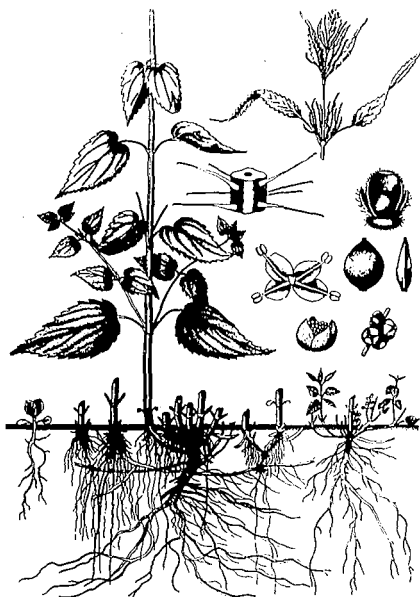
## NETTLES

There are two principal kinds of stinging nettles. One is wood nettle (*Laportea canadensis*) and it grows mostly in rich, moist woods in deep shade or in shade along streams or lakes. The other is the stinging nettle (*Urtica dioica*) which is common on higher ground, often in full sunlight. The stinging nettle is a perennial plant, introduced from Eurasia, and is generally found in dense patches.

Nettles are not generally poisonous, but are irritating. The leaves are generally covered with hairs which have broad bases but taper toward the tip. At the slightest touch, the globular tip is knocked off, leaving a sharp point which easily penetrates the skin. At the same time, a poisonous liquid oozes out of the hair into the skin, causing a burning sensation of short duration.

There are a number of species of stinging nettles similar to the one just described, but they differ in minor characteristics only. Stinging nettle has a strongly developed root system and a network of underground creeping rootstocks. The bristly and fibrous stems are usually four-angled, sometimes irregularly-angled, with deep furrows in them and they contain a watery juice. The whole plant is covered with short bristles and long, stinging hairs. The coarsely-toothed leaves are arranged opposite each other on the stem. There is a distinct middle vein in the leaf with branches to the leaf margin. The flowers are small, greenish, and borne on the stem just above the point where the leaves are attached. The seeds are flat, granular, and about the size of a pin head.

The wood nettle is a perennial plant native to the Americas and often grows in dense stands in heavily-shaded, moist woodlands. This nettle produces itching



Stinging Nettle

similar to that caused by stinging nettles.

The root system of both kinds of nettles is similar; however, an outstanding difference between nettles is in leaf arrangement. The wood nettle has alternate leaves and the stinging nettles opposite ones. Also, the leaves of wood nettle are more often heart-shaped.

Nettles can be controlled by grubbing out the rootstocks and killing by drying, if this is feasible. Mowing frequently, close to the ground, will prevent seed formation as well as exhaust food reserves stored in the roots and rootstocks. Nettles are easily killed also by spraying with 2,4-D.

## SMARTWEEDS

There are many species of smartweeds (46 species in northeastern North





**Common Smartweed**

America). A number of these contain juices that are bitterly pungent or peppery and cause smarting or irritation when in contact with the eyes and nostrils. Occasionally a skin rash occurs among people who are sensitive to smartweeds.

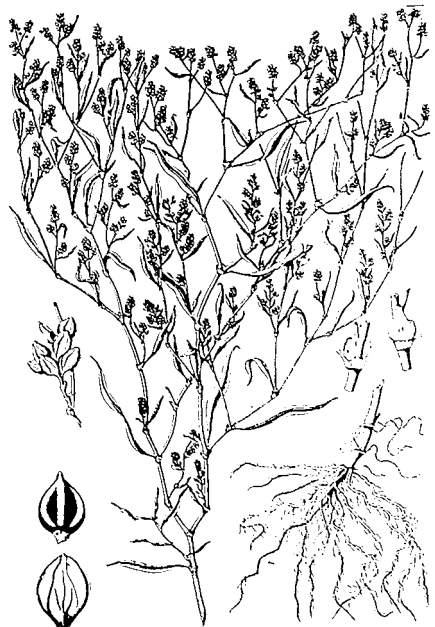
The common smartweed (*Polygonum Hydropiper*) is probably the most irritating of the smartweeds. It is weak-stemmed and is found primarily in damp or wet places. The stems are reddish in color, have swollen joints, and there is a sheath just above each joint. The leaves are alternate and shaped like willow leaves. The greenish flowers produce purplish-black seeds which may be flattened or somewhat three-angled.

Lady's thumb smartweed (*Polygonum Persicaria*) differs from the common smartweed by the presence of a somewhat triangular, purple blotch on each leaf, which gives the species the name "Lady's thumb." Weak stems, wil-

low-shaped leaves, and the swollen joints are also characteristics of this species. The flowers are pink or rose-colored. The flattened or triangular seeds are purplish-black and glossy. This European weed is very common in damp clearings.

Both of these smartweeds are annuals and there are no underground stems or creeping roots to contend with. Frequent mowing will prevent seed set and thus eliminate plants. By improving drainage, these weeds will not thrive.

Smartweeds are not susceptible to 2,4-D. Some of the phenoxybutyric acids such as 4-(2,4-dichlorophenoxy) butyric acid, abbreviated to 4-(2,4-DB), have been reported as effective in killing some species of smartweeds.



**Lady's Thumb Smartweed**

# Poisonous Plants

## WATER HEMLOCK

*Cicuta maculata*, also called poison hemlock and spotted cowbane, is a member of the parsley family and one of the most violently poisonous species in Minnesota or the United States. Its tuber-like, fleshy roots, which resemble small sweet potatoes and have the fragrance of parsnips, are deadly poisonous. While the roots and rootstocks are the most lethal organs, all parts of the plant contain some of the toxic principle, especially when the plants are young.

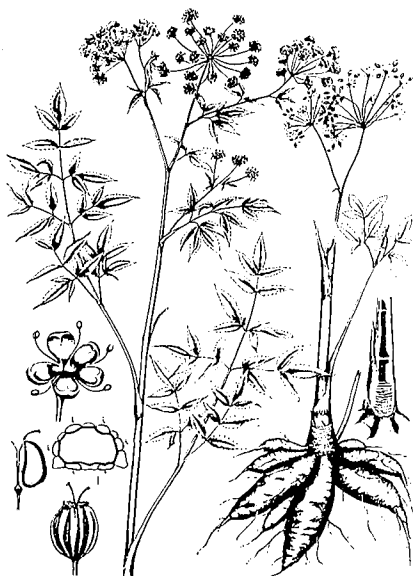
Children, even adults, have eaten the fleshy roots, mistaking them for artichokes, parsnips, or other roots, with fatal results. Cattle, horses and other domestic animals have been poisoned also by eating the roots. A piece of root the size of a walnut can kill a cow.

Symptoms of poisoning appear from one to several hours after eating the root and include stomach pains, nausea, diarrhea, and dilation of the pupils. There are violent convulsions sometimes accompanied by frothing at the mouth. If emetics, followed by purgatives, are administered soon enough so that vomiting can be induced, the patient has a chance for recovery; otherwise death can be sudden and is likely to occur during the convulsions. A physician should be called as soon as poisoning is suspected.

The clusters of fleshy, fingerlike roots are shallowly embedded in soil so that the whole plant easily pulls out. When the roots are cut, a fragrant but poisonous yellow oil oozes from the cut surface. The stem is hollow between the joints, but the stem base has closely-set

partitions, as shown in the illustration. Children sometimes use the hollow stems to make whistles and are poisoned when the stems are placed in the mouth.

The smooth stems, often 6 to 7 feet tall, are often mottled with purple especially in the lower parts. The leaves are alternate on the stem, and the veins of the leaf terminate in the notches at the margin. This differentiates water hemlock from another plant it is often confused with, *Angelica*, in which the veins end in the teeth, not the notches of the leaf. The leaves are generally divided into three groups of three leaflets per leaf.



Water Hemlock

The white flowers are borne in an umbrella-like cluster and give rise to flattened fruits. Corky ridges alternating with oil tubes appear on the surface of the fruits.

Water hemlock is easily destroyed by application of 2,4-D or by digging out the roots of this biennial plant. Marshes, ditches, wet streams, and lake borders near camp sites and resort grounds especially should be checked carefully and all the plants eradicated.

## WATER PARSNIP

This perennial herb is native and widespread in North America and has been suspected of being poisonous to man and domestic animals. However, no toxic principle has been described. This plant can be readily distinguished

from water hemlock because of the corrugated or angled stems and the different shape and grouping of leaflets, from three to eight pairs per leaf, as illustrated.

Water parsnip (*Sium suave*) is generally branched above the middle and the leaves are alternate on the stems. The flowers and fruits are similar to water hemlock.

Plants grow in low swampy ground, meadows, muddy banks of streams, and even in standing water.

Other closely-related plants are poison hemlock (*Conium maculatum*), which has white flowers and a fleshy, parsnip-like taproot, and wild parsnip (*Pastinaca sativa*), which has the fleshy tap root but yellow flowers. Poison hemlock causes a gradual paralysis of the lungs ending in death, but without convulsions. Wild parsnip is not poisonous although some persons get blistering of the skin from contact with the wet foliage. Wild carrot is not poisonous to man; however, if cows graze on it the milk can become tainted.

Water parsnip, like water hemlock and poison hemlock, can easily be pulled or dug from the soft ground in spring and destroyed. Or it can be killed with 2,4-D.

## JIMSON WEED

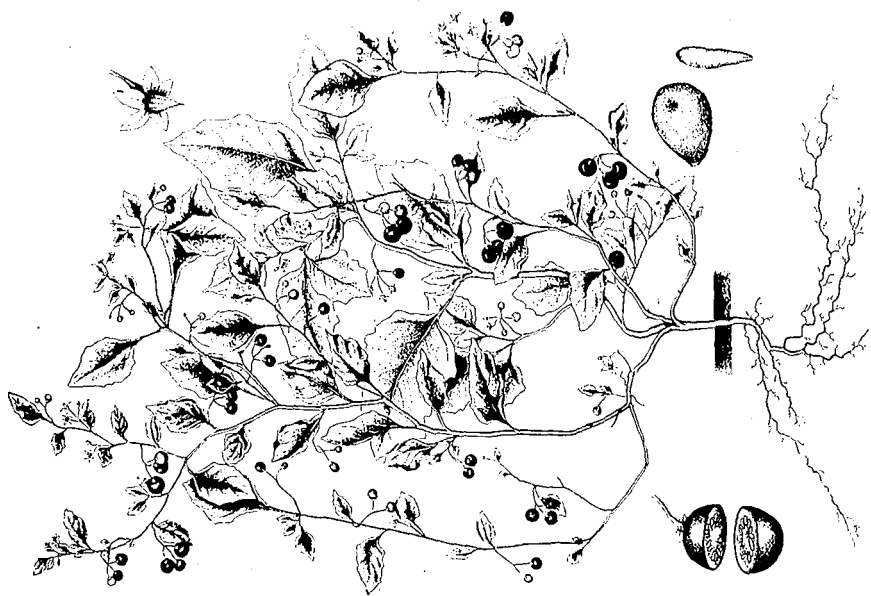
An ill-scented, dangerously poisonous weed, this plant is a stout, robust annual that produces both a nerve and stomach poison called hyoscyamine. Jimson weed (*Datura Stramonium*) is in the same family as nightshade, potatoes, and petunias.

Domestic animals are poisoned by feeding on the tops of the plant. Children are poisoned by eating the unripe seed pods, which are sometimes called thorn apples. Some people are especially susceptible and get a skin rash from touching the leaves.

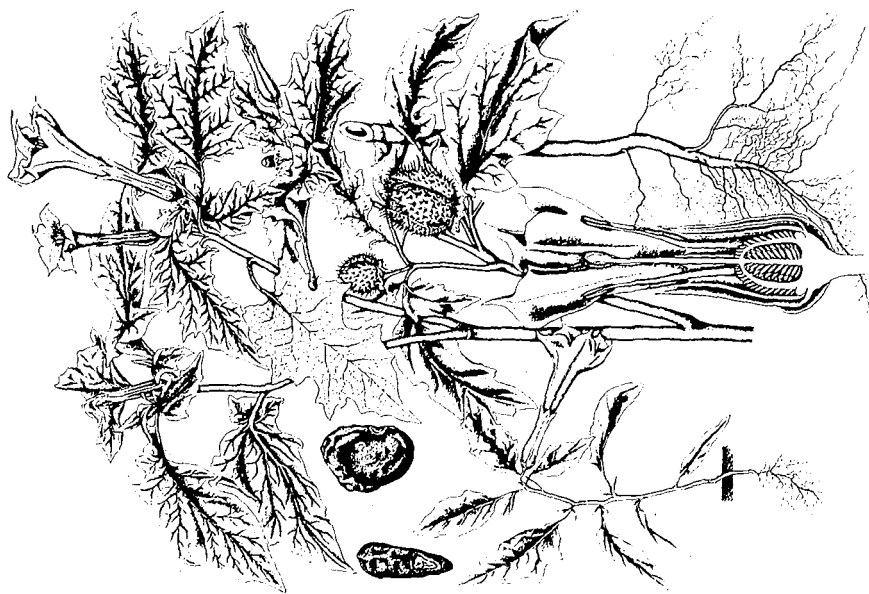
The nervous form of poisoning is most common and its symptoms are head-



Water Parsnip



Black Nightshade



Jimson Weed

ache, nausea, extreme thirst, a burning sensation of the skin, dilated pupils, loss of sight and control of limbs, and, in extreme cases, mania, convulsions, and death occur.

The bushy weed may grow 6 feet tall. Its stems are smooth and may be green or purple. The leaves are alternate and unevenly toothed and strongly-scented. The large, showy, trumpet-shaped flowers are white on the green-stemmed variety and are violet or purplish on the purple-stemmed variety. The fruit is a hard, prickly, four-parted capsule containing many large, flat, dark brown or black seeds. At maturity the capsule splits open into four parts.

Jimson weed grows in fields or waste places, mostly on rich gravelly soils. It should be mowed before seeds are produced, but if mowed after fruits are ripe, the plants should be burned. The herbicide 2,4-D will kill this rank weed.

## BLACK NIGHTSHADE

Black or deadly nightshade (*Solanum nigrum*) belongs in the potato family and produces green berries in July and August which are poisonous when eaten. As the berries ripen, the content of the poison, solanine, decreases to nontoxic amounts. Leaves also contain solanine. Narcosis and paralysis occur from eating the unripe berries. This may show up first as a paralysis of the tongue and dilation of pupils in the eye. If poisoning is suspected, an emetic should be given if a physician is not immediately available.

This plant, probably introduced from Europe or Asia, is an annual herb with somewhat angular stems. The leaves are alternate with wavy-toothed edges. The flowers are white and more or less clustered, 5 to 10 flowers to a cluster. Unripe berries are green and as they ripen they turn to a dull, purplish-black color.

These plants inhabit waste places, fields, yards, camp grounds, or open

woods and grow well on loam or gravelly soils.

Plants are easily eradicated by pulling out by the roots or hoeing; however, 2,4-D will not kill these plants.

## POISONOUS MUSHROOMS

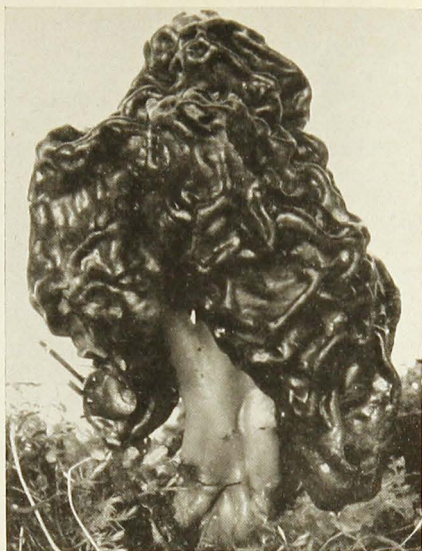
There are more than 4,000 different species or kinds of wild mushrooms. Of these, some 40 or 50 are known or suspected to be more or less poisonous. The genus *Amanita* includes several of the most deadly kinds; of which one, *Amanita verna*, is here illustrated.

The genus *Amanita* is characterized by gills that are "free"—i.e., they come up close to the stem, but are not attached to the stem. The spores and gills are white. A ring is present and usually prominent on the stem just below the cap as the cap expands, but this ring later shrinks and becomes inconspicuous. The base of the stem is enlarged into a cuplike sheath or bulb—but this often is hidden in the soil and can easily be missed unless one suspects its presence and looks for it.



*Amanita Verna*

Although the genus *Amanita* contains the more deadly of the poisonous kinds of mushrooms, a number of other kinds of mushrooms are known to be somewhat poisonous, and common sense dictates that one should not eat wild mushrooms without knowing which mushrooms are edible. It is not enough to just learn the mushrooms of the genus *Amanita*, avoid them, and then eat all others—the only safe way to learn is to recognize some of the edible kinds and eat only those you know thoroughly. For example, the edible saddle fungus, *Gyromitra esculenta*, has long been eaten in quantity in both Europe and America, and is considered by many to be of the choicer edible fungi. Yet there is no doubt that this fungus has caused a number of cases of fatal poisoning in both Europe and America, including a family of five in Minnesota.



Saddle Fungus

## Plants with Thorny Fruits

### SANDBUR

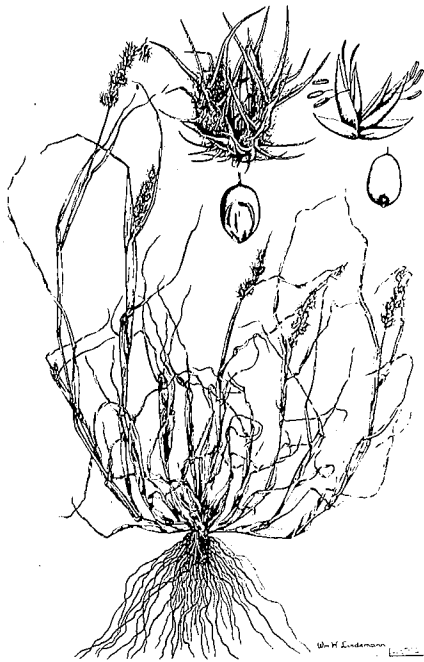
Because sandbur (*Cenchrus pauciflorus*) produces a bur with spines stout enough to penetrate the flesh of man and animals, which in turn can result in inflammation and infection of the punctured skin, this grass plant is very obnoxious, especially at beaches. The burs mix with sand on the beach, ready to puncture the skin of swimmers or sun bathers. Often the spines break off when the bur is jerked from the flesh. Then, tweezers are needed to extract the severed spine of the bur. Burs are annoying also because they adhere to clothing or get entangled in the fur of domestic animals.

This much-branched, annual grass weed often spreads by taking root at the lower joints of the stem. The sheaths that enclose the stems are loose

and often overlap. The usually-flat leaves are about  $\frac{1}{4}$ -inch wide, and there is a fringe of hairs where the leaf blade joins the sheath around the stem. The grass flower is enclosed by a hairy, spiny bur which is composed of many bristles, each provided with recurved barbs. It is these barbs that enable the spines to work into the flesh. Seeds in the bur can live in soil for at least four years and probably longer.

Because it is an annual plant, reproduction occurs only from seeds contained in the burs. Moreover, infestation can occur from burs carried on man or animals or by floating along the shore from one place to another.

Eradication is possible by burning the burs with a flame burner with the flame directed at the tops of the plants. Because burs are produced so close to the ground, mowing is ineffective in eradicating sandbur.



Sandbur

For chemical control on beaches or pathways, any of the accepted grass killing herbicides could be used such as dalapon or the substituted phenyl urea compounds like monuron or diuron. TCA (trichloroacetic acid) will kill sandbur, but if bathers lie in the sand shortly after application of TCA, there may be some irritation of the skin from the herbicide. Remember that these herbicides will kill many other grasses also, so they should not be used to kill sandbur when it's in with desirable grasses.

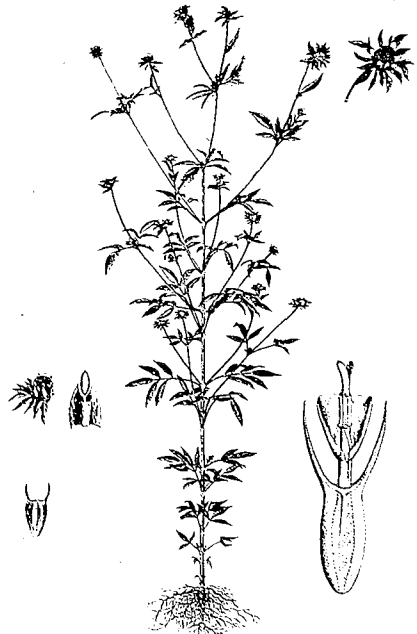
## BEGGAR'S TICKS

Hunters, hikers, and late summer or autumn campers are united in their

cry of condemnation of this robust weed because of the pair of downwardly-barbed spines at one end of the seed. Seeds of beggar's ticks (*Bidens frondosa*) cling tenaciously to clothing and it is quite a chore to remove them, especially from woollens. Moreover, it has only minor value as food for wildlife.

Spanish needle, devil's pitchfork, and bur marigold are other names used for this weed. Plants on lake shores may vary from a few inches to 5 feet or more in height. It is an annual plant with opposite leaves which are compound and made up of three divisions. The leaf margin is fine-toothed.

The yellow to orange-yellow flowers are conspicuous in late summer. Below the head of flowers there are two rows or series of very small leaves. The blackish seeds are borne on a flat,



Beggar's Ticks

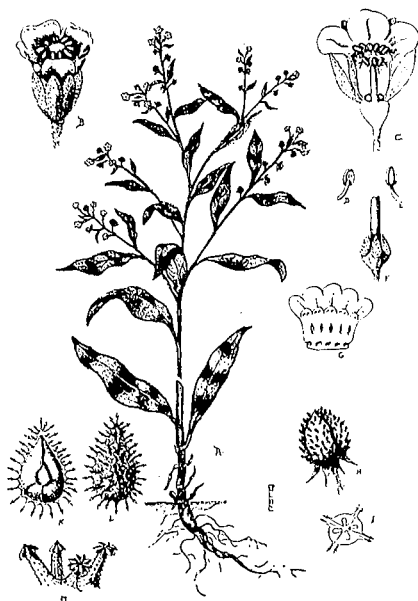
chaffy disc and are more or less four-sided.

Beggar's ticks grow in damp, open areas, along lake shores, and sometimes even in relatively dry waste places. Improving the drainage on moist land helps to control this weed. Mowing before weed formation will prevent re-infestation of land. Also spraying with 2,4-D will kill this plant.

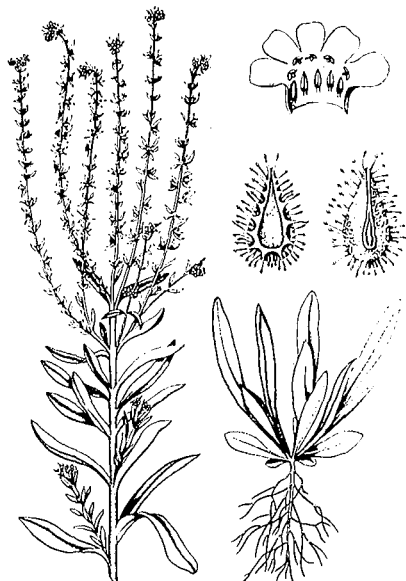
## STICKTIGHT

This grayish, hairy, bluish-flowered plant produces many small fruits that are covered with prickles. Many an outdoorsman has plucked these one by one from his clothing.

Common sticktight (*Lappula echinata*) grows 1 to 2 feet high on dry locations in full sunlight. Virginia sticktight (*Lappula Virginica*) is found in



Virginia Sticktight



Sticktight

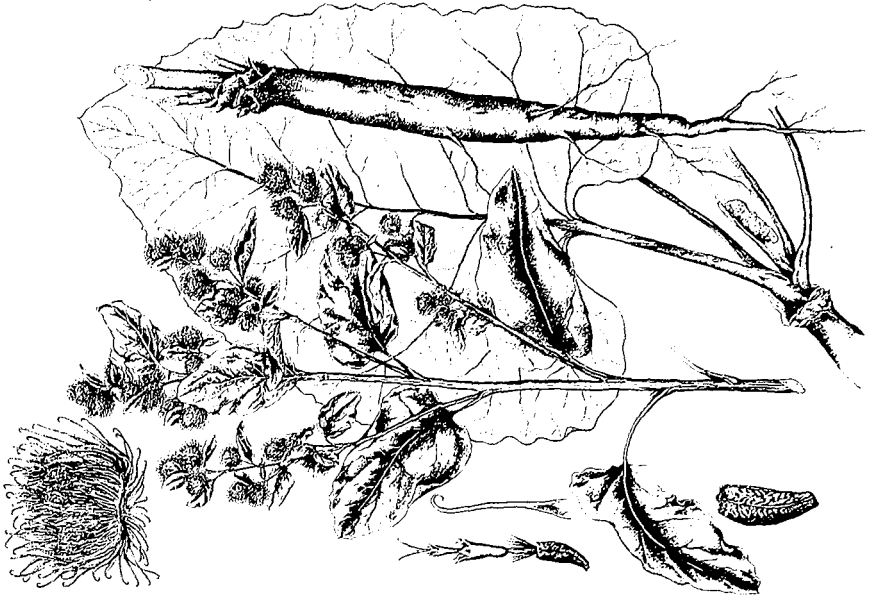
moist and shaded sites where it is usually 2 to 4 feet high. Common sticktight has hairy leaves  $\frac{3}{4}$  to 3 inches long and  $\frac{1}{8}$  to  $\frac{1}{4}$  inches wide. Flowers are blue, for which the plant is sometimes called Blue Bur. Virginia sticktight has larger, smooth leaves and flowers that vary from pale blue to white. Stems of both species are erect, simple, slender, and branched at the top. Leaves are alternate, undivided, oblong to narrow, have smooth margins, and are without stalks.

The fruit of these species is a cluster of four small, erect nutlets about  $\frac{1}{8}$  inch long with a double row of barbed prickles around the margin. These prickly nutlets stick in wool and hair of animals and to clothing. The name "Stickweed" is sometimes used for the plant.

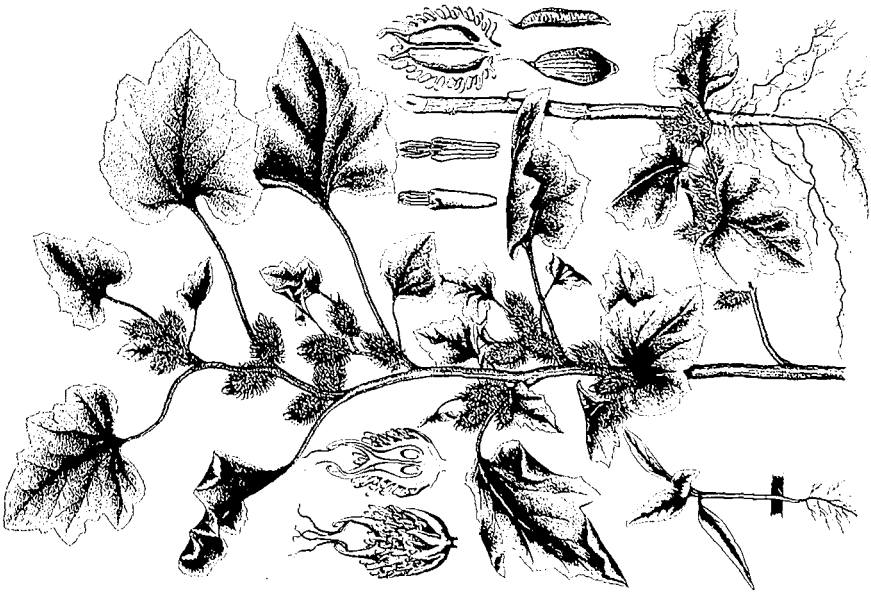
These species are annuals or winter annuals that reproduce by seed.

Both sticktights generally grow in waste places that are not mowed or





Burdock



Cocklebur

cultivated regularly. They may be controlled by cutting the rosette stage below the ground with a hoe in fall or early spring. Mowing the plants before they produce seed will prevent formation of the prickly burs and reduce the seed for future generations. Herbicides containing 2,4-D are usually effective for control.

## TICK TREFOIL

A pestiferous plant sometimes called beggar's ticks also, but more commonly called tick trefoil or tick clover is one of several species of *Desmodium*, for example, *Desmodium canadense*. These plants are perennials of the legume family, having three-parted leaves like clover, and often have rose-colored, pea-like flowers.

A flat, deeply-jointed pod is produced which separates into three to six joints, each containing one seed. The surface of the pod is covered with hooked hairs. The seeds are about  $\frac{1}{8}$  inch long, kidney-shaped, and a dull, reddish-brown color.

There are quite a few wild species of *Desmodium* that grow in woodlands and spread on to neighboring open lands or pastures.

Mowing will prevent seed production, but unless done repeatedly will not eradicate this plant. The tick trefoils are not killed by 2,4-D.

## COCKLEBUR

Many a pheasant hunter has cursed this coarse annual weed because of the rough, hooked bur that either hooks a ride on his clothing, or on fur of animals, or tears clothing.

The farmer also has a reason to eradicate cocklebur (*Xanthium chinense*) since the burs get tangled in the wool of sheep or they injure the hide of farm animals and make infec-

tion possible. Also, the first seed leaves that emerge in the spring are reported to be poisonous to some farm animals.

The stem of cocklebur is somewhat roughened, angled, and frequently spotted with red. The large, alternate leaves vary from heart-shaped to nearly kidney-shaped.

Because of the variation in the shape, the hairiness, and spininess of the mature burs, many forms or species have been described. In general, the burs have two stout, incurved hooks at one end. Often the hooks on ripe fruits are reddish-tinged. Each bur is two-chambered with a flattish seed in each chamber. For the species described here there are about 100-150 prickles on one face of the bur.

Cocklebur frequently grows on lowlands, lake beaches, or on waste lands.

Plants should be mowed to prevent seed formation, or they can be killed by spraying with 2,4-D.

## BURDOCK

The large, bristly burs of this biennial plant are a major nuisance to those who walk in uncultivated fields or who tend domestic animals that have ventured too close to patches of burdock (*Arctium minus*). Fur or hair of animals becomes thoroughly matted with the prickly fruits of this relative of the garden rhubarb.

In the first year of growth a rosette of leaves is produced, resembling rhubarb in size and habit of growth. Fruiting occurs in the second year when an abundance of many-seeded burs await the chance encounter with man or animals to be dispersed. The spines have hooked ends that enable them to be carried about by animals.

The large, fleshy taproot produced the first year contains stored food for the fruiting year. The rough, hairy leaves of the rosette often measure a foot in length. The pinkish-purple flowers arise from shoots growing just above the place on the stem where leaves are

attached. Neglected farmyards, fence rows, or rich soils of uncultivated areas of camp grounds or fields are favorite habitats for this weed.

Plants can be eradicated by cultivation, especially during the first year. Spraying with 2,4-D will also kill this pest.

## Plants with Thorny Stems

### PRICKLY ASH

The only species of the citrus family native to Minnesota is prickly ash (*Xanthoxylum Americanum*). It is a large shrub or small tree, measuring up to 12 feet in height, with thorny stems that easily deter the experienced hunter or woodsman from attempting to make his way through a thicket of them.

This shrub reproduces by seeds and by the production of horizontal roots. Stems, branches, and twigs have thorns up to  $\frac{1}{2}$  inch in length. The thorns occur in pairs at the bases of leaves.

The compound leaves bear from two to four pairs of leaflets, plus an odd one. Young leaves are downy; however, as they mature they become nearly smooth on the upper surface but remain hairy on the lower surface. The leaves are rather thick and are dotted with translucent oil glands. While the leaves and fruits are pleasantly aromatic, the taste is disagreeably pungent. The flowers are yellowish-green in color and open before the leaves appear.

The fruit is somewhat fleshy and becomes reddish-brown when mature. The black, shiny seeds are about  $\frac{1}{8}$  inch in length.

Prickly ash inhabits rich, moist woods and thickets, river banks, or frequently thrives at edges of woodlands. Eradication of these thorny shrubs can be accomplished by grubbing out the roots or by application of brush killers that contain the ester formulations of 2,4-D, 2,4,5-T (2,4,5-trichloroacetic acid), or



Prickly Ash

MCP (sodium or amine salt of 2-methyl-4-chlorophenoxyacetic acid).

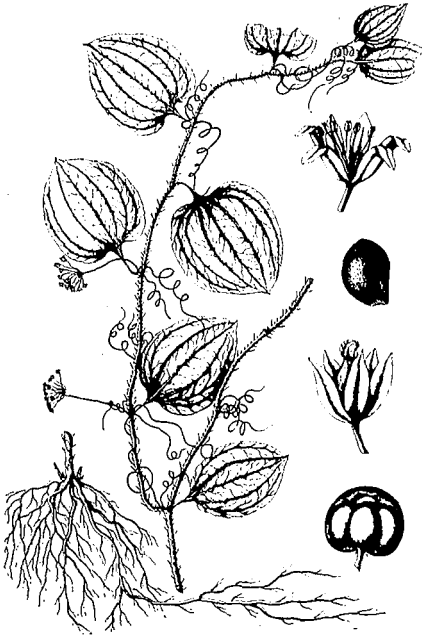
### PRICKLY GREENBRIER

Hunters and others who tramp through unpastured woodlands may find themselves entangled, at times, with the thorny and unyielding vine

## BUFFALO BUR

This noxious annual weed of the potato family has poisonous, prickly berries and prickly stems. The stiff yellow spines on its stems and fruit are so sharp that even animals will not touch the plant. Moreover, the spines are easily detachable and will become imbedded in the skin of man if he brushes against the weedy plant. It is native to our western states but has been introduced into Minnesota in feed, screenings, and hay. Buffalo bur (*Solanum rostratum*) frequently occurs first in the vicinity of feed lots; from there it spreads to cultivated fields and to uncultivated areas.

Stems of the buffalo bur are erect, but have many branches and are somewhat spreading. When mature, the plant often breaks at the ground line



Greenbrier

of greenbrier (*Smilax hispida*). The spines are black, very firm, and usually  $\frac{1}{4}$  to  $\frac{1}{2}$  inch long. They may tear clothing or inflict wounds to unprotected skin. Even in winter the stem is a bright green which makes the plant readily identifiable.

The plants are not too common. They occur as scattered clumps which climb on other plants in woodlands on rich, moist soil in the southern half of Minnesota. They attain a length of up to 20 feet. Several stems arise from a common rootstock. A pair of tendrils occurs at the base of each leaf.

The leaves are thin, vary from oval to heart-shaped, and usually have seven prominent veins per leaf.

Six to twenty flowers are clustered at the base of leaves. The berries are bluish-black in color.

The greenbrier may be controlled by grubbing out the rootstocks.



Buffalo Bur

and is blown about like a tumble weed. It is generally about 1 foot in height, but may reach 2 feet. Leaves are alternate on the stem and are deeply lobed similar to watermelon leaves. The leaf surface is covered with hair, but veins, midribs, and petioles are prickly. The yellow, wheel-shaped flowers, about 1 inch in diameter and similar to those of tomato, are born in clusters on prickly stems. The fruit is a berry encased in a spiny covering.

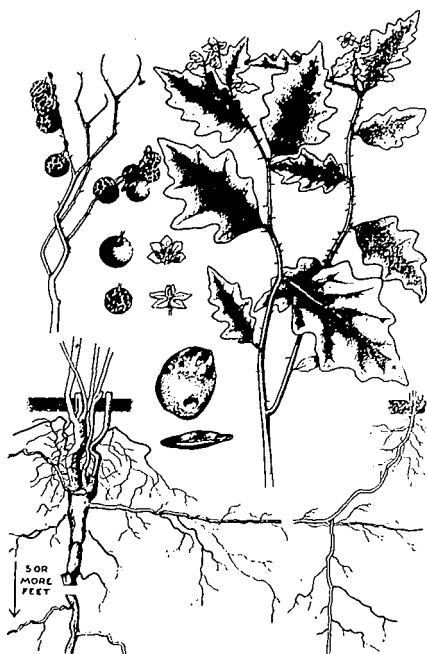
These pesky plants can be controlled by clean cultivation or by spraying with 2,4-D. Waste places where they grow should be mowed to prevent them from producing seed.

## HORSE NETTLE

This close relative of buffalo bur is not only a pest as a weed in spring, but is also poisonous when leaves and berries are eaten. In addition, it is susceptible to tomato mosaic which makes it objectionable near tomato fields. Horse nettle (*Solanum carolinense*) is not poisonous at all stages of growth, but because the presence or absence of the poison cannot be known at all times, it should never be eaten.

This perennial weed spreads by creeping rootstocks which are up to 3 feet long. Vertical taproots penetrate to depths of 8 feet. It is troublesome in meadows or in crops, especially on loose, sandy soils.

The stems, petioles, fruiting stalks, and leaf midribs and veins are thinly covered with stout, yellowish spines, as in buffalo bur. The stout, erect stems are loosely branched and reach a height of 8 to 24 inches. Short stiff hairs fill in the space between the spines on the stems. Leaves are shaped like those of white oak, having shallow cuts and rounded lobes which are covered with hairs. Flowers are pale violet to white on a flower stalk. Fruit is an orange-colored, smooth berry that contains from 40 to 60 seeds.

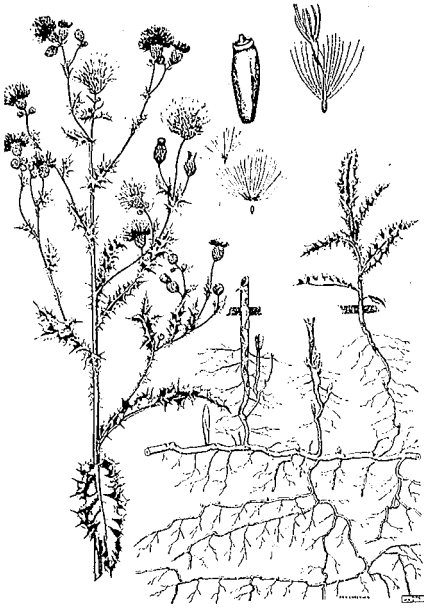


Horse Nettle

This plant can be controlled in fields by clean cultivation. This weed can be choked out on camp grounds or in resort areas by establishing a good sod of bluegrass. Horse nettle patches should be mowed in uncultivated areas to prevent seed formation. The application of 2,4-D is not always effective; however, 2,4,5-T has given some favorable results.

## CANADA THISTLE

This deep-rooted perennial thistle has been declared noxious in the seed laws of 43 states by 1954. Canada thistle (*Cirsium arvense*) thrives in every county in Minnesota. Its prickly leaves and stems are a nuisance in camp and resort areas.



Canada Thistle

While the major portion of the extensively creeping and freely-sprouting roots lie within a foot of the soil surface, roots can, especially in loose, well-drained soil, penetrate to depths of 6 to 8 feet or more. New shoots can arise from creeping roots from a depth of 8 inches. For example, a small 3-inch cutting of Canada thistle in three years' time can produce a patch 60 feet in diameter. Every piece of the creeping root system can give rise to a new plant.

The stems are ridged and very leafy. The lower surface of leaves are either smooth or somewhat woolly. The leaves, which are alternate, are irregularly-lobed and spiny on the margins; however one variety is not lobed and is almost without prickles.

Color of flowers varies from white to pink, lavender, and rose-purple. The flowers on a given plant are all male or all female but occasionally both sexes

may be found in one flower. For this reason, no seeds would be expected from male plants or from female plants that are too far away from male plants, from which pollen is needed.

Lack of seed is also caused by the attack of certain insects, notably the Canada thistle midge or the larvae of a fruit fly. Often the whole flower head may turn brown from insect attacks.

While Canada thistle grows nearly everywhere, it is especially abundant on rich or heavy soils.

The food reserves in the roots are lowest about the first week in June so mowing the plants at this time forces the plant to use up what little food is still available for the production of new shoots. Plants cut while in flower will often continue to ripen the seed; however the seed is not viable.

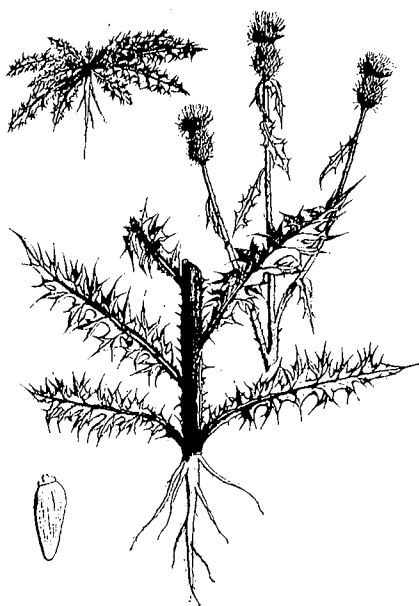
Usually several applications of 2,4-D each year for several years are necessary for eradication of Canada thistle. The amine form is used for spraying at the rosette and prebud stage and the ester form can be used for the fall rosette stage. Amino triazole (ATA) has also been effective in control. For small patches, soil sterilants may be used successfully.

## BULL THISTLE

An aggressive, fiercely-armed weed of clearings, bull thistle, (*Cirsium vulgare*) also named common and spear thistle, is a biennial plant producing a prickly rosette of leaves the first year and a spiny-winged, flowering stem in the second.

This alien weed produces a fleshy taproot, which later becomes spindle-shaped. The plant overwinters with no stem appearing above the ground, only a rosette of leaves which are pale, woolly, or webbed beneath and green and smooth above. The lobes bear long, stout prickles.

In the second year a woolly, furrowed, prickly-lobed, and very leafy



**Bull Thistle**

stem appears. The leaves are alternate and are woolly and spiny as in the rosette leaves.

Unlike that in Canada thistle, the heads are solitary or only a few, at the tips of short, prickly-winged branches. The purple flowers produce seed  $\frac{1}{8}$  inch or more in length which are straw-colored with grayish-black stripes.

Bull thistle will not persist under cultivation or mowing and can be killed also by repeated applications of 2,4-D.

## ROADSIDE THISTLE

This spiny thistle closely resembles bull thistle except that it is less prickly and it usually branches only near the summit and not at the base of the stem. However it is not as tall and robust as the Tall Thistle (*Cirsium altissimum*) which it resembles even more closely.

Although sometimes a perennial, roadside thistle (*Cirsium discolor*) is usually a biennial. The first year's rosette leaves are stalked and are green and smooth above but white-felted beneath, while bull thistle is more coarsely woolly. Also, the leaf of roadside thistle is divided nearly to the midrib making bristly-toothed lobes.

The heads are borne mostly solitary on leafy branches of the strongly-ribbed flowering stem. While flowers are usually purple, some white-flowered forms are found occasionally.

## TRAILING BRAMBLE

This prickly, trailing bramble, (*Rubus flagellaria*) known also as dew-berry and running or wild blackberry, is a woody perennial plant that frequents openings and borders of thickets and is responsible for scratched arms or legs of many campers or hunters. Many an outdoorsman has been tripped by the trailing canes of this and other brambles.

The stems, or canes, produced the first year are long, creeping, and prostrate and usually root at the tips. Prickles on these canes measure more than  $\frac{1}{8}$  inch in length. In the second year an erect or sometimes trailing flowering cane is produced which is woody, tough, and often reddish or purplish in color. The leaves of first year canes consist of three to five leaflets while the second year canes produce leaves of three leaflets. Veins may be hairy on the under surface of the leaf, at least on first-year canes. The white blossoms appear in late May or June. The fruit ripens in August, is about  $\frac{1}{2}$  inch in diameter, and has a rich flavor.

Common in southeastern, eastern, and central parts of Minnesota, this species extends north as far as Pine and Becker Counties, chiefly on acid soils, sands or gravels, in dry fields, clearings, and edges of thickets.

Because the canes are so long and tangled it is difficult to eradicate these plants by grubbing while most other species of brambles or blackberries are not so thorny and can be more easily grubbed out.

Brush killers containing 2,4,5-T have been reported as successful in eradication. Also, soil sterilants as described for poison ivy control can be applied to the bases of plants.

## Water Plants

Aquatic or water plants are often considered weeds because they obstruct boating or swimming or make fishing difficult; however it is well established that weedy lakes produce more food for fish than bare, open regions. Thus some water plants are necessary for fish to live and grow. Nevertheless there may be waters which are so weedy that even fish do not develop properly. Because fish are involved, any method of chemical control of water weeds must have the approval of the Minnesota Department of Conservation and, if they approve, a permit will be issued by them.

Only licensed commercial operators are permitted to treat submerged vegetation, as the chemical used is dangerous to man and fish and is expensive to use. However there are also mechanical methods of controlling aquatic vegetation. Inquiries on the control of aquatic plants should be addressed to the Division of Game and Fish of the Minnesota Department of Conservation.

growth the lower end is often anchored in mud giving the appearance of being rooted. Later, the stems float on or near the surface of the water.

### HORNWORT (Coontail)

Hornwort (*Ceratophyllum demersum*) is one of the most common and widely distributed of the submerged aquatic plants and is especially irritating to the swimmer because of the rough, scratchy surface of the leaves and stems. It is one of the most objectionable water plants growing offshore along beaches.

As viewed through the water, the plant appears to be olive-green in color. No roots are produced, even by seedlings; however in the young stages of



Hornwort



The coarse stems are brittle and stiffly-branching or they may be rope-like and flexuous. The leaves are in verticils, with five to twelve leaves in a group, each of which is again divided into two or three thread-like segments with teeth along one side of each segment, as illustrated. Often the leaves are more densely crowded toward the end of the branches, and this plant is often called "Coontail" for this reason.

Flowers are rarely seen and seeds are produced in late summer or early fall. While eaten by ducks, it is not regarded as a choice food. However, the plants provide shelter for young fish.

Hornwort is found in quiet lakes, shallow ponds, and slow streams especially if bottoms are muddy. They are

apparently more abundant in hard water.

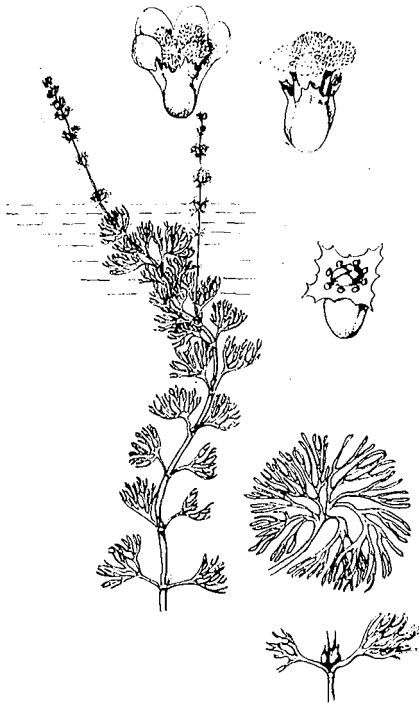
## WATER MILFOIL

This cut-leaf, coarse, submerged water plant may be mistaken for hornwort; however several outstanding differences are apparent. Many species of milfoil (*Myriophyllum verticillata*) are almost exactly alike except for flowers and fruit.

The robust stems arise from creeping rootstalks and emerge as much as 5 inches above the water surface and they root freely at the lower joints.

There is an abrupt transition from submerged to emerged leaves in that the leaf division is much coarser in the latter. The submerged leaves are more than 1 inch long and are divided into 9 to 13 segments but unlike hornwort, the segments are not toothed.

This aquatic weed is at best a low-grade food for ducks. It grows in shallow, quiet water of limestone or clayey areas, in shallow bays of lakes, or is often best developed in lakes near the edges of a current of water entering the lake from a stream.



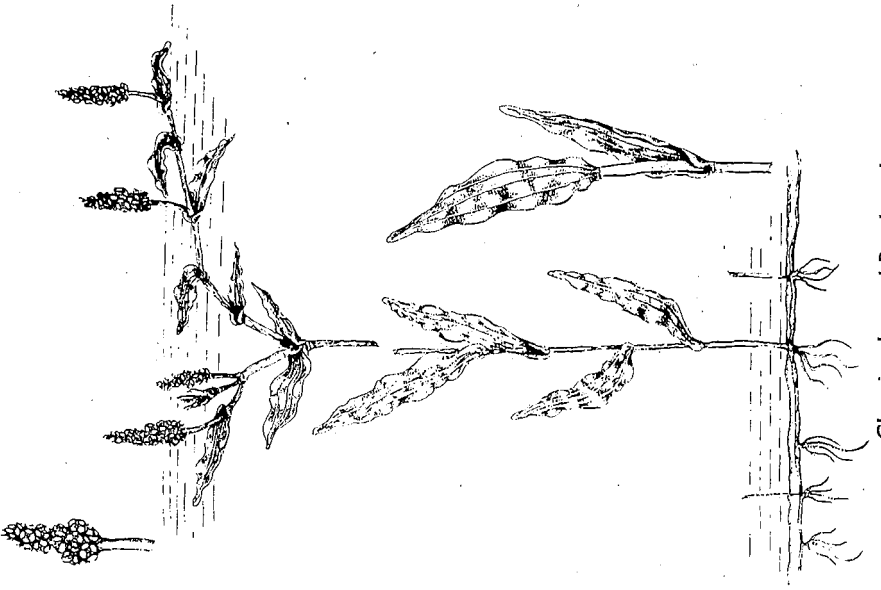
Water Milfoil

## WATERWEED

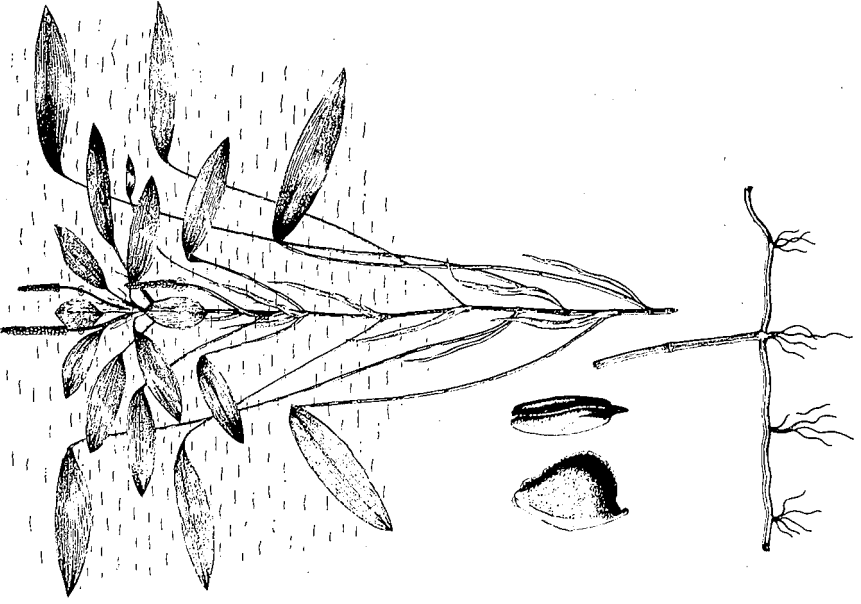
Waterweed (*Elodea canadensis*), a submerged, perennial weed of waterways, can clog bays, ponds, and lagoons, and the sticky, slimy leaves are annoying to the bather or swimmer. Also the brittle stems break easily and add to debris washed ashore.

The roots are fibrous and the plants, which are 1 to 3 feet long, are often rooted to the bottom of the lake; however the stem fragments are sometimes found floating in mats on the surface. The leaves are frequently tinged with purple.

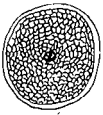
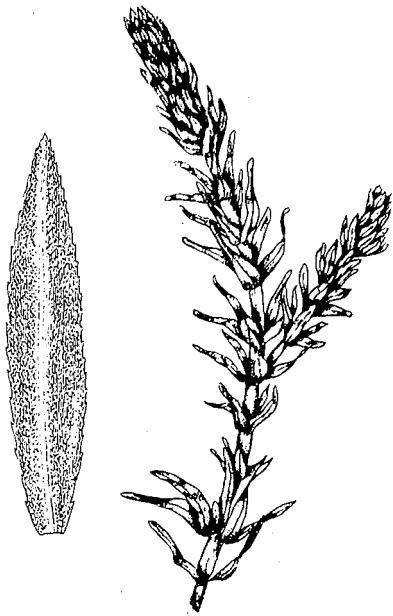
These plants are common in hard waters of lakes, ponds, and slow-moving streams.



Clasp Leaved Pondweed



Floating Pondweed



Waterweed

## PONDWEEDS

The dominant vegetation in thousands of Minnesota's 10,000 lakes consists of pondweeds (*Potamogeton* spp). There are so many species in this family, the largest of the aquatic seed plants, that they will be described as a group.

Pondweeds in general are jointed herbs with mostly rooting stems and two-ranked leaves. They grow from lake beds at depths varying from 4 to 12 feet, sending out long floating branches on or near the water surface.

The submerged leaves are grasslike and transparent while the floating leaves are shorter, broader, and oval in form and generally of a more leathery texture.

In sheltered bays, pondweeds may grow in dense patches. Wave action may wash fragments of pondweeds to shore.

A few common pondweeds are illustrated: Sago Pondweed (*Potamogeton pectinatus*) which bears tubers on rootstocks and has bristle-shaped leaves; Floating Pondweed (*Potamogeton natans*) which has red-spotted rootstocks, ridged stems, and floating leaves; and Claspng Pondweed (*Potamogeton perfoliatus*) in which the leaves are clasping and the veins are prominent.

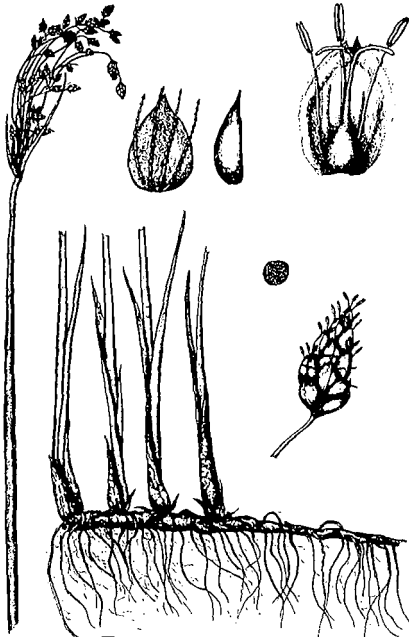


Pondweed

Other rushes are common in Minnesota also.

## SEDGES

Most of the nearly 200 species of sedges in Minnesota have three-sided stems with three-ranked leaves. Often the leaves are finely-toothed or spiny at the margin and on the lower midrib, and severe cuts can be inflicted to arms and legs by handling such plants. These grasslike perennials, such as hop sedge (*Carex lupulina*), generally inhabit wet meadows and swales; however a few grow best in standing water. One of these is creeping spike-rush (*Eleocharis palustris*) which grows in shallow water at the margins of ponds, streams, and lakes. Such plants are objectionable at beaches where the sedges hold or-



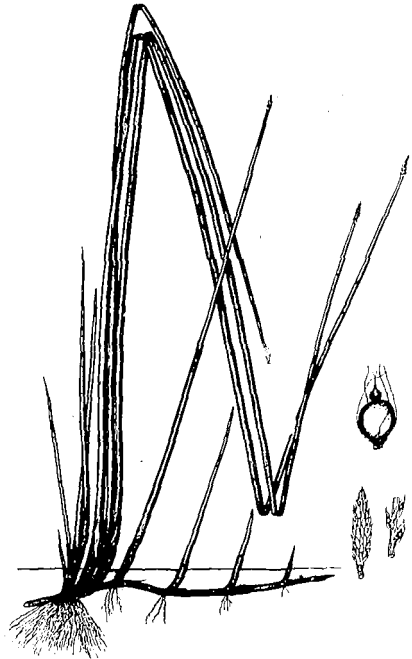
Great Bulrush

## BULRUSHES

Bulrushes (*Scirpus spp*) are widely distributed in ponds, lakes, wet swales, and marshes. Floating vegetation may lodge in the rushes producing objectionable odors on decay; however the odor is due probably to bacteria or blue-green algae.

The bulrushes may be annuals or perennials and can vary in size from a few inches to several feet in height. If perennial, thick stands are produced from rootstocks.

River Bulrush (*Scirpus fluviatilis*) is common in sloughs, borders of ponds, and bays of large lakes. The Great Bulrush (*Scirpus validus*) grows in shallow ponds especially around spring holes, bog holes, and stream banks.



Creeping Spike-rush

ganic debris that decays to produce unpleasant odors.

Spike-rush resembles rushes in that the stems are nearly round and leafless except at the base where there is a red to brown sheath. The rootstocks are reddish in color and can produce a solid stand in a relatively short time.

## WATER BLOOM, GREEN ALGAE, POND SCUMS

In addition to kelps and seaweeds, algae include two other major types, the green pond scums, which are green and threadlike, and water bloom, which is made of bluish-green gelatinous balls. There are many useful and harmful species in each of these groups of algae.

Water bloom generally includes the blue-green algae and these are poison-

ous to animals who drink water containing them. They also impart a grassy odor to surface water if present in minute amounts. With an increase in number the odor becomes more pungent, and in high concentrations the odor is vile and like that of decaying fish. The odors from decaying water-bloom algae and pond scums are most noticeable just before frost.

Scum-forming algae become noticeable in early summer and increase up to September or October. They are especially common on stagnant waters of ponds, lakes, and even some streams. While they are a nuisance, they are not believed to be poisonous to animals drinking water covered with these algae.

For control measures on public waters consult the Department of Conservation.

## Hayfever Plants

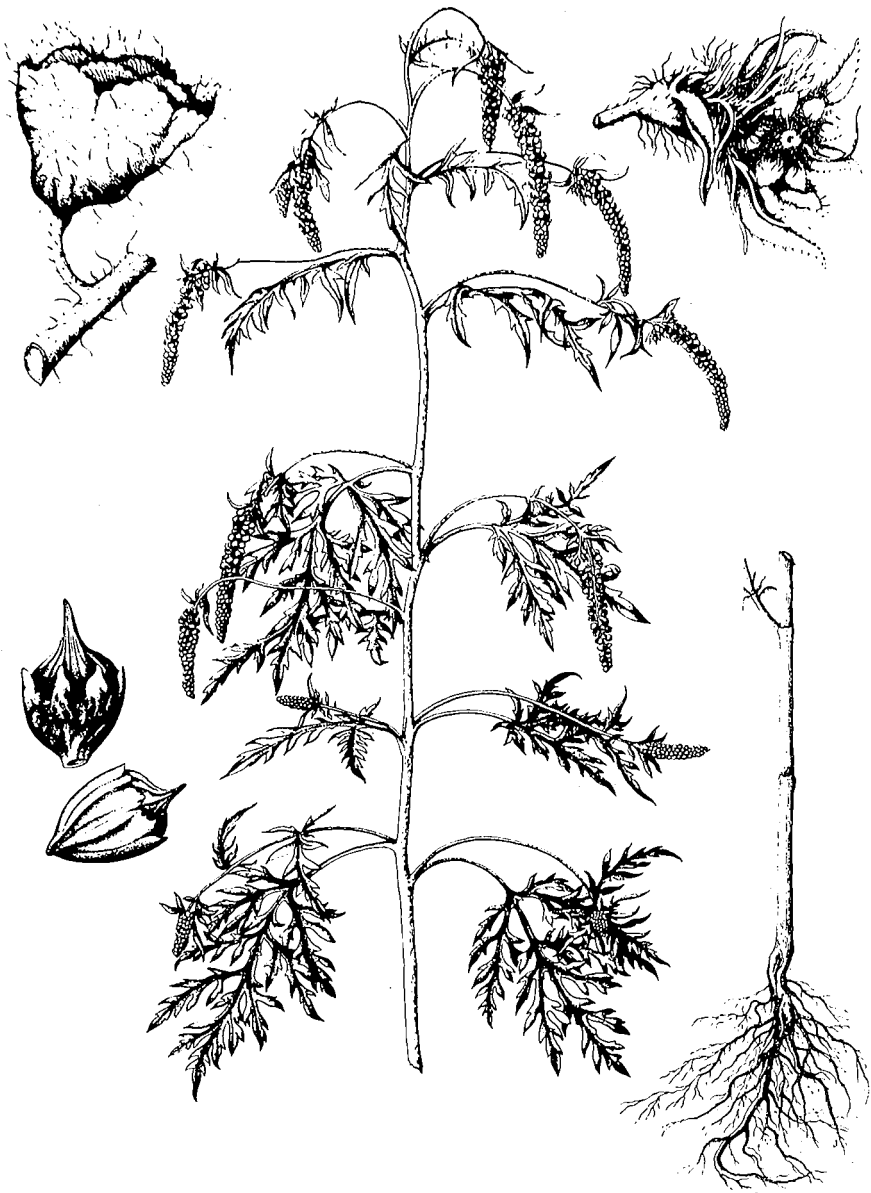
There are several causes of hayfever—and one major cause is plant pollen. In spring, pollens come primarily from trees; in summer, from grasses and plantains; and in autumn, from ragweeds, primarily from the common ragweed (*Ambrosia artemisiifolia*) and the giant ragweed, or kinghead, (*Ambrosia trifida*). Both species are native annuals. They grow principally in moist, waste places in the southern half of Minnesota.

Common ragweed grows from 1 to 3 feet tall, has mostly alternate leaves in the upper branches and opposite leaves in the lower parts of stems. The leaves are divided two or three times.

Because there are no ray flowers, it may appear that the plant is not in flower and so does not produce pollen. However, abundant pollen is produced on the petal-less flowers. The nut-like fruits are up to  $\frac{3}{8}$  inch long and have four to seven short stout spines plus a beak at one end.

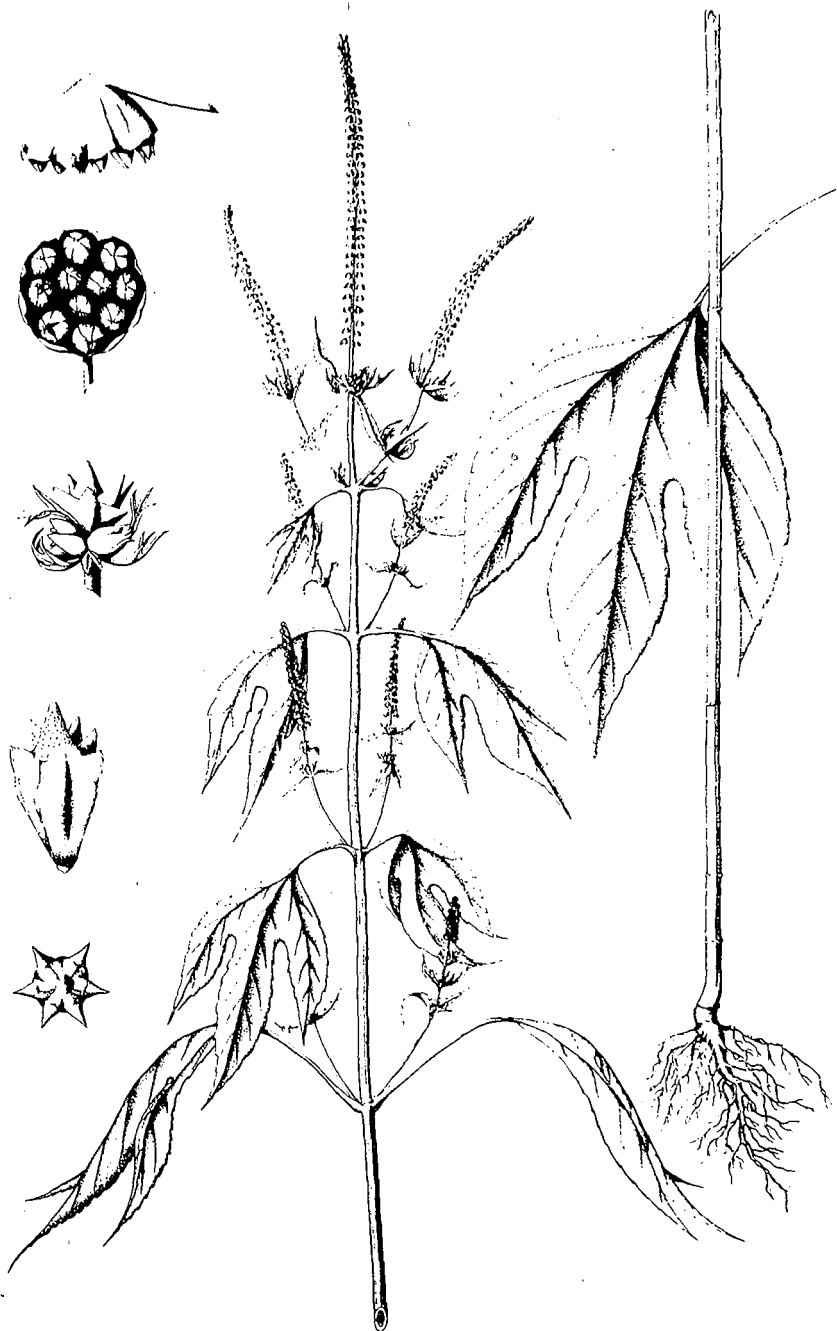
Giant ragweed is a robust weed commonly 6 feet and sometimes 15 feet tall. The leaves are all opposite and three parted, except for the topmost leaves.

Mow in midsummer to prevent production of pollen and seed. Spray with herbicides such as 2,4-D to kill both ragweeds.



Common Ragweed

A. J. KUBAN, W.P.A.



Giant Ragweed

## *See Your County Agent*

A FAMILIAR EXPRESSION heard on Minnesota farms is "see your county agent." Every county in Minnesota has a county agricultural agent. Many counties also have home and 4-H Club agents. Where there are no home or 4-H agents, the county agents conduct their programs.

THE COUNTY AGENT is part of a four-way partnership among the United States Department of Agriculture, the University of Minnesota, the county government, and farm people.

IT IS THE JOB of the county extension staff to bring to farmers and homemakers the latest information on farming and homemaking methods and to conduct 4-H Club work in the county.

LOCAL COMMITTEES, cooperating with the Director of the Minnesota Agricultural Extension Service, hire these agents and map out their programs.

MOST COUNTY AGENTS have their headquarters in the county courthouse. They are available to answer your questions and help solve your farming and homemaking problems.

THIS FOLDER is one of many published by the University of Minnesota Agricultural Extension Service as an additional service to bring up-to-date information to your attention. These Extension Service bulletins are distributed through your county agent or through the Bulletin Room, University of Minnesota, Institute of Agriculture, St. Paul 1, Minnesota.

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